Exhibit Booklet	Exhibit Name	Exhibit Description
1	1 - Kentucky Power Company Certificate of Existence	Certificate of Existence that Kentucky Power Company is a corporation duly incorporated and existing under KRS Chapter 14A and KRS Chapter 271B.
1	2 - Project Location Map	Map of the project's location.
1	3A - Proposed Route Map 1A	Includes the aerial background of the proposed route of this project.
1	3B - Proposed Route Map 1B	Includes the topographic background of the proposed route of this project.
2	4A - Alternative Routes Map 2A	Includes the aerial background of the alternative routes of this project.
2	4B - Alternative Routes Map 2B	Includes the topographic background of the alternative route of this project.
2	5 - Proposed Eastern 138kV Substation Location and Layout	Includes station location and layout of the proposed Eastern 138 kV substation.
3	6 - Garrett 138kV Substation Location and Layout	Includes station location and layout of the Garrett 138 kV substation.
3	7 - Soft Shell 138kV Substation Location and Layout	Includes station location and layout of the Soft Shell 138 kV substation.
3	8 - McKinney 46kV Substation Location and Layout	Includes station location and layout of the McKinney 46 kV substation.
3	9 - Beaver Creek 138kV Substation Location and Layout	Includes station location and layout of the Beaver Creek 138 kV substation.
3	10 - Snag Fork	Includes station location and layout of the proposed Snag Fork switching structure.
3	11A - Monopole Dead End Single Circuit	Includes a typical schematic, typical right-of-way cross section, and comparable existing structure photograph for a Monopole Dead End Single Circuit.
3	11B - Proposed 138 H Frame Single Circuit	Includes a typical schematic, typical right-of-way cross section, and comparable existing structure photograph for a Proposed 138 H Frame Single Circuit.
3	11C - Three Pole Single Circuit	Includes a typical schematic, typical right-of-way cross section, and comparable existing structure photograph for a Three Pole Single Circuit.
3	11D - Self Supporting Lattice Single Circuit	Includes a typical schematic, typical right-of-way cross section, and comparable existing structure photograph for a Self Supporting Lattice Single Circuit.
3	11E - Dead End Lattice Double Circuit	Includes a typical schematic, typical right-of-way cross section, and comparable existing structure photograph for a Dead End Lattice Double Circuit.
3	11F - Monopole Dead End Double Circuit	Includes a typical schematic, typical right-of-way cross section, and comparable existing structure photograph for a Monopole Dead End Double Circuit.
3	12A - Beaver Creek-Garrett 1	Photograph of structure K336-11, which indicates pole splitting.
3	12B - Beaver Creek-Garrett 2	Photograph of structure K336-58, which indicates crossarm splitting.
3	12C - Beaver Creek-Garrett 3	Photograph of structure K336-58, which indicates upper pole split to crossarm attachment.
3	12D - McKinney-Garrett 1	Photograph of structure K337-12, which indicates two (2) broken insulators in string.
3	12E - McKinney-Garrett 2	Photograph of structure K337-12, which indicates one (1) broken insulator in string.
3	12-F McKinney-Garrett 3	Photograph of structure K337-16, which indicates rot-top.
3	12-G McKinney-Garrett 4	Photograph of structure K337-24, which indicates severe Pole Splitting.
3	12-H Spring Fork Tap 1	Photograph of structure K335-9, which indicates pole cavities.
3	12I - Spring Fork Tap 2	Photograph of structure K335-9, which indicates pole rot w/temporary braces in place.
3	12J - Spring Fork Tap 3	Photograph of structure K335-10, which indicates flashover-arcing damage to insulator.
3	13 - Notice To Landowners and Verification of Mailing	Includes verification of the mailing and the notice to landowners of the proposed construction of an electric transmission line project.
3	14 - Present System and Project Components	Map of the present system and proposed project components.

Exhibit Booklet	Exhibit Name	Exhibit Description
3	15 - List of Landowners Within The ROW and 1,000 Foot Corridor	List of landowners within the right-of-way and list of landowners within the 1,000-foot filing corridor.
3	16 - Major Components Of The Proposed Substation Work And Their Purpose	List of the project's major components of the proposed substation work and their purpose.
3	17A - Published Notice and Affidavit 1	Newspaper notice published in Floyd and Knott counties.
3	17B - Published Notice and Affidavit 2	Newspaper notice published in Floyd, Knott, and Breathitt counties.
3	18 - Public News Release	Announcement of the project with information available to the public.
3	19 - Filing Requirements	List of filing requirements in this CPCN proceeding.
4	20 - Siting Study	To identify the most suitable route for the Garrett Area 138 kV transmission line project and proposed site of the Eastern 138 kV Substation.
5	21 - AEP's Guidelines For Transmission Owner Identified Needs	Guidelines to determine the necessity of supplemental projects.
5	22 - PJM Local Plan	Public document at PJM that provides the Need, Solution, and cost estimate at the time of submittal.
5	23 - PJM Solution with Alternative	Public document at PJM that provides the Alternative Solution or Reasonable Alternative and cost estimate at the time of submittal.

Siting Study

for

Garrett Area Transmission Line Project

Prepared for:

KENTUCKY POWER
An AEP Company

Prepared by:

GAI Consultants, Inc.
385 East Waterfront Drive
Homestead, Pennsylvania 15120

gai consultants
transforming ideas into reality

Date: September 2021

Revision: N/A

TABLE OF CONTENTS

ATTACHMENTS

1.0 PROJECT DESCRIPTION

Kentucky Power (the "Company") plans to upgrade the electric transmission grid in Knott and Floyd Counties, Kentucky (KY) by constructing an approximately 15-mile greenfield, double-circuit, 138 kilovolt (kV) transmission line. The Garrett Area Transmission Line Project (the "Project") will allow for the retirement of approximately 25 miles of existing transmission line that includes deteriorating wooden poles from the 1920s and 1940s. The overall project also includes constructing a new substation and upgrading several existing substations, which will strengthen the local electric system and increase electric reliability for area customers.

The Project will connect the existing Hays Branch Substation, the proposed Eastern Substation, the existing Garrett Substation, the existing Saltlick Substation, and the existing Soft Shell Substation and will be supported by a combination of steel H-frame, lattice tower, and three-pole structures. The final structure types will be dependent on engineering design and terrain. The typical height of the structures will be approximately 85 feet but will vary along the route depending on topography and constraints. To meet long-term maintenance and safety criteria, the Project will use a typical right-of-way (ROW) width of approximately 100 feet. This may vary along the route depending on Project needs, topography, and specific parcel uses and configurations. See the attached Outreach Fact Sheet (Attachment A) for additional information.

The Project will require filing a Certificate of Public Convenience and Necessity application with the Kentucky Public Service Commission (PSC). The Company anticipates filing the application with the PSC in October 2021.

The Company initiated the siting process for the Project in early 2020, with initial study segments being reviewed throughout 2020 and into 2021. Study segments were presented to the public on a Project-specific website with a 30-day comment period in March and April 2021. Pending issuance of all required federal, state and/or local permits, construction is expected to begin in the summer 2023 and be completed by the end of 2024. This Siting Study describes the transmission line route development process and the rational for the proposed route selection.

2.0 ROUTE DEVELOPMENT OVERVIEW

The Company's electrical planners started the route development process by defining the **Project Endpoints** which included the existing Hays Branch Substation, the proposed Eastern Substation, the existing Garrett Substation, the existing Saltlick Substation, and the existing Soft Shell Substation (see Attachment B, Map 1).

A **Substation Site Study** (See Attachment C) was completed for the proposed Eastern Substation to identify the most suitable site. The new substation must be located in proximity to the existing Hays Branch-Morgan Fork 138kV transmission line and the natural gas liquids extraction facility

currently serviced by the existing Hays Branch Substation. Approximately 10 study sites were initially identified, narrowed down to four alternative sites, and a Proposed Substation Site was selected. The proposed Eastern Substation Site is the most suitable due to its location and access options, which together minimize development, construction, and operation issues.

Next, the Siting Team defined the **Study Area** to develop transmission line routes. The Study Area encompasses the Project endpoints and the logical area in between (see Attachment B, Map 1). Given the geographic distribution of the various endpoints, the Project required a large Study Area in a trapezoidal shape. The Study Area is bounded by the existing Hays Branch Substation and Hays Branch-Morgan Fork 138kV transmission line in the northeast, and by the existing Soft Shell Substation to the southwest. To the southeast, the Study Area includes the communities of Garrett, Lackey, and Mousie with the boundary situated on the hilltops along State Route 550. To the northwest, the boundary was developed to include options for avoiding a large mining operation outside the Soft Shell Substation, as well as avoiding crossing into Magoffin County. In general, the Study Area is rural, mountainous, and largely undeveloped with the exception of small towns and developments situated along KY Route 80 (KY-80).

Data Collection (see Attachments D, E, and F) and **Constraints and Opportunities** reviews (see Attachment G) were completed for the Study Area. Readily available public data sources were used initially and supplemented with stakeholder input, non-public data, and field inspections. The majority of constraints within the Study Area are associated with the human environment, including development associated with the communities of Garrett and Eastern, and smaller pockets of development along major roadways. Additionally, natural resource extraction facilities are prominent in the area and include numerous underground pipelines in the vicinity of the Eastern Substation and a large coal mining operation outside the Soft Shell Substation. Given the size and rural location of the Project, large portions of the Study Area remain undeveloped, providing avenues to site transmission line routes that avoid the more densely developed areas to the greatest extent feasible.

The development of **Study Segments** was the next step (see Section 3.0), which are partial alignments connecting the Project endpoints while avoiding or minimizing constraints to the extent possible. To aid in the development of the Study Segments, the Project was broken down into four Focus Areas between the various Project endpoints. The Focus Areas included the Eastern-Hays Focus Area, Eastern-Garrett Focus Area, Garrett-Saltlick Focus Area, and Saltlick-Soft Shell Focus Area. Next, the various Study Segments identified within each Focus Area were assembled into logical **Alternative Routes** and a comparison was completed (see Section 4.0). Lastly, based on analysis and stakeholder input, the Siting Team identified a **Proposed Route.** The reasons for the Project's Proposed Route selection are summarized in Section 5.0.

3.0 STUDY SEGMENTS

As mentioned previously, Study Segments (see Attachment B - Map 2) are partial alignments connecting the Project Endpoints within the Study Area. The Study Segments are developed to meet the Project's functional requirements (engineering and construction) and, at the same time, minimize environmental and socioeconomic impacts and Project costs. Given that the Project's goal is to connect several Endpoints (substations), the siting of Study Segments was broken down into four Focus Areas between these substations: Eastern-Hays Branch, Eastern-Garrett, Garrett-Saltlick, Saltlick-Soft Shell. Each Focus Area has its own constraints and opportunities that were considered when developing Study Segments.

