

# **CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT LICKING, MUSKINGUM, AND PERRY COUNTIES, OHIO**

## **WETLAND DELINEATION AND STREAM ASSESSMENT REPORT**

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## **INTRODUCTION**

American Electric Power Ohio Transmission Company (AEP Ohio Transco) is proposing to rebuild the existing 138 kV line between Crooksville and North Newark Stations in Perry, Muskingum, and Licking Counties, Ohio (Project). The full rebuild will be approximately 32.4 miles in length. The proposed Project location is illustrated on Figure 1.

The purpose of the field survey was to assess the presence of wetlands and other “waters of the United States (WOTUS)” that occur along the proposed Project alignment. Secondly, land uses were also recorded to classify and characterize potential habitat for rare, threatened, and endangered species. This report will be used to assist AEP Ohio Transco’s efforts to identify potential waters of the U.S. and rare, threatened, and endangered species habitat potentially present along the proposed Project alignment to avoid or minimize impacts during construction activities.

### **1.0 METHODOLOGY**

The field survey was conducted over a 200-foot survey corridor consisting of a 100-foot buffer on each side of the proposed centerline, giving a Project survey corridor of approximately 782 acres. Prior to conducting field surveys, digital U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey data, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) National Hydrography Dataset (NHD), and USGS 7.5-minute topographic maps were reviewed as an exercise to identify the occurrence and location of potential wetland areas.

Field survey activities included recording the physical boundaries of observed water features using sub-meter capable EOS Arrow Global Positioning System (GPS) units in conjunction with ArcCollector application on iPad tablets. The GPS data was imported into ArcMap Geographic Information System (GIS) software, where the data was reviewed, edited for accuracy, and compiled in a format suitable for transfer and use by AEP Ohio Transco. Water features were delineated and assessed based upon the appropriate procedures detailed below. Land uses observed within the Project survey corridor were assigned a general classification based upon the principal land characteristics and vegetation cover of the location.

#### **1.1 WETLAND DELINEATION**

The Project survey corridor was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (*1987 Manual*) (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont Region (Version 2.0) (EMP Regional Supplement)* (USACE, 2012) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (MW Regional Supplement)* (USACE, 2010). The *1987 Manual* and *Regional Supplements* define wetlands as



areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics. The *EMP Regional Supplement* and *Mw Regional Supplement* were developed to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures.

During field survey activities AECOM utilized the routine on-site delineation method described in the *1987 Manual* and *Regional Supplements* that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

### **1.1.1 SOILS**

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (*Regional Supplements*). The presence of hydric soil indicators is positive evidence of the hydric soil parameter. Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 2010) was used to identify the hue, value, and chroma of the matrix and mottles of the soils which describes the soil profile. The completed soil profile was used to determine which, if any, hydric soil indicators were met as detailed in the appropriate *Regional Supplement*.

### **1.1.2 HYDROLOGY**

The *1987 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over five percent and 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The *Regional Supplements* state that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-inch depth) is 41-degree Fahrenheit (°F) or higher as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The *Regional Supplements* also state that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (5 of 10 years, or 50 percent probability of recurrence) date of the last and first 28°F air temperature in the spring and fall, respectively. The National Weather Service WETS data obtained from the NRCS National Water and Climate Center reveals for Perry County in an average year, this period lasts from April 20 to October 24, or 187 days. In Muskingum County, in an average year, this period lasts from April 16 to October 26, or 193 days. In Licking County, in an

average year, this period lasts from April 15 to October 24, or 192 days. In the Project area, five percent of the growing season equates to approximately nine to ten days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplements*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2010 and 2012).

### **1.1.3 VEGETATION**

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers *2018 National Wetland Plant List: Eastern Mountains and Piedmont Region and Midwest Region* ((U.S. Army Corps of Engineers, 2018), which encompasses the Project survey corridor. An area is determined to have a positive indicator for hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when 50 percent or more of the composition of the dominant species was FACU and/or UPL species. In lieu of the dominance test, the prevalence test can be used as an indicator of hydrophytic vegetation. Recent USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE, 2010 and 2012).

### **1.1.4 WETLAND CLASSIFICATIONS**

Wetlands identified in the field were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*, 1979). There are five main classes of wetlands and deepwater habitats, including: marine, estuarine, riverine, lacustrine, and palustrine. Marine and estuarine wetlands are not found in the interior of the U.S. while riverine wetlands are typically delineated as streams (when there is an absence of vegetation within the channel). Lacustrine systems typically include dammed river channels and non-vegetated open water exceeding 20 acres. Palustrine systems, which includes non-tidal wetlands dominated by trees, shrubs, or emergent vegetation, are the primary wetland types which may be identified within the Project survey corridor. The possible palustrine wetland classification types are as follows:

**PEM** – Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

**PFO** – Palustrine forested wetlands are characterized by woody vegetation that is three inches or more diameter at breast height (DBH), regardless of total height. These wetlands generally include an overstory of broad-leaved and needle-leaved trees, an understory of young saplings and shrubs, and an herbaceous layer.

**PSS** – Palustrine scrub/shrub wetlands are characterized by woody vegetation that is less than three inches DBH, and greater than 3.28 feet tall. The woody angiosperms (i.e., small trees or shrubs) in this broad-leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

**PUB** – Palustrine unconsolidated bottom wetlands includes all open water wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30 percent. Palustrine open water wetlands are characterized by the lack of large stable surfaces for plant and animal attachment.

For some wetlands, multiple Cowardin classifications may be present where more than one classification's vegetation is dominant (vegetation covers 30 percent or more of the substrate). Where multiple Cowardin classifications are present, the Cowardin classification of the plants that constitute the uppermost layer of vegetation having 30% or greater coverage is listed.

#### **1.1.5 OHIO RAPID ASSESSMENT METHOD v. 5.0**

The Ohio Environmental Protection Agency (OEPA) *Ohio Rapid Assessment Method for Wetlands v. 5.0* (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. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under the ORAM resulting in a score that describes the wetland 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". Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001).

**Category 1 Wetlands** – Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat for wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are

considered to be a resource that has been severely degraded or has a limited potential for restoration or is of low ecological functionality.

**Category 2 Wetlands** – support “moderate wildlife habitat, or hydrological or recreational functions,” and as wetlands which are “...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions.” Category 2 wetlands constitute the broad middle category of “good” quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past but have been degraded to Category 2 status.

**Category 3 Wetlands** – have “...superior habitat, or superior hydrological or recreational functions.” They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. A wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit “superior” hydrologic functions (e.g., flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

## 1.2 STREAM ASSESSMENT

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and “designated uses” to all waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Clean Water Act requires knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high-water mark (OHWM). The USACE defines OHWM as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (USACE, 2005).

Stream assessments were conducted using the methods described in the OEPA’s *Methods for Assessing Habitat in Flowing Waters: Using OEPA’s Qualitative Habitat Evaluation Index* (Rankin, 2006) and in the OEPA’s *Field Methods for Evaluating Primary Headwater Streams in Ohio* (OEPA, 2018). Streams assessed in the Project survey corridor were reviewed for existing OEPA Aquatic Life Use Designations per OEPA’s Water Quality Standards (OAC Chapter 3745-1). Those without an existing use designation were assigned a provisional aquatic life use designation based upon habitat assessment results (Rankin,

1989). Flow regime (ephemeral, intermittent, perennial) was determined by the appropriate stream assessment score per OEPA manuals (OEPA, 2018) and by AECOM's professional judgment.

### **1.2.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX**

The Qualitative Habitat Evaluation Index (QHEI) is designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and which are generally important to other aquatic life (e.g., macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive quantitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one square mile, those having natural pools greater than 40 cm in depth, or if the water feature is shown as blue-line waterway on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the public, the OEPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams ("H" are those with a watershed area less than or equal to 20 square miles) versus larger streams ("L" are those with a watershed area greater than 20 square miles). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L).

### **1.2.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX**

Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz, et al., 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The Headwater Habitat Evaluation Index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater (PHW) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use the HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 square mile, and a maximum depth of water pools equal to or less than 15.75 inches" (OEPA, 2018). Pool

depth and water volume of headwater streams are normally insufficient to fully support the biological criteria associated with other sub-categories of aquatic life described in OAC 3745-1-07.

Headwater streams are scored based on channel substrate composition, bankfull width, and maximum pool depth. Assessment results in a score (0 to 100) that is converted to a specific PHW stream classification. Streams that are scored from 0 to 29 are typically identified as "Ephemeral Aquatic Streams", 30 to 70 are "Small Drainage Warmwater Streams", and 71 to 100 are "Spring Water Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a biological assessment can be used to determine appropriate PHW stream type using the Level 2 or Level 3 PHW protocol (OEPA, 2018), which is outside the data quality objectives for this project. Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream classification.

***Ephemeral Streams:*** are those that have "have limited or no aquatic life potential, except seasonally when flowing water is present for short time periods following precipitation or snow melt" (OEPA, 2018). These waterways typically exhibit no significant habitat for aquatic fauna, no significant wildlife use, and limited or no potential to achieve higher PHW aquatic biological functions.

***Small Drainage Warmwater Streams:*** are equivalent to "warmwater habitat" streams and exhibit intermittent or perennial flow. This stream class has a "moderately diverse community of warm water adapted native fauna either present seasonally or year-round" (OEPA, 2018). The species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering and/or temperature facultative species.

***Spring Water Streams:*** have prevailing flow and temperature conditions influenced by groundwater, with diverse communities of cold water adapted native fauna present year-round. Spring Water streams may be further divided into two sub-types based upon a detailed and complete evaluation of the aquatic faunal community, though that level of assessment is outside the scope of the data quality objectives for the proposed project.

### 1.2.3 OEPA 401 WATER QUALITY CERTIFICATION FOR NATIONWIDE PERMIT ELIGIBILITY

The OEPA has designated each watershed in the state on the basis of whether it may be ***ineligible*** for coverage under Ohio EPA's 401 Water Quality Certification (WQC) for Nationwide Permits. Mapping provided by OEPA illustrate the eligibility of streams in the area for automatic 401 WQC in combination with a USACE Section 404 Nationwide Permit. Three categories are identified: eligible, ineligible, and possibly eligible with additional field screening required. Impacts to streams within each watershed would then have eligibility for 401 WQC determined by the watershed category. The three categories are defined as:

**Eligible:** Streams within the watershed are eligible for coverage under Ohio EPA's water quality certification for the nationwide permits if all other general and regional special terms and conditions are met.

**Ineligible:** Projects affecting high quality streams and undesignated streams draining directly to high quality streams, as represented in the map, must undergo an individual 401 Water Quality Certification review process.

**Possibly Eligible:** Additional field screening procedures are required for streams in the watershed to determine appropriate eligibility. Projects affecting undesignated streams within those HUC12 watersheds that do not directly but eventually drain into high quality waters, might be eligible for coverage under Ohio EPA's 401 Water Quality Certification for Nationwide Permits depending on the results of a field screening assessment. The procedures for determining individual stream eligibility in this scenario are specified in Appendix C "Stream Eligibility Determination Process" of the OEPA Ohio State WQC of the 2017 Nationwide Permit Reauthorization.

### **1.3 UPLAND DRAINAGE FEATURE**

An upland drainage feature (UDF) is a non-jurisdictional drainage that does not meet the criteria of either a jurisdictional stream or a wetland. A UDF generally lacks an OWHM (USACE, 2005), and are equivalent to a swale or an erosional feature as described by the USACE: "generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale" (USACE, 2007).

A roadside ditch may also be documented as a UDF if it meets the "not potentially jurisdictional" characterization as described in the Office of Environmental Services *Roadway Ditch Characterization Flowchart* (Ohio Department of Transportation, 2014). This would include a ditch that originates entirely within the roadway right-of-way, has a seasonal flow regime, was not constructed to drain a wetland, and does not have hydrophytic vegetation extending more than an insignificant amount beyond its original configuration.

In addition, UDF's (including swales, ditches, and other erosional features) are generally not "waters of the U.S." because they are not tributaries or display a significant nexus to TNWs. Even when UDF's are not considered "Waters of the U.S.", they may still contribute to a surface hydrologic connection between an adjacent wetland and a traditional navigable water and could be subjected to other Clean Water Act (CWA) regulations.



## **1.4 RARE, THREATENED, AND ENDANGERED SPECIES**

AECOM conducted a rare, threatened, and endangered species review and general field habitat surveys within the Project survey corridor. The first phase of the survey involved a review of online lists of federally and state-listed species. In addition to the review of available lists, AECOM submitted a request to Ohio Department of Natural Resources (ODNR) Office of Real Estate – Environmental Review Section as well as the United States Fish and Wildlife Service (USFWS) in October 2019 soliciting comments on the proposed Project. Agency-identified species of concern and available species-specific information was reviewed to identify the various habitat types that listed species are known to inhabit.

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys as part of the second phase of assessing rare, threatened, and endangered species. Land uses within the Project survey corridor were assigned a general classification based upon the principal land characteristics and vegetative cover as observed during the field surveys.

## **2.0 RESULTS**

In June, September and October 2020, AECOM ecologists walked the Project survey corridor to conduct the wetland delineation, stream assessment and habitat survey. Within the Project survey corridor, AECOM delineated 108 wetlands, 118 streams and 17 ponds. The delineated features are discussed in detail in the following sections.

### **2.1 WETLAND DELINEATION**

#### **2.1.1 PRELIMINARY SOILS EVALUATION**

Soils in delineated wetlands were observed and documented as part of the delineation methodology. According to the USDA/NRCS Web Soil Survey 46 soil series are mapped within the Project survey area, inclusive of 106 mapped soil units (USDA NRCS 2019a, 2019b and 2019c). Of these, 28 soil map units are identified as hydric, comprising approximately 19% of the mapped unit areas (USDA NRCS, 2019). Appendix G provides a detailed overview of all soil series and soil map units present within the Project survey corridor. Soil map units located in the Project survey corridor and vicinity are shown on Figure 2.

#### **2.1.2 NATIONAL WETLAND INVENTORY MAP REVIEW**

National Wetland Inventory wetlands are areas of potential wetland that have been identified from USFWS aerial photograph interpretation which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. In addition, small wetlands are typically not identified due to the scale of the aerial photography. The USFWS website states that the NWI maps are not intended or designed for jurisdictional wetland identification or location. As a result, NWI maps do



not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to NWI data covering the Project location, the Project survey corridor contains 77 mapped NWI wetlands. The locations of NWI mapped wetlands in the Project vicinity are shown on Figure 2. A summary of NWI-mapped wetlands occurring in the Project survey corridor and their associated field identified resources is presented in Table 1.

**TABLE 1-NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| NWI Code   | NWI Description                                                                           | Figure 2 | Related Field Inventoried Resource (Wetland ID/Stream ID) | Comments                                                                                   |
|------------|-------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------|
| PEM1A      | Palustrine, Emergent, Persistent, Temporary Flooded                                       | 2L       | Wetland 017                                               | Wetland extends outside study corridor                                                     |
| PEM1A      | Palustrine, Emergent, Persistent, Temporary Flooded                                       | 2W       | Wetland 045                                               | Wetland extends outside study corridor                                                     |
| PEM1A      | Palustrine, Emergent, Persistent, Temporary Flooded                                       | 2AD, 2AE | Wetland 061                                               | Sample point Upland 064 indicates majority of NWI-mapped wetland is upland                 |
| PEM1A      | Palustrine, Emergent, Persistent, Temporary Flooded                                       | 2AX      | Wetland 083a                                              | Wetland extends outside study corridor                                                     |
| PEM1A      | Palustrine, Emergent, Persistent, Temporary Flooded                                       | 2BK      | No inventoried resources noted                            | Aerial mapping and nearby sample point Upland 098 documented agricultural field            |
| PEM1A      | Palustrine, Emergent, Persistent, Temporary Flooded                                       | 2BK      | No inventoried resources noted                            | Aerial mapping and nearby sample point Upland 098 documented agricultural field            |
| PEM1C      | Palustrine, Emergent, Persistent, Seasonally Flooded                                      | 2AX      | Wetland 083a, Wetland 083b, Wetland 084 and Stream 094    | Wetlands extend outside study area                                                         |
| PFO1A      | Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded                           | 2AK      | No inventoried resources noted                            | Adjacent to Wetland 069, sample point Upland 072 documented upland conditions              |
| PFO1A      | Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded                           | 2BW      | No inventoried resources noted                            | Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor |
| PFO1A      | Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded                           | 2BW      | No inventoried resources noted                            | Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor |
| PFO1A      | Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded                           | 2BW, 2BX | No inventoried resources noted                            | Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor |
| PFO1A      | Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded                           | 2BV, 2BW | No inventoried resources noted                            | Sample point Upland 106 indicates upland conditions                                        |
| PSS1/E M1C | Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Emergent, Persistent, Seasonally Flooded | 2B, 2C   | Wetland 009abc                                            | Wetland extends outside study corridor                                                     |
| PSS1C      | Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded                       | 2AD      | Wetland 060                                               | Wetland extends outside study corridor                                                     |

**TABLE 1-NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| NWI Code | NWI Description                                                            | Figure 2 | Related Field Inventoried Resource (Wetland ID/Stream ID) | Comments                                                                                   |
|----------|----------------------------------------------------------------------------|----------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------|
| PUBF     | Palustrine, Unconsolidated Bottom, Semipermanently Flooded                 | 2G       | Pond 01                                                   | Pond extends outside study corridor                                                        |
| PUBF     | Palustrine, Unconsolidated Bottom, Semipermanently Flooded                 | 2K       | Wetland 015                                               | Wetland extends outside study corridor                                                     |
| PUBFx    | Palustrine, Unconsolidated Bottom, Semipermanently Flooded, Excavated      | 2AS, 2AT | Pond 12                                                   | Entire pond boundary delineated within survey corridor                                     |
| PUBGh    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Diked/Impounded | 2O       | Pond 08                                                   | Pond extends outside study corridor                                                        |
| PUBGh    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Diked/Impounded | 2AW, 2AX | Pond 14                                                   | Pond extends outside study corridor                                                        |
| PUBGh    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Diked/Impounded | 2BS      | Pond 16                                                   | Pond extends outside study corridor                                                        |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2I       | No inventoried resources noted                            | Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2J       | No inventoried resources noted                            | No pond conditions noted within active hay field/pasture                                   |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2J       | Pond 04                                                   | Pond extends outside study corridor                                                        |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2J       | Pond 04                                                   | Pond extends outside study corridor                                                        |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2J       | Pond 05                                                   | Pond extends outside study corridor                                                        |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2J       | No inventoried resources noted                            | Obvious pond boundaries on aerial do not intersect this portion of survey corridor         |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2T       | Pond 10 and Wetland 034b                                  | Pond extends outside study corridor                                                        |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2AS      | Pond 11                                                   | Pond extends outside study corridor                                                        |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2BW, 2BX | Wetland 106ab                                             | Wetland extends outside study corridor                                                     |
| PUBGx    | Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated       | 2BW, 2BX | Pond 17                                                   | Pond extends outside study corridor                                                        |
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded      | 2A       | Stream 001 (Moxahala Creek)                               | Stream extends outside survey corridor                                                     |
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded      | 2B       | Stream 001 (Moxahala Creek)                               | Stream extends outside survey corridor                                                     |
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded      | 2C       | Stream 001 (Moxahala Creek)                               | Stream extends outside survey corridor                                                     |
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded      | 2W, 2X   | Stream 046 (Turkey Run)                                   | Stream extends outside survey corridor                                                     |

**TABLE 1-NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| NWI Code | NWI Description                                                         | Figure 2 | Related Field Inventoried Resource (Wetland ID/Stream ID) | Comments                                                                         |
|----------|-------------------------------------------------------------------------|----------|-----------------------------------------------------------|----------------------------------------------------------------------------------|
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded   | 2AD      | Stream 056 (Jonathan Creek)                               | Stream extends outside survey corridor                                           |
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded   | 2BJ      | Stream 108 (Licking River)                                | Stream extends outside survey corridor                                           |
| R2UBH    | Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded   | 2BW, 2BX | Stream 117 (North Fork Licking River)                     | Stream extends outside survey corridor                                           |
| R3UBH    | Riverine, Upper Perennial, Unconsolidated bottom, Permanently flooded   | 2BD      | Stream 101 (Claylick Creek)                               | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2D       | Stream 005 (Snake Run)                                    | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2E, 2F   | Stream 007                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2I       | Stream 013                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2L       | Wetland 017                                               | Wetland extends outside survey corridor                                          |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2M       | Stream 018                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2R       | Stream 032                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2Z, 2AA  | Stream 050                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2AH, 2AI | Stream 064                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2AM, 2AN | Stream 074                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2AT      | Stream 082 (Wise Run)                                     | Stream extends outside survey corridor, mapped in field slightly off NWI mapping |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2AU      | Stream 085 (Claylick Creek) and Wetland 079               | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2AW      | Stream 090 and Stream 091 (Claylick Creek)                | Confluence of 2 streams mapped as one, streams extend outside survey corridor    |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2AY      | Stream 095 and Wetland 087                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BA, 2BB | Stream 098 and Wetland 089                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BB      | Stream 099                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BG      | Stream 105 and Wetland 095                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BI      | Stream 106                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BT      | Stream 114                                                | Stream extends outside survey corridor                                           |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BR      | No inventoried resources noted                            | Fully vegetated upland drainage feature present                                  |
| R4SBC    | Riverine, Intermittent, Streambed, Seasonally Flooded                   | 2BW, 2BV | No inventoried resources noted                            | Within residential yard, maintained lawn                                         |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2A       | Stream 001 (Moxahala Creek)                               | Stream extends outside survey corridor                                           |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2A       | Stream 001 (Moxahala Creek)                               | Stream extends outside survey corridor                                           |

**TABLE 1-NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| NWI Code | NWI Description                                                         | Figure 2 | Related Field Inventoried Resource (Wetland ID/Stream ID) | Comments                                                                                                 |
|----------|-------------------------------------------------------------------------|----------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2F, 2G   | Stream 008 (Burley Run)                                   | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2L       | Stream 016 (Buckeye Fork)                                 | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2O       | Stream 023 (Butcherknife Creek)                           | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2P, 2Q   | Stream 027 and Stream 028                                 | Streams extend outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2U       | Stream 042, Wetland 040                                   | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2U       | No inventoried resources noted                            | Field delineated stream boundaries do not intersect survey corridor                                      |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2Y       | Stream 049                                                | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2AK      | Stream 071 (Valley Run)                                   | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2AN      | Wetland 074a                                              | mapped NWI/NHD Wise Run was field delineated to the northeast                                            |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2AN      | Wetland 074b                                              | Wetland extends outside survey corridor; mapped NWI/NHD Wise Run is field delineated to the northeast    |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2AW      | Stream 090 (Claylick Creek)                               | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2AX      | Wetland 085                                               | Wetland extends outside survey corridor; mapped NWI/NHD Claylick Creek was field delineated to the south |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2BF      | Stream 104 (Equality Run)                                 | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2BL      | Stream 109 (Shawnee Run)                                  | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2BO      | Stream 110                                                | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2BO      | Stream 110                                                | Stream extends outside survey corridor                                                                   |
| R5UBH    | Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded | 2BQ      | Pond 15                                                   | Pond extends outside survey corridor                                                                     |

### **2.1.3 DELINEATED WETLANDS**

During the field survey, AECOM identified 108 wetlands within the Project survey area. Delineated wetlands included:

- 78 palustrine emergent (PEM),
- 6 palustrine forested (PFO),
- 10 palustrine scrub-shrub (PSS),
- 7 palustrine emergent/forested (PEM/FO),
- 5 palustrine emergent/scrub-shrub (PEM/SS),
- 1 palustrine emergent/scrub-shrub/forested (PEM/SS/FO)
- 1 palustrine emergent/unconsolidated bottom (PEM/PUB)

AECOM has preliminarily determined that wetlands within the Project corridor adjacent to or abutting an intermittent or perennial stream (88 wetlands) appear to be jurisdictional (non-isolated, i.e., WOTUS), based on the 2020 Navigable Waters Rule. Wetlands adjacent to or abutting an ephemeral stream or having no identifiable downstream connection to an intermittent or perennial stream (20 wetlands) are deemed be isolated (not WOTUS) in accordance with the 2020 Navigable Waters Rule. Delineated wetlands classified as “not WOTUS” (i.e., isolated) fall under the purview of OEPA. Final jurisdictional status can only be determined by the USACE and AECOM assessments are provisional. The locations and approximate extent of the wetlands identified within the Project survey corridor are shown on Figure 3. Details for each delineated wetland in the survey corridor are provided in the Project Wetland Table in Appendix A. Completed USACE and ORAM wetland delineation forms and photographs of the wetlands are provided in Appendix B.

### **2.1.4 DELINEATED WETLANDS ASSESSMENT**

Within the Project survey area, the 108 delineated wetlands were assessed as follows:

- 50 Category 1,
- 47 Modified Category 2 and
- 11 Category 2

Individual wetland assessment results (ORAM score) are provided in the Project Wetland Table in Appendix A, and a summary of wetlands by assessment category and component type is provided in Table 2. Wetland assessment ORAM forms are provided in Appendix B.

#### ***Category 1 Wetlands***

Fifty (50) Category 1 wetlands were delineated within the Project survey corridor having a combined total area of 9.69 acres. The 50 wetlands included:

- 44 PEM,
- 4 PSS,
- 1 PFO, and
- 1 PEM/SS.

***Modified Category 12 Wetlands***

Forty-seven (47) Modified Category 2 wetlands were delineated within the Project survey corridor having a combined total area of 7.45 acres. The 47 wetlands included:

- 29 PEM,
- 5 PSS,
- 4 PFO,
- 3 PEM/PSS.
- 5 PEM/PFO, and
- 1 PEM/PSS/PFO

***Category 2 Wetlands***

Eleven (11) Category 2 wetlands were delineated within the Project survey corridor having a combined total area of 3.76 acres. The 11 wetlands included:

- 5 PEM,
- 1 PSS
- 1 PFO
- 1 PEM/PSS
- 2 PEM/PFO and
- 1 PEM/PUB

***Category 3 Wetlands***

No Category 3 wetlands were identified within the Project survey corridor.

**TABLE 2: SUMMARY OF DELINEATED WETLANDS WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| Cowardin Wetland Type <sup>a</sup> | ORAM Category 1 | ORAM Modified Category 2 | ORAM Category 2 | ORAM Category 3 | Number of Wetlands | Acreage within Project Survey corridor |
|------------------------------------|-----------------|--------------------------|-----------------|-----------------|--------------------|----------------------------------------|
| PEM                                | 44              | 29                       | 5               | 0               | 78                 | 12.57                                  |
| PSS                                | 4               | 5                        | 1               | 0               | 10                 | 2.46                                   |
| PFO                                | 1               | 4                        | 1               | 0               | 6                  | 0.93                                   |
| PEM/PSS                            | 1               | 3                        | 1               | 0               | 5                  | 1.40                                   |
| PEM/PFO                            | 0               | 5                        | 2               | 0               | 7                  | 1.38                                   |
| PEM/PUB                            | 0               | 0                        | 1               | 0               | 1                  | 0.78                                   |
| PEM/PSS/PFO                        | 0               | 1                        | 0               | 0               | 1                  | 1.37                                   |
| <b>Total</b>                       | <b>50</b>       | <b>47</b>                | <b>11</b>       | <b>0</b>        | <b>108</b>         | <b>20.89</b>                           |

Cowardin Wetland Type<sup>a</sup> : PEM = palustrine emergent, PSS= palustrine shrub/scrub, PFO = palustrine forested, PUB = palustrine unconsolidated bottom

## 2.2 STREAM DELINEATION

During the field survey, AECOM delineated 118 streams within the Project survey corridor. QHEI evaluations were conducted on four (4) streams and 99 HHEI evaluations were conducted on 98 streams, including one stream (Stream 33ab) which was assessed as two reaches through the HHEI evaluation due to a change in flow regime within the Project survey corridor. Additionally, sixteen (16) delineated streams have an existing OEPA Aquatic Life Use Designation (OAC-3745-24), which overrules any provisional classification based upon field habitat assessment results.

AECOM has preliminarily determined that the delineated streams assessed with a flow regime of intermittent (75 streams) and perennial (17 streams) within the Project corridor appear to be jurisdictional (i.e., WOTUS), based on the 2020 Navigable Waters Rule. Streams assessed with an ephemeral flow regime (27 streams) as based on the OEPA HHEI flow chart are deemed not to be WOTUS in accordance with the 2020 Navigable Waters Rule. Streams classified as ephemeral now fall under the purview of OEPA. Final jurisdictional status can only be determined by the USACE and AECOM assessments are provisional. A summary of the delineated features is provided in the Project Stream Table in Appendix C. Stream data forms and photographs of each delineated stream resource are provided in Appendix D.

### 2.2.1 STREAMS WITH EXISTING OEPA AQUATIC LIFE USE DESIGNATION

Sixteen (16) delineated streams have an existing OEPA Aquatic Life Use Designation (OAC-3745-24), which totaled approximately 4,926 linear feet within the Project survey corridor. Although this report will rely



on the OEPA Aquatic Life Use Designation designations for these 16 streams, QHEI and HHEI assessments were still completed for these streams for reference purposes and are provided in Appendix D.

***Warmwater Habitat (Existing Aquatic Life Use Designation)*** – Six delineated streams (Stream 046-Turkey Run, Stream 056-Jonathan Run, Stream 104-Equality Run, Stream 108-Licking River, Stream 109-Shawnee Run and Stream 117-North Fork Licking River) totaling approximately 1,366 linear feet, have an OEPA existing Aquatic Life Use designation of Warmwater Habitat.

***Exceptional Warmwater Habitat Streams (Existing Aquatic Life Use Designation)*** – Five delineated streams have an OEPA existing Aquatic Life Use designation of Exceptional Warmwater Habitat (Stream 71-Valley Run and Streams 085, 090, 094 and 101-each representing separate sections of Claylick Creek) totaling 1,821 linear feet within the Project survey corridor.