Hays Branch-Eastern is the northernmost and shortest Focus Area. It requires development of a transmission line between the existing Hays Branch Substation and the proposed Eastern Substation, which will be accomplished by developing a new transmission line that will tap the existing Hays Branch-Morgan Fork 138kV Transmission Line and continue to the Eastern Substation. Constraints within this Focus Area include the community of Eastern, several small cemeteries on ridgetops and side slopes, the floodplain associated with Right Fork Beaver Creek, and underground pipelines feeding the natural gas extraction facility currently serviced by the Hays Branch Substation. Five Study Segments (01-05) were developed as options connecting the Eastern Substation to the Hays Branch-Morgan Fork 138kV Transmission Line.

The Eastern-Garrett Focus Area is also located in the northern part of the Study Area. Within this Focus Area, a transmission line will be developed between the proposed Eastern Substation and the existing Garrett Substation. Given the geographic location of the substations, and the location of KY-80, two corridors emerged within the Focus Area as options for the siting of Study Segments: one to the west of KY-80 and one to the east. Constraints within the Focus Area include the community of Eastern and pockets of development along KY-80 and secondary roadways, as well as the Floyd Central High School. Three Study Segments were developed as options connecting the Eastern Substation to the Garrett Substation.

The Garrett-Saltlick Focus Area is located near the center of the Study Area. While Hays Branch-Eastern and Eastern-Garrett Focus Areas are situated in north/south orientations, the Garrett-Saltlick Focus Area has an east/west orientation, which requires the proposed transmission line to cross through the community of Garrett. The existing Spring Fork 46-kV Tap is located in this area and also sits in an east/west orientation, providing an opportunity for paralleling its existing ROW with the proposed transmission line. Eleven Study Segments were developed as options connecting the Garrett Substation to the Saltlick Substation.

Finally, the Saltlick-Soft Shell Focus Area is located in the southern half of the Study Area and is the longest section of transmission line. It is located in a north/south orientation generally

paralleling KY-80. This Focus Area is mainly undeveloped with the exception of the Knott County Sportsplex and a large coal mining operation in the vicinity of the Soft Shell Substation. Given the size of these facilities, complete avoidance is not feasible. Eleven Study Segments were developed as options connecting the Saltlick Substation to the Soft Shell Substation.

In total, 30 Study Segments were developed to connect the various Endpoints of the Project. These Study Segments were presented to the public with a request for comments via a Project-specific website which included a virtual open house, interactive overview map, fact sheet, updates and news releases, schedule information, and photographs of representative structures. At the conclusion of the 30-day comment period, the Company had received comments from approximately 48 landowners. A summary of comments are discussed in Section 4.0.

4.0 ALTERNATIVE ROUTE COMPARISON

At the conclusion of the 30-day comment period of the virtual open house, the Siting Team reviewed each Study Segment, constraint, and comment in detail to determine if any Study Segments should be revised or eliminated. One comment was received regarding the Hays Branch-Eastern Focus Area. The comment expressed concern over flooding in the area of the proposed Eastern Substation. No comments regarding the proposed transmission line were received. However, after additional scrutiny, the Siting Team determined that Study Segment 01 should be eliminated due to outage constraints with the tap location along the Hays Branch-Morgan Fork 138kV Transmission Line, proximity to the Right Fork Beaver Creek and a railroad tunnel, as well as uncertainty regarding the location of underground pipelines along the ridgetops in the vicinity. The remaining four Study Segments were combined into two Alternative Route options identified as Alternative Routes A and B (see Attachment B - Map 2 and Map 3).

The Eastern-Garrett Focus Area received approximately five comments. A property owner crossed by Study Segment 06 provided comments expressing a negative view of the Project, while the remaining comments detailed constraints on individual parcels but did not express an unwillingness to negotiate. The Siting Team determined all three Study Segments were to be moved forward in the analysis. These Study Segments were combined into two Alternative Route options identified as Alternative Routes C and D (see Attachment B - Map 2 and Map 3).

Approximately 16 comments were received regarding the Study Segments proposed within the Garret-Saltlick Focus Area. While some comment cards were blank, the majority of comments were positive, with landowners informing the Siting Team of constraints on individual parcels and expressing a willingness to negotiate. Three landowners indicated in their comments they prefer the transmission line not impact their property. Review of the Study Segments and comments by the Siting Team resulted in the elimination of four Study Segments (10, 11, 12, and 13). Study

Segment 10, which was originally developed as a northernly option for avoiding the community of Garrett, was eliminated due to its length and more indirect route compared to other options. Study Segment 11 was eliminated due to engineering concerns with spanning KY-80 at a bridge location where it is also paralleled by a tall distribution line. The elimination of Study Segment 11 meant that Study Segments 12 and 13 were no longer necessary. The remaining Study Segments were combined into two Alternative Route options identified as Alternative Routes E and F (see Attachment B - Map 2 and Map 3).

The Saltlick-Soft Shell Focus Area received approximately 10 comments, three of which indicated a preference for the transmission line not to cross their property. A large mining operation crossed by several of the Study Segments indicated a preference for the more southeasterly Study Segments due to future mining plans. Other comments included requests for additional information and general notes about individual properties. Based on these comments, and additional engineering reviews, Study Segments 20, 21, 22, 23, and 29 were eliminated from consideration due to impact to future mining plans and/or route length. The remaining Study Segments were combined into four Alternative Route options identified as Alternative Routes G, H, I and J (see Attachment B - Map 2 and Map 3).

The following compares the Alternative Routes in each section of the Project.

Natural Environment

The natural environment includes water, soil, sensitive species, and wildlife habitat. Potential impact identification is based on publicly available maps and data as well as coordination with federal, state and local agencies. Within the Eastern-Hays Branch Focus Area, Alternative Routes A and B are similar with respect to environmental concerns. Alternative Route A is slightly shorter and requires several acres less of tree clearing. However, Alternative Route A is located closer to the Right Fork Beaver Creek, thereby increasing the amount of 100-year floodplain in its ROW. Therefore, neither Alterative Route A nor B have a substantial advantage pertaining to environmental concerns.

Within the Eastern-Garrett Focus Area, given that Alternative Roue C is approximately 40 precent longer than Alternative Route D (4.2 vs 3.0 miles), its construction would require approximately 13.9 more acres of tree clearing (47.8 vs 33.9). Alternative Route C would also span an additional 1.7 acres of 100-year floodplain (3.5 vs 1.8) and an area identified as the DLT Enterprises Mitigation Site (401 Water Quality Certification Map Viewer Tool). Alternative Route D's exit from the Eastern Substation would parallel the exit of the Eastern-Hays Branch circuit, thereby reducing the amount of new ROW needed and associated forest fragmentation, when compared with Alternative Route C. Therefore, Alternative Route D would likely have less impact on the natural environment.

The Alternative Route options within the Garrett-Saltlick Focus Area (Alternative Routes E and F) are similar in length, with Alternative Route E being approximately 4.3 miles long and Alternative Route F being approximately 4.2 miles long. Therefore, the two Alternative Route options require a similar amount of tree clearing and span a similar number of 100-year floodplains. Both Alternative Routes also parallel an existing ROW for a similar length, helping to reduce forest fragmentation and tree clearing. Therefore, neither Alterative Route E nor F have a substantial advantage pertaining to environmental concerns.

The four Alternative Routes within the Saltlick-Soft Shell Focus Area are of similar length (ranging between 6.3 miles and 6.0 miles) and no large differences regarding environmental concerns are apparent. Alternative Routes G, H, and I cross the same amount of 100-year floodplain (0.4-acre), whereas Alternative Route J crosses 0.9-acre, a relatively small amount given the length of each Alternative Route. In regard to tree clearing, Alternative Route J would require the most with approximately 68 acres. However, the least amount of tree clearing (required by Alternative Route G) is 64 acres, thus the required tree clearing is similar across each Alternative Route option. Each Alternative Route option spans waterbodies identified as Outstanding State Resource Waters (OSRWs) due to the presence of threatened and/or endangered species, believed to be the Kentucky arrow darter (*Etheostoma spilotum*) based on data included in the KY Division of Water's 401 Water Quality Certification Map Viewer Tool. These waterbodies each drain to Laurel Fork Quicksand Creek. Four OSRWs are spanned by Alternative Route G, two by Alternative Routes H and I, and one by Alternative Route J. Impacting OSRWs requires an Individual 401 Water Quality Certification from the State. Therefore, Alternative Route options that have the potential to be least impactful to OSRWs (Alternative H, I, and J) would be preferred.

Human Environment

The human use of the land and activities at a given location such as agricultural, forestry, residential, industrial, mining, commercial, institutional, scenic assets, and recreational uses constitute the human environment. Both Alternative Routes within the Eastern-Hays Branch Focus Area cross generally undeveloped, forested land that has historically been used for mining, or that currently contains underground pipelines supplying the local natural gas extraction facility. Alternative Route A passes near a cemetery depicted on topographic mapping. This cemetery is anticipated to be avoided by the final alignment, once its location is confirmed and delineated during archaeological investigations. Both Alternative Route options have the same number of residences within 500 feet of the centerline and cross the same number of landowners. Based on this information, neither Alternative Route within the Eastern-Hays Branch Focus Area has a substantial advantage pertaining to impact on the human environment.

Within the Eastern-Garrett Focus Area, the majority of the Alternative Routes cross undeveloped, forested slopes; some of which have been previously strip mined. Alternative Route D passes near an area identified as the Elk Horn Coal Hunting Access based on historic data. No impact to the property is anticipated. Alternative Route C parallels an existing underground pipeline following the ridgeline above the community of Eastern. Construction of Alternative Route C may require special construction techniques and protections to abate chemical interactions between the pipeline and transmission line. Additionally, Alternative Route C crosses 75 percent more individual landowners (28 vs. 16) and 43 percent more parcels (30 vs. 21) as compared to Alternative Route D. There are also 80 percent more residences within 500 feet of the centerline of Alternative Route C as compared to Alternative Route D (18 vs. 10).

Generally, the two Alternative Route options within the Garrett-Saltlick Focus Area are located on undeveloped, forested slopes and areas parallel to the existing Spring Fork 46kV Tap ROW. Each option spans KY-80 in an area of moderate residential development. Alternative Route F has 50 percent more residences within 500 feet of its centerline. These residences are located in a valley spanned by Alternative Route F and are not anticipated to be impacted (physically or visually) by its construction. Although the Alternative Routes cross a similar number of parcels (36 vs. 35), Alternative Route F crosses 13 percent fewer individual landowners.

The Alternative Route options within the Saltlick-Soft Shell Focus Area all cross similar topography and land use. Alternative Routes G and H cross areas of active mining northwest of KY-80, which are anticipated to continue and possibly expand in scale. Alternative Routes I and J each cross an area of previous mining southeast of KY-80. This area is currently being developed into the Knott County Sportsplex and additional mining is not anticipated. Although large in size, the sportsplex property is only developed in one area where an indoor sports facility and several outdoor facilities have been constructed. This area is approximately 1,500 feet from the centerline of Alternative Routes I and J, and no impact to the facilities is anticipated. Alternative Routes I and J have two additional residences within 250 feet of the centerline as compared to Alternative Routes G and H. However, Alternative Route I has the least number of residences within 500 feet of the centerline with 11. Alternative Route J has the most with 16, Alternative Routes G and H each have 12. Alternative Route J also crosses the least number of parcels (26) and the least number of individual landowners (17).

Constructability

Constructability is the ability to efficiently and cost effectively engineer, acquire ROW, construct, operate, and maintain the proposed transmission line. Major factors include safety, steep topography, condensed ROWs, heavy angles, access, ability to parallel or use existing ROWs, environmental and socioeconomic features, proximity to major highways, etc.

As mentioned in previous sections, the Alternative Route options within the Eastern-Hays Branch Focus Area are very similar. In regard to constructability concerns, Alternative Route B is slightly longer, and would likely require additional structures as a result. It would also require at least one additional heavily angled structure (greater than 30 percent) and crosses approximately 37 percent more steep slopes (slopes in excess of 20 percent grade) as compared to Alternative Route A.

Similar concerns are associated with the Alternative Route options within the Eastern-Garrett Focus Area. Alternative Route C, being substantially longer, would require a higher number of structures and access roads as compared to Alternative Route D. Its construction would require twice the number of heavily angled structures (6 vs. 3), and it crosses approximately 44 percent more steep slopes.

Constructability concerns are similar regarding the two Alternative Route options within the Garrett-Saltlick Focus Area. Alternative Route E, although slightly longer, crosses a similar number of steep slopes and would require the same number of heavily angled structures as compared to Alternative Route F. Alternative Route E would require crossing the energized Spring Fork 46kV Tap in two locations, whereas Alternative Route F does not cross the line. Both Alternative Route options cross the Beaver Creek-Garrett 46kV line. Additionally, Alternative Route E briefly crosses areas previously mined for coal, however, the operation appears to be complete, and the land reclaimed.

Within the Saltlick-Soft Shell Focus Area, the four Alternative Route options have similar constructability concerns, with topography, current land use, and access being the most prominent. Alternative Route G (the longest option) crosses the edge of the limits of the mining operation being conducted on Western Pocahontas Properties. Although this route option would require the fewest heavily angled structures, its construction within the mining boundary would require construction crews to access the mining area and coordinate with the mine's activities. These activities can create permitting issues and delays. Additionally, being located on the edge of the mining operation creates the possibility that an expansion of the mine could require the transmission line be relocated. Alternative Route H also crosses the mine, and although it is the shortest route option, having to access and work within the boundary of the mine creates the possibility of conflict with the mining operation. Alternative Routes I and J avoid the mining operation by staying south of KY-80. These two routes would require the same number of heavily angled structures (three), however Alternative Route I being the shortest of the two options means it may require less structures, access roads, and tree clearing.

5.0 PROPOSED ROUTE

Within the Hays Branch-Eastern Focus Area, neither Alternative Route A or B was selected and instead an intermediary "hybrid" route was selected that is between the two Alternative Route options considered. The hybrid was needed as this area will require LiDAR (Light Detection and Ranging) data to properly finalize structure placement, which was not available during the route selection process. Additionally, based on topographic mapping, a cemetery is located in the vicinity of Alternative Routes A and B but identification of the exact location will require further studies. By selecting a hybrid route and using a 1,000-foot corridor filing corridor, Kentucky Power will be able to engineer the most suitable route and avoid the cemetery without needing to submit an addendum to the PSC application once additional data are obtained.

Based on stakeholder input and analysis, the Siting Team identified the Proposed Route as the hybrid option within the Hays Branch-Eastern Focus Area, Alternative Route D within the Eastern-Garrett Focus Area, Alternative Route F within the Garrett-Saltlick Focus Area, and Alternative Route I within the Saltlick-Soft Shell Focus Area. Between Hays Branch and Eastern substations, the Proposed Route will allow engineering to place structures in the most conducive areas that avoid the cemetery, once LiDAR is obtained. Between Eastern and Garrett Substations, the Proposed Route is substantially shorter, impacts less parcels and individual landowners and requires fewer structures and access roads while avoiding the DLT Enterprises Mitigation Site. Between the Garrett and Saltlick Substations, the Proposed Route will cross fewer parcels while paralleling the existing Spring Fork 46kV Tap ROW without needing to span the energized transmission line. Between the Saltlick and Soft Shell Substations, the Proposed Route is the shortest option that doesn't impact the mining operation north of KY-80 and minimizes impact to OSRWs.

Collectively, the Siting Team determined the Proposed Route (Attachment B – Map 4 and Attachment H) meets the goal of minimizing impacts on land use and the natural and cultural resources along the Project, while avoiding circuitous routes, extreme costs, and non-standard design requirements.

Metric Tables

Table 1. Natural Environment Evaluation Criteria											
		Hays Branch-Eastern		Eastern-Garrett		Garrett-Saltlick		Saltlick- Soft Shell			
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
General											
Length	miles	1.2	1.4	4.2	3.0	4.3	4.2	6.3	6.0	6.1	6.3
Water Resources											
Total streams crossed	count	2	2	4	4	6	5	13	9	9	9
High/Exceptional/Special Protection streams crossed	count	0	0	0	0	0	0	4	2	2	1
PFO/PSS wetlands in the ROW (NWI)	acres	0	0	0	0	0	0	0	0	0	0
PEM wetlands in the ROW (NWI)	acres	0	0	0	0	0	0	0	0	0	0
Waterbody crossings	feet	0	0	0	0	0	0	0	0	0	0
FEMA-designated floodplain crossed by ROW	acres	2.0	1.7	3.5	1.8	1.9	2.4	0.4	0.4	0.4	0.9
Geological and Soil Resources											
Prime and unique farmland soil in the ROW[1]	acres	0	0	0	0	0	0	0	0	0	0
Farmland of statewide importance in the ROW[2]	acres	0	0	0	0	0	0	0	0	0	0
Known caves or mines within 100-feet of the centerline	count	0	0	0	0	0	0	0	0	0	0
Wildlife and Habitat											
Tree clearing required in the ROW (digitized based on aerial photography)	acres	13.3	15.6	47.8	33.9	49.0	46.7	64.4	64.9	65.0	68.3
Designated natural areas crossed by the ROW	acres	0	0	0	0	0	0	0	0	0	0
Designated natural areas within 250 feet of the ROW	count	0	0	0	0	0	0	0	0	0	0

[1] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops.

[2] Soils that do not meet the prime farmland category but are still recognized for their productivity by states may qualify as soils of statewide importance.

Table 2. Human Environment Evaluation Criteria											
		Hays Branch-Eastern		Eastern-Garrett		Garrett-Saltlick		Saltlick-Soft Shell			
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
General											
Length	miles	1.2	1.4	4.2	3.0	4.3	4.2	6.3	6.0	6.1	6.3
Number of parcels[3] crossed	count	12	12	30	21	36	35	27	28	26	33
Landowners within ROW	count	7	7	28	16	34	30	19	19	17	24
Residential											
Barns, outbuildings, sheds, garages and silos in the ROW (excludes abandoned features)	count	0	0	0	0	0	1	0	0	0	1
Residences/single-family dwellings within ROW	count	0	0	0	0	0	0	0	0	0	0
Residences/single-family dwellings within 100 feet of centerline	count	0	0	0	0	2	4	0	0	1	1
Residences/single-family dwellings within 250 feet of centerline	count	0	0	4	3	8	14	5	5	7	7
Residences/single-family dwellings within 500 feet of centerline	count	5	5	10	18	30	45	12	12	11	16
Multi-family dwellings[4] within ROW	count	0	0	0	0	0	0	0	0	0	0
Multi-family dwellings within 250 feet of centerline	count	0	0	0	0	0	0	0	0	0	0
Multi-family dwellings within 500 feet of centerline	count	0	0	0	0	0	0	0	0	0	0
Commercial/Industrial											
Businesses/commercial buildings[5] within the ROW	count	0	0	0	0	0	0	0	0	0	0
Businesses/commercial buildings within 250 feet of the centerline	count	1	1	3	3	2	2	1	1	1	1
Businesses/commercial buildings within 500 feet of the centerline	count	2	2	4	5	2	2	1	1	1	1
Mining areas crossed	count	0	0	0	0	1	0	1	1	1	1
Quarries crossed	count	0	0	0	0	0	0	0	0	0	0
Agricultural											
Pasture/rangeland crossed in ROW (based on NLCD data)	acres	0.1	0.1	1.6	0.5	0.6	1.1	0.5	0.5	0.5	1.4
Cropland crossed in ROW (based on National Land Cover Database data)	acres	0	0	0	0	0	0	0	0	0	0
Tree farms/orchards crossed in ROW	acres	0	0	0	0	0	0	0	0	0	0
Agricultural easements crossed in ROW	acres	0	0	0	0	0	0	0	0	0	0
Community/Recreational Facilities											
Schools within 1,000 feet of centerline	count	1	1	1	1	0	0	0	0	0	0
Designated places of worship within 1,000 feet of centerline	count	0	0	0	0	1	3	0	0	0	1
Cemeteries within 250 feet of centerline	count	1	0	1	0	2	0	1	1	1	1
Hospitals and assisted living facilities within 250 feet of centerline	count	0	0	0	0	0	0	0	0	0	0
Parks and recreation areas crossed by the ROW	count	0	0	0	0	0	0	0	0	1	1
Scenic byways crossed	count	0	0	0	0	0	0	0	0	0	0
Protected Land											

[3] The number of parcels crossed refers to the number of individual plots of owned land recorded by each County. The number of landowners within the ROW represents the number of individual landowners, who each may own one or more parcels.
[4] Multi-family dwellings include townhome, condominium, apartment complexes, and duplexes.
[5] Commercial development includes retail, service, office, restaurants, and lodging establishments.