***Limited Resource Waters (Existing Aquatic Life Use Designation)*** – Five delineated streams have an OEPA existing Aquatic Life Use designation of Limited Resource Water (Stream 001-Moxahala Creek, Stream 005-Snake Run, Stream 008-Burley Run, Stream 016-Buckeye Fork, and Stream 023-Bucherknife Creek), all listed as due to acid mine drainage and totaling 1,739 linear feet within the Project survey corridor.

## **2.2.2 QUALITATIVE HABITAT EVALUATION INDEX**

Four (4) streams within the Project survey corridor were assessed using the QHEI methodology. These streams received a provisional aquatic life use designation of Warmwater Habitat, having QHEI scores greater than 43 with warmwater habitat attainment likely. Streams assessed with the QHEI totaled 2,786 linear feet within the Project survey corridor.

***Warmwater Habitat Streams*** – Four delineated streams achieved provisional Warmwater Habitat aquatic life use designation based upon habitat assessment with an associated narrative rating. This includes:

***Fair*** – One stream (Stream 007), totaling 203 linear feet, received a QHEI score of 44.

***Good*** – Three streams (Stream 027, Stream 042, and Stream 076), totaling 2,583 linear feet, received QHEI scores of 61, 70, and 57, respectively.

## **2.2.3 PRIMARY HEADWATER HABITAT EVALUATION INDEX**

Ninety-nine HHEI assessments were conducted on 98 headwater streams, totaling approximately 19,690 linear feet, within the Project survey corridor. One stream (Stream 33ab) was assessed as two reaches through the HHEI evaluation due to a change in flow regime within the Project survey corridor. The 99 assessed streams were provided a provisional headwater habitat classification. This includes:



- 15 Ephemeral Streams,
- 12 Modified Ephemeral Aquatic Streams,
- 42 Small Drainage Warmwater Streams,
- 27 Modified Small Drainage Warmwater Streams and
- 3 Spring Water.

Completed stream data forms and photographs of each delineated stream are provided in Appendix D.

**Ephemeral Streams** – Fifteen Ephemeral Streams, totaling approximately 1,993 linear feet, were delineated during field investigations. These streams had HHEI scores ranging from 13 to 29 and were assigned an ephemeral flow regime based on the OEPA HHEI Flow Chart.

**Modified Ephemeral Streams** – Twelve Modified Ephemeral Streams, totaling approximately 2,397 linear feet, were delineated during field investigations. These streams had HHEI scores ranging from 13 to 29 with a modified channel and were assigned an ephemeral flow regime based on the OEPA HHEI Flow Chart.

**Small Drainage Warmwater Streams** – Forty-two Small Drainage Warmwater streams, totaling approximately 8,636 linear feet, were delineated during field investigations. These streams had HHEI scores ranging from 30 to 66 and all were assigned an intermittent flow regime based on the OEPA HHEI Flow Chart and field observation.

**Modified Small Drainage Warmwater Streams** – Twenty-seven Modified Small Drainage Warmwater streams, totaling approximately 6,153 linear feet, were delineated during field investigations. These streams had HHEI scores ranging from 31 to 70 with a modified channel and all were assigned an intermittent flow regime based on the OEPA HHEI Flow Chart and field observation.

**Spring Water Streams** – Three Spring Water streams, totaling approximately 781 linear feet, with scores ranging from 72 (Stream 048) to 87 (Stream 032) were identified during the field investigations. These streams were determined to have intermittent flow. Substrates consisted primarily of bedrock, gravel, boulder slabs, and cobble with some amounts of boulder, sand, silt, and leaf pack/woody debris. The maximum pool depths ranged from 5.5 to 10 inches, and average bankfull widths were 4.6 to 5.9 feet.

**TABLE 3- SUMMARY OF DELINEATED STREAM WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| Stream Classification | Number of Stream Assessments | Length (linear feet) within Project Survey corridor |
|-----------------------|------------------------------|-----------------------------------------------------|
| Ephemeral Stream*     | 15                           | 1,993                                               |

**TABLE 3- SUMMARY OF DELINEATED STREAM WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| Stream Classification                     | Number of Stream Assessments | Length (linear feet) within Project Survey corridor |
|-------------------------------------------|------------------------------|-----------------------------------------------------|
| Modified Ephemeral Stream*                | 12                           | 2,397                                               |
| Small Drainage Warmwater Stream*          | 42                           | 8,636                                               |
| Modified Small Drainage Warmwater Stream* | 27                           | 6,153                                               |
| Spring Water*                             | 3                            | 781                                                 |
| Warmwater Habitat – Fair*                 | 1                            | 203                                                 |
| Warmwater Habitat – Good*                 | 3                            | 2,583                                               |
| Warmwater Habitat                         | 6                            | 1,366                                               |
| Exceptional Warmwater Habitat             | 5                            | 1,821                                               |
| Limited Resource Water                    | 5                            | 1,739                                               |
| <b>Total</b>                              | <b>119</b>                   | <b>27,672</b>                                       |

\* = Provisional classification based on habitat assessment.

#### 2.2.4 OEPA STREAM ELIGIBILITY

OEPA stream eligibility for 401 Water Quality Certification mapping was reviewed for all of the field delineated streams. The Project occurs across eight watersheds encompassing nine sub-watersheds designated by 401 WQC eligibility, as listed in Table 4. Two sub-watersheds are designated as Ineligible, three are Possibly Eligible, and four are Eligible. OEPA stream eligibility mapping for the Project vicinity, with field delineated streams, is provided on Figure 4.

**TABLE 4- SUMMARY OF WATERSHED 401 WQC ELIGIBILITY WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| HUC-12      | Watershed                             | 401 WQC Eligibility | Number of Stream Assessments |
|-------------|---------------------------------------|---------------------|------------------------------|
| 50400060205 | Log Pond Run-North Fork Licking River | Eligible            | 5                            |
| 50400060501 | Claylick Creek                        | Ineligible          | 19                           |
| 50400060504 | Bowling Green Run-Licking River       | Possibly Eligible   | 11                           |
| 50400040401 | Valley Run                            | Ineligible          | 12                           |
|             |                                       | Possibly Eligible   | 8                            |
| 50400040403 | Turkey Run                            | Eligible            | 10                           |
| 50400040404 | Buckeye Fork                          | Eligible            | 26                           |
| 50400040407 | Painter Creek-Jonathon Creek          | Possibly Eligible   | 14                           |

**TABLE 4- SUMMARY OF WATERSHED 401 WQC ELIGIBILITY WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| HUC-12       | Watershed             | 401 WQC Eligibility | Number of Stream Assessments |
|--------------|-----------------------|---------------------|------------------------------|
| 50400040503  | Middle Moxahala Creek | Eligible            | 14                           |
| <b>Total</b> |                       |                     | <b>119</b>                   |

### 2.3 PONDS

Seventeen ponds, encompassing approximately 4.66 acres, were observed within the Project survey corridor. The ponds exhibit existing uses of mining remnant, agricultural, recreational and stormwater. One pond (Pond 15) may be considered a WOTUS as it is an impounded stream having an existing OEPA Aquatic Life Use designation of Warmwater Habitat. The remaining sixteen ponds are not likely to be considered WOTUS based upon the 2020 Navigable Waters Rule. Ten of the ponds correlate to NWI-mapped Freshwater Pond (PUBF, PUBFx, PUBGh and PUBGx) features and one (Pond 15) correlates to an NWI-mapped Riverine (R5UBH) feature. The locations of ponds are shown in Figure 3.

### 2.4 VEGETATIVE COMMUNITIES WITHIN THE PROJECT SURVEY CORRIDOR

AECOM ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys during June, September and October 2020. A variety of woody and herbaceous lands, as described below in Table 5, are present within the Project survey corridor. Portions also include old field, scrub-shrub, agricultural land, pasture/hay fields, young to mature woodland forests, residential landscaped areas, stream/wetland areas, and urban areas. Habitat descriptions applicable to the Project as well as details on the expected impacts of construction are provided below. Vegetated land cover can be seen visually from aerial photography provided on Figure 5.

**Table 5- VEGETATIVE COMMUNITIES WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| Vegetative Community | Description                                                                                                                                                                                                                                   | Approximate Acreage Within the Project Survey Corridor | Approximate Percentage Within the Project Survey Corridor |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
| Agricultural         | Agricultural lands being utilized for row-crop production and associated activities, typically devoid of vegetation outside of the target crop and opportunistic/invasive species.                                                            | 128.1                                                  | 16%                                                       |
| Landscaped Areas     | Landscaped areas, including residential properties and commercial properties, were observed within the Project vicinity. These landscaped areas within the Project survey corridor and adjacent areas are frequently mowed grasses and forbs. | 69.2                                                   | 9%                                                        |

**Table 5- VEGETATIVE COMMUNITIES WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR**

| Vegetative Community            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Approximate Acreage Within the Project Survey Corridor | Approximate Percentage Within the Project Survey Corridor |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
| Old Field                       | Herbaceous cover exists alongside roads, field borders, and abandoned fields within the survey corridor of the Project in the form of successional old-field communities. These communities are the earliest stages of recolonization by plants following disturbance. This community type is typically short-lived, giving way progressively to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. The old-field areas within the study corridors and adjacent areas are infrequently mowed areas of grasses, forbs, and occasional shrubs.                                                                         | 207.3                                                  | 27%                                                       |
| Pasture/Hay Fields              | Cattle and/or horse pasture, and hay fields were observed in various portions of the Project corridor. These areas within the corridor and in adjacent areas consist of seasonally mowed and grazed areas of grass and forbs.                                                                                                                                                                                                                                                                                                                                                                                                                                             | 142.3                                                  | 18%                                                       |
| Scrub-Shrub                     | Scrub-shrub habitats represent the successional stage between old-field and second growth forest, and often emerge in recently harvested forests responding to the lightness of the remaining canopy. Dominant species consist of herbaceous communities similar to that of old field habitat with a few woody species, to a community dominated by forest herbs and woody species.                                                                                                                                                                                                                                                                                       | 64.2                                                   | 8%                                                        |
| Streams/Wetlands                | Streams and wetlands were observed both within and beyond the survey corridor for the Project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 63.4                                                   | 8%                                                        |
| Successional Hardwood Woodlands | Successional mixed hardwood woodlands are present along the Project survey corridor. Woody species dominating these areas included American sycamore ( <i>Platanus occidentalis</i> ), American elm ( <i>Ulmus americana</i> ), green ash ( <i>Fraxinus pennsylvanica</i> ), swamp white oak ( <i>Quercus bicolor</i> ), pin oak ( <i>Quercus palustris</i> ), red oak ( <i>Quercus rubra</i> ), black cherry ( <i>Prunus serotina</i> ), and shagbark hickory ( <i>Carya ovata</i> ). The dominant shrub-layer species included Morrow's honeysuckle ( <i>Lonicera morrowii</i> ), silky dogwood ( <i>Cornus amomum</i> ), and blackberry ( <i>Rubus occidentalis</i> ). | 78.1                                                   | 10%                                                       |
| Urban                           | Urban areas are areas developed with residential and commercial land uses, including roads, buildings and parking lots. These areas are generally devoid of significant woody and herbaceous vegetation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 29.2                                                   | 4%                                                        |
| <b>Totals:</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>781.8</b>                                           | <b>100%</b>                                               |

## 2.5 RARE, THREATENED AND ENDANGERED SPECIES AGENCY COORDINATION

### *Protected Species Agency Consultation –*

AECOM conducted a rare, threatened, and endangered species review for areas within the Project survey corridor. A summary of the agency coordination is provided below. Correspondence letters from the USFWS and ODNR for the 32.2-mile Crooksville-North Newark 138 kV transmission line are included as Appendix E. Table 6 provides a list of these species of concern identified in the Project area during the rare, threatened, and endangered species review.

**Table 6- ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA**

| Common Name<br>(Scientific Name)         | State Status | Federal Status | Habitat Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Potential<br>Habitat<br>Observed in<br>the Project<br>Survey<br>corridor                                               | Potential Impacts<br>and Avoidance<br>Dates                                                                                                                                                                       | Agency Comments                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------|--------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mammals</b>                           |              |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                        |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                            |
| Indiana bat<br>( <i>Myotis sodalis</i> ) | Endangered   | Endangered     | Winter Indiana bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory ( <i>Carya</i> spp.), oak ( <i>Quercus</i> spp.), ash ( <i>Fraxinus</i> spp.), birch ( <i>Betula</i> spp.), and elm ( <i>Ulmus</i> spp.) have been found to be utilized by the Indiana bat. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low-density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is important to the suitability of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, allows maneuvering while catching insect prey. | Yes- Within the Project survey corridor, wooded areas were identified which appear to be potentially suitable habitat. | Some potentially suitable habitat is present within the Project area (woodlands). If tree removal is unavoidable, it is recommended that any cutting of trees ≥3 inches DBH occur between October 1 and March 31. | ODNR-DOW commented If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If trees must be cut, the DOW recommends cutting occur between October 1 and March 31. USFWS commented that if no caves or abandoned mines are present and tree removal is unavoidable, it is recommended that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. |

**Table 6- ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA**

| Common Name<br>(Scientific Name)                             | State Status | Federal Status | Habitat Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Potential<br>Habitat<br>Observed in<br>the Project<br>Survey<br>corridor                                                                  | Potential Impacts<br>and Avoidance<br>Dates                                                                                                                                                                       | Agency Comments                                                                                                                                                                                                                            |
|--------------------------------------------------------------|--------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Northern long-eared bat<br>( <i>Myotis septentrionalis</i> ) | Threatened   | Threatened     | Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, northern long-eared bats hibernate in caves and abandoned mines. | Yes- Within the Project survey corridor, wooded areas were identified which appear to be potentially suitable habitat.                    | Some potentially suitable habitat is present within the Project area (woodlands). If tree removal is unavoidable, it is recommended that any cutting of trees ≥3 inches DBH occur between October 1 and March 31. | USFWS commented that if no caves or abandoned mines are present and tree removal is unavoidable, it is recommended that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. ODNR did not comment on this species |
| <b>Fish</b>                                                  |              |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                           |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                            |
| Northern madtom<br>( <i>Noturus stigmosus</i> )              | Endangered   | None           | Typical habitat includes large creeks and small rivers with clear to turbid water and moderate current; this madtom avoids extremely silty situations; it occurs in areas with little cover other than tree limbs and debris with shifting sand and mud bottom and in streams with swift rocky riffles. Eggs are laid under flat stones (or sometimes in cans with large openings) in current.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Yes- Within the Project survey corridor, several perennial streams/rivers were identified which appear to be potentially suitable habitat | No in-water work is planned as part of the Project. No impacts to fish species and their habitat are anticipated.                                                                                                 | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                                                                |

**Table 6- ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA**

| Common Name<br>(Scientific Name)                 | State Status | Federal Status | Habitat Description                                                                                                                                                                                                                            | Potential Habitat Observed in the Project Survey corridor                                                                                 | Potential Impacts and Avoidance Dates                                                                            | Agency Comments                                                                                                                                             |
|--------------------------------------------------|--------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Channel darter<br>( <i>Percina copelandi</i> )   | Threatened   | None           | Habitat includes warm, low and moderate gradient rivers and large creeks in areas of moderate current, this darter usually is found over sand and gravel substrates; it prefers clear water and silt-free bottoms.                             | Yes- Within the Project survey corridor, several perennial streams/rivers were identified which appear to be potentially suitable habitat | No in-water work is planned as part of the Project. No impacts to fish species and their habitat are anticipated | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| Mountain madtom<br>( <i>Noturus eleutherus</i> ) | Threatened   | None           | Small to large rivers, in fast flowing, clear water sections over sand, gravel, and rubble, often near vegetation. Under rocks, in crevices, or under other cover by day. May move into moderate flow areas to spawn; eggs are laid under rock | Yes- Within the Project survey corridor, several perennial streams/rivers were identified which appear to be potentially suitable habitat | No in-water work is planned as part of the Project. No impacts to fish species and their habitat are anticipated | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| Paddlefish<br>( <i>Polyodon spathula</i> )       | Threatened   | None           | Habitat includes slow-flowing water of large and medium-sized rivers, river-margin lakes, channels, oxbows, backwaters, impoundments with access to spawning areas.                                                                            | Yes- Within the Project survey corridor, several perennial streams/rivers were identified which appear to be potentially suitable habitat | No in-water work is planned as part of the Project. No impacts to fish species and their habitat are anticipated | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| <b>Amphibians</b>                                |              |                |                                                                                                                                                                                                                                                |                                                                                                                                           |                                                                                                                  |                                                                                                                                                             |



**Table 6- ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA**

| Common Name<br>(Scientific Name)                                            | State Status | Federal Status     | Habitat Description                                                                                                                                                                                                                                                                                | Potential Habitat Observed in the Project Survey corridor                                                                                  | Potential Impacts and Avoidance Dates                                                                                                                          | Agency Comments                                                                                                                                                                            |
|-----------------------------------------------------------------------------|--------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eastern hellbender<br>( <i>Cryptobranchus alleganiensis alleganiensis</i> ) | Endangered   | Species of Concern | This long-lived, entirely aquatic salamander inhabits perennial streams with large flat rocks.                                                                                                                                                                                                     | Yes- Within the Project survey corridor, several perennial streams/ rivers were identified which appear to be potentially suitable habitat | No in-water work is planned as part of the Project. No impacts to eastern hellbenders and their habitat are anticipated.                                       | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                |
| Eastern spadefoot toad<br>( <i>Scaphiopus holbrookii</i> )                  | Endangered   | None               | Sandy soils associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions.                                                                                                                                                           | No – Within the Project survey corridor, suitable habitat was not observed for this species.                                               | Potentially suitable habitat for this species was not observed within the Project survey corridor. No impacts to this species and its habitat are anticipated. | ODNR stated that due to the location, and the type of habitat present and the project site and within the vicinity of the project area, this project is not likely to impact this species. |
| <b>Mussels</b>                                                              |              |                    |                                                                                                                                                                                                                                                                                                    |                                                                                                                                            |                                                                                                                                                                |                                                                                                                                                                                            |
| Sheepnose<br>( <i>Plethobasus cyphus</i> )                                  | Endangered   | Endangered         | Although it does inhabit medium-sized rivers, this mussel generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water (>2 m) with slight to swift currents and mud, sand, or gravel bottoms. | No                                                                                                                                         | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.                                            | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                |
| Fanshell<br>( <i>Cyprogenia stegaria</i> )                                  | Endangered   | Endangered         | This mussel is found in medium to large rivers. It buries itself in sand or gravel in deep water of moderate current, with only the edge of its shell and its feeding siphons exposed.                                                                                                             | No                                                                                                                                         | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.                                            | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                |
| Snuffbox<br>( <i>Epioblasma triquetra</i> )                                 | Endangered   | Endangered         | Usually found in small- to medium-sized creeks, inhabiting areas with a swift current, although it is also found in Lake Erie and some larger rivers. Adults often burrow deep in sand, gravel or cobble substrates.                                                                               | Yes                                                                                                                                        | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.                                            | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                |

**Table 6- ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA**

| Common Name<br>(Scientific Name)                         | State Status | Federal Status      | Habitat Description                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Potential Habitat Observed in the Project Survey corridor | Potential Impacts and Avoidance Dates                                                                               | Agency Comments                                                                                                                                             |
|----------------------------------------------------------|--------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rabbitsfoot<br>( <i>Quadrula cylindrica cylindrica</i> ) | Endangered   | Threatened          | Occurs in a variety of flowing water habitats including small to medium-sized streams and some larger navigable rivers. It usually occurs in shallow areas along the bank and adjacent runs and shoals where the water velocity is reduced, although specimens have been reported in 9-12 feet of water. Bottom substrates generally include sand and gravel. This species seldom burrows but lies on its side.                                                           | Yes                                                       | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated. | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| Ohio Pigtoe<br>( <i>Pleurobema cordatum</i> )            | Endangered   | None                | Generally considered an inhabitant of large rivers, it can be found in strong currents on substrates of sand and gravel.                                                                                                                                                                                                                                                                                                                                                  | No                                                        | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated. | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| Long-solid<br>( <i>Fusconaia maculata maculata</i> )     | Endangered   | Proposed threatened | It is found in small streams to large rivers (such as the Ohio River), and prefers a mixture of sand, gravel, and cobble substrates without excessive accumulation of silt and detritus.                                                                                                                                                                                                                                                                                  | Yes                                                       | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated. | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| Sharp-ridged Pocketbook<br>( <i>Lampsilis ovata</i> )    | Endangered   | None                | This species is very generalized in habitat preference, adapting well to both impoundment situations as well as free-flowing, shallow rivers. It may be found in big rivers (reservoirs) at depths of 15 to 20 feet and in small streams in less than two feet of water. Although usually found in moderate to strong current, it can survive in standing water. The most suitable substrate consists of a mixture of gravel and coarse sand mixed with some silt or mud. | Yes                                                       | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated. | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |
| Wartyback<br>( <i>Quadrula nodulata</i> )                | Endangered   | None                | Occurs in medium to large rivers and reservoirs with a mud, sand, or gravel bottom.                                                                                                                                                                                                                                                                                                                                                                                       | No                                                        | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated. | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species. |

**Table 6- ODNR AND USFWS LISTED SPECIES WITHIN THE PROJECT AREA**

| Common Name<br>(Scientific Name)                    | State Status | Federal Status | Habitat Description                                                                                                                                                                                                                                                                                                                           | Potential Habitat Observed in the Project Survey corridor                                                            | Potential Impacts and Avoidance Dates                                                                                                                                                                                                                                                                     | Agency Comments                                                                                                                                                                                                                                             |
|-----------------------------------------------------|--------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fawnsfoot<br>( <i>Truncilla donaciformis</i> )      | Endangered   | None           | Occurs primarily in small to large rivers and lakes, preferring firm gravel or sand substrates.                                                                                                                                                                                                                                               | Yes                                                                                                                  | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.                                                                                                                                                                                       | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                                                                                 |
| Threehorn wartyback<br>( <i>Oblivaria reflexa</i> ) | Threatened   | None           | This species is typical of the large rivers where there is moderately strong current and a stable substrate composed of gravel, sand, and mud. Although found at depths of up to 20 feet, it seems to do well at a depth of no more than four to six feet often in shallow, sand- and mud-bottom river embankments with little or no current. | No                                                                                                                   | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.                                                                                                                                                                                       | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                                                                                 |
| Black sandshell<br>( <i>Ligumia recta</i> )         | Threatened   | None           | This mussel is a large stream species found in sandy mud to gravel. It is typically found in medium-sized to large rivers in locations with strong current and substrates of coarse sand and gravel with cobbles in water depths from several inches to six feet or more                                                                      | Yes                                                                                                                  | No in-water work is planned as part of the Project. No impacts to mussel species and their habitat are anticipated.                                                                                                                                                                                       | ODNR stated that due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.                                                                                                 |
| <b>Birds</b>                                        |              |                |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                             |
| Northern harrier<br>( <i>Circus cyaneus</i> )       | Endangered   | None           | A common migrant and winter species. Nesters are much rarer, though they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies, building a nest out of stick on the ground, often on top of a mound. Harriers hunt over grasslands.                                                                       | Yes- within the Project survey corridor, eight areas were identified which appear to be potentially suitable habitat | Potentially suitable habitat (old field, pasture/hay fields, emergent wetland habitats) was observed in eight areas within the Project survey corridor. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period (May 15 to August 1). | ODNR stated that if this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, the Project is not likely to impact this species. |

***ODNR Coordination –***

Coordination with the ODNR was initiated during the planning stages of the Project to obtain records of protected species located in the vicinity of the Project. On November 20, 2019, the ODNR Office of Real Estate Environmental Review Section replied to an emailed request for records of protected species within an extended area around the Project site. The Ohio Natural Heritage Database (ONHD) review found no records of state-protected species at or within a one-mile radius of the Project area.

The ODNR Division of Wildlife (DOW) recommended that impacts to streams, wetlands, and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation. In addition, the DOW listed multiple state-listed species with known ranges crossed by the Project survey corridor, including one mammal: Indiana bat; four fish: northern madtom, channel darter, mountain madtom, and paddlefish; two amphibians: eastern hellbender and eastern spadefoot toad; 11 mussels: sheepsnose, fanshell, snuffbox, rabbitsfoot, Ohio pigtoe, long-solid, sharp-ridged pocketbook, wartyback, black sandshell, fawnsfoot, and threehorn wartyback; and one bird: northern harrier. Based on ODNR comments and lack of potentially suitable habitat, the Project is not likely to impact any of the aforementioned mussel, fish or amphibian species.

There is potentially suitable habitat for the Indiana bat, occurring in the field identified successional hardwood woodlands throughout the Project survey corridor. The DOW recommended that if suitable habitat occurs within the Project area, trees be conserved or cut between October 1 and March 31. If trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting.

The DOW noted that the Project is within the range of the northern harrier, a state endangered bird. ODNR-DOW has previously indicated that the potential habitat ground cover types that are smaller than two acres in size do not constitute adequate nesting habitat for the northern harrier. The majority of the Project survey corridor is not suitable for northern harrier nesting habitat. Agricultural land (corn, soybean and row crop cultivation), commercial/residential landscaped areas, and urban areas are frequently mechanically maintained and do not provide suitable grassland habitat for nesting. Certain old field habitats located within the existing ROW which were surrounded by wooded areas and not contiguous to other larger grassland habitats would not be considered suitable habitat for the northern harrier. Similarly, scrub/shrub, forested, and most wetland areas were observed with insufficient open grasslands to provide suitable habitat.

Based on DOW guidance and the field survey, potentially suitable habitat for the northern harrier was observed within the Project survey corridor. Eight areas consisting of pastures/hay fields, emergent wetlands and old field areas were observed and appear to be suitable northern harrier habitat. These areas were located between proposed structures 33-35, 80-81, 90-94, 142-146, 151-152, 165-168, 170-173 and 187-192. These areas of potentially suitable habitat are highlighted on Figure 5 and habitat photographs are provided in

Appendix E. The DOW recommended that if suitable habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1.

#### ***USFWS Coordination –***

Coordination with the USFWS was also initiated during the planning stages of the Project to obtain technical assistance in regard to federally listed species that may occur within the Project vicinity. The USFWS responded on December 11, 2020, noting that the Project lies within the range of the federally endangered Indiana bat, and the federally threatened northern long-eared bat. There is potentially suitable habitat for these species (successional hardwood woodland) throughout the Project survey corridor. USFWS recommends that trees  $\geq 3$  inches dbh, that trees be saved wherever possible. If no caves or abandoned mines are present and trees  $\geq 3$  inches cannot be avoided, USFWS recommends that tree removal occur between October 1 and March 31 avoid adverse effects to Indiana bats and northern long-eared bats during the brood-rearing months.

### **3.0 SUMMARY**

The ecological survey of the Project survey corridor identified a total of 108 wetlands, 118 streams and 17 ponds. The habitat types of the wetlands within the Project survey corridor consisted of 78 PEM, 10 PSS, six PFO, five PEM/SS complexes, seven PEM/FO complexes, one PEM/UB complex and one PEM/SS/FO complex. Fifty wetlands were identified as Category 1 wetlands, 47 were identified as Modified Category 2 wetlands and 11 wetlands were assessed as Category 2 wetlands. No Category 3 wetlands were identified within the Project survey corridor. Of the 108 wetlands, 88 have provisionally been classified as adjacent wetlands and WOTUS under the 2020 Navigable Waters Rule while 20 wetlands have been provisionally classified as isolated and not WOTUS. One of the 16 ponds have been provisionally classified as WOTUS under the 2020 Navigable Waters Rule, due to the impoundment of potentially jurisdictional features.

The 119 streams identified within the Project survey corridor include 27 ephemeral streams, 75 intermittent streams, and 17 perennial streams. Ninety-nine HHEI assessments (drainage area less than 1 mi<sup>2</sup>) were conducted on 98 streams, four streams were assessed using the QHEI methodology (drainage area greater than 1 mi<sup>2</sup>) and 16 streams had an existing OEPA aquatic life use designation (OAC-3745-24). One stream (Stream 33ab) was assessed as two reaches through the HHEI evaluation due to a change in flow regime within the Project survey corridor.

AECOM has preliminary determined that the assessed intermittent and perennial streams within the Project survey corridor appear to be jurisdictional (i.e. WOTUS), based on the 2020 Navigable Waters Rule. The ephemeral streams, under the 2020 Navigable Waters Rule, are not a WOTUS. Final jurisdictional status can only be determined by the USACE.

Twenty state and/or federal listed threatened or endangered species were reported by the ODNR or the USFWS as possibly occurring within the Project vicinity. These species included two mammals: Indiana bat and northern long-eared bat; four fish: northern madtom, channel darter, mountain madtom, and paddlefish; two amphibians: eastern hellbender and eastern spadefoot toad; 11 mussels: sheepsnose, fanshell, snuffbox, rabbitsfoot, Ohio pigtoe, long-solid, sharp-ridged pocketbook, wartyback, black sandshell, fawnsfoot, and threehorn wartyback; and one bird: northern harrier.

ODNR and USFWS commented that based on location and that no in-water work is planned as part of the Project, impacts to any mussel, fish or amphibian species are unlikely.

Based on general observations during the ecology survey, a large portion of the Project survey corridor contained potential summer habitat for the Indiana bat and the northern long-eared bat. USFWS and ODNR commented that if no caves or abandoned mines are present and tree removal is unavoidable, it is recommended that removal of any trees  $\geq 3$  inches dbh only occur between October 1 and March 31 to avoid adverse effects to Indiana bats and northern long-eared bats during the brood-rearing months.

Based on ODNR guidance and general observations during the field survey, potentially suitable habitat (old field, pasture/hay fields, emergent wetland habitats) for the northern harrier was observed between proposed structures 33-35, 80-81, 90-94, 142-146, 151-152, 165-168, 170-173 and 187-192 within the Project survey corridor. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period (May 15 to August 1).

The reported results of the ecological survey conducted by AECOM on this Project are limited to the areas within the Project survey boundary provided in Figure 3: Wetland Delineation and Stream Assessment Map. Areas that fall outside of the Project survey boundary were not evaluated in the field and are not included in the reporting of this survey.

The information contained in this wetland delineation report is for a study corridor that may be much larger than the actual Project limits-of-disturbance; therefore, lengths and acreages listed in this report may not constitute the actual impacts of the Project defined in subsequent permit applications. If necessary, a separate report that identifies the actual Project impacts will be provided with agency submittals.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM.