Table 2. Human Environment Evaluation Criteria											
		Hays Branch-Eastern		Eastern-Garrett		Garrett-Saltlick		Saltlick-Soft Shell			
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Federal/state land crossed by ROW	acres	0	0	0	0	0	0	0	0	0	0
Conservation easements crossed by the ROW	acres	0	0	1	0	0	0	0	0	0	0
Local public lands crossed by ROW	acres	0	0	0	0	0	0	0	0	0	0
Cultural Resources											
National Register of Historic Places (NRHP)-listed and eligible architectural resources within one mile of the centerline	count	0	0	0	0	0	0	0	0	0	0
National Historic Landmarks within one mile of the centerline	count	0	0	0	0	0	0	0	0	0	0
NRHP-listed Historic Districts within one mile of the centerline	count	0	0	0	0	0	0	0	0	0	0
NRHP-listed and eligible archaeological sites within ROW	count	0	0	0	0	0	0	0	0	0	0

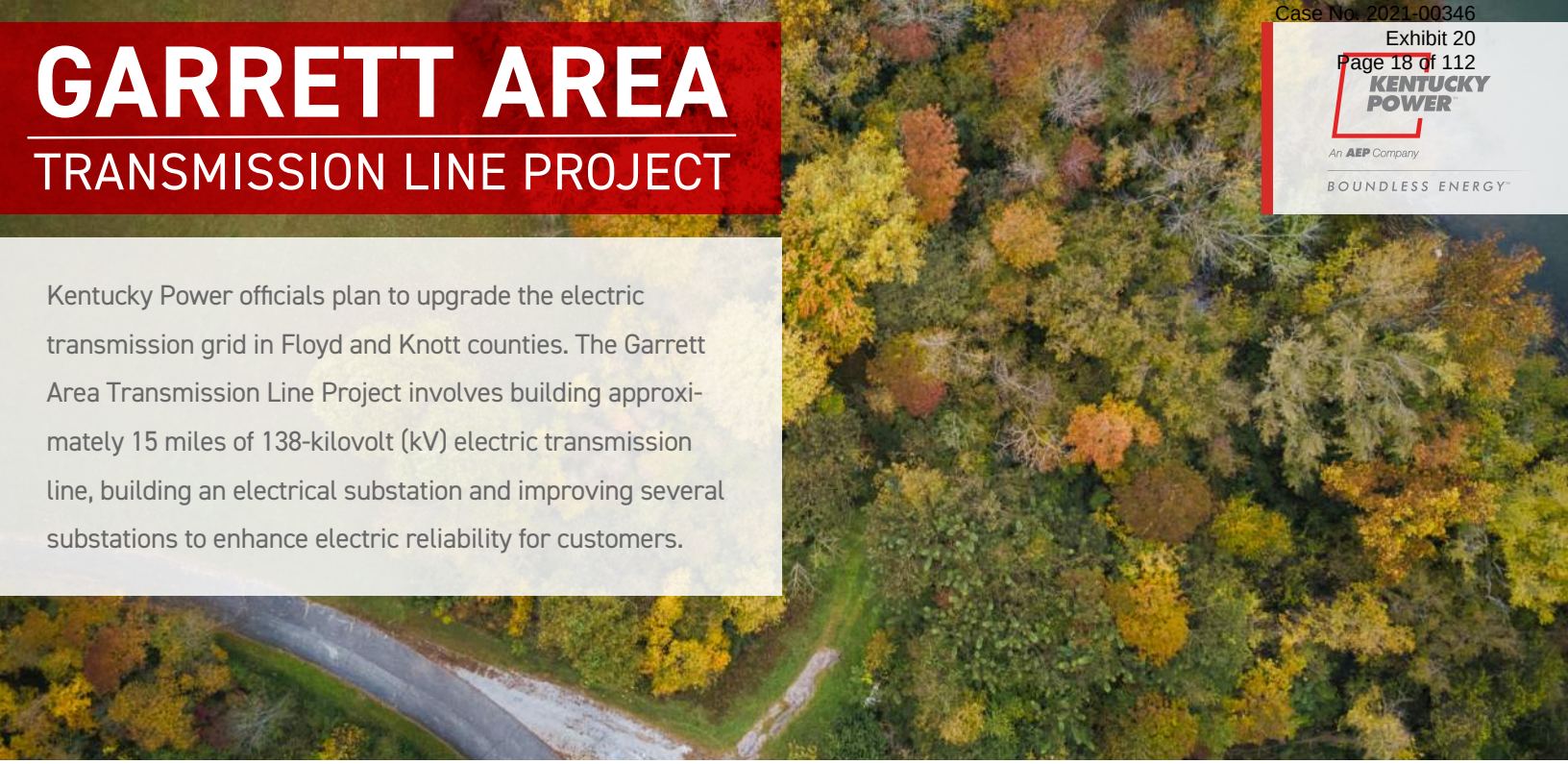
Table 3. Constructability Evaluation Criteria											
		Hays Branch-Eastern		Eastern-Garrett		Garrett-Saltlick		Saltlick-Soft Shell			
Alternative Route	**Unit**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
General											
Length	miles	1.2	1.4	4.2	3.0	4.3	4.2	6.3	6.0	6.1	6.3
Transportation Resources											
Interstate highways crossed	count	0	0	0	0	0	0	0	0	0	0
U.S. highways crossed	count	0	0	0	0	0	0	0	0	0	0
State highways crossed	count	1	1	3	2	3	3	3	3	2	1
Railroads crossed	count	1	1	1	1	2	2	0	0	0	0
Airports within one mile of the centerline	count	0	0	0	0	0	0	0	0	0	0
Utility Resources											
Oil and gas pipelines crossed	count	0	0	0	0	0	0	0	0	0	0
Oil and gas wells within 250 feet from edge of ROW	count	0	1	9	5	9	7	2	2	4	5
Communication towers within 1,000 feet of the centerline	count	0	0	0	0	0	0	0	0	1	2
Existing 46 kV Transmission Lines Crossed	count	0	0	1	1	3	1	0	0	0	0
Existing 138 kV Transmission Lines Crossed	count	0	0	0	0	0	0	1	1	1	1
Engineering and Geotechnical Considerations											
Steep slopes crossed by ROW (>20%), percent of total length	miles	0.8	1.1	3.6	2.5	3.9	3.7	5.4	5.2	5.1	5.5
Heavy angles, greater than 30 degrees	count	3	4	6	3	7	7	1	2	3	3
Rights-of-Way Rebuild/Parallel											
Existing 46 kV transmission lines paralleled	miles	0	0	0	0	1.5	1.6	0	0	0	0
Existing 138 kV transmission lines paralleled	miles	0	0	0	0	0	0	1.3	0.2	0	0
Oil and Gas Pipeline paralleled	miles	0	0	0.3	0	0	0	0	0	0	0

Attachment A: Outreach Fact Sheet

GARRETT AREA
TRANSMISSION LINE PROJECT

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

Kentucky Power officials plan to upgrade the electric transmission grid in Floyd and Knott counties. The Garrett Area Transmission Line Project involves building approximately 15 miles of 138-kilovolt (kV) electric transmission line, building an electrical substation and improving several substations to enhance electric reliability for customers.



WHAT

The project involves:

- Building about 15 miles of 138-kV transmission line
- Retiring approximately 25 miles of transmission line
- Building the Eastern Substation
- Expanding the Garrett Substation
- Making upgrades at the Hays Branch Substation, Saltlick Substation (East Kentucky Power Cooperative substation) and Soft Shell Substation

This project involves filing an application with the Kentucky Public Service Commission.

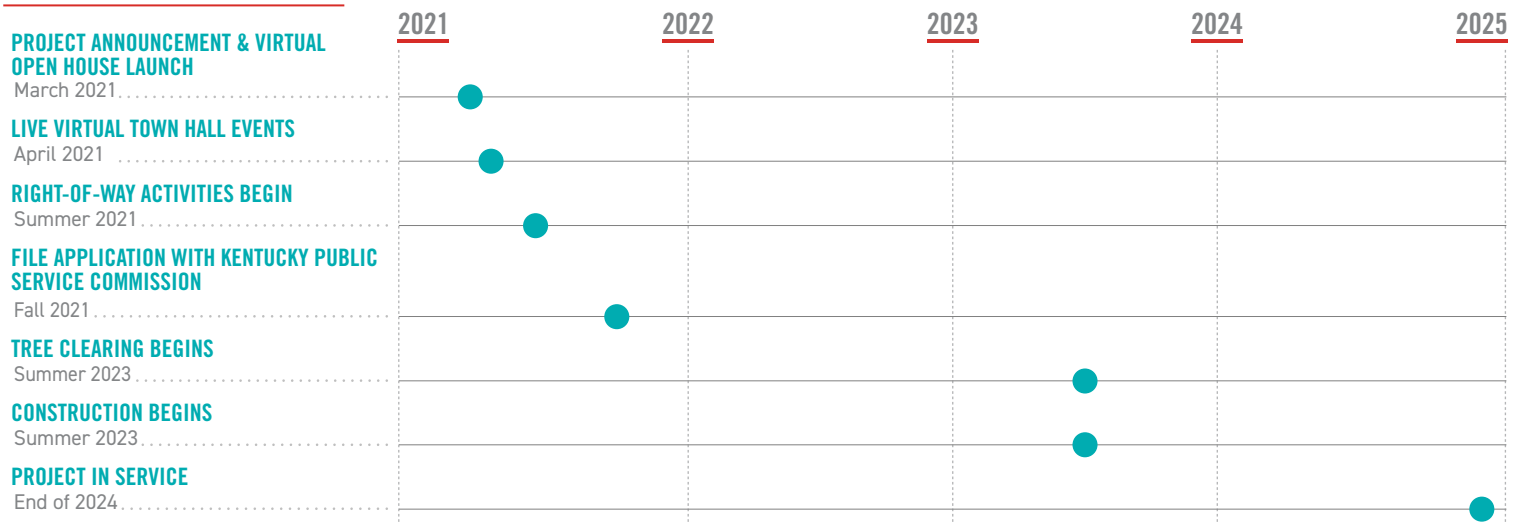
WHY

This project allows crews to retire approximately 25 miles of transmission line that includes deteriorating wooden poles from the 1920s and 1940s. The existing line has experienced multiple power outages in recent years. The proposed power grid upgrades help to strengthen the local electric system and increase electric reliability for area customers.

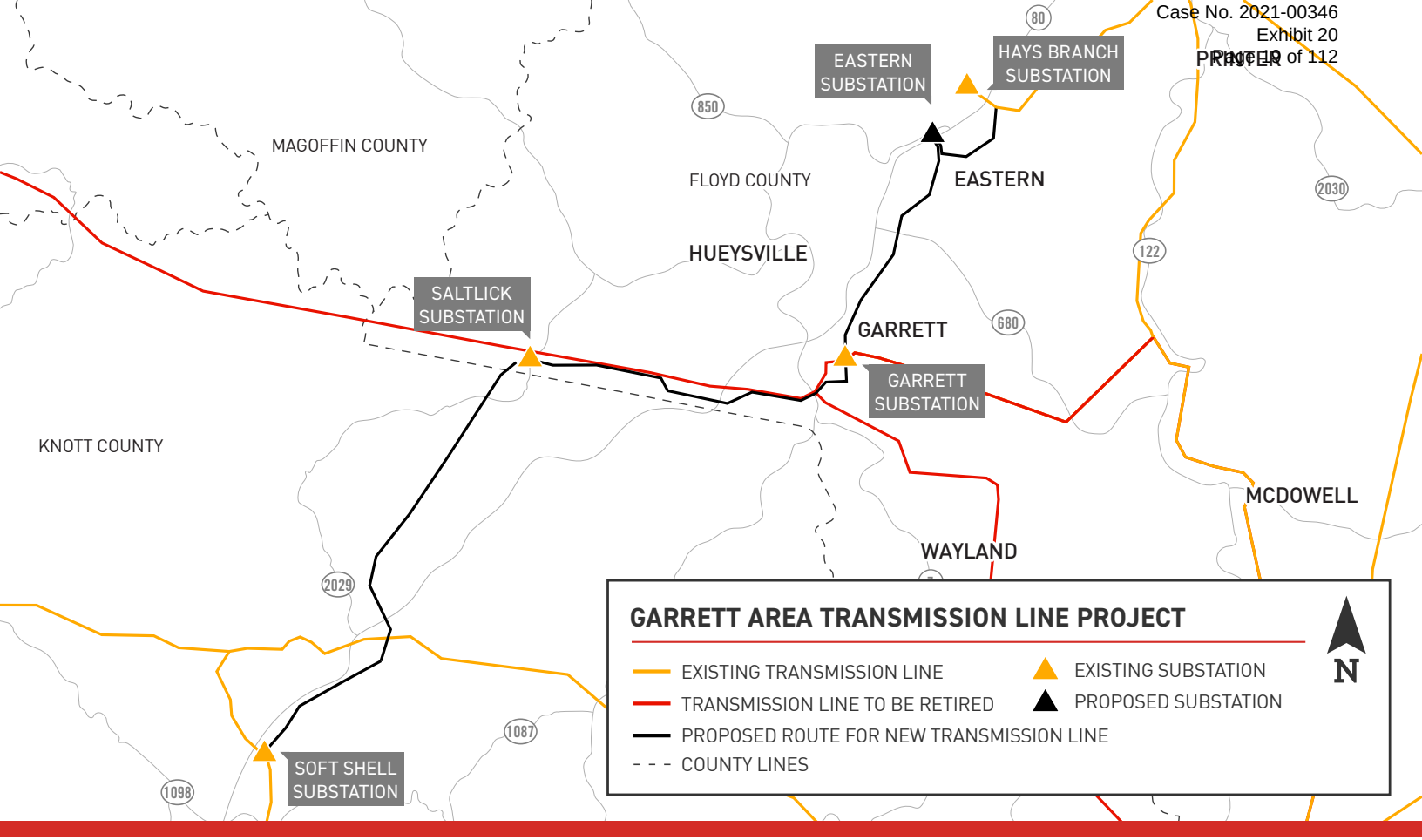
WHERE

The project begins at the Hays Branch Substation in Floyd County and continues about 1 mile southwest to the proposed Eastern Substation located along Route 80. From there the project continues about 4 miles south toward Garrett Substation west of Route 680. It continues about 4 miles west to Saltlick Substation near the Floyd/Knott county line. It then crosses the county line into Knott County and continues about 6 miles southwest to the Soft Shell Substation northeast of Route 1098.

PROJECT SCHEDULE



*Timeline subject to change.



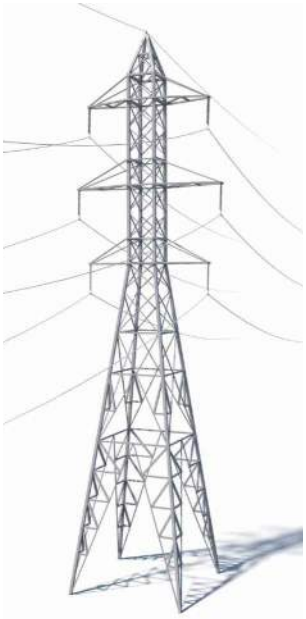
TYPICAL STRUCTURES

Crews plan to build the transmission line using a combination of structures such as steel H-frame poles, lattice towers and three-pole structures.

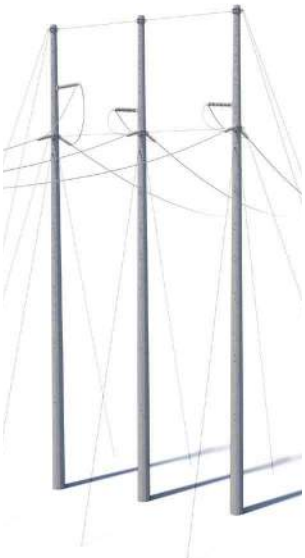
Structure Height: Approximately 85 feet*
Right-of-Way Width: Approximately 100 feet*

At Kentucky Power, we are committed to meeting the energy needs of customers while protecting the environment and natural beauty of the region.

H-FRAME



LATTICE TOWER



THREE-POLE STRUCTURES

*Exact structure, height and right-of-way requirements may vary

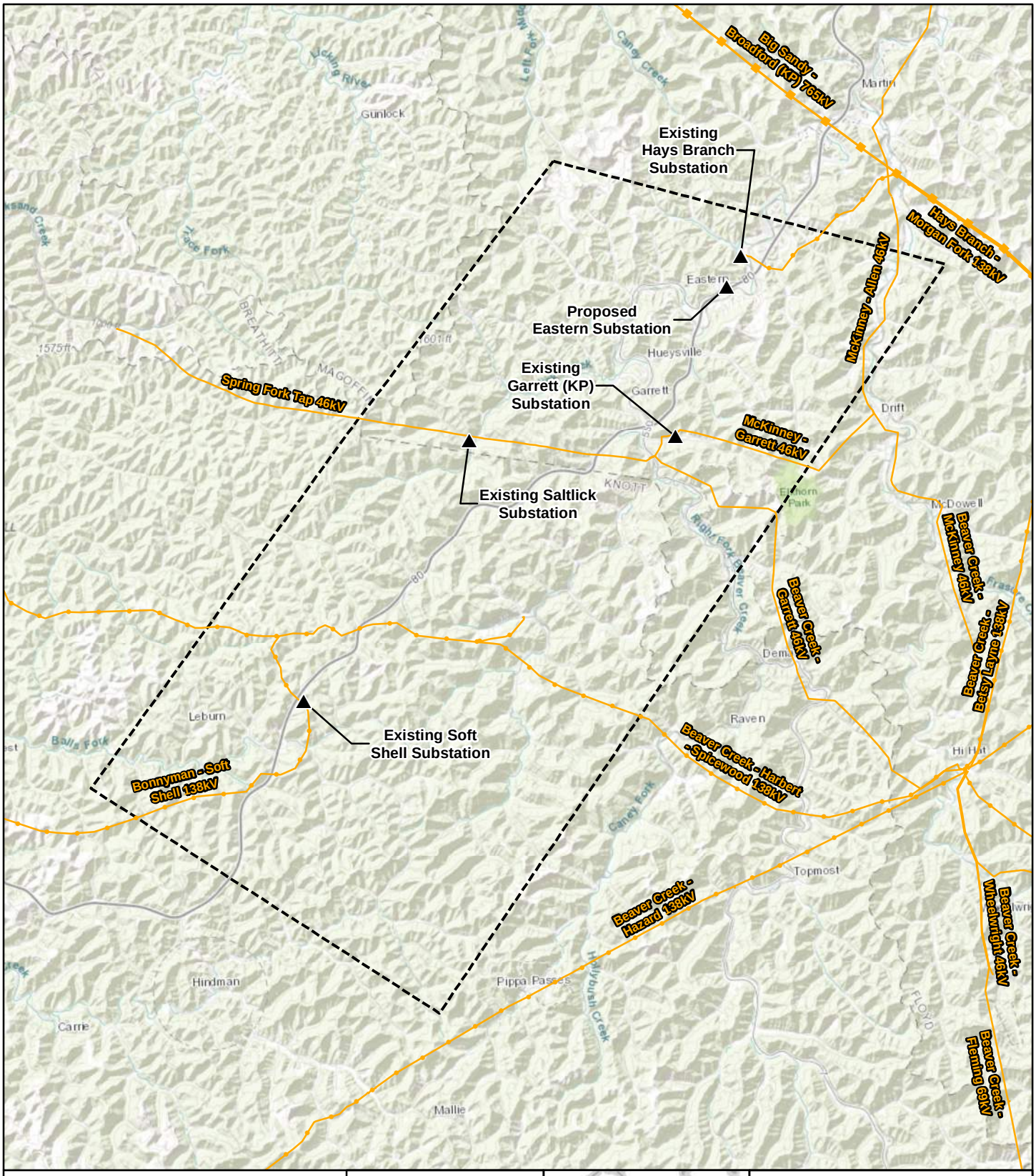
KENTUCKY POWER VALUES YOUR INPUT ABOUT THIS PROJECT. PLEASE SEND COMMENTS AND QUESTIONS TO:

JULIET CAPEHEART
Project Outreach Specialist
833-760-0604
KentuckyPowerOutreach@aep.com
KentuckyPower.com/Garrett

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

06/28/2021

Attachment B: Route Development Maps



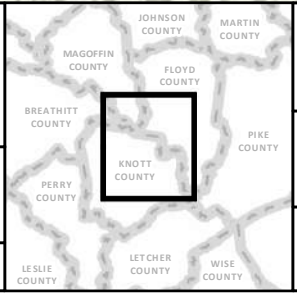
Legend

- Substation
- Study Area
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- Existing 765kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