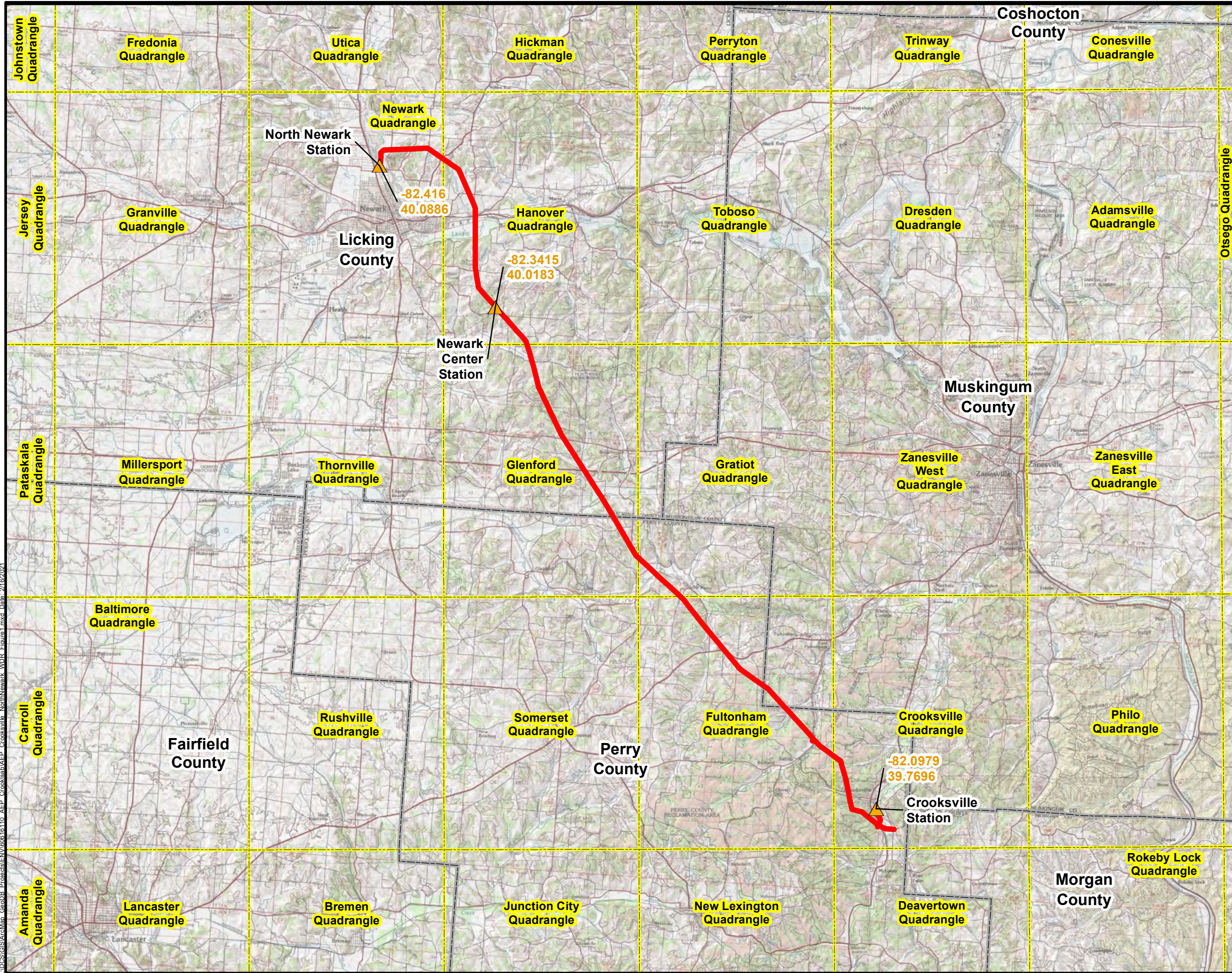
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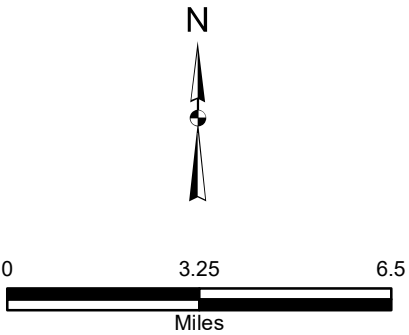


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- LEGEND:
-  Station
  -  Crooksville-North Newark 138 kV Transmission Line
  -  Ohio USGS 7.5" Topographical Quadrangle
  -  County



BASE MAP SOURCE:  
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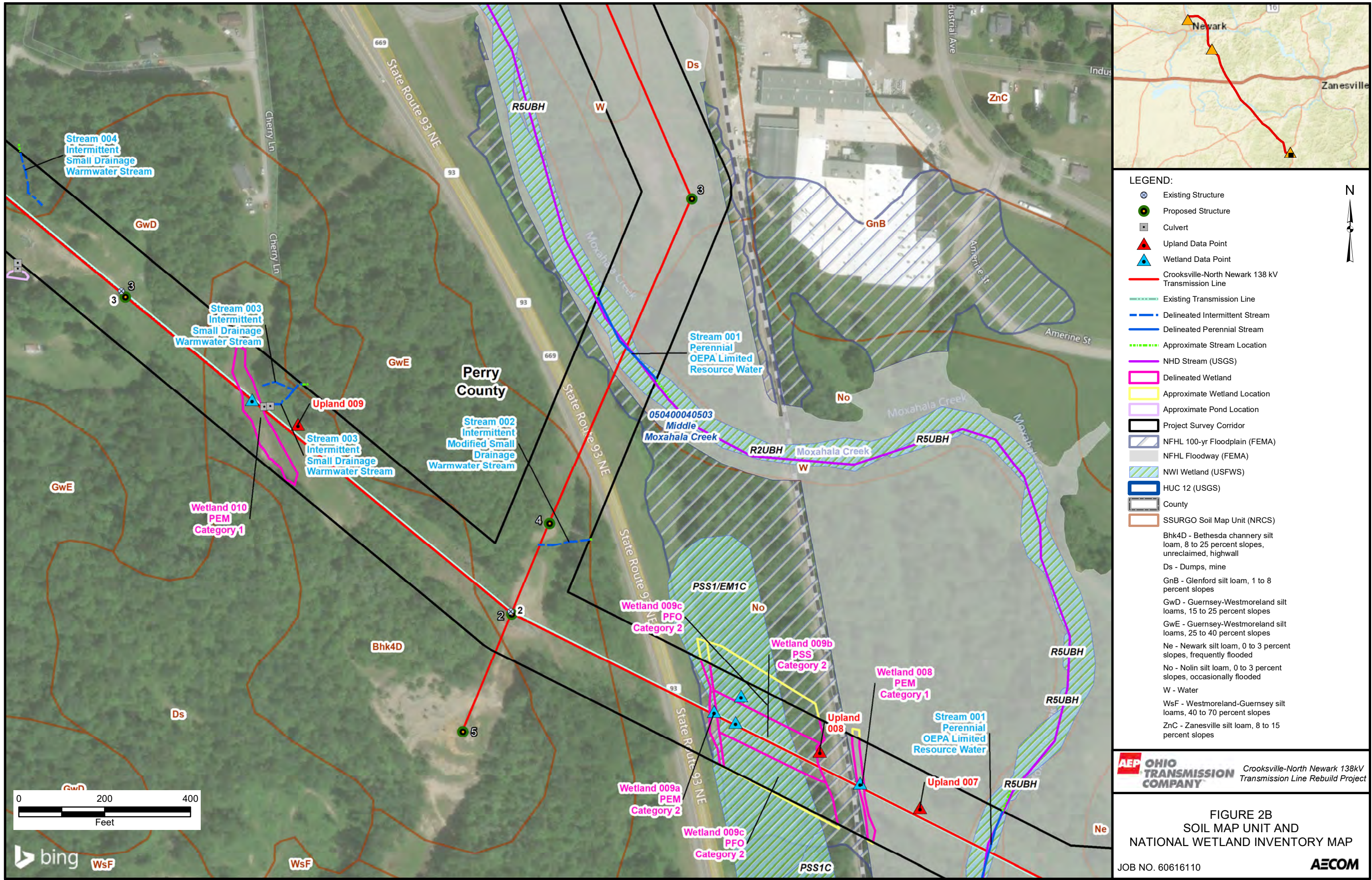
FIGURE 1  
OVERVIEW MAP





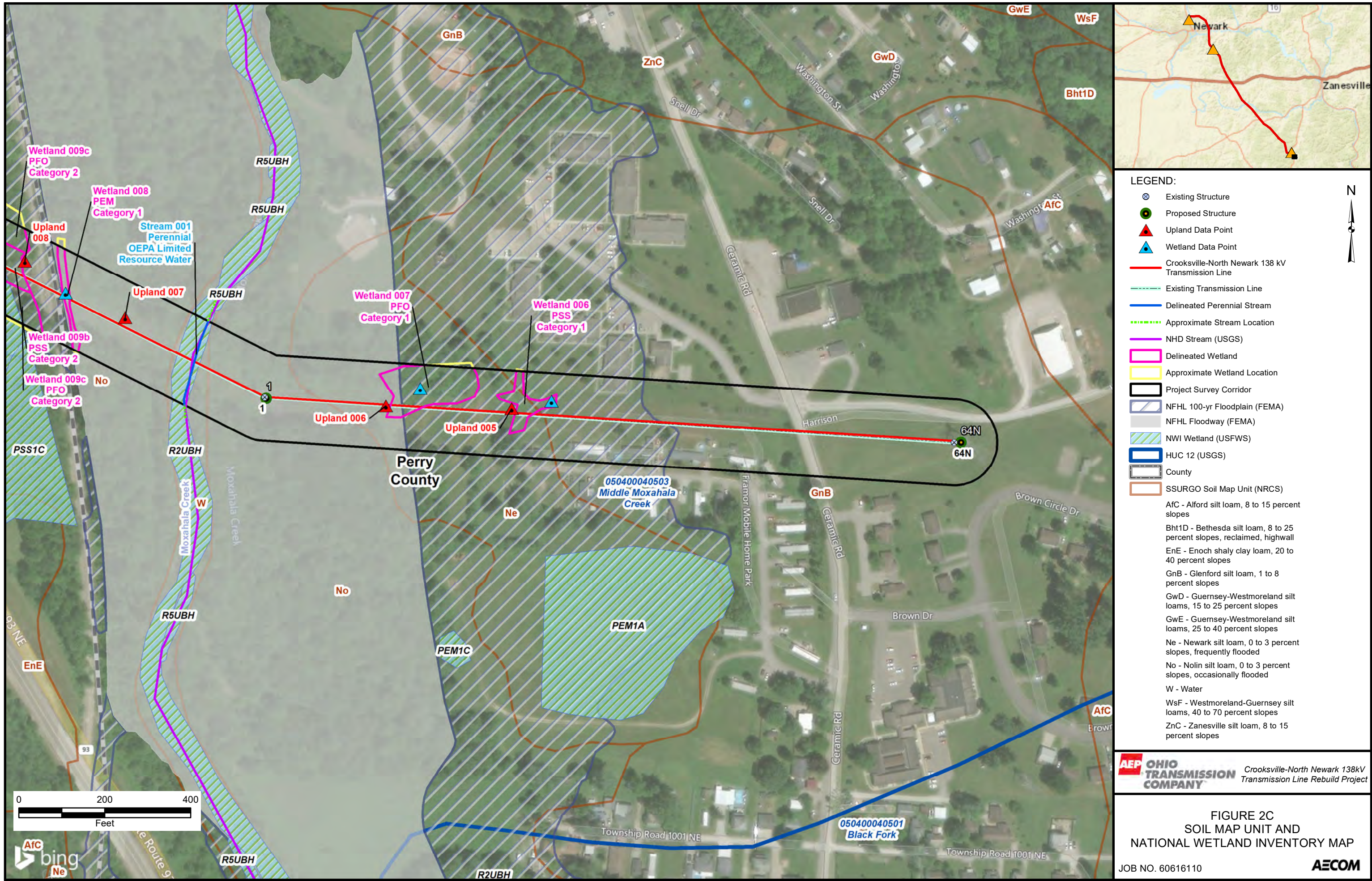


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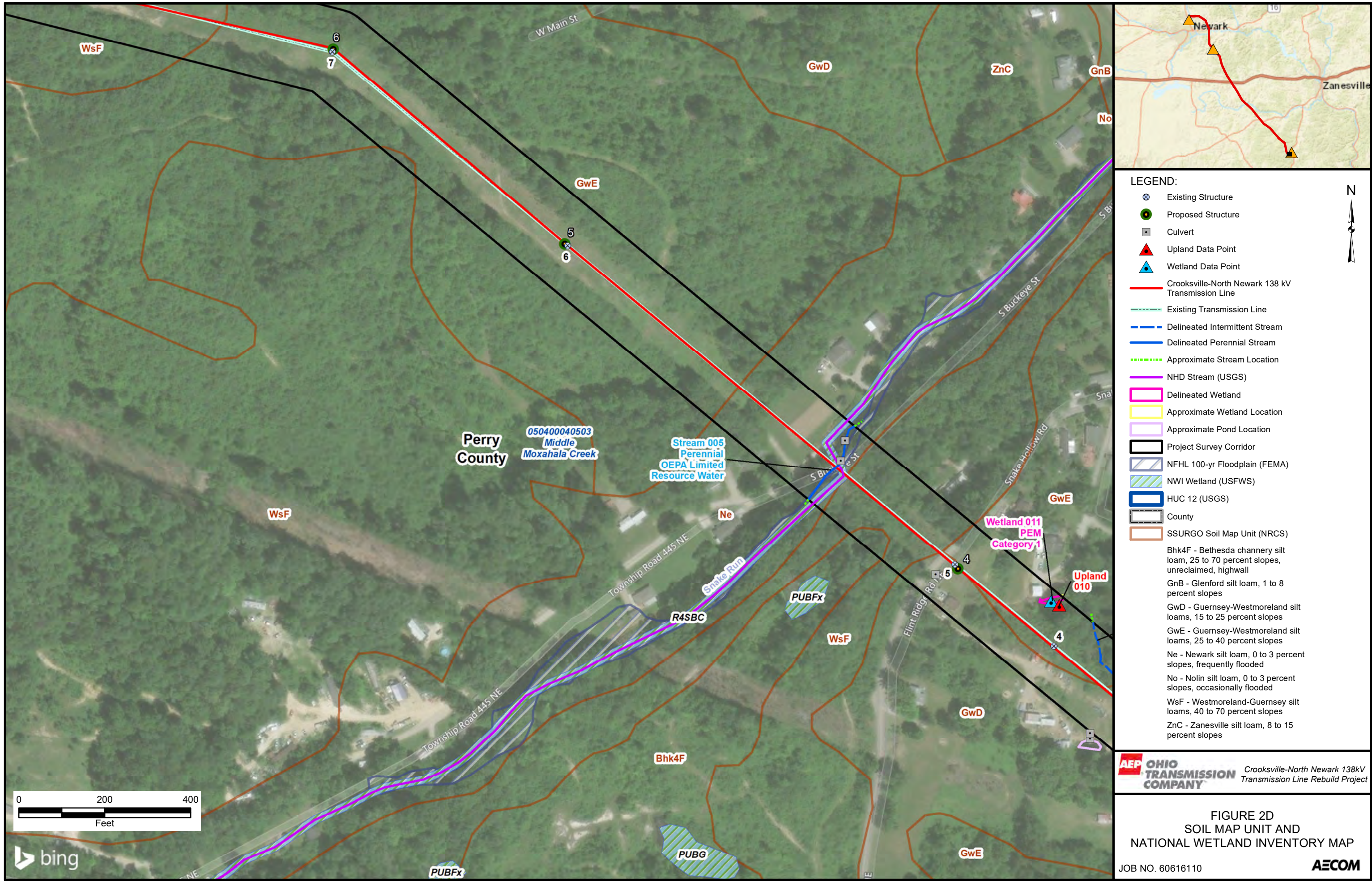


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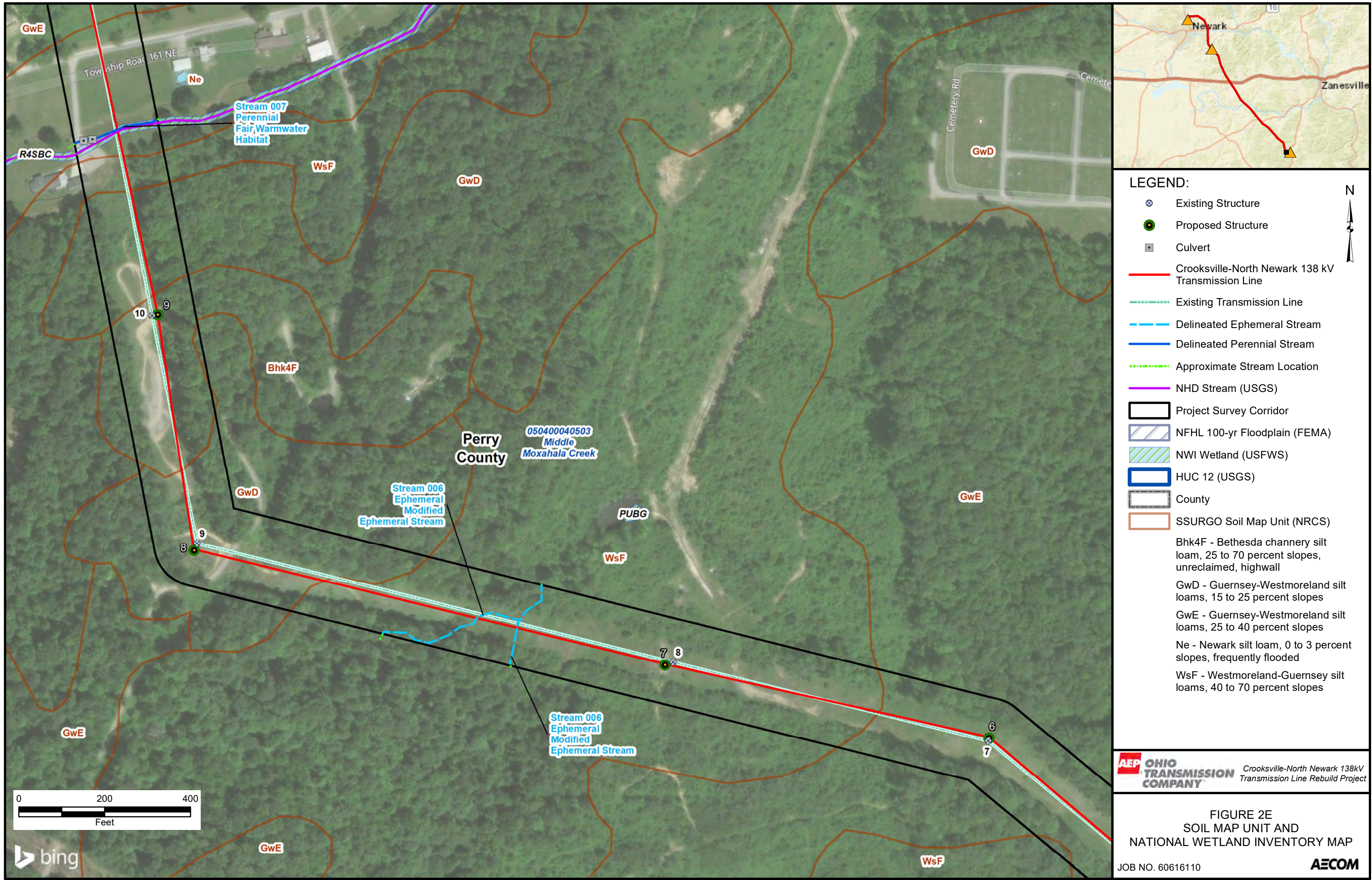


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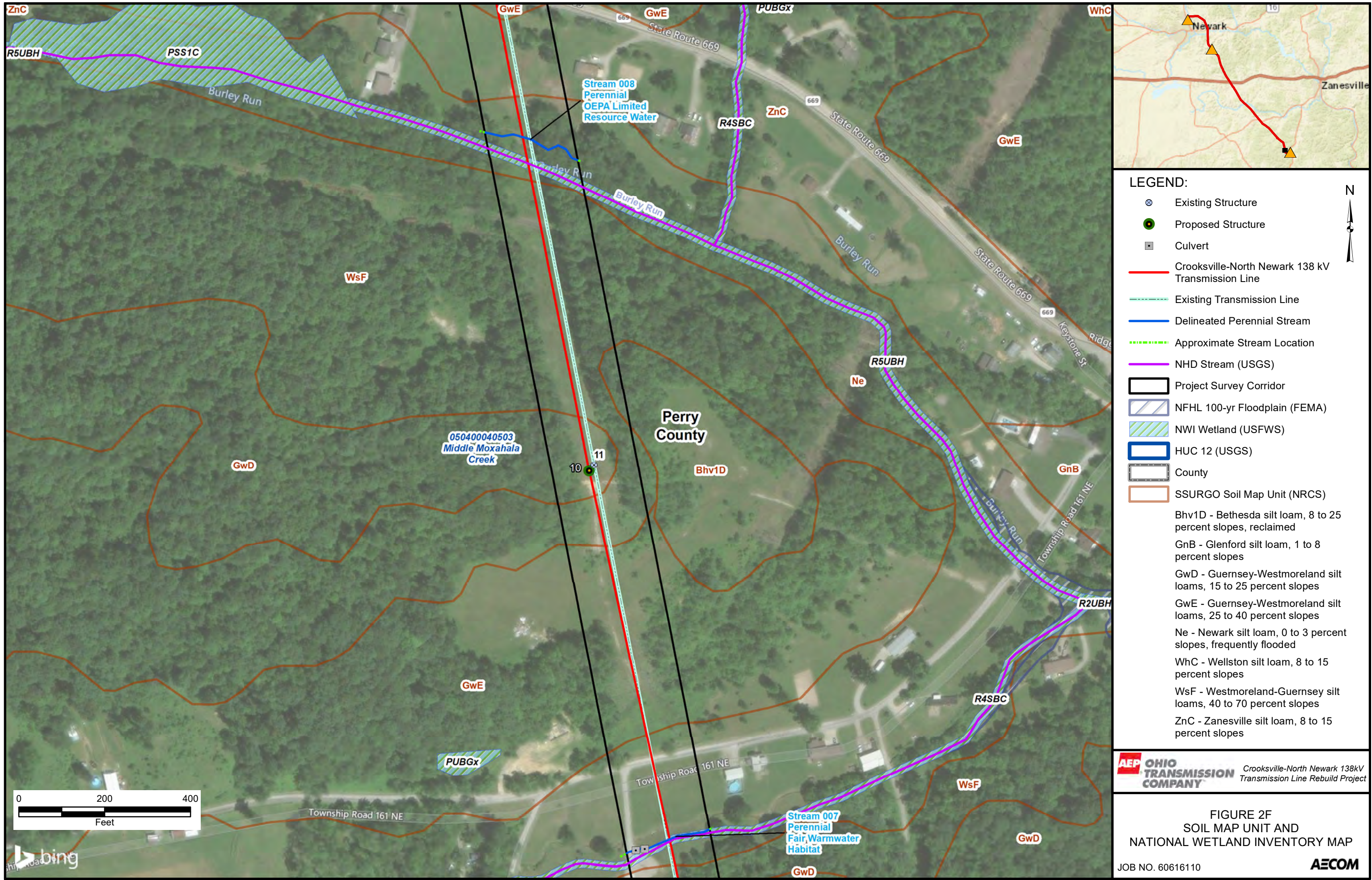


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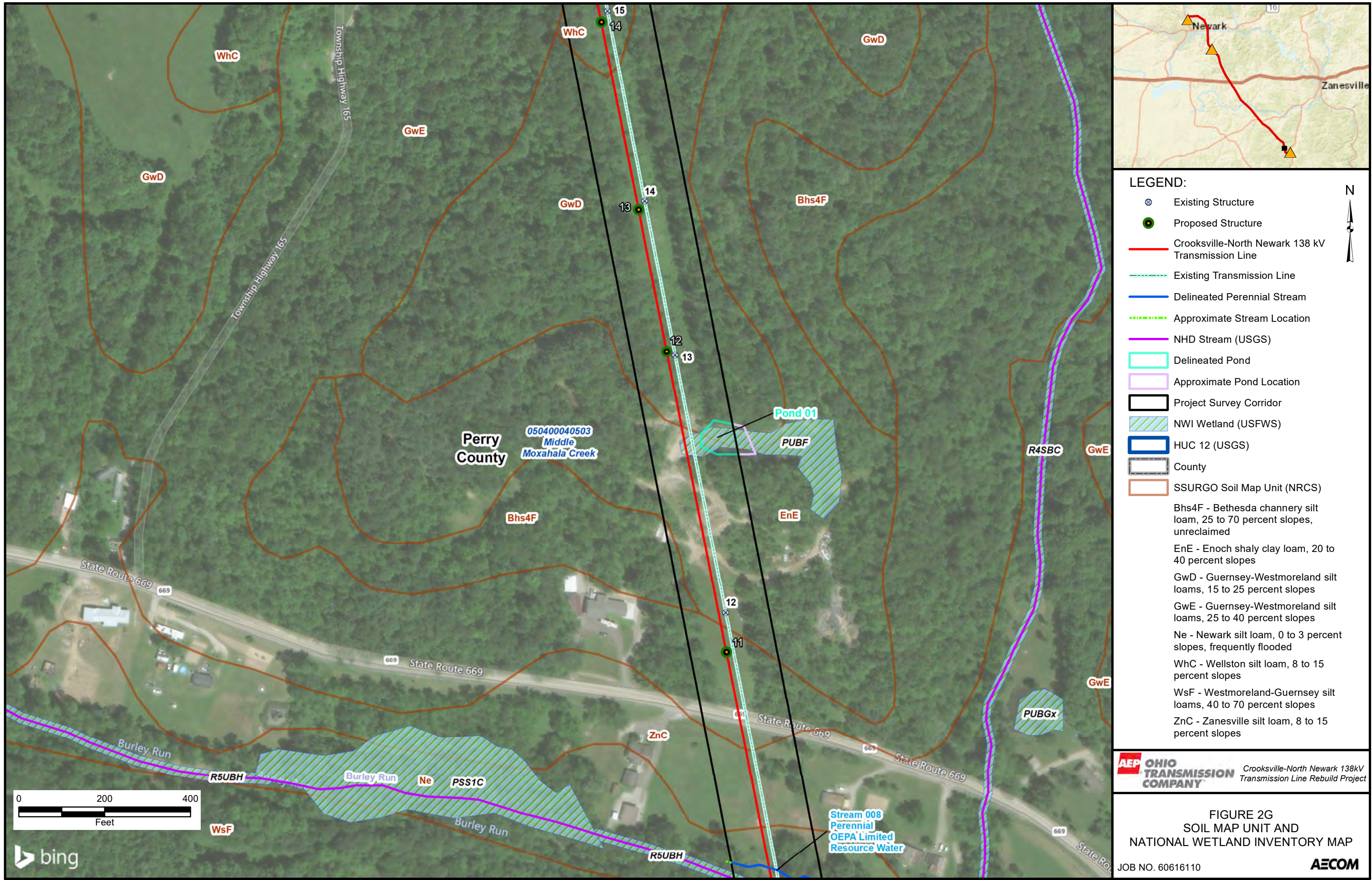


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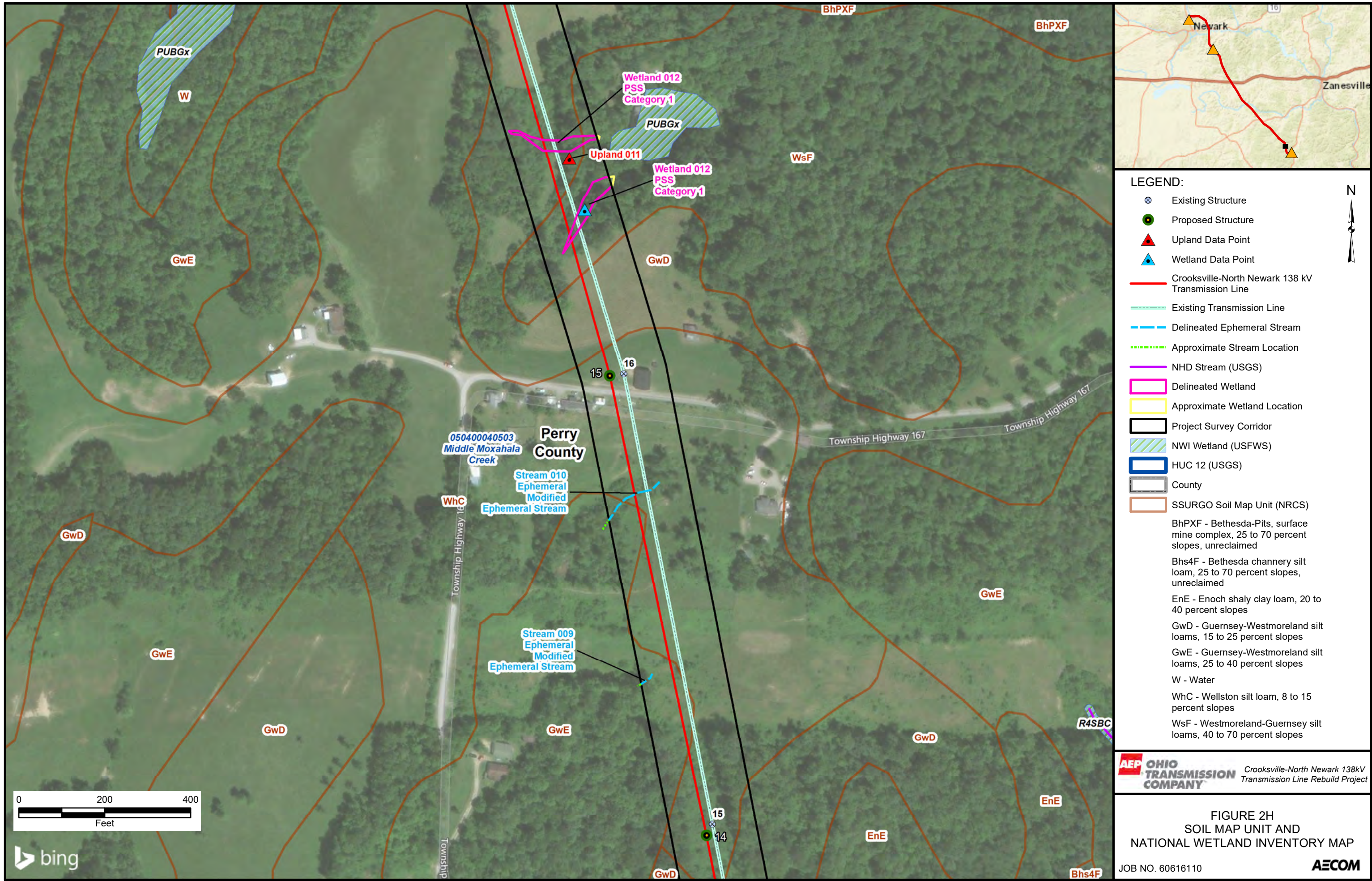


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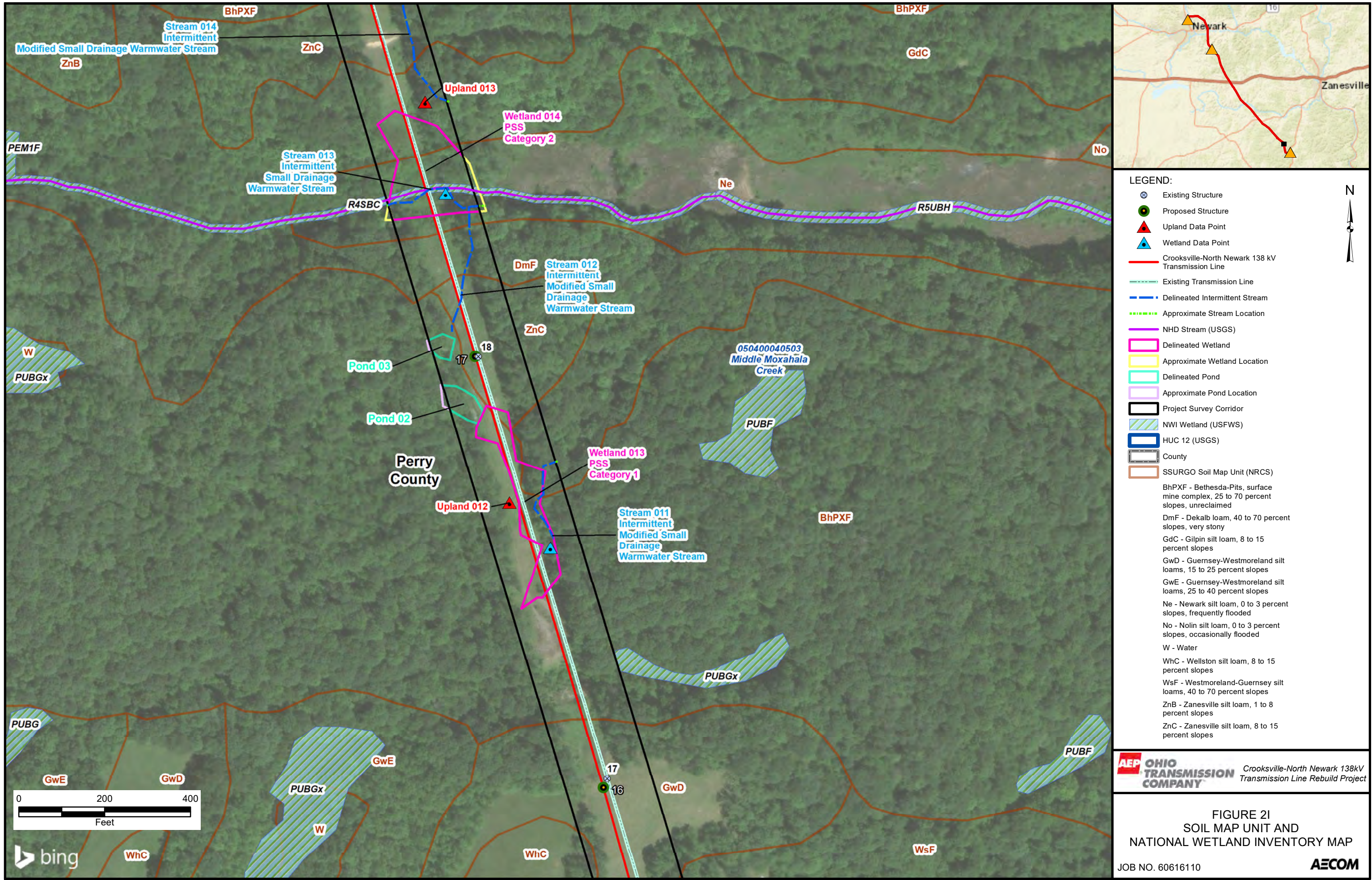


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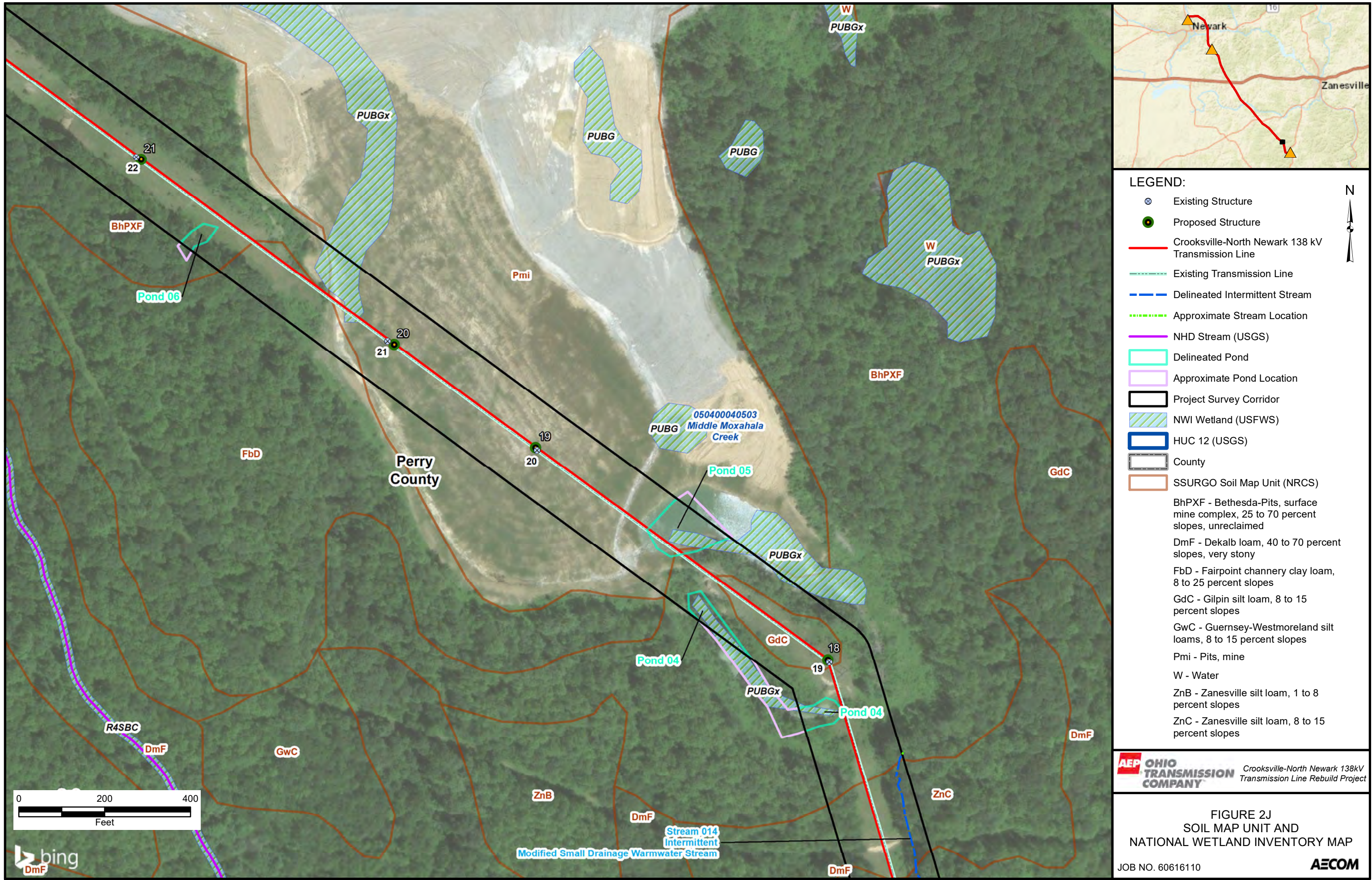


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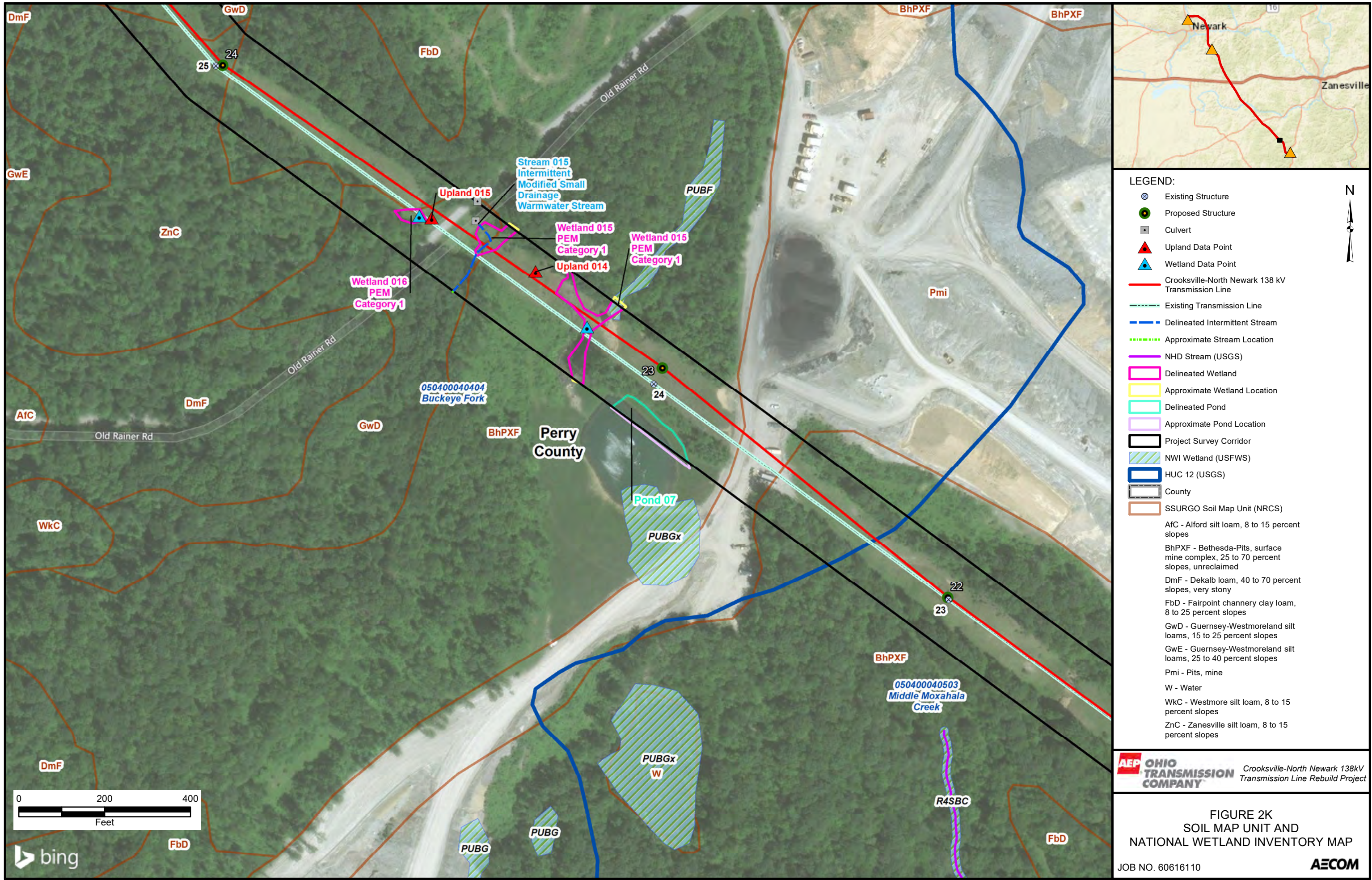


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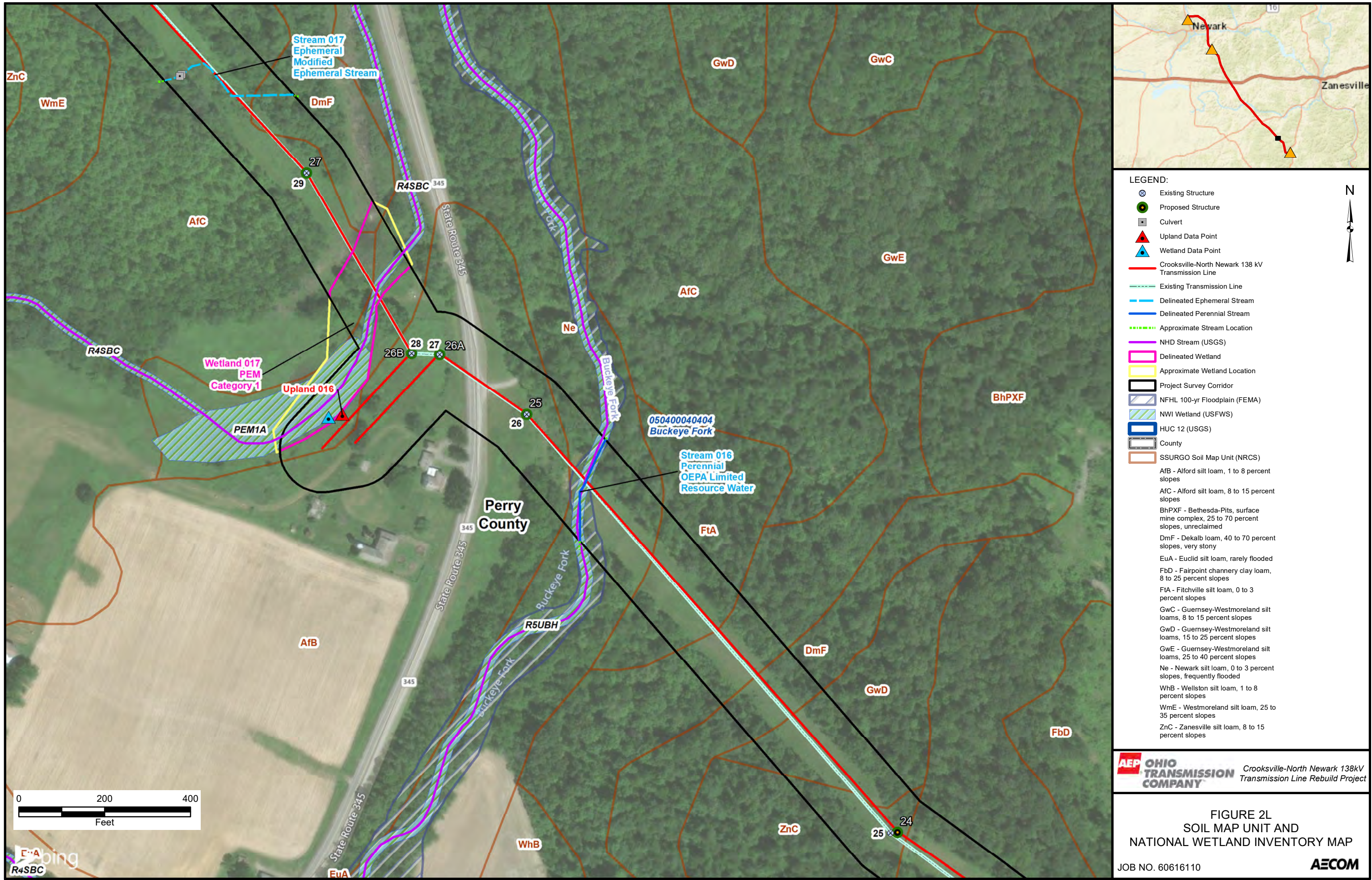


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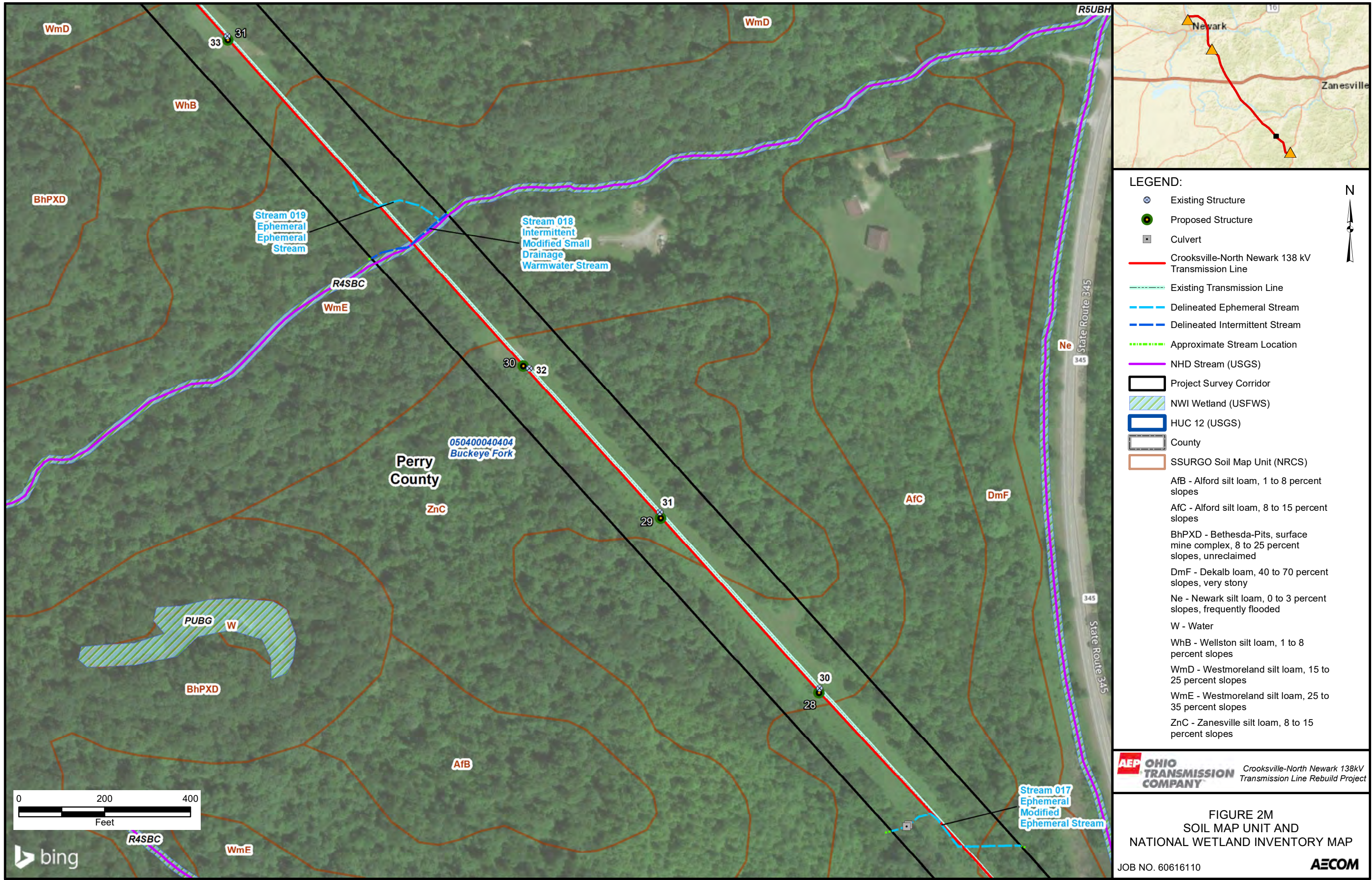


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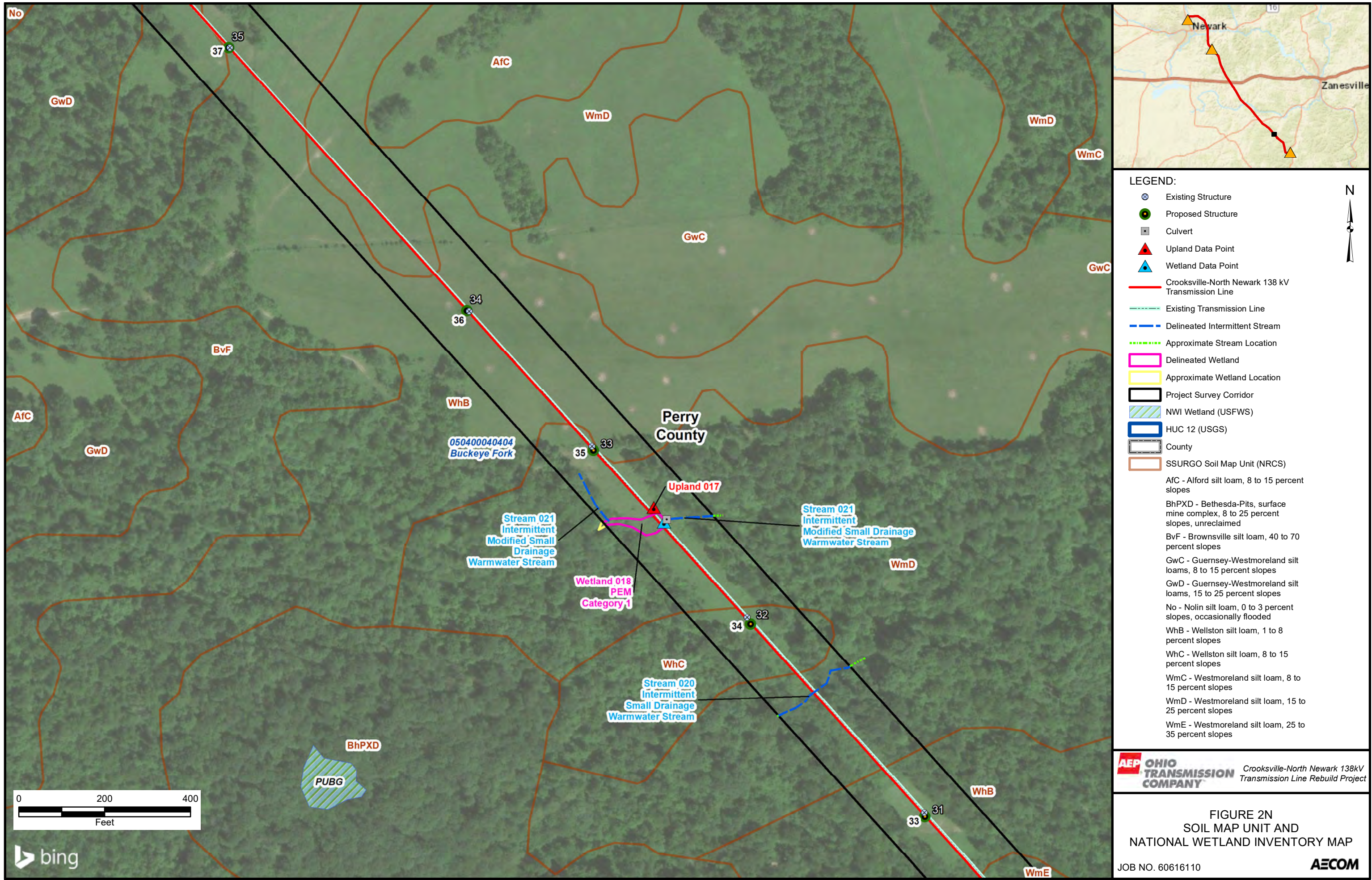


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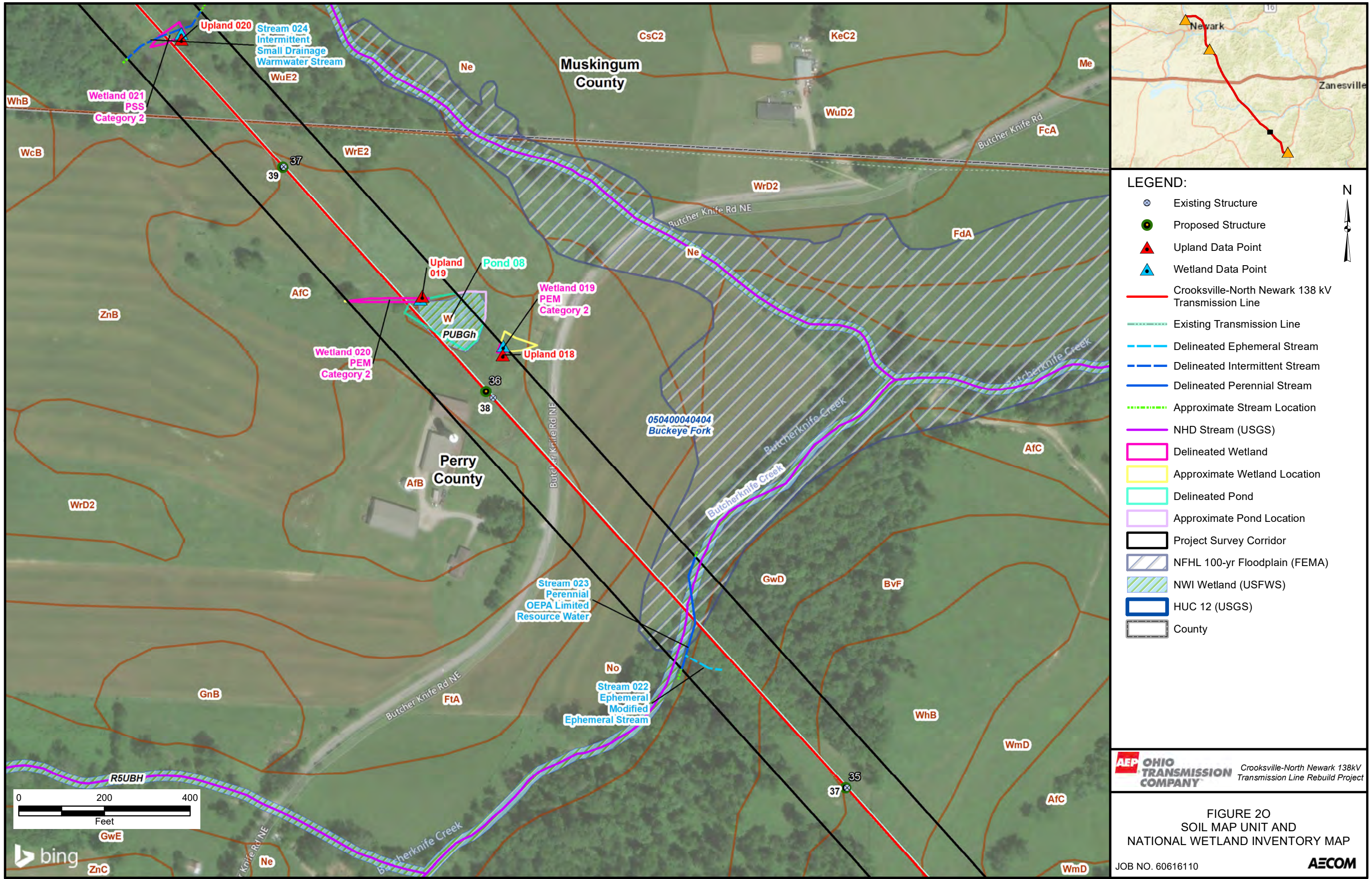


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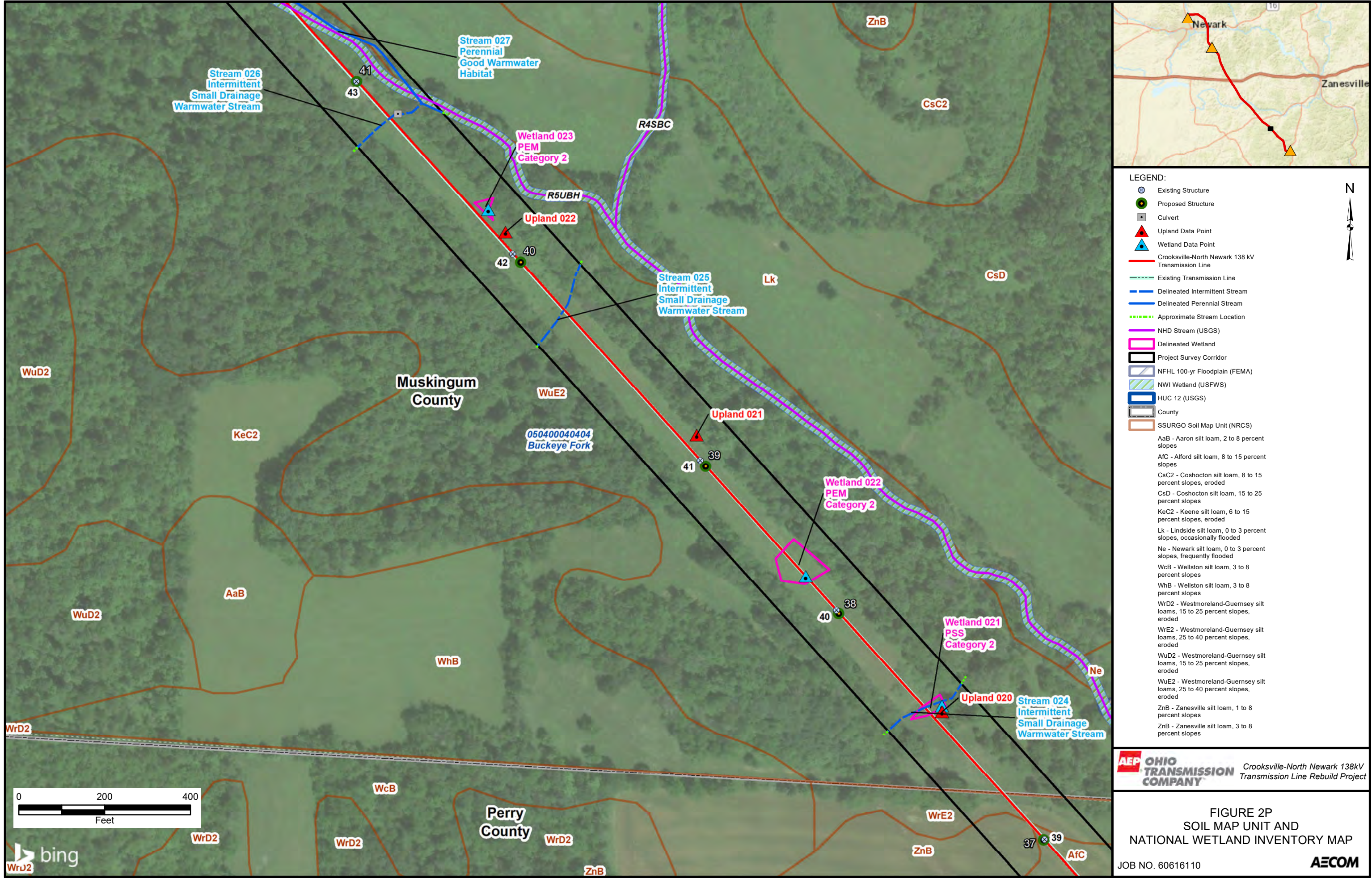