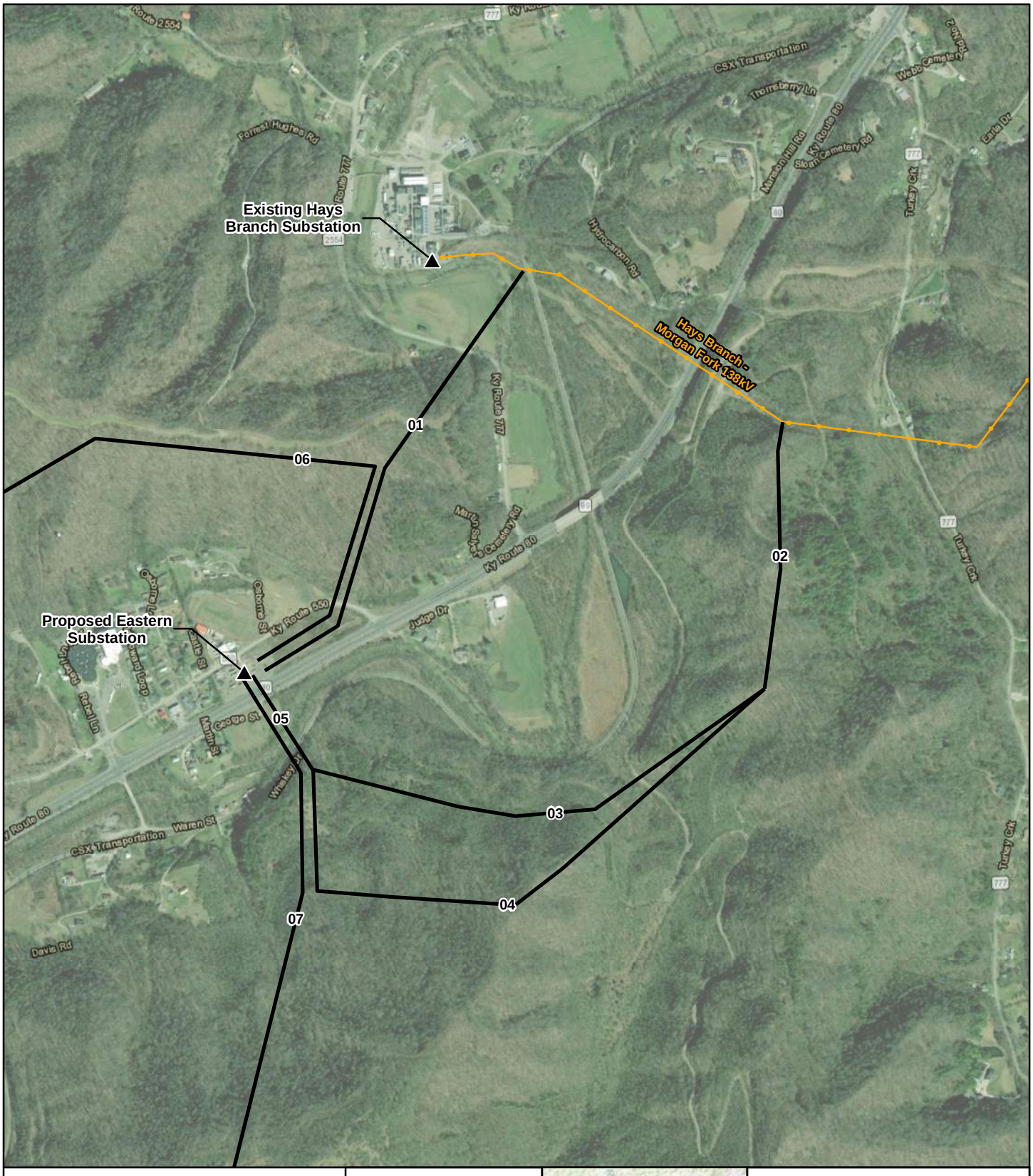


Map 1
Study Area

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

Garrett Area Transmission Line Project

0 2.5
Miles



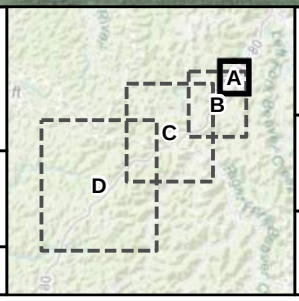
Legend

- Substation
- Study Segment
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

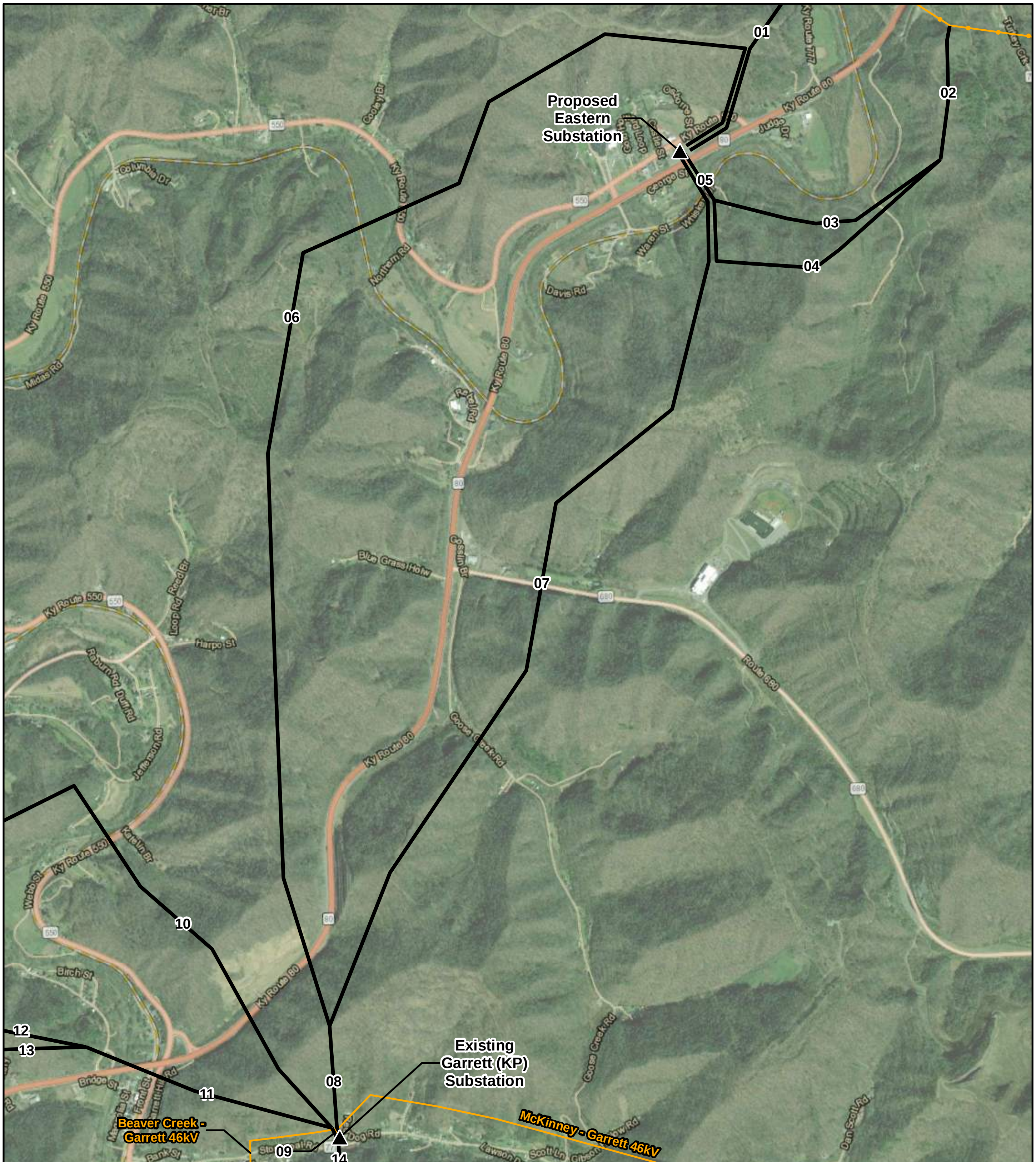


Map 2A
Study Segments

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 1,000
Feet



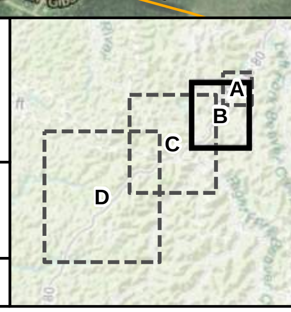
Legend

- ▲ Substation
- Study Segment
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

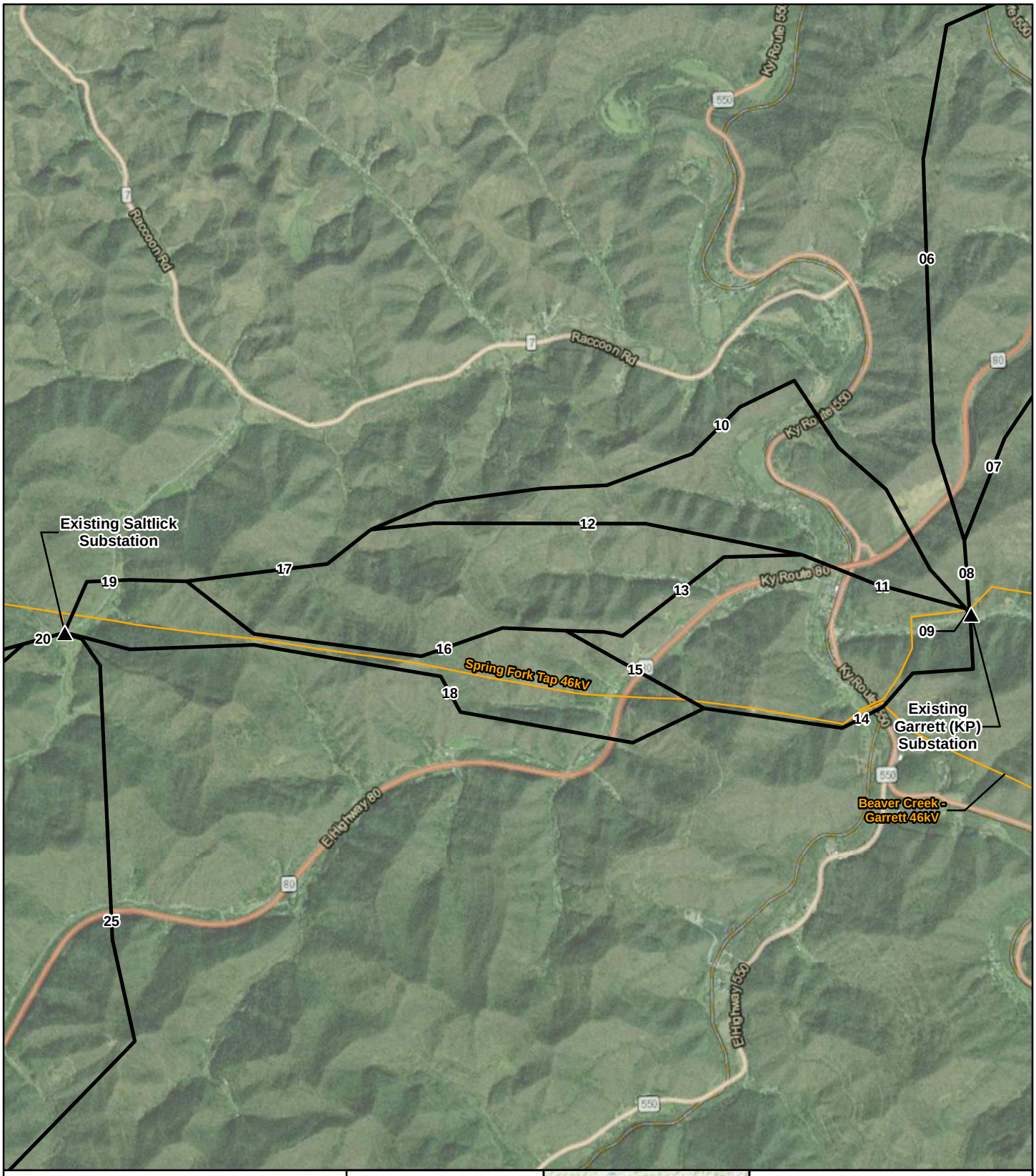
September 08, 2021



Map 2B
Study Segments

Garrett Area
Transmission Line Project

0 2,000
Feet



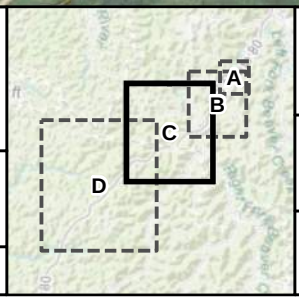
Legend

- Substation
- Study Segment
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