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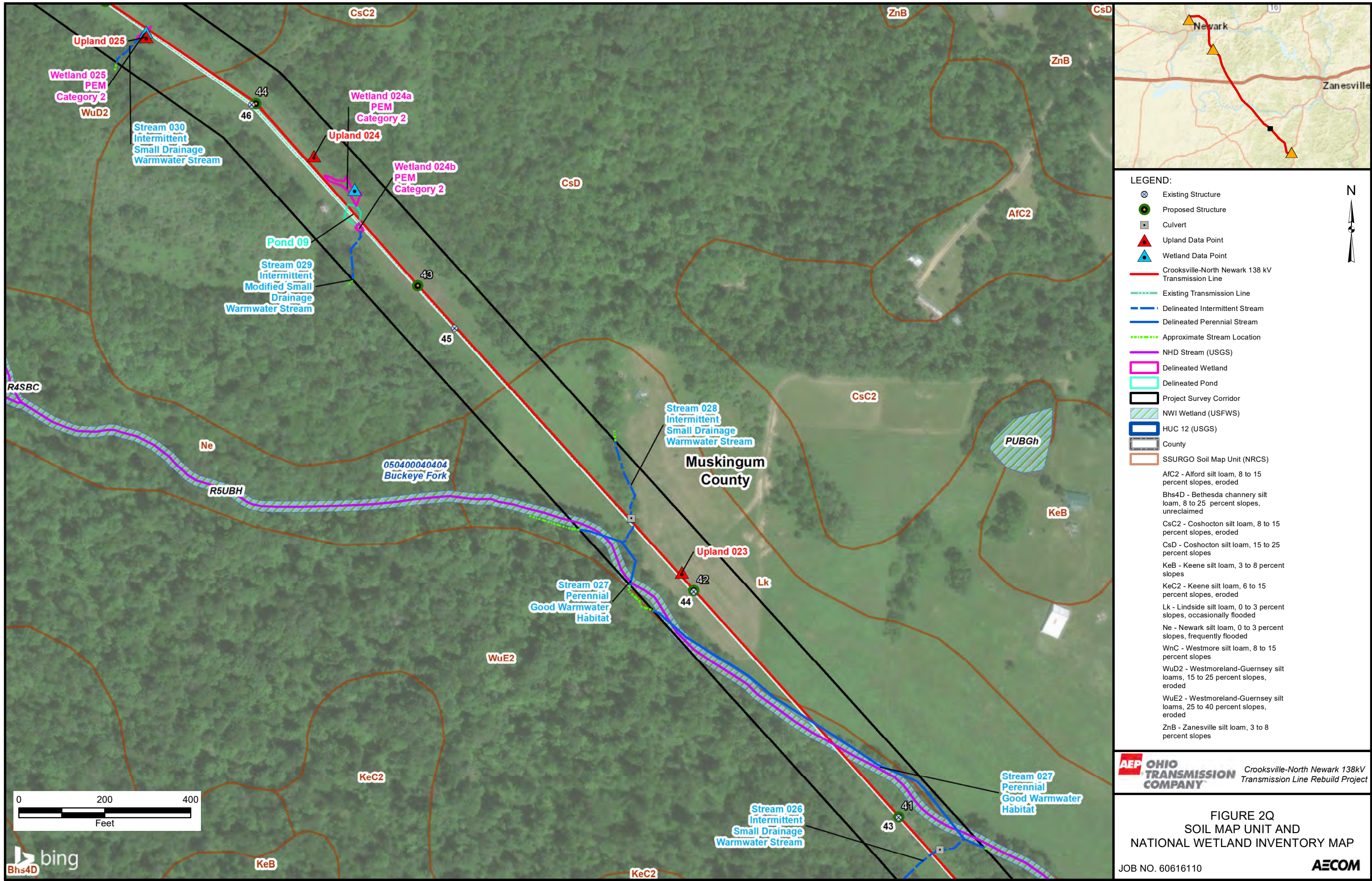


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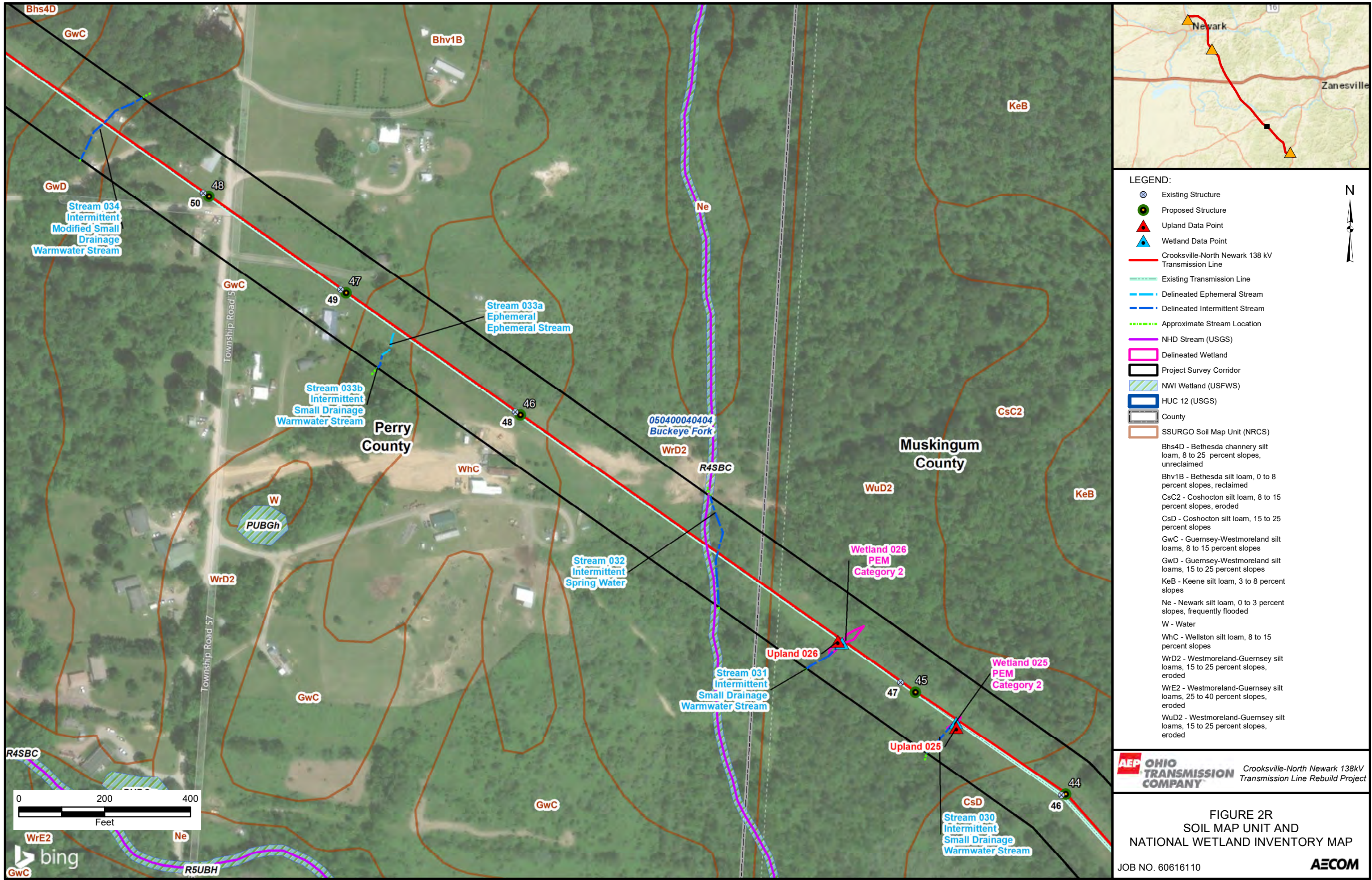


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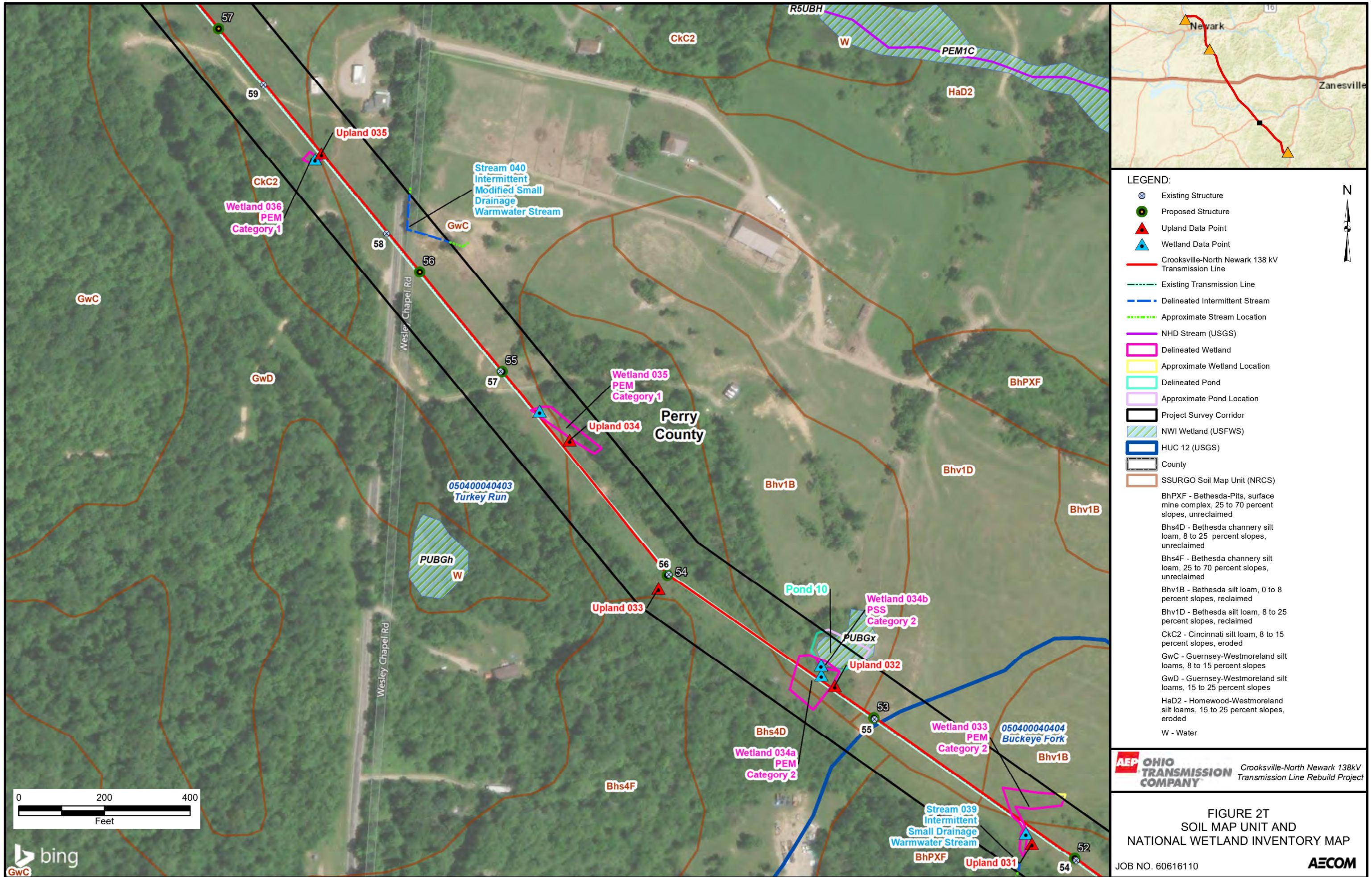






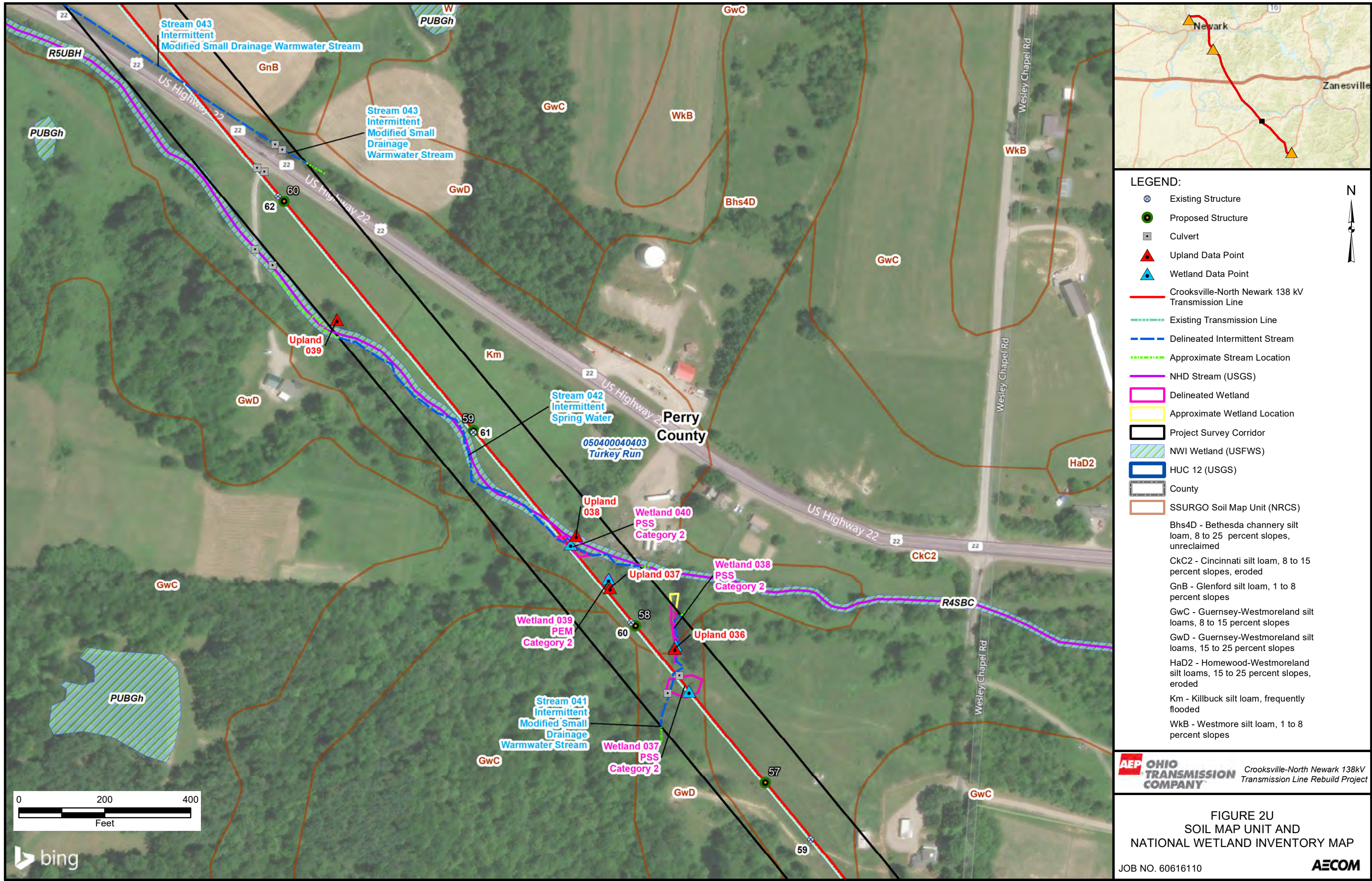


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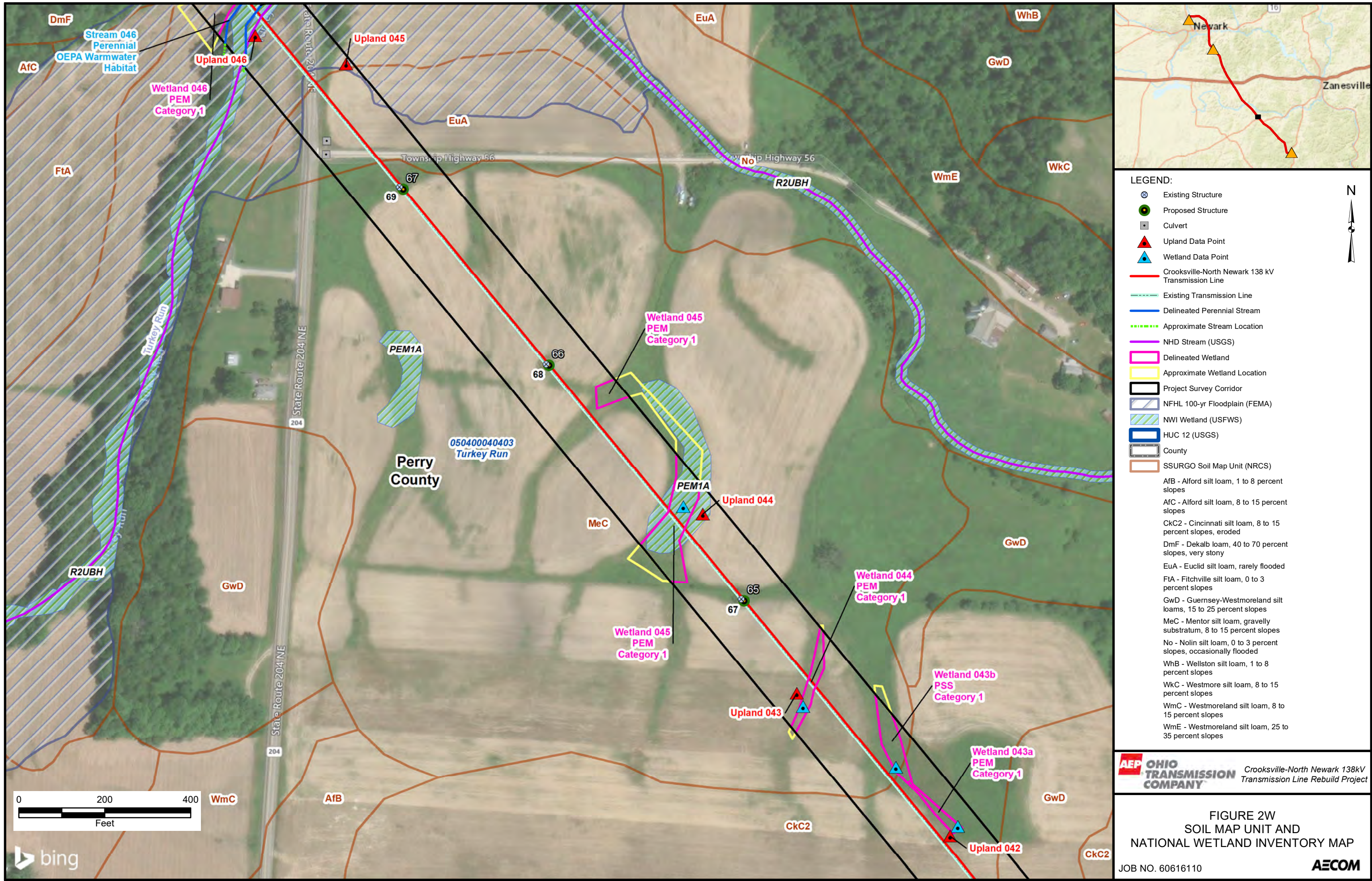






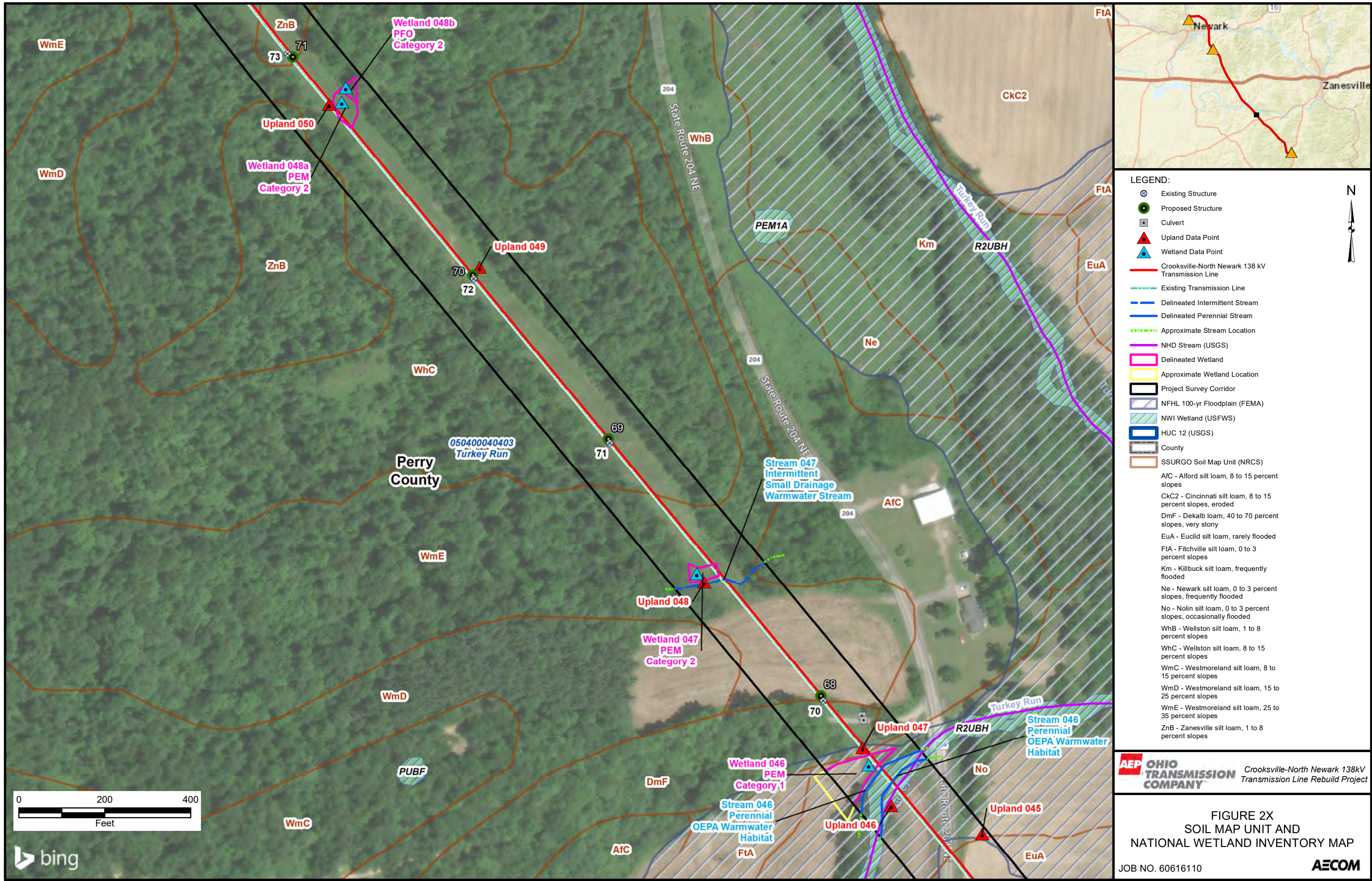


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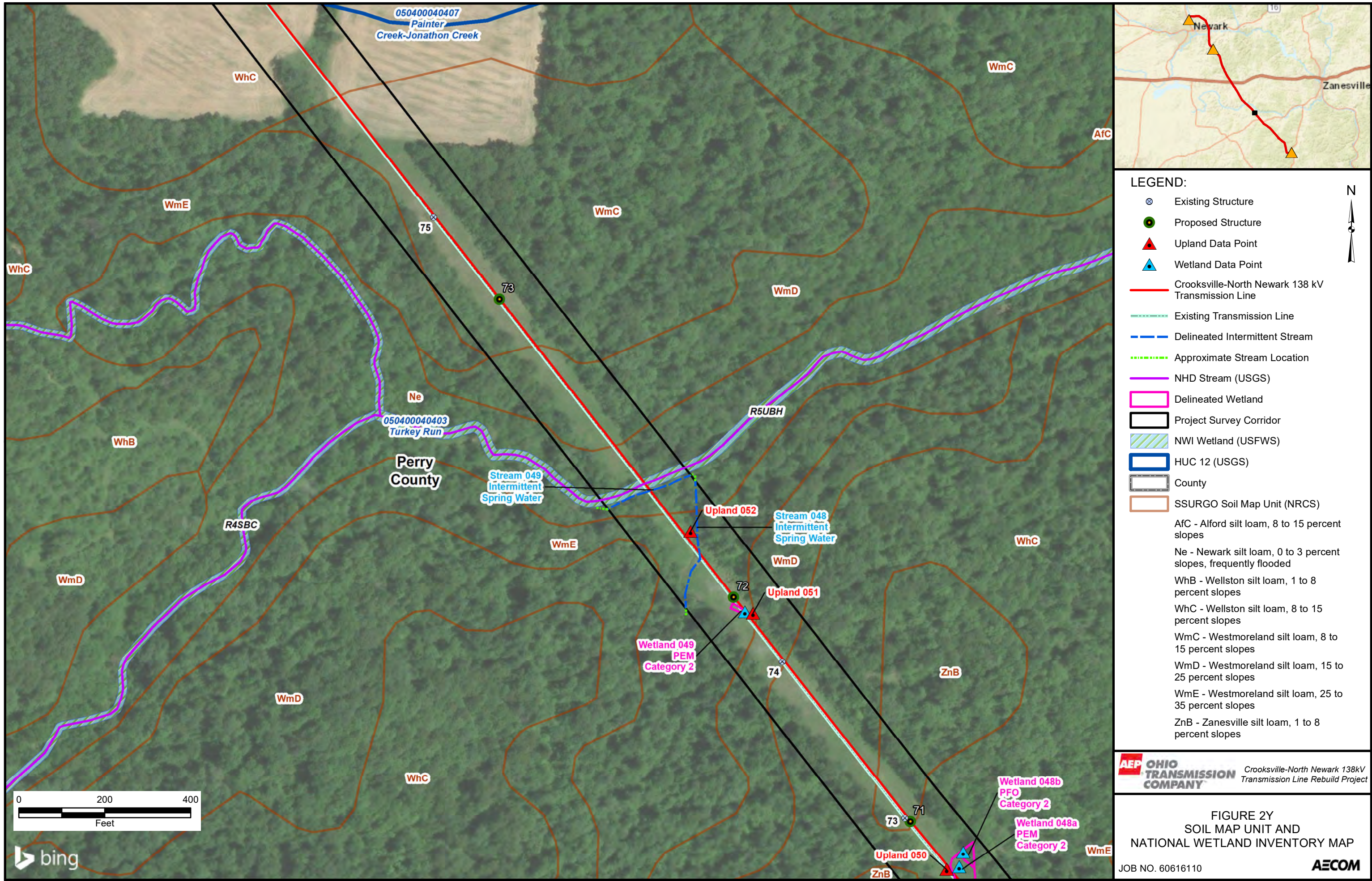


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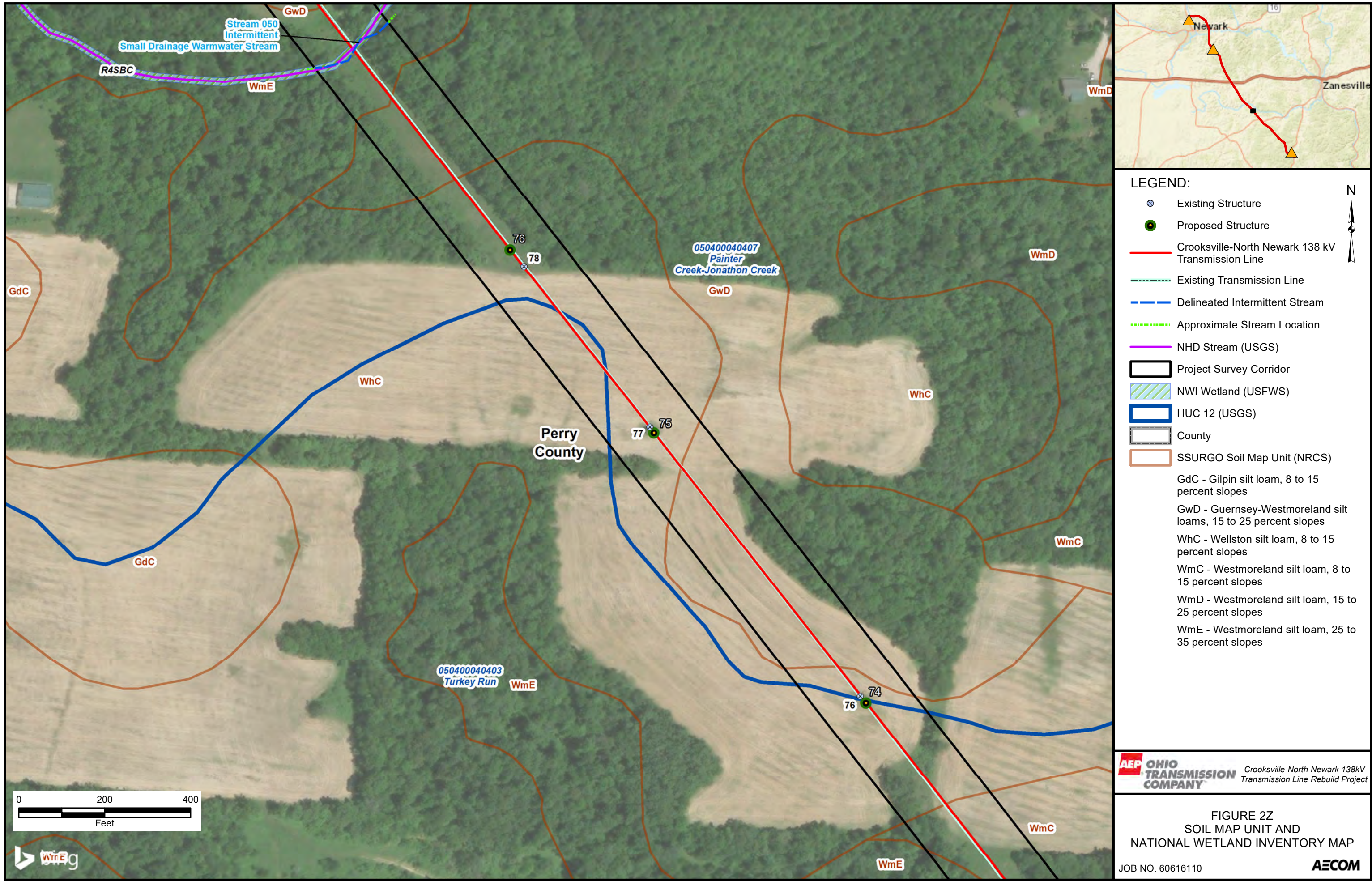


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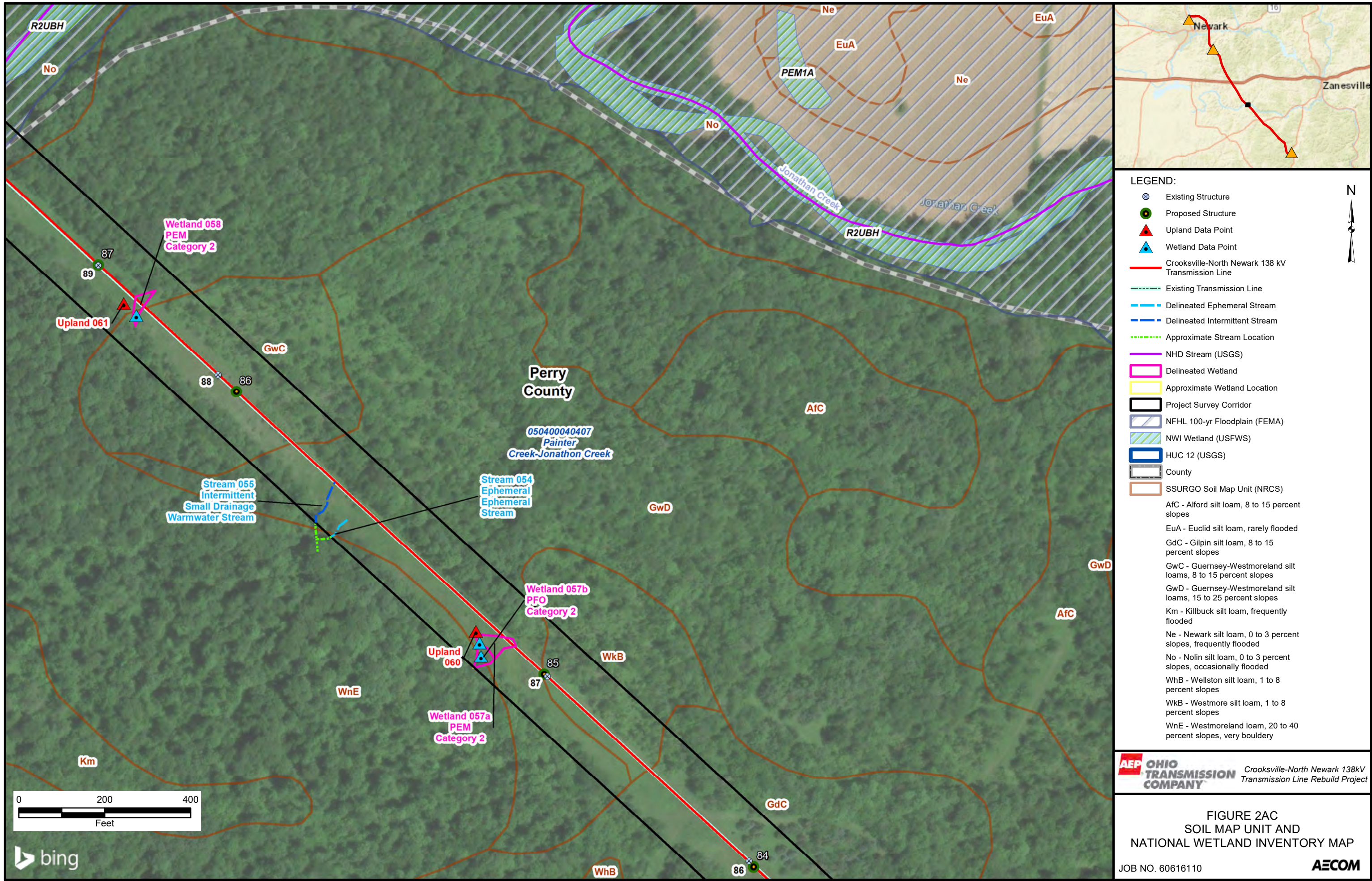








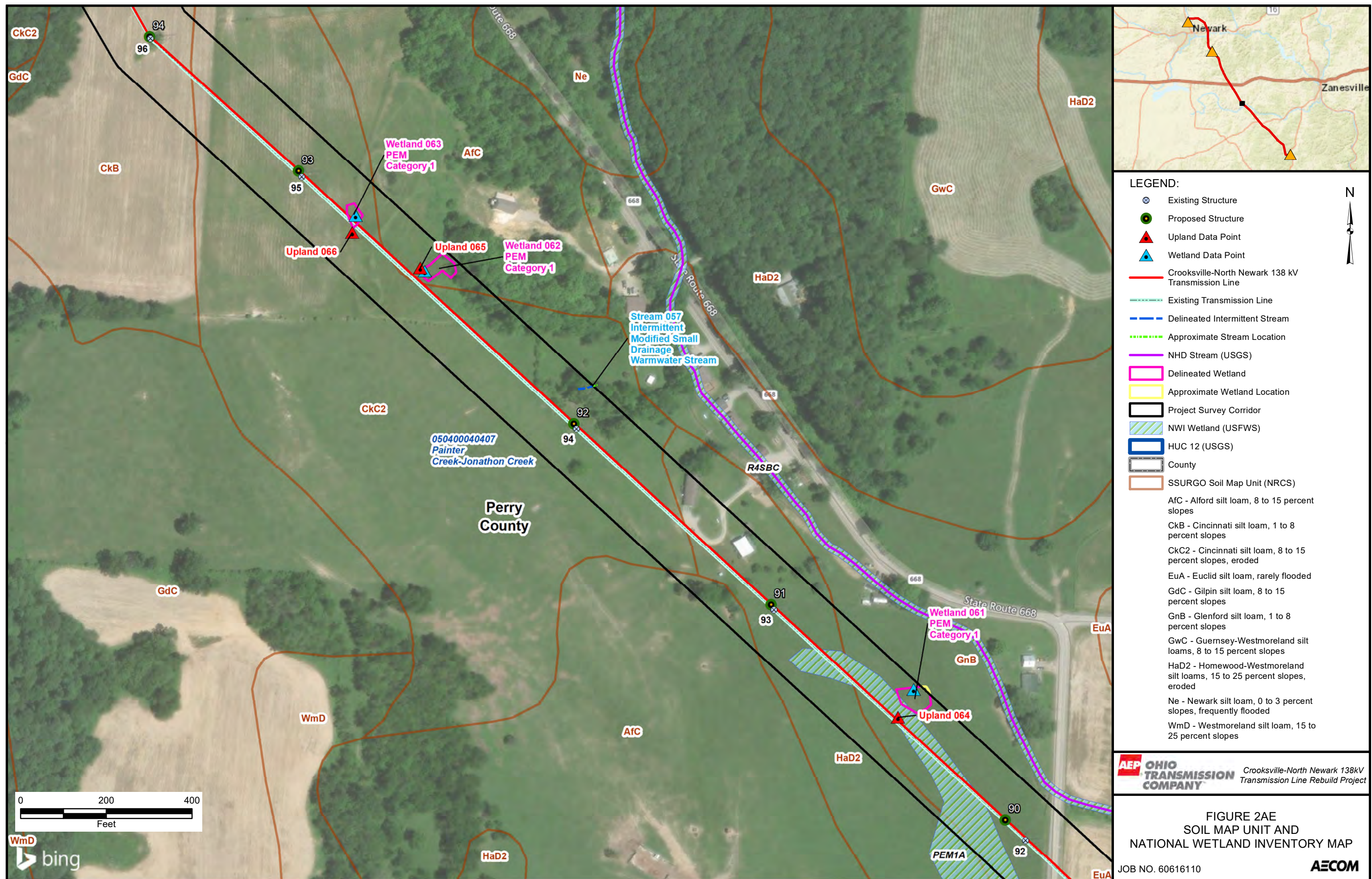
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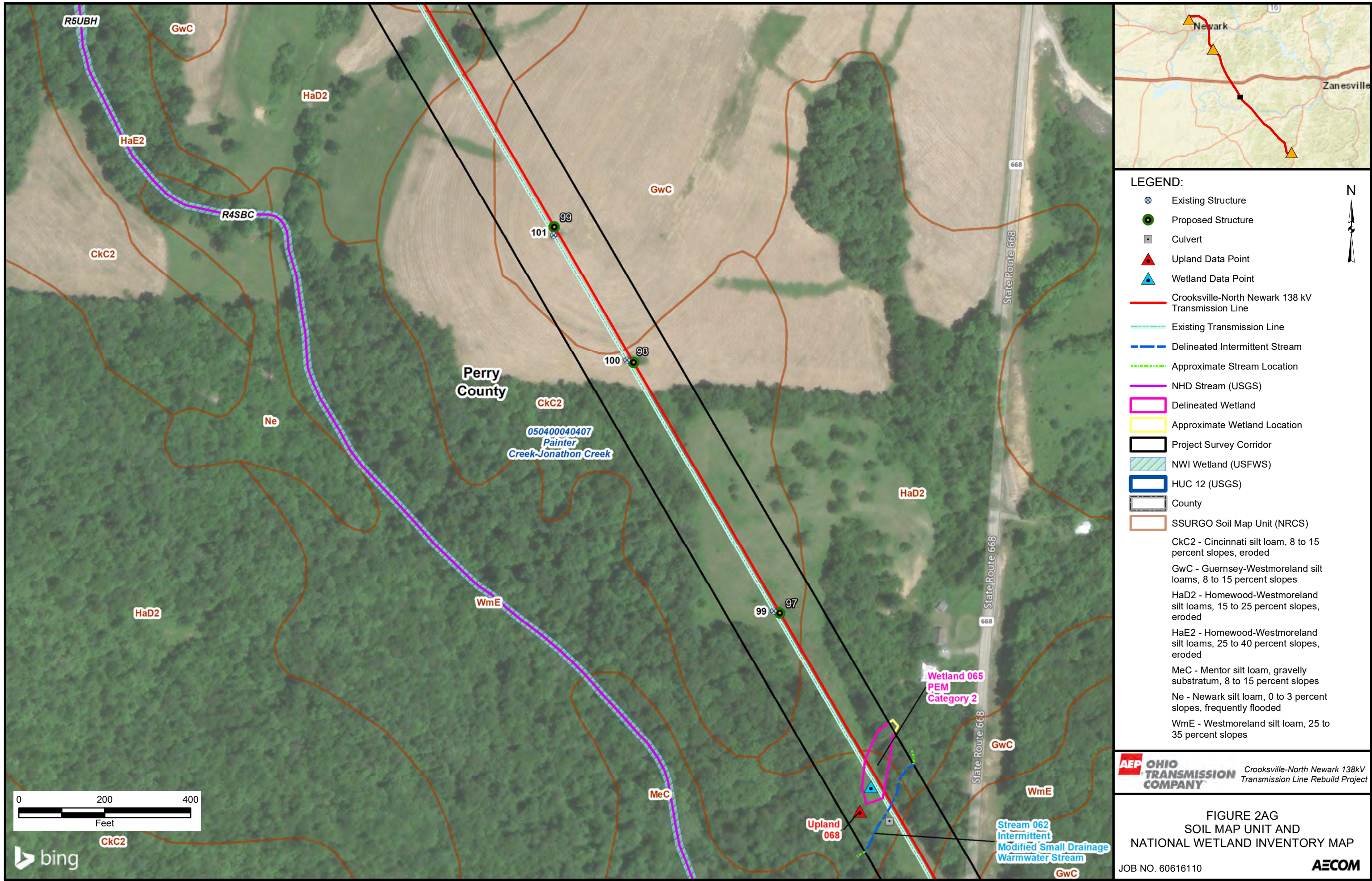






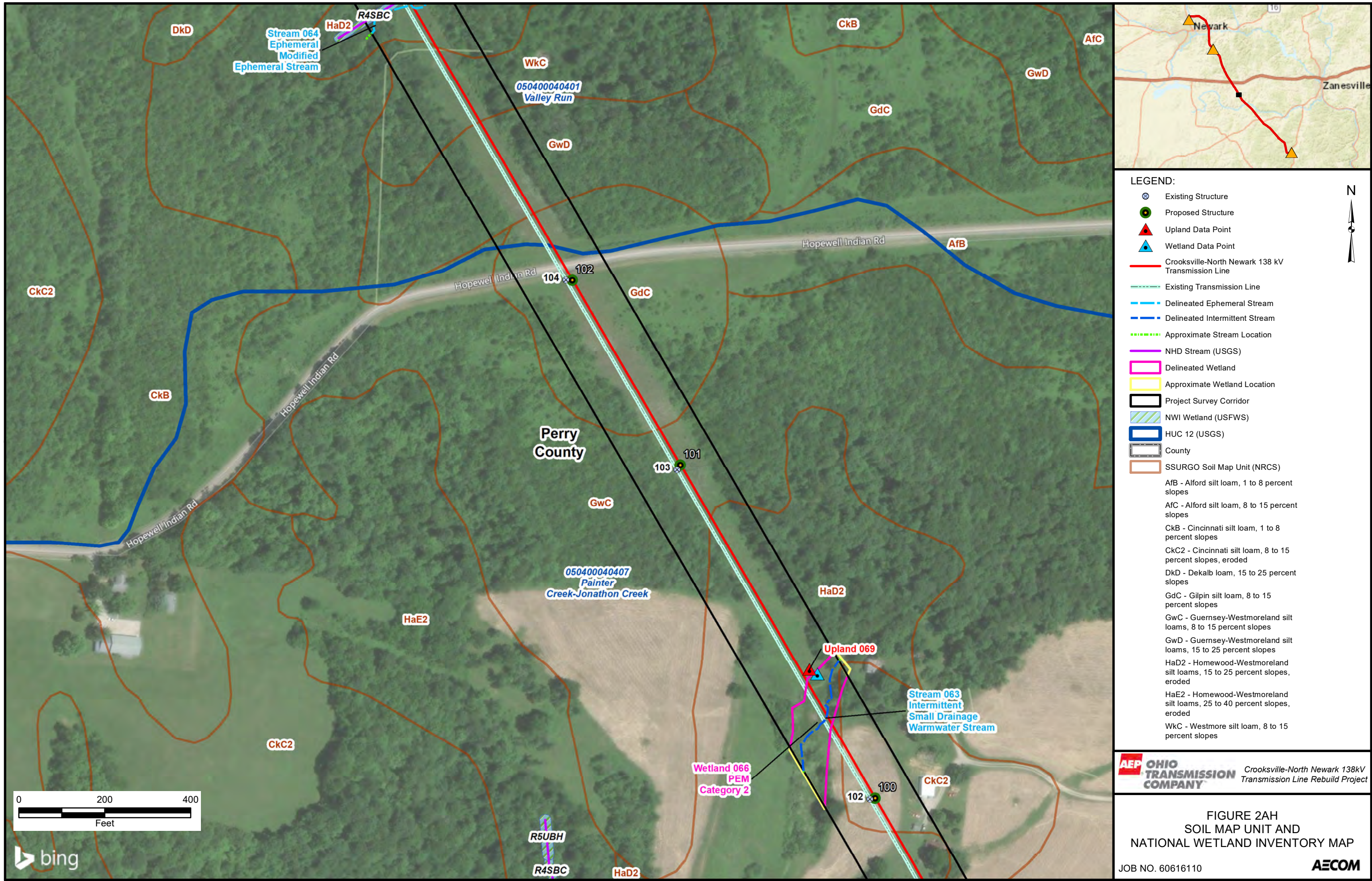


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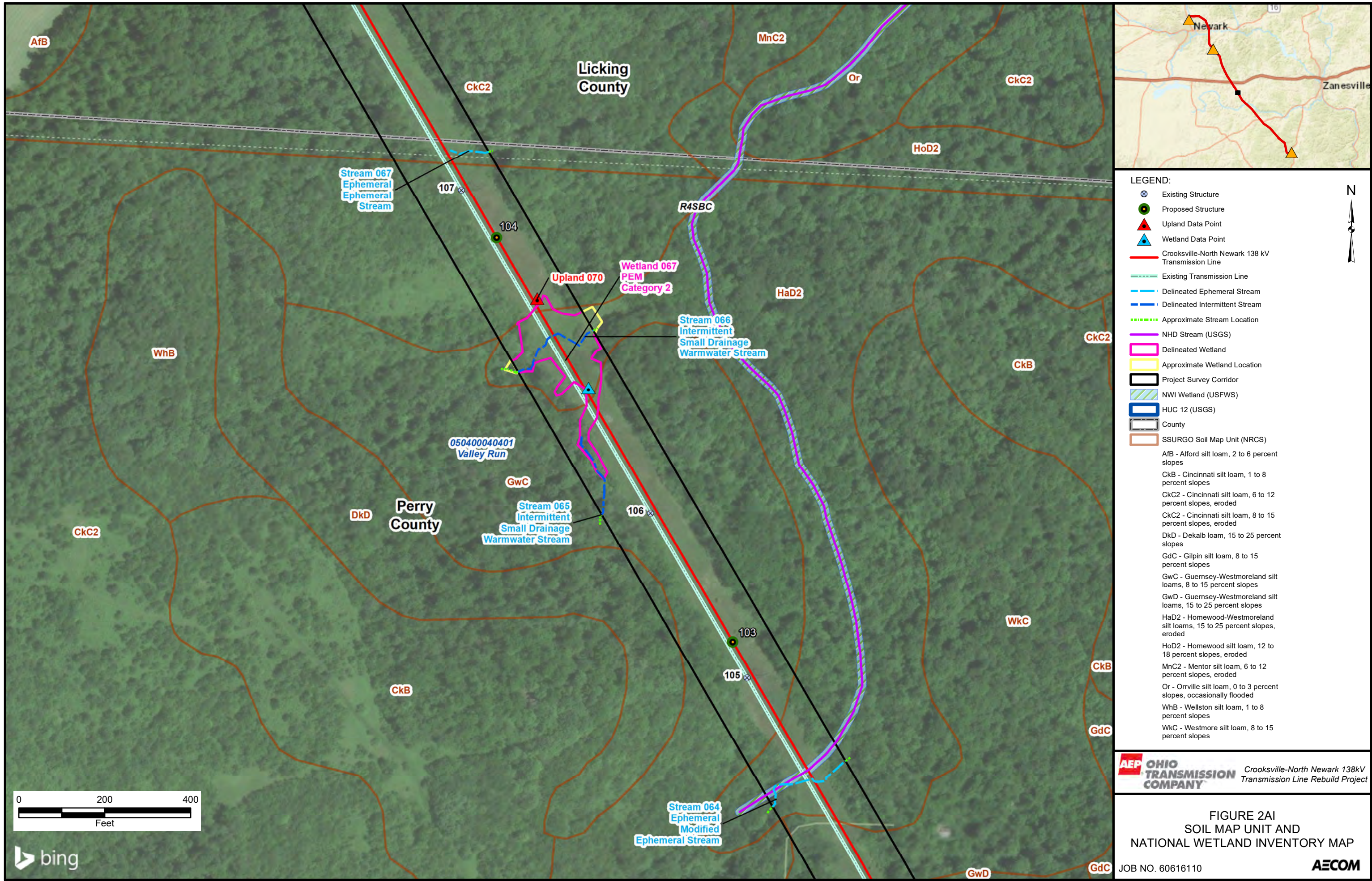


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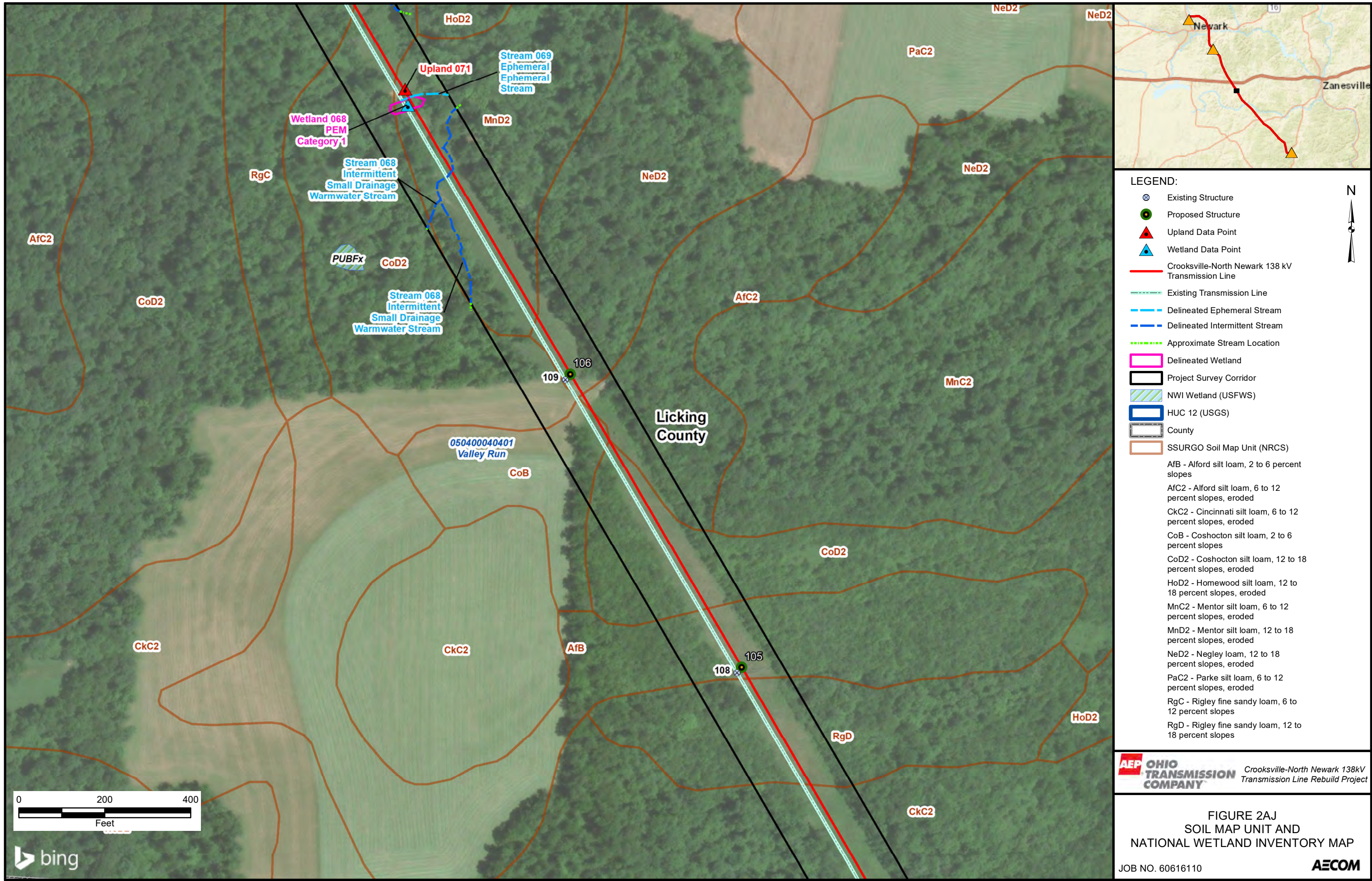


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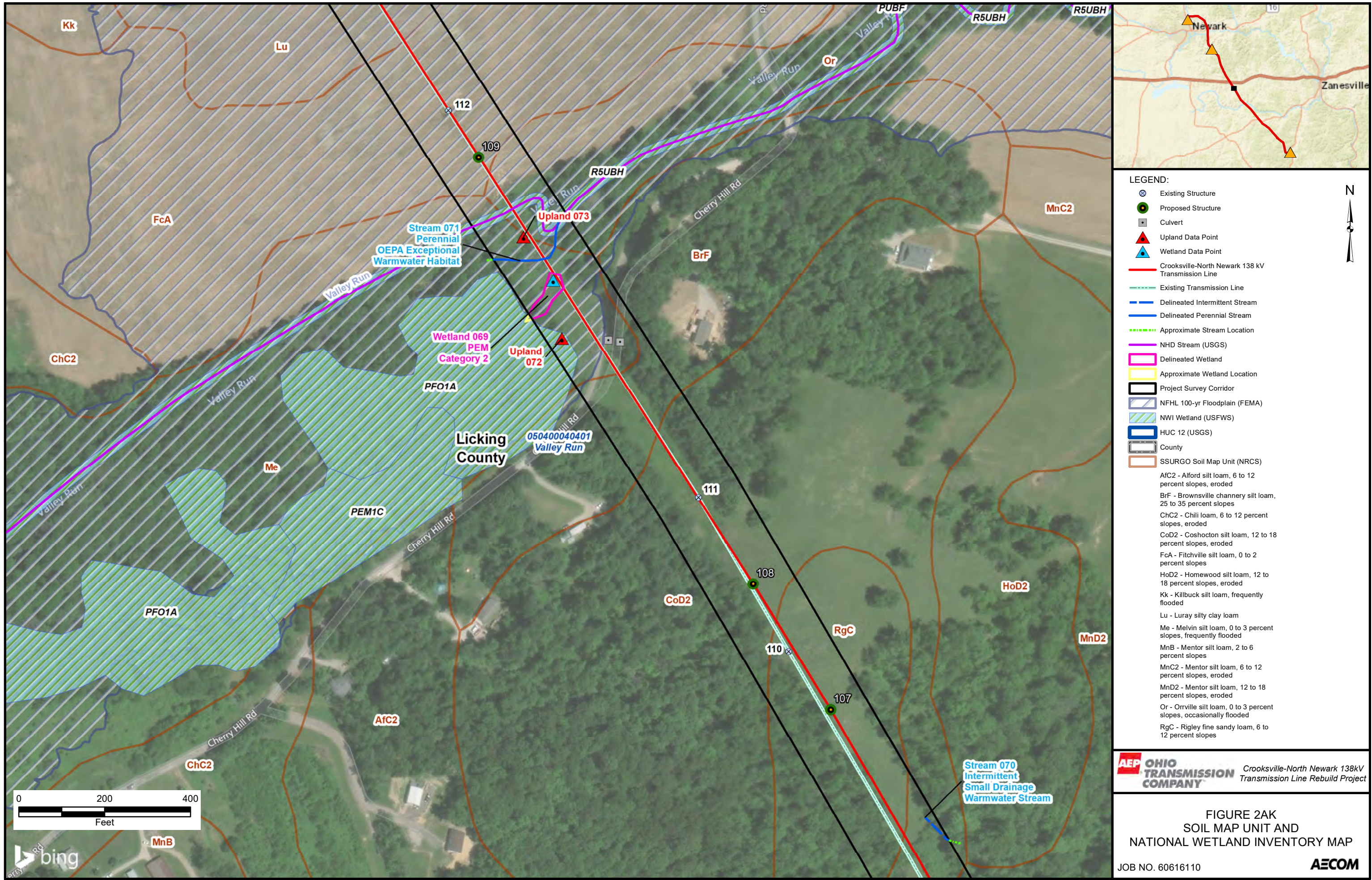