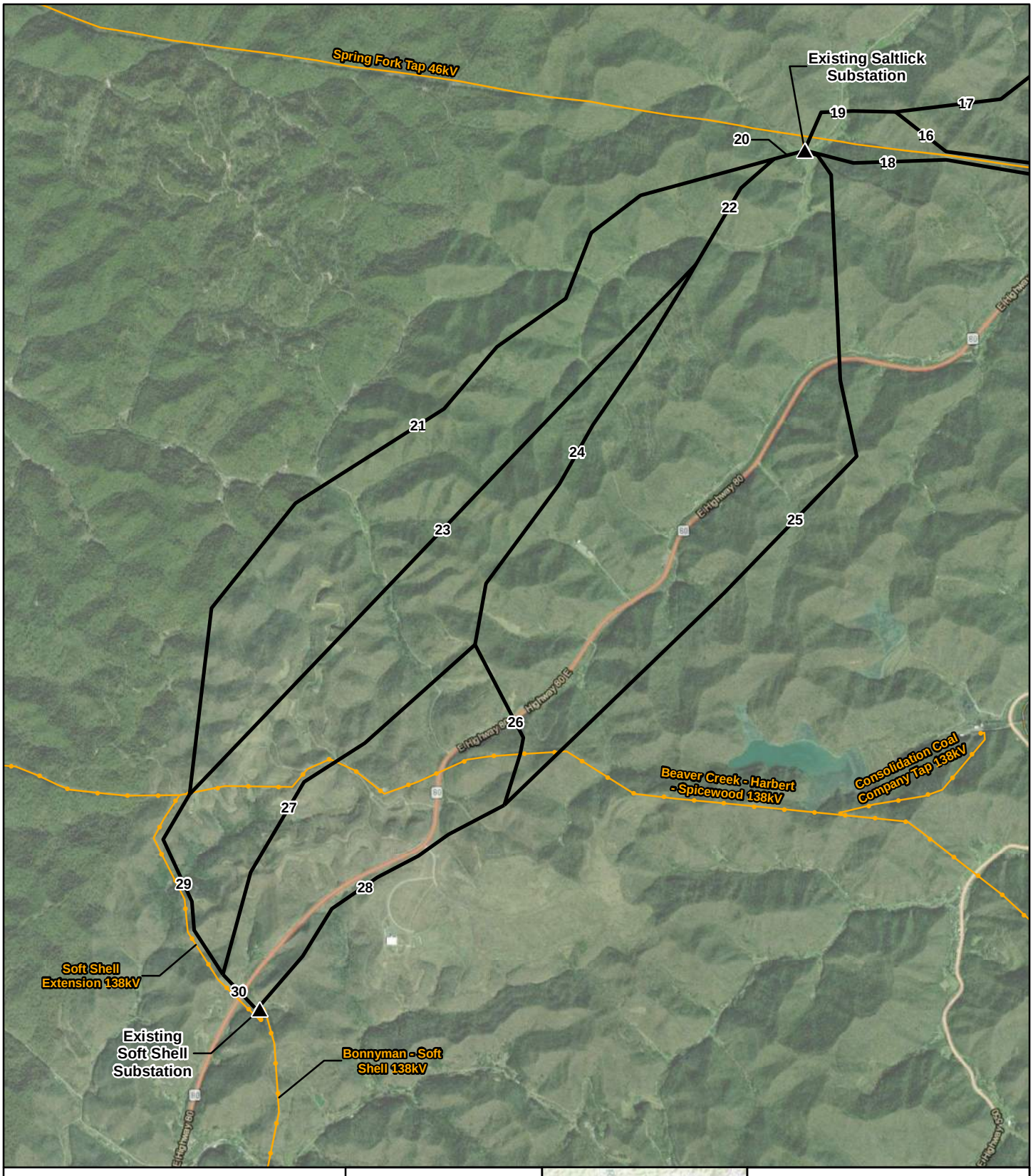


Map 2C
Study Segments

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 3,000
Feet



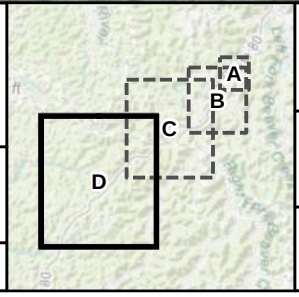
Legend

- Substation
- Study Segment
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

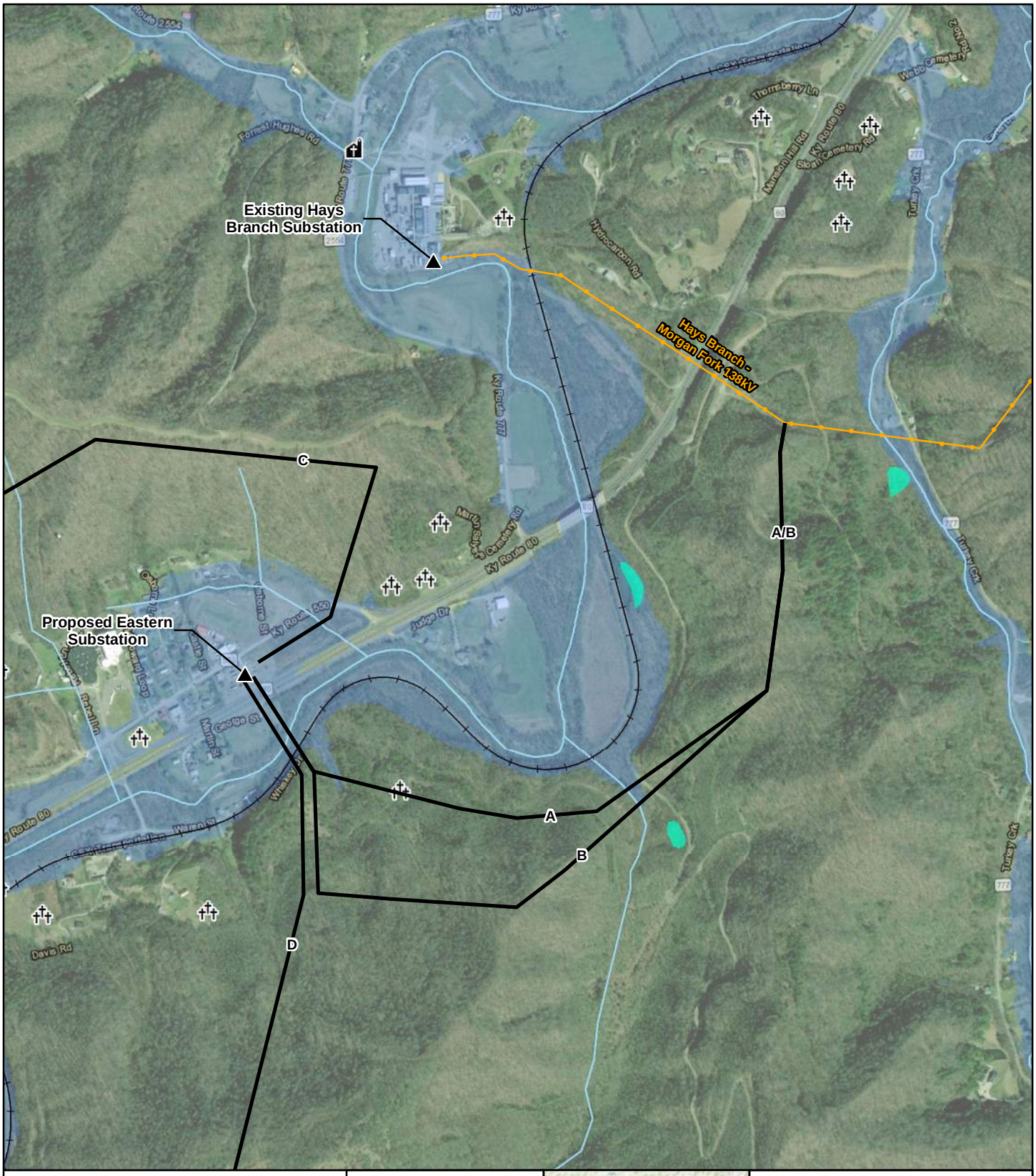


Map 2D
Study Segments

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

Garrett Area Transmission Line Project

0 4,000
Feet



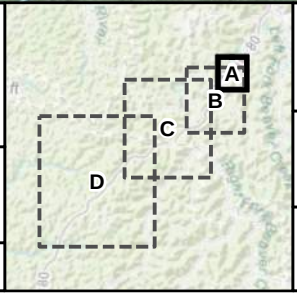
Legend

- Substation
- Route Alternative
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- Cemetery
- Church
- School
- Railroad
- NHD Stream
- FEMA Floodplain
- NWI Wetland

Sources: ESRI (2020), AEP (2019), KYTC (2015), USGS (2020), FEMA (2020), USFWS (2020)

NAD 1983 State Plane Kentucky South Feet

September 08, 2021

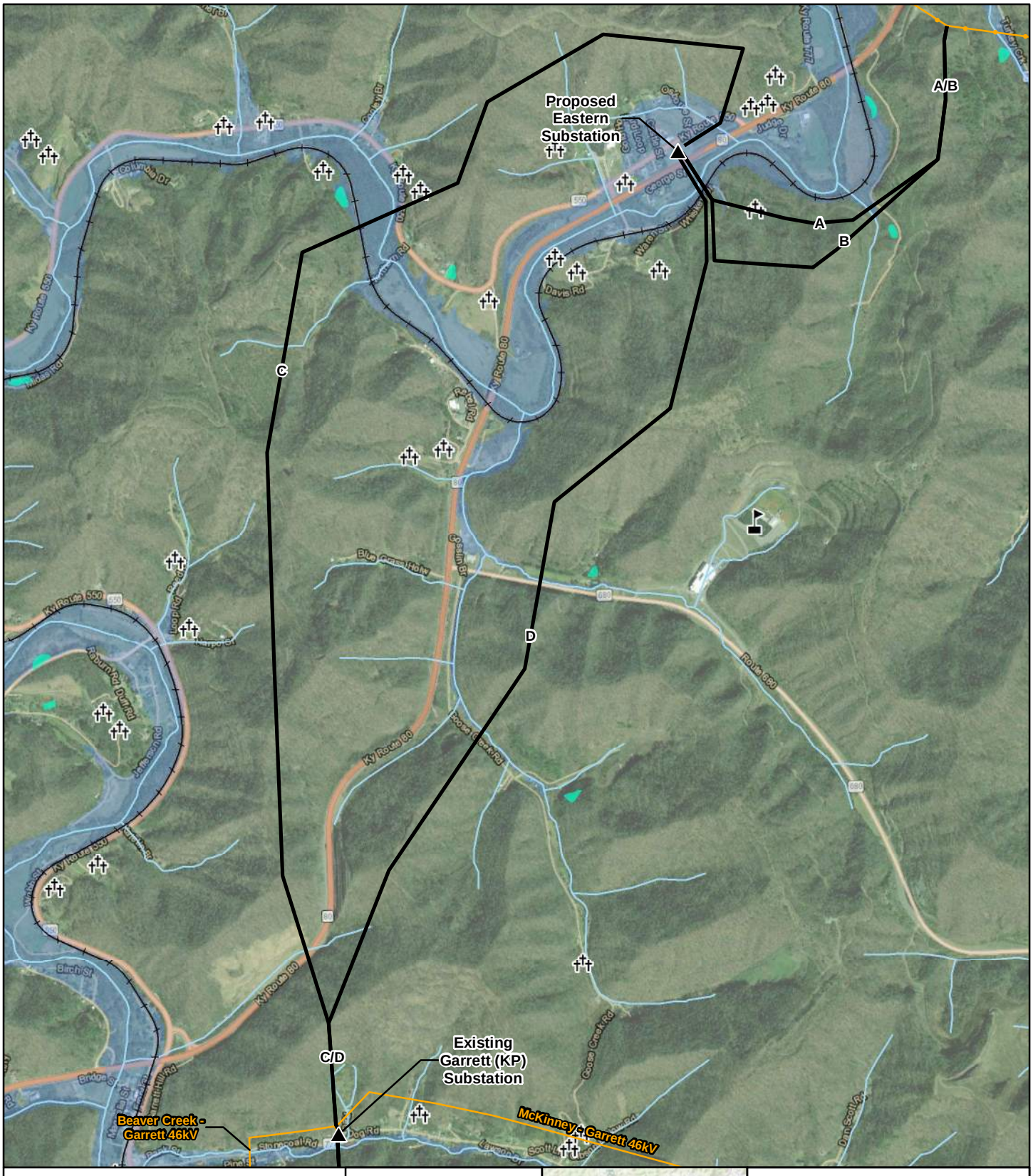


Map 3A
Constraints Map

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 1,000
Feet



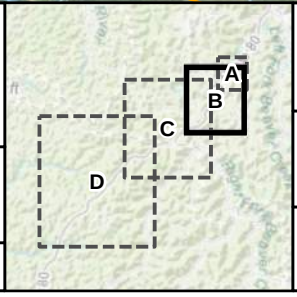
Legend

- Substation
- Route Alternative
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- Cemetery
- Church
- School
- Railroad
- NHD Stream
- FEMA Floodplain
- NWI Wetland