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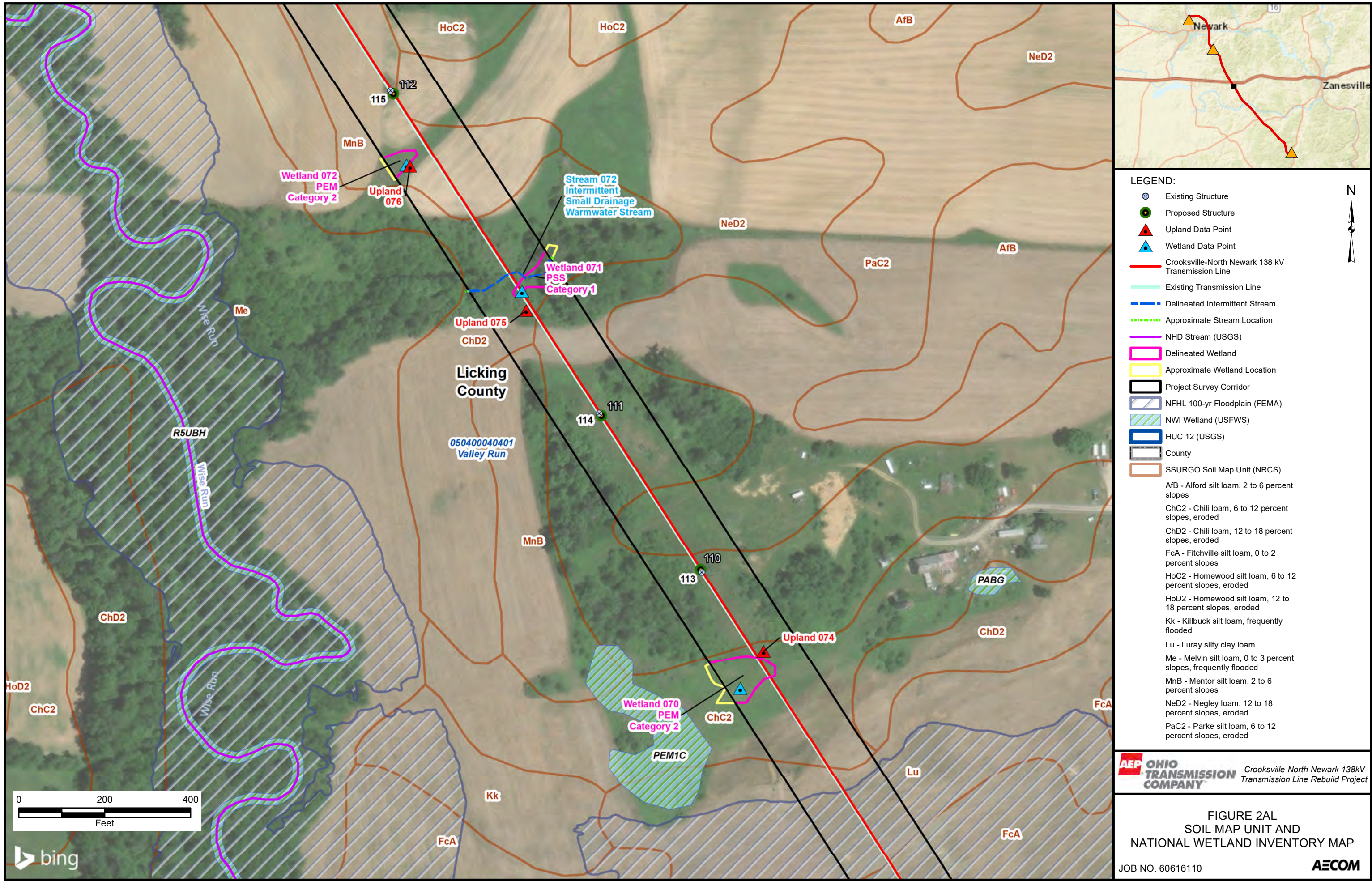


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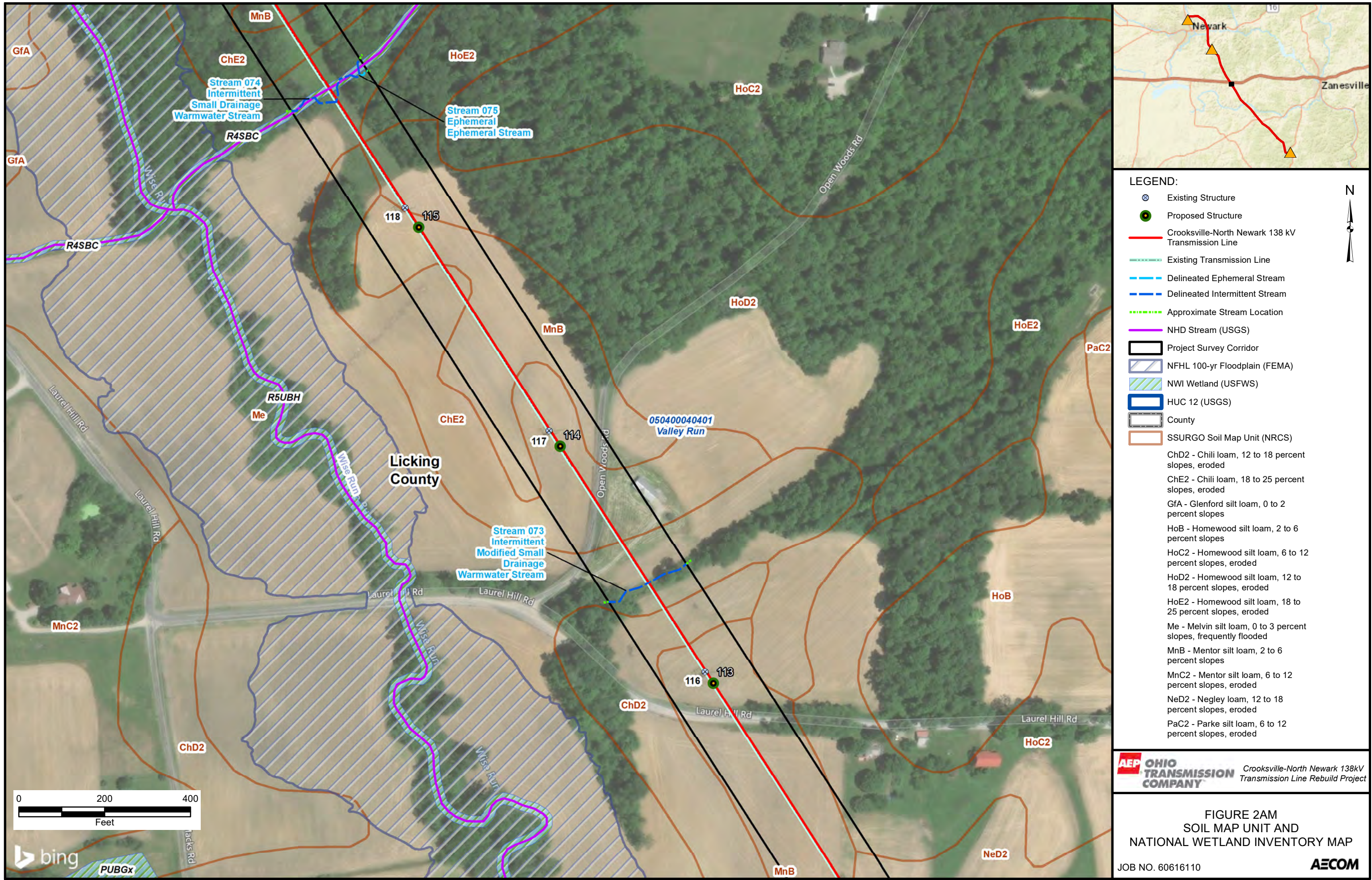


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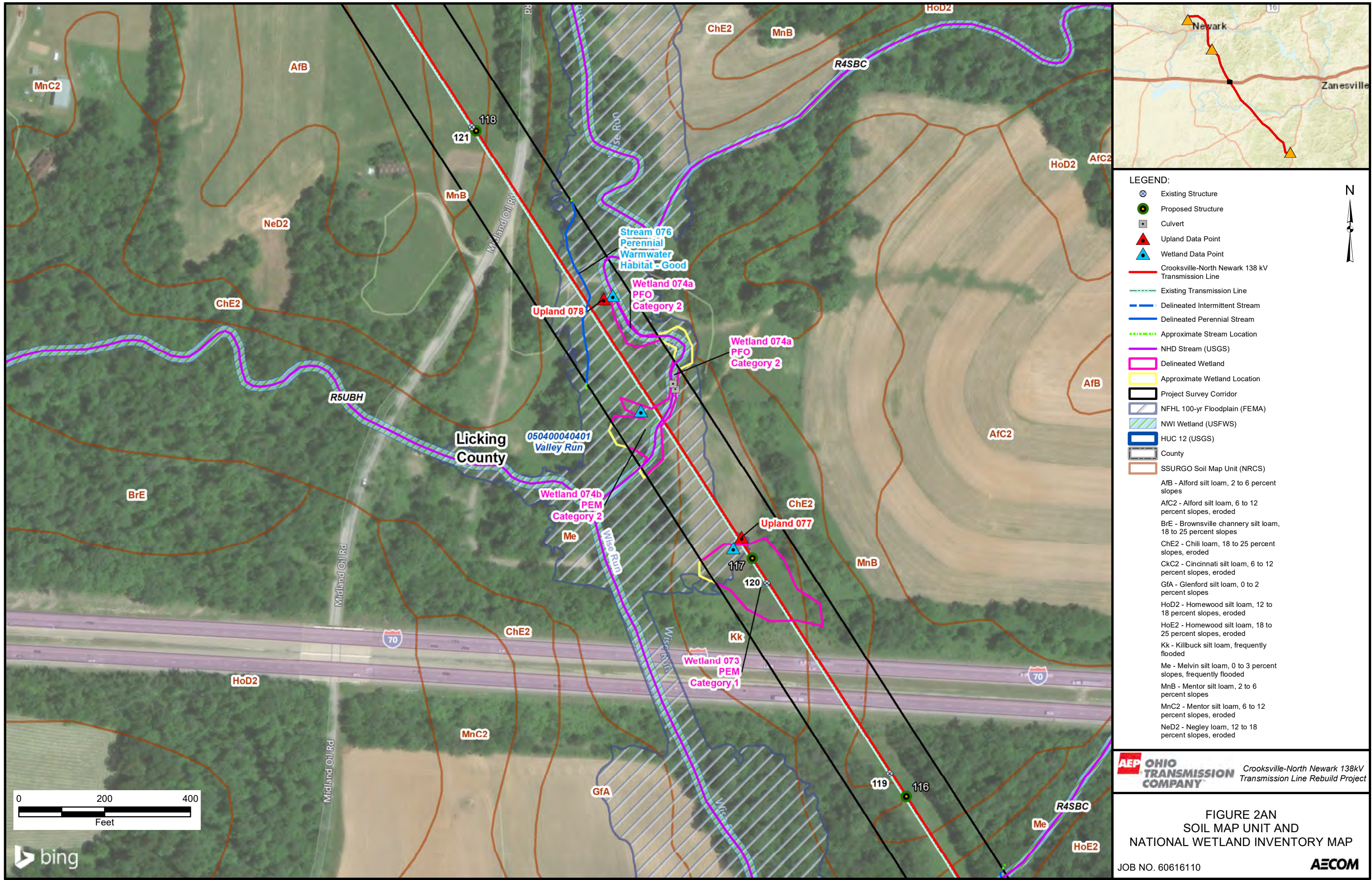


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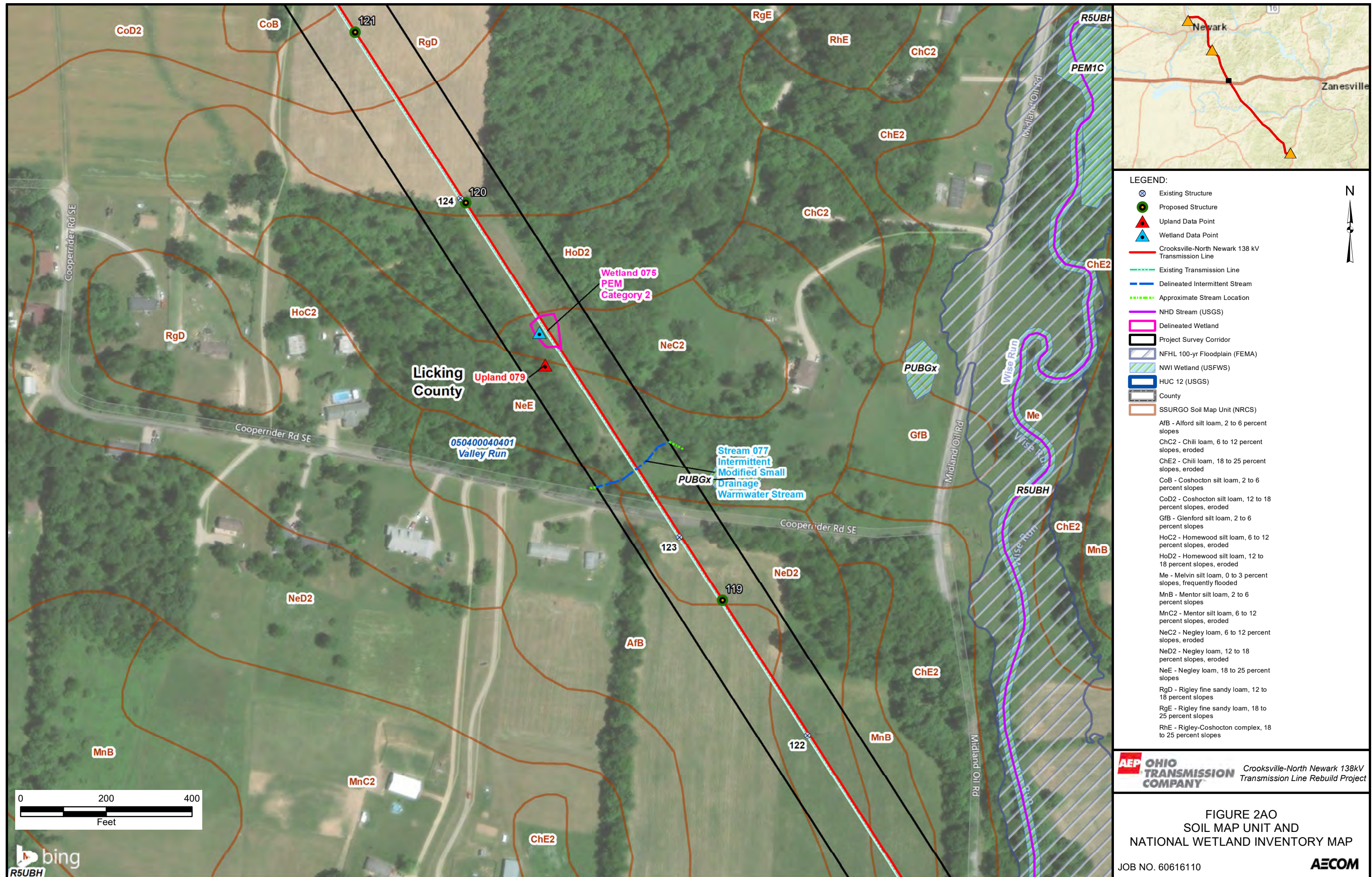




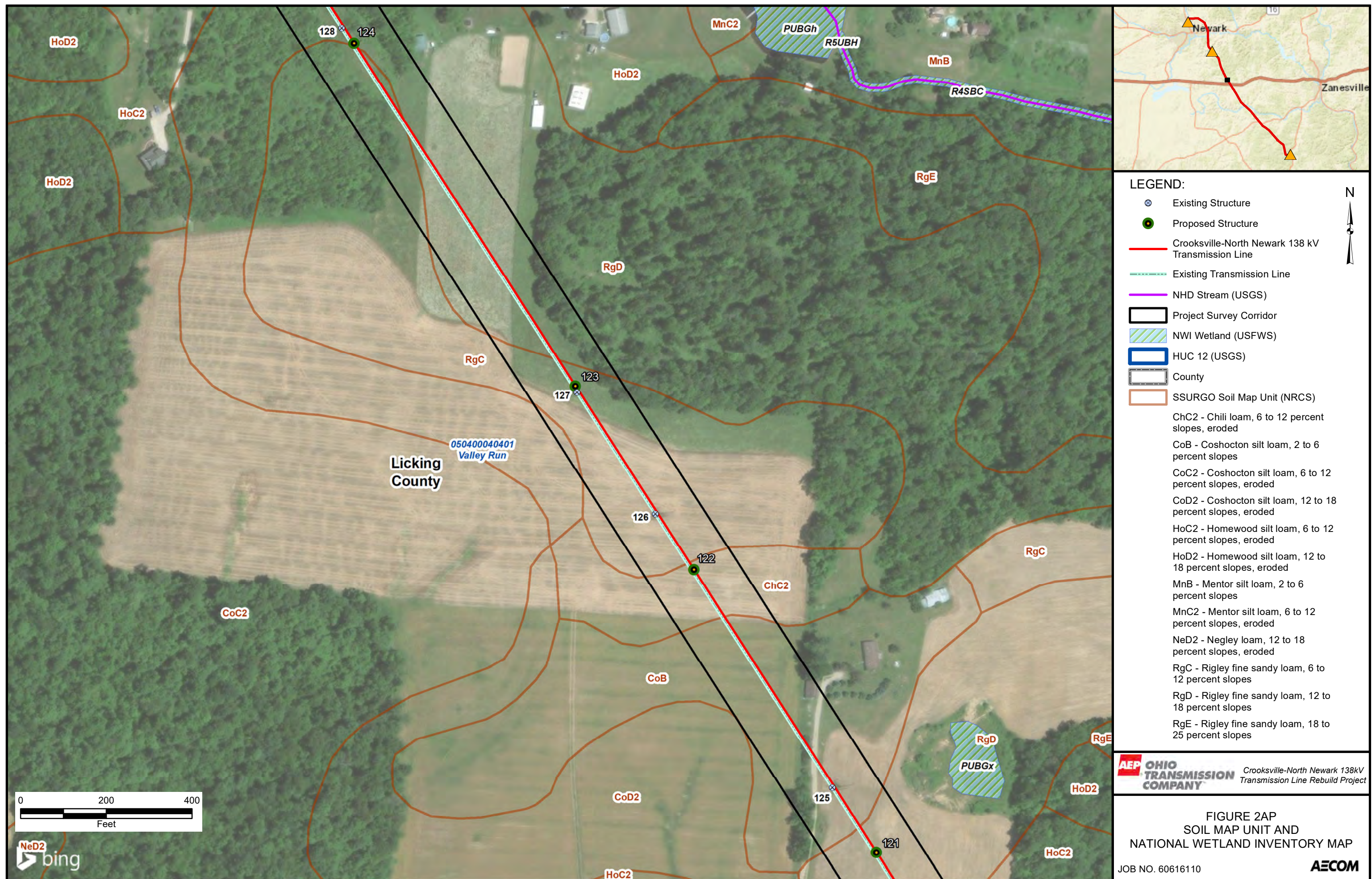
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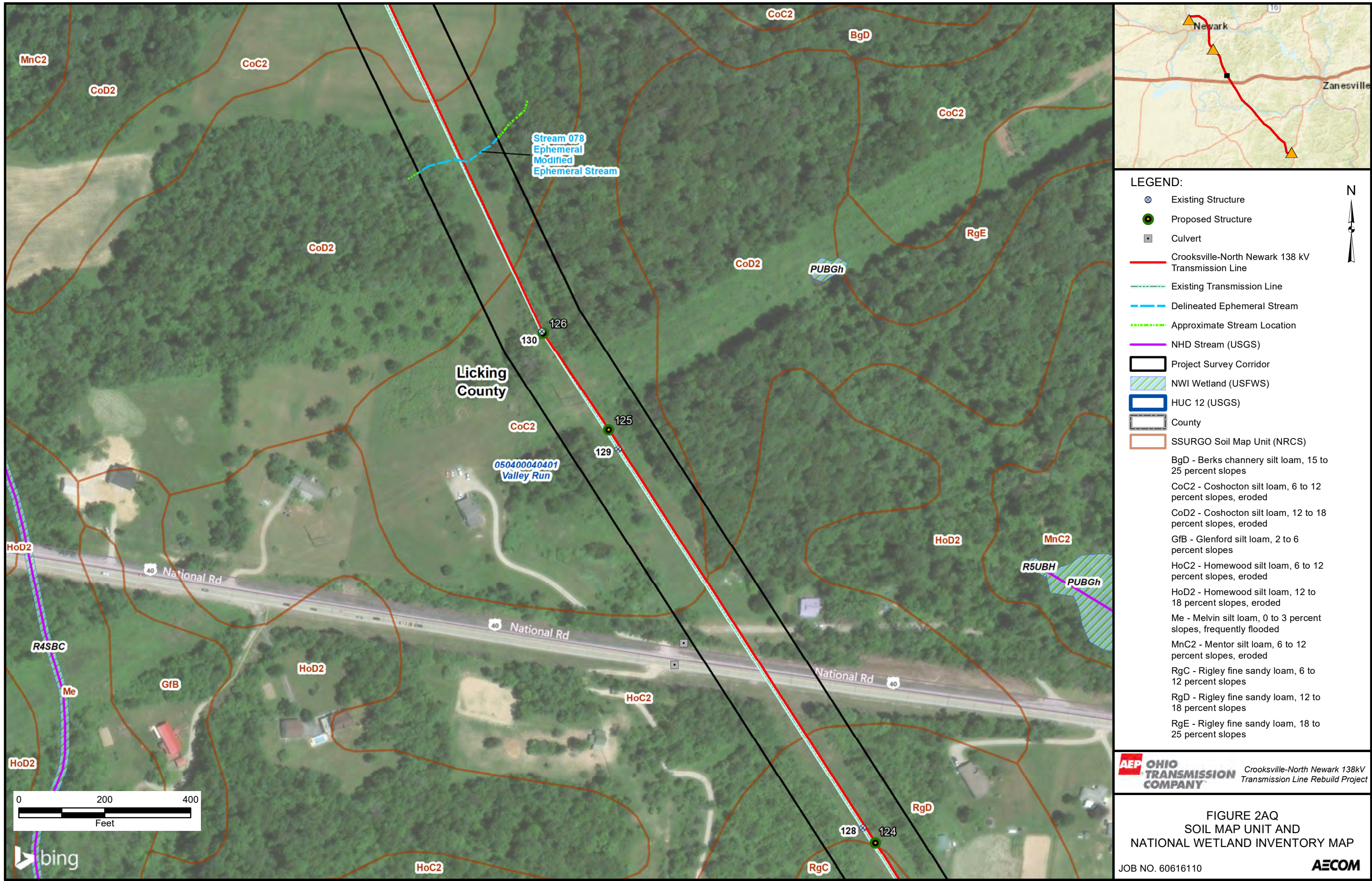






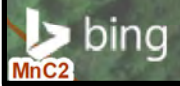
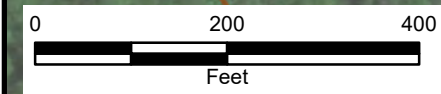


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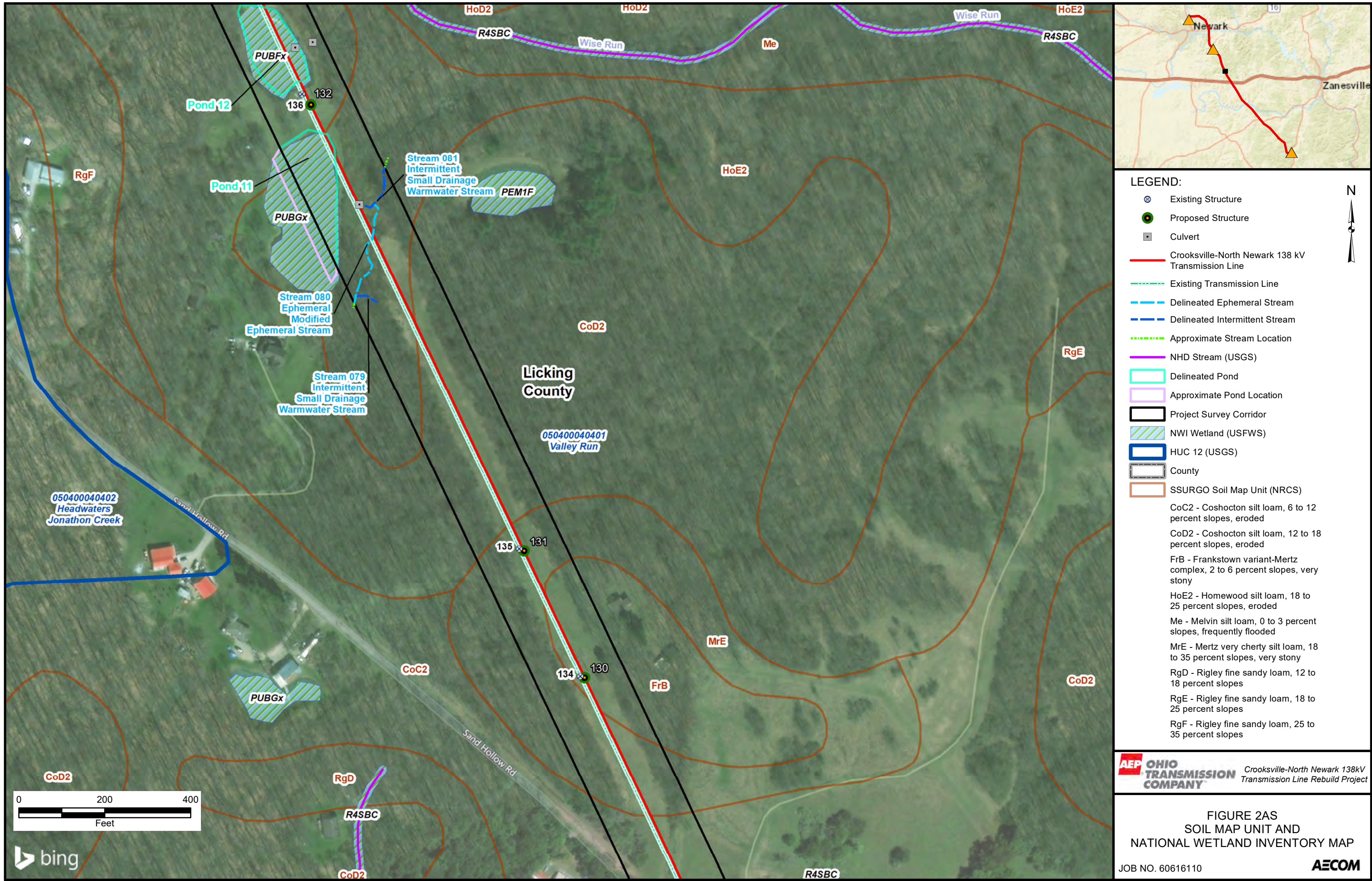


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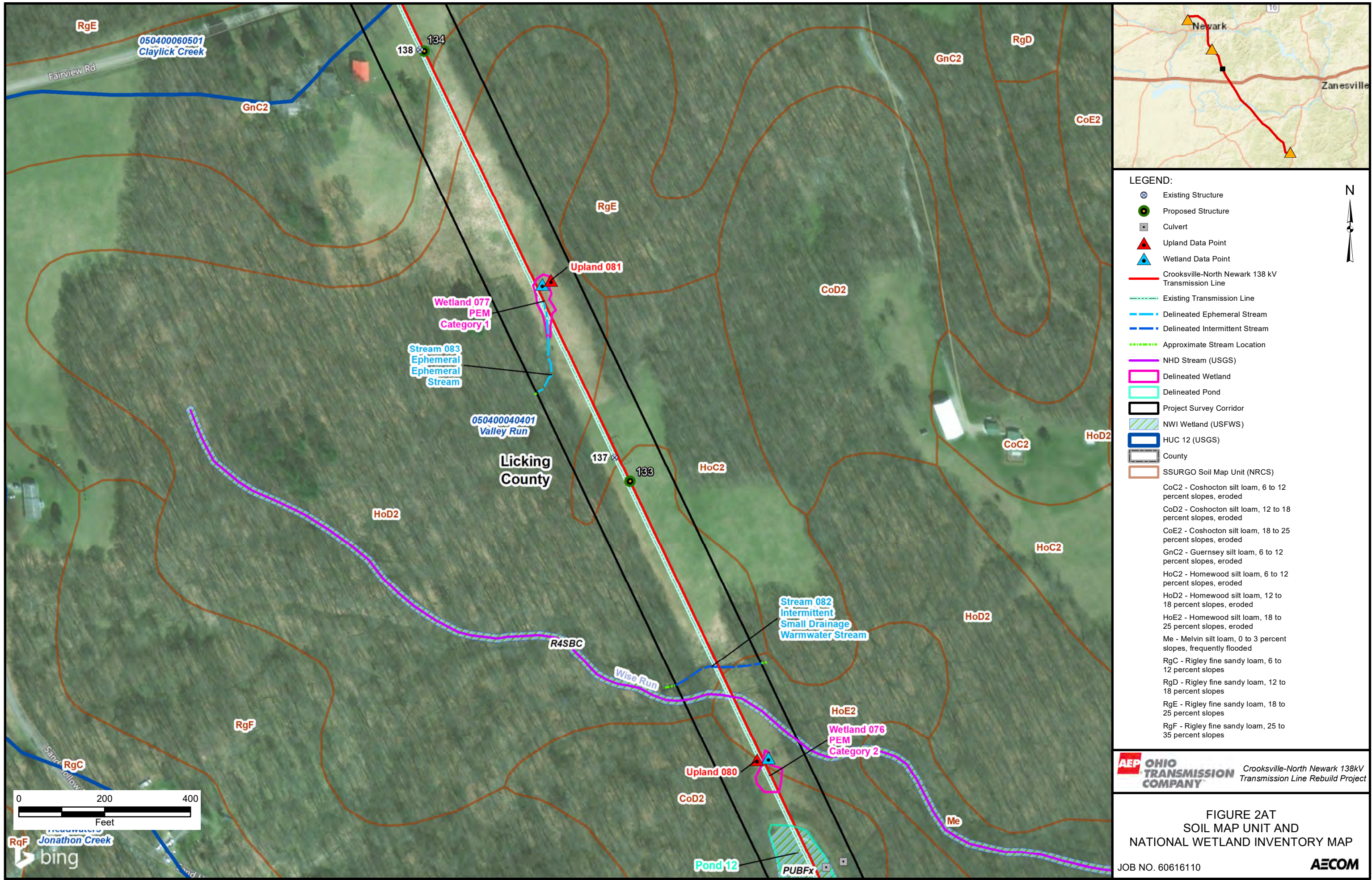