Sources: ESRI (2020), AEP (2019), KYTC (2015), USGS (2020), FEMA (2020), USFWS (2020)

NAD 1983 State Plane Kentucky South Feet

September 08, 2021

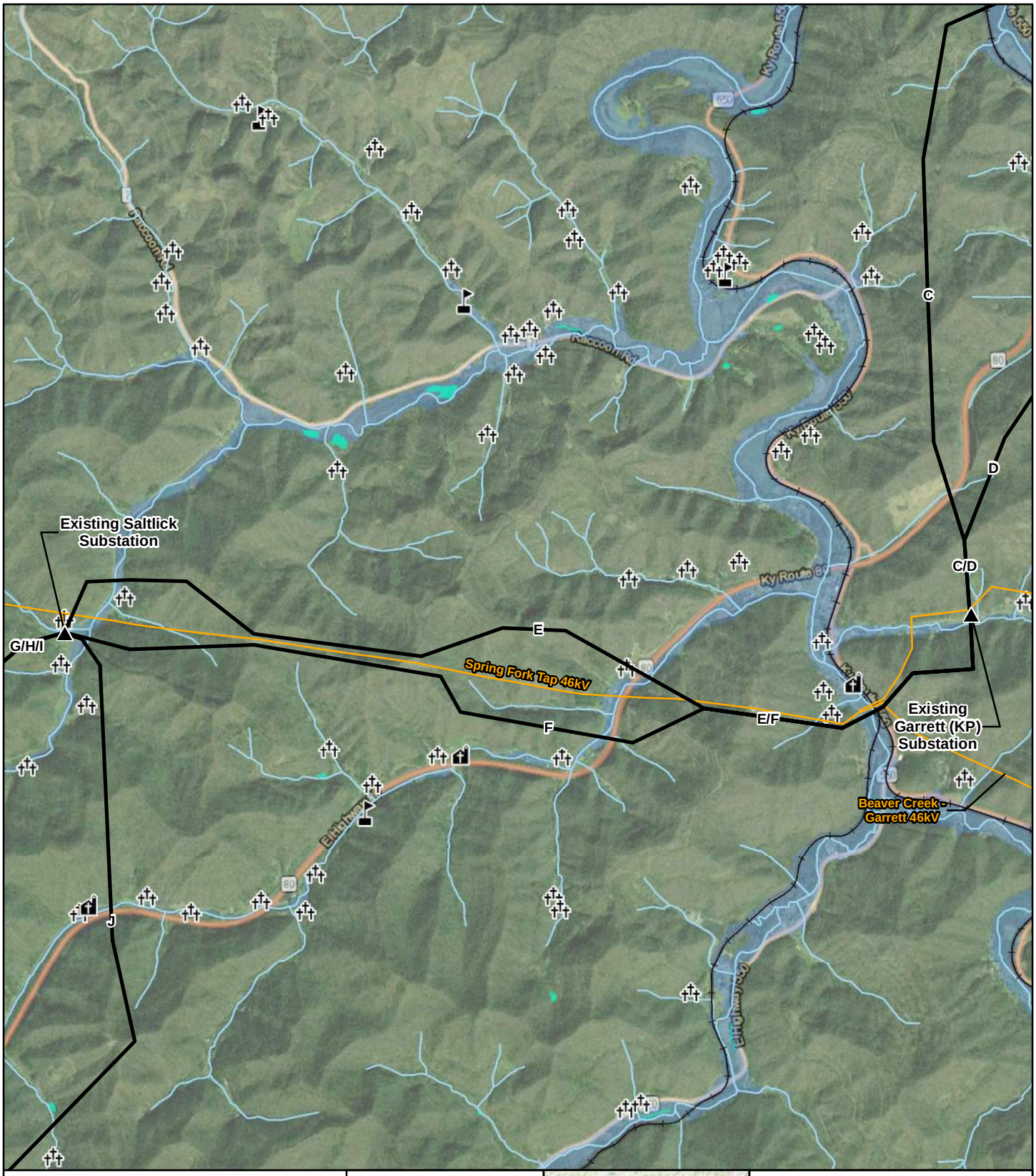


Map 3B
Constraints Map

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

Garrett Area Transmission Line Project

0 2,000
Feet



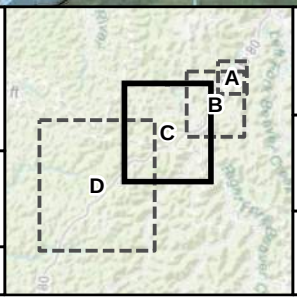
Legend

- Substation
- Route Alternative
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- Cemetery
- Church
- School
- Railroad
- NHD Stream
- FEMA Floodplain
- NWI Wetland

Sources: ESRI (2020), AEP (2019), KYTC (2015), USGS (2020), FEMA (2020), USFWS (2020)

NAD 1983 State Plane Kentucky South Feet

September 08, 2021

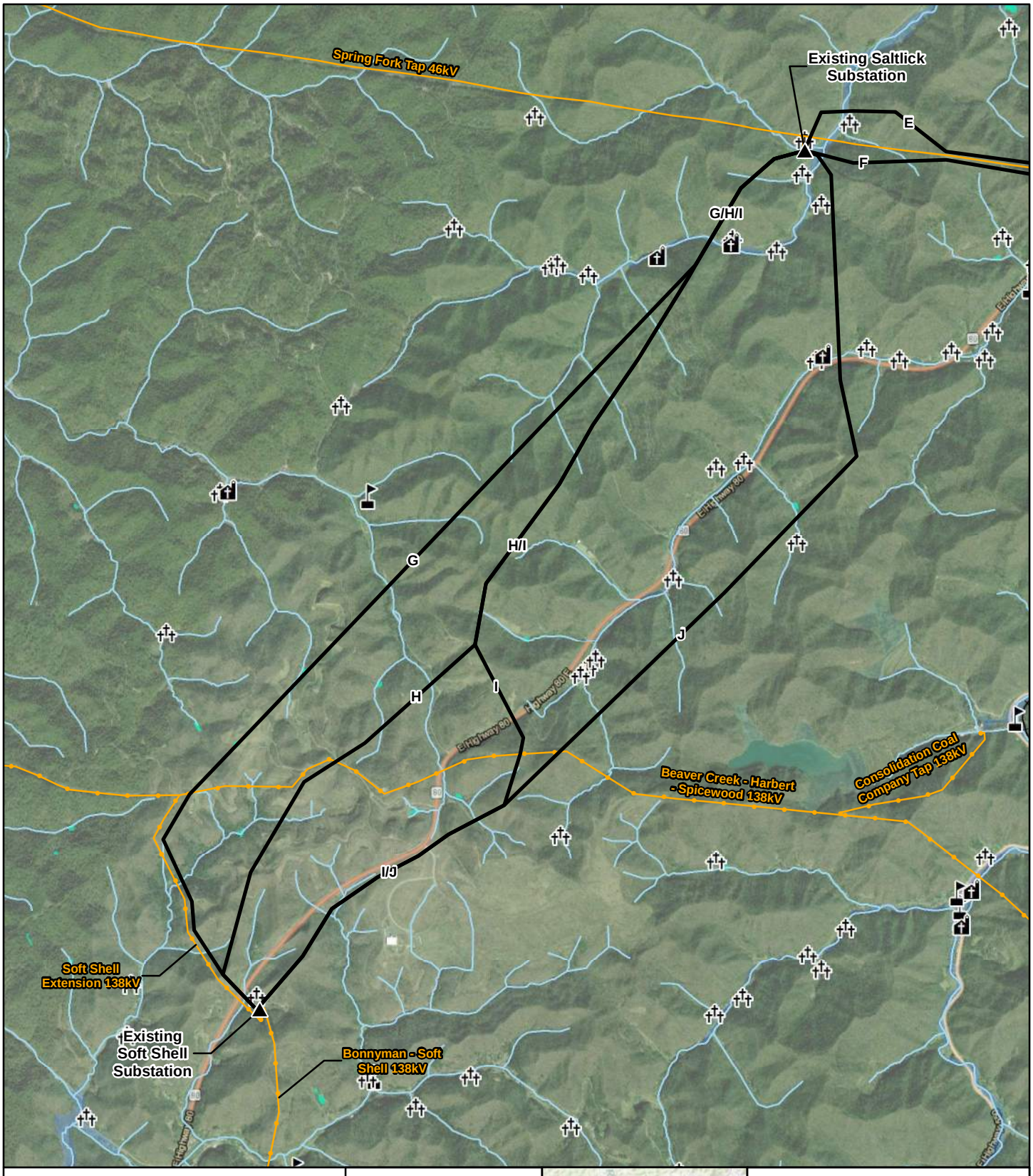


Map 3C
Constraints Map

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 3,000
Feet



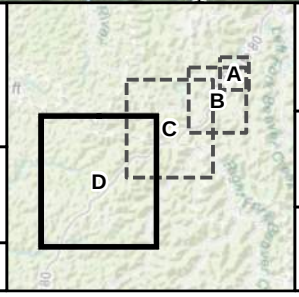
Legend

- Substation
- Route Alternative
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- Cemetery
- Church
- School
- Railroad
- NHD Stream
- FEMA Floodplain
- NWI Wetland

Sources: ESRI (2020), AEP (2019), KYTC (2015), USGS (2020), FEMA (2020), USFWS (2020)

NAD 1983 State Plane Kentucky South Feet

September 08, 2021