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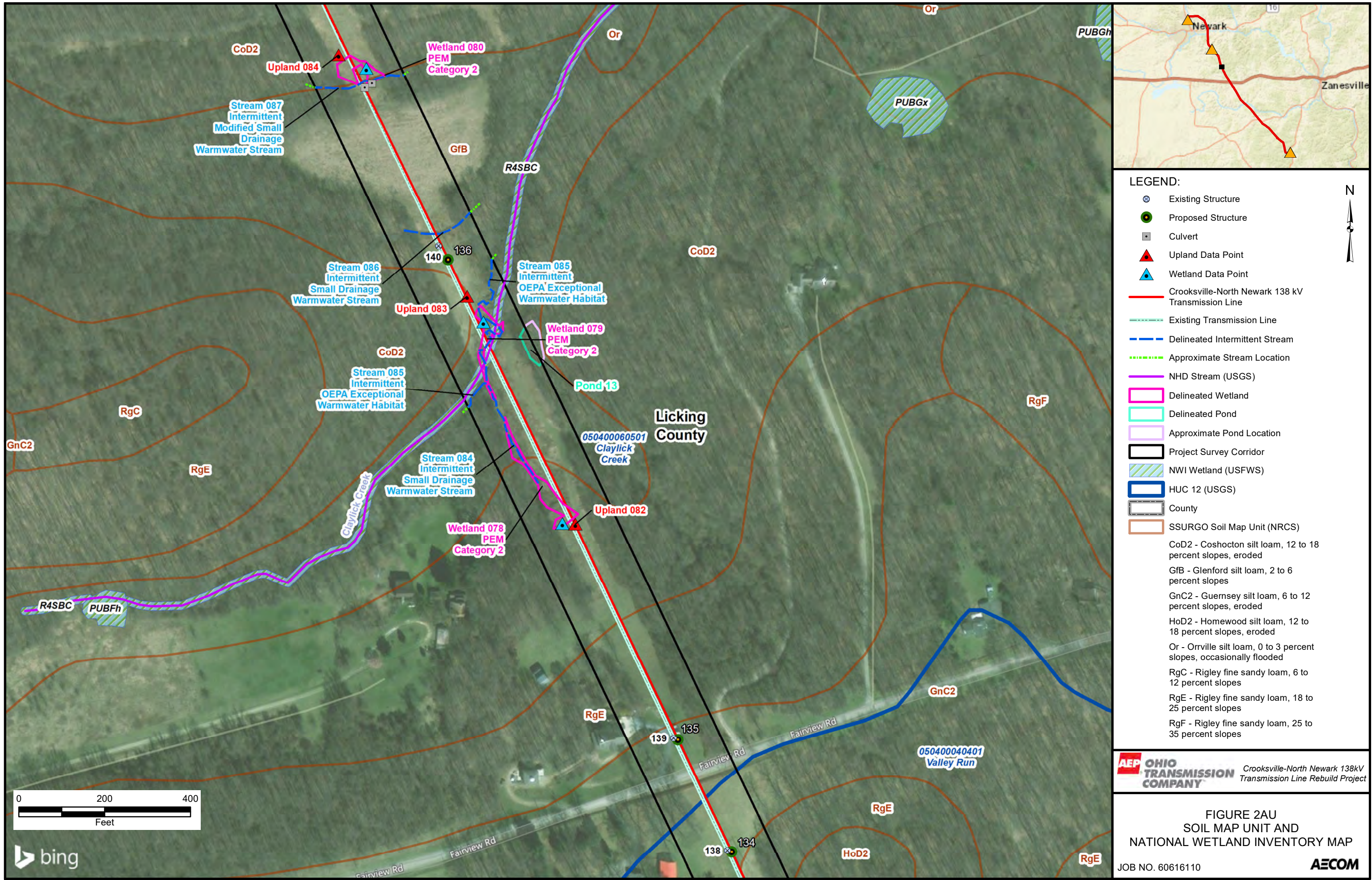


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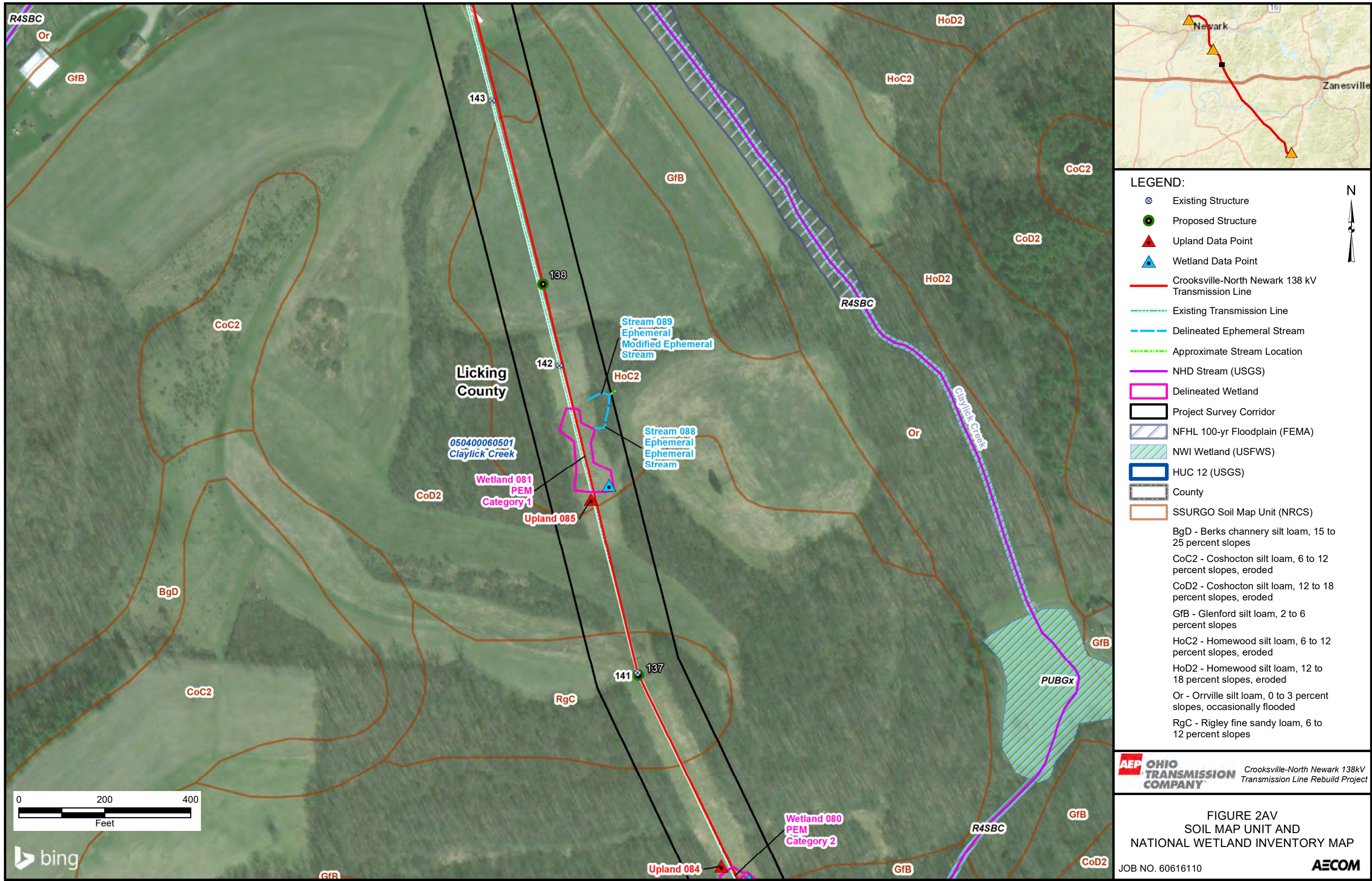


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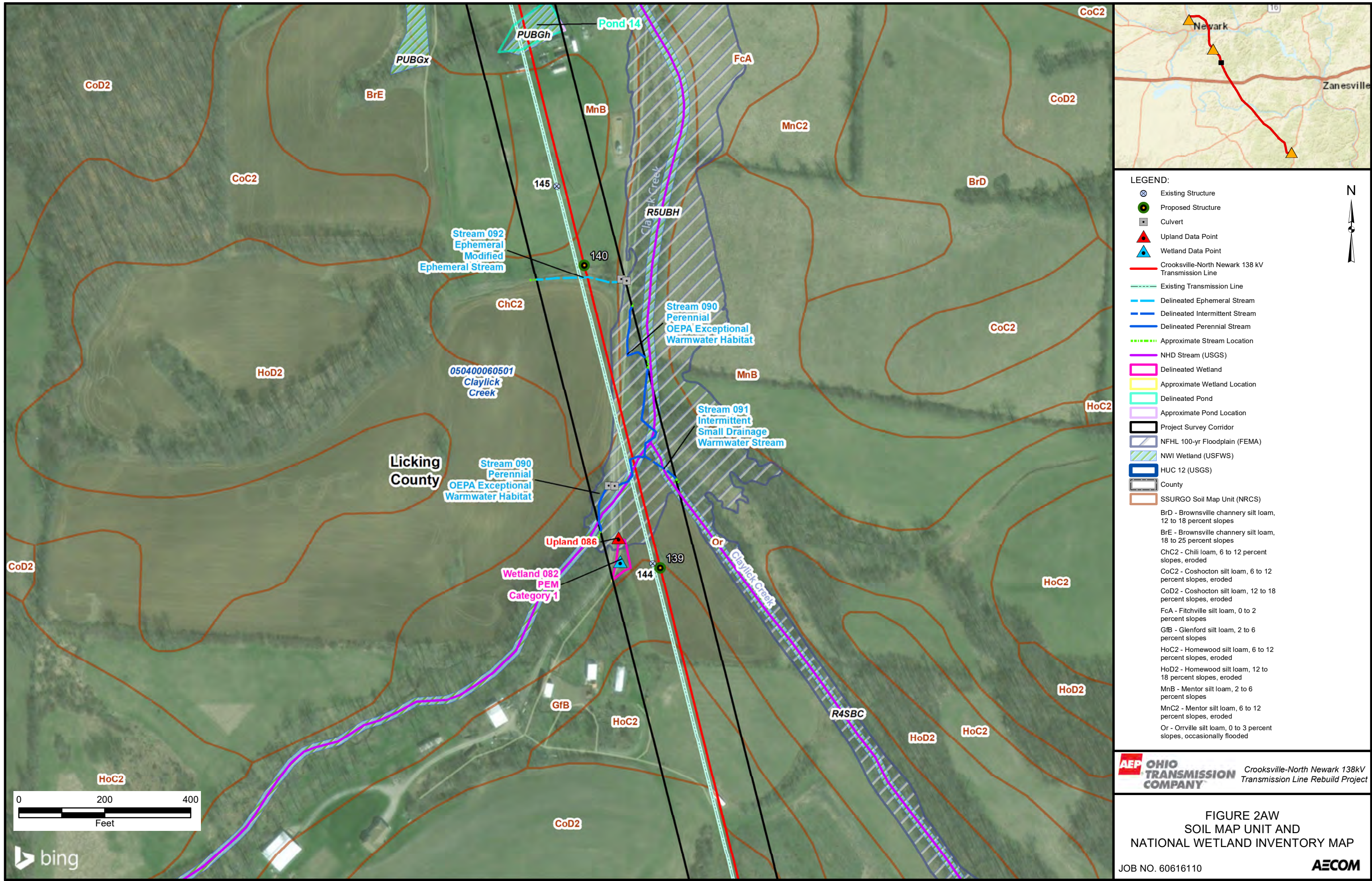


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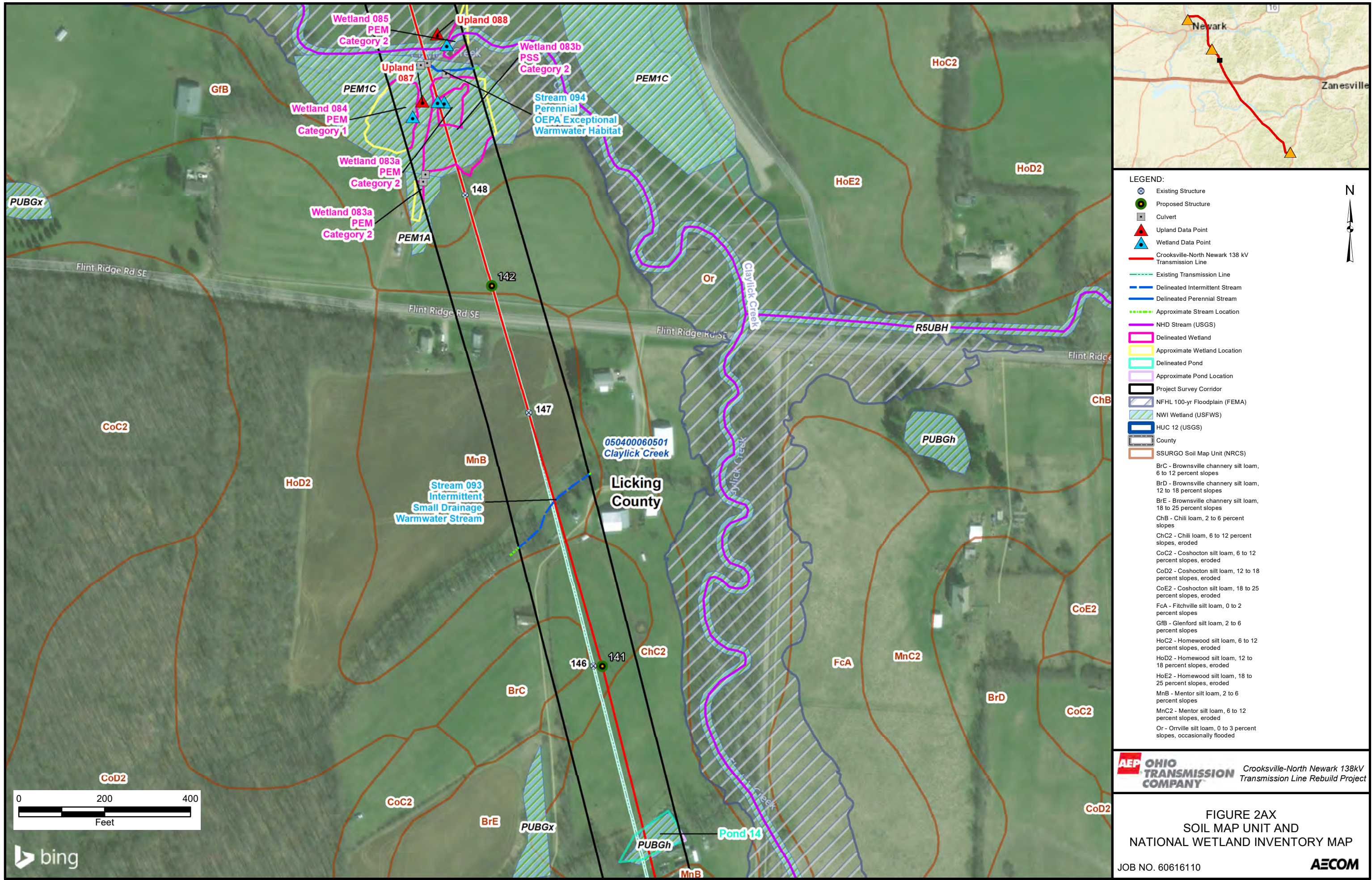


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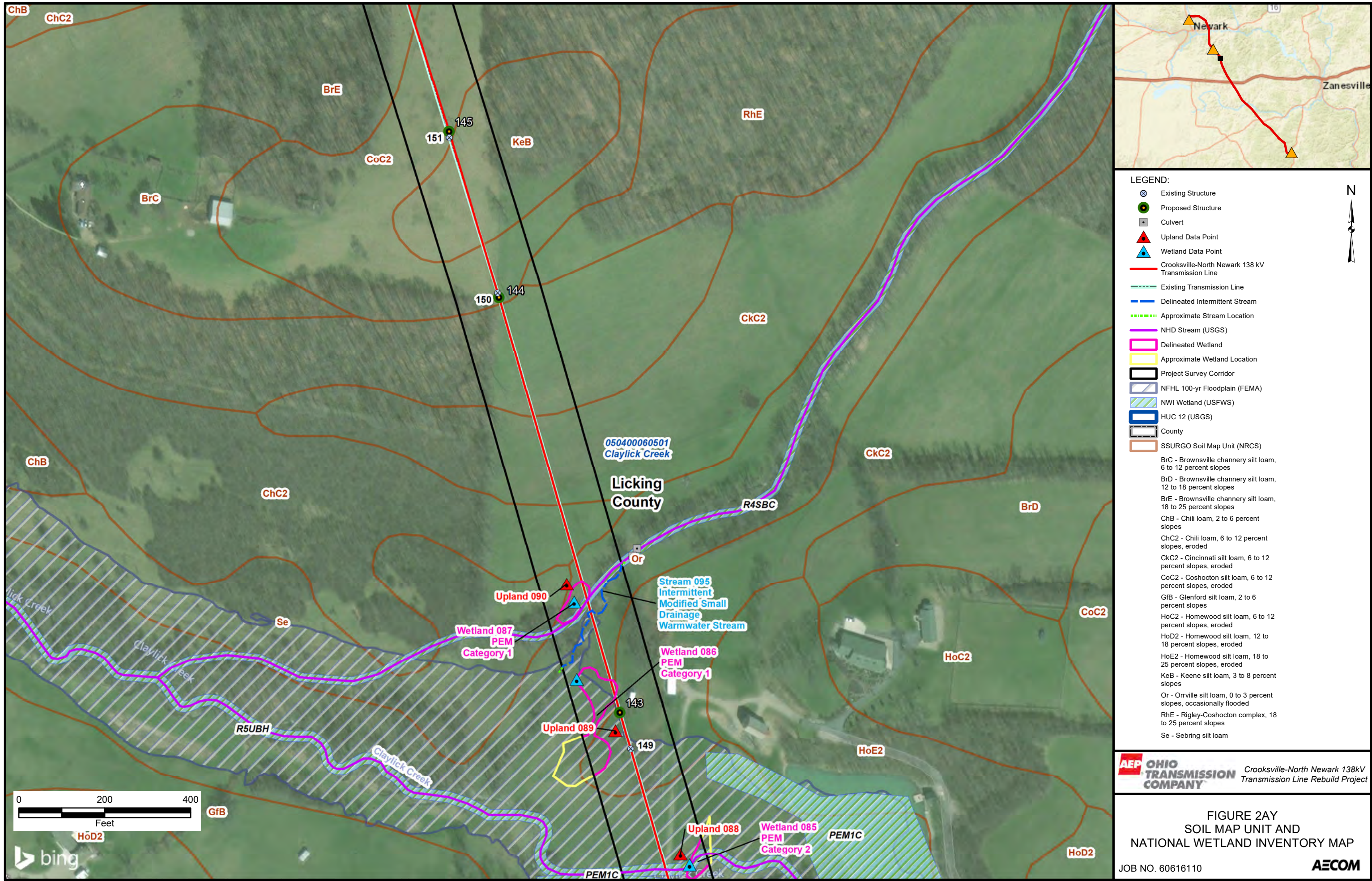


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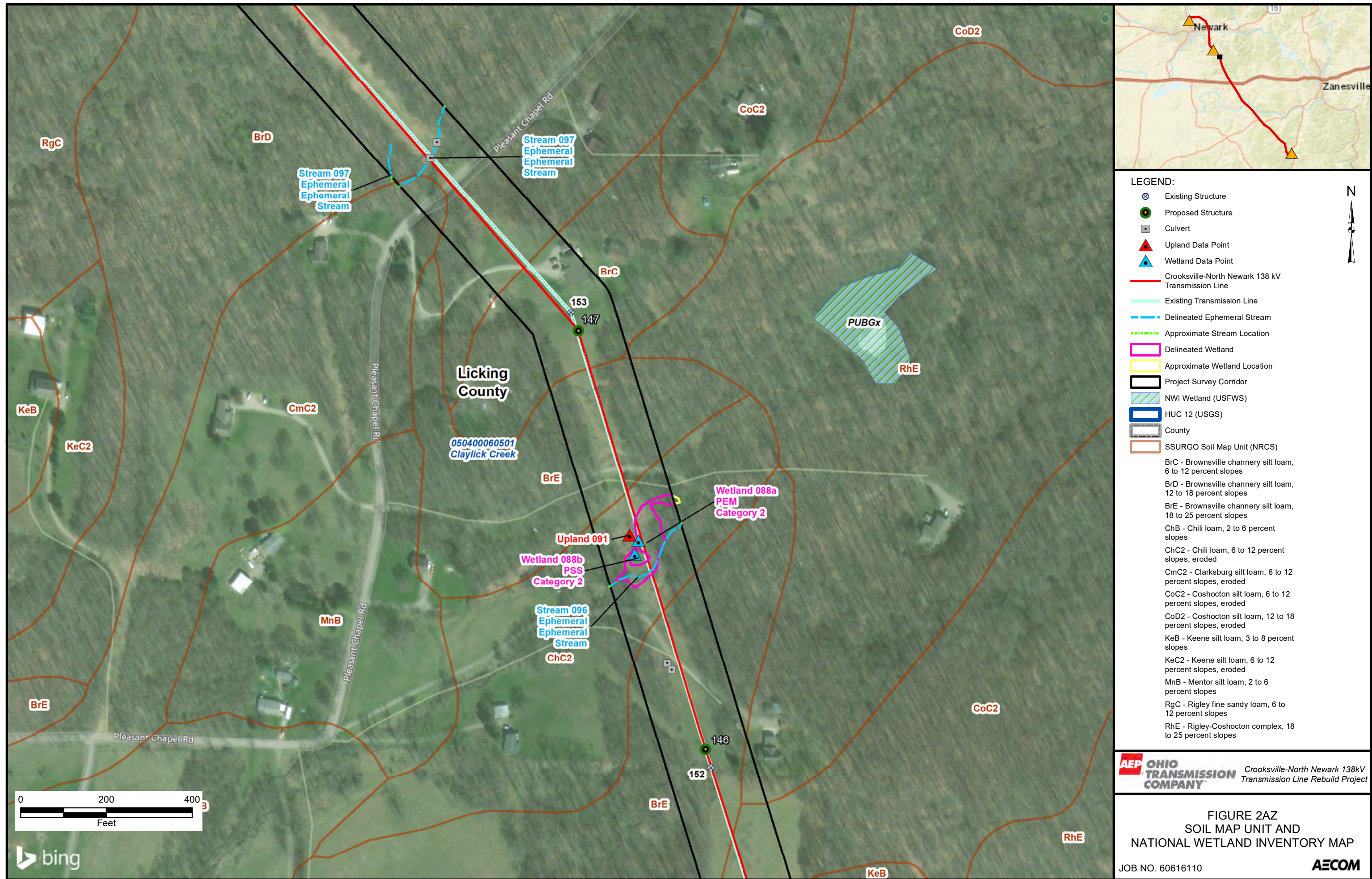


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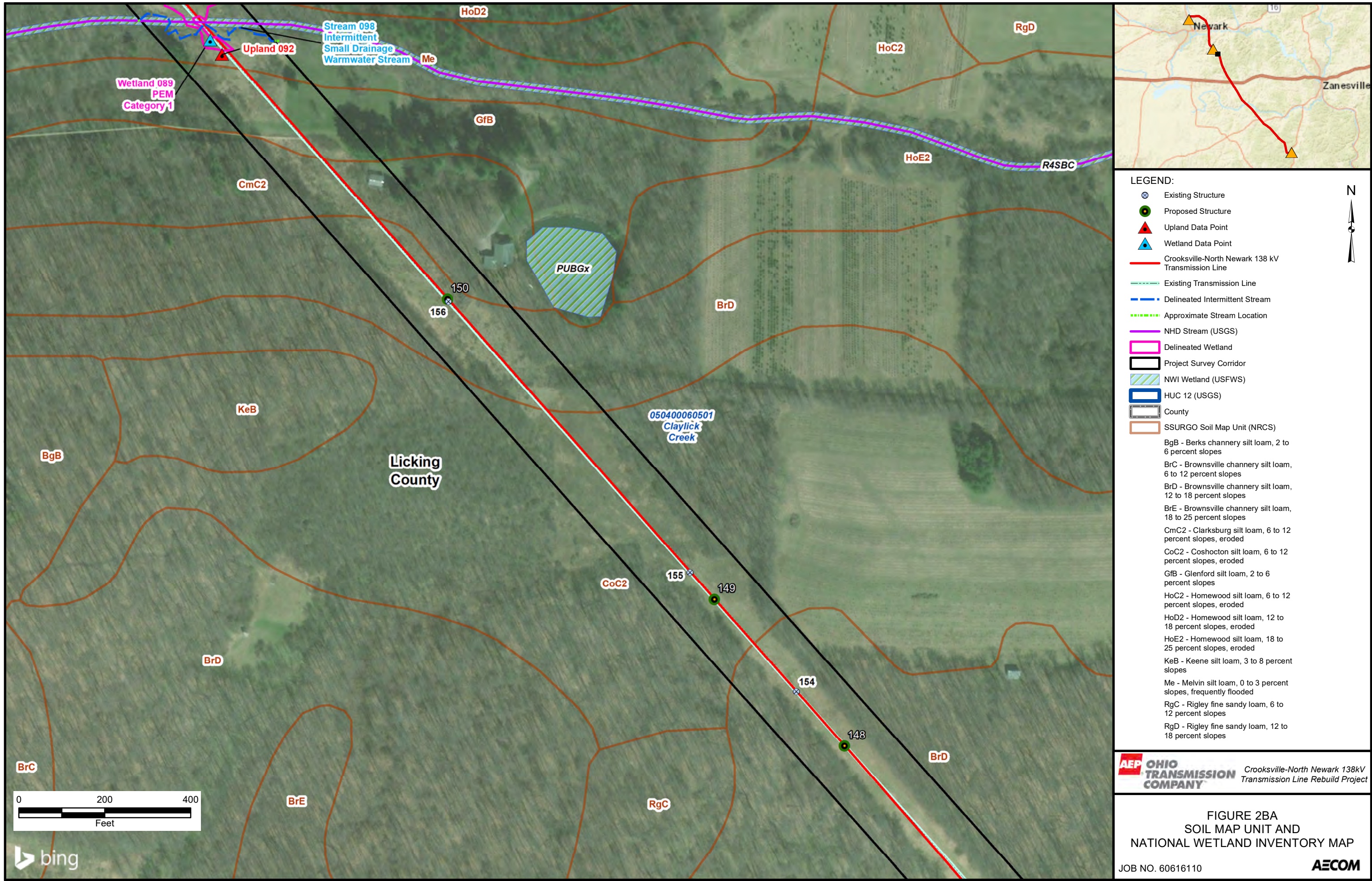


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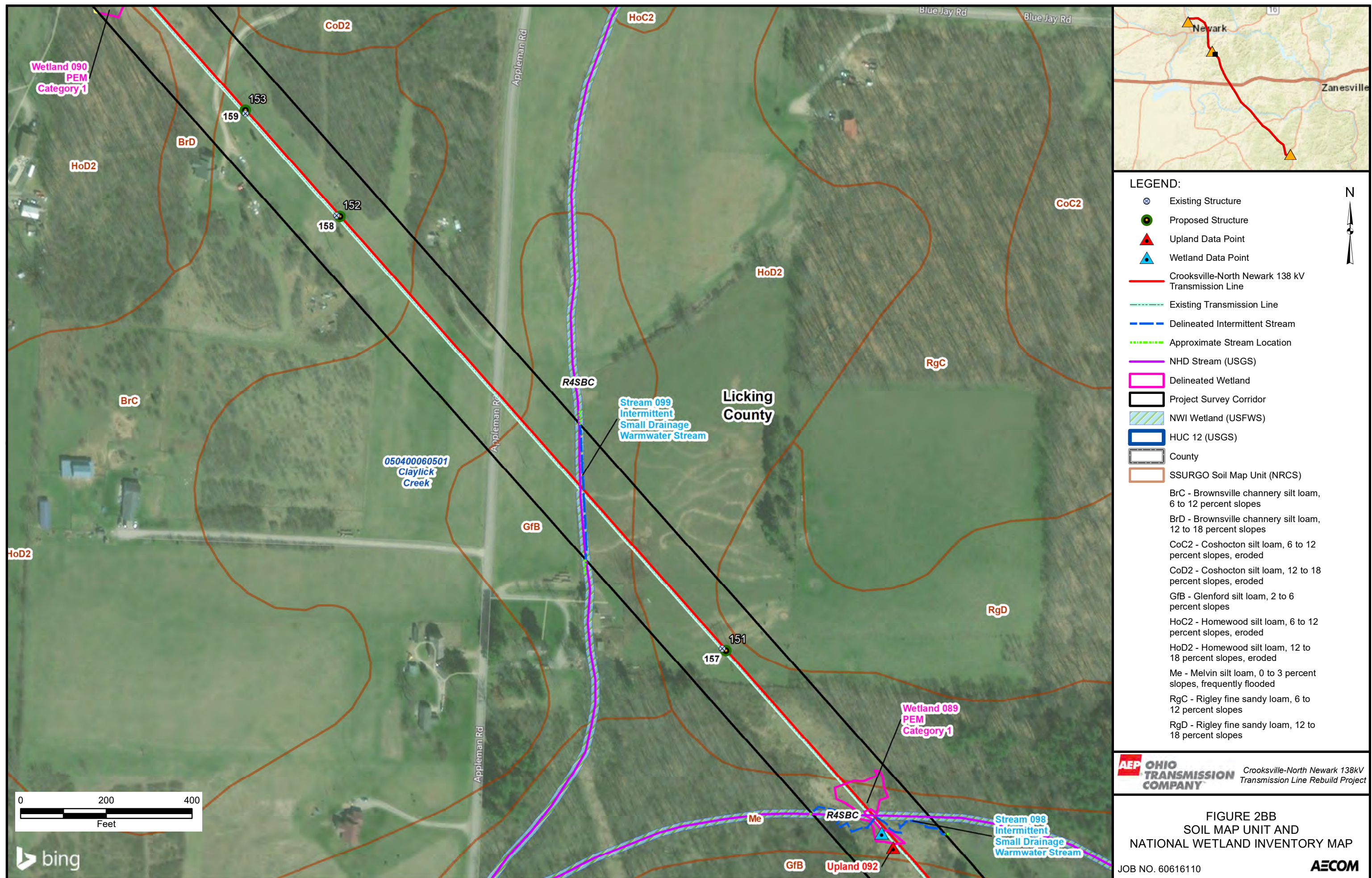




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**Commission of Ohio Docketing Information System on**

**9/9/2021 2:10:07 PM**

**in**

**Case No(s). 21-0852-EL-BLN**

Summary: Notice Letter of Notification for the Crooksville- North 138kV Transmission Line Rebuild Project Pages 1-90 electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc.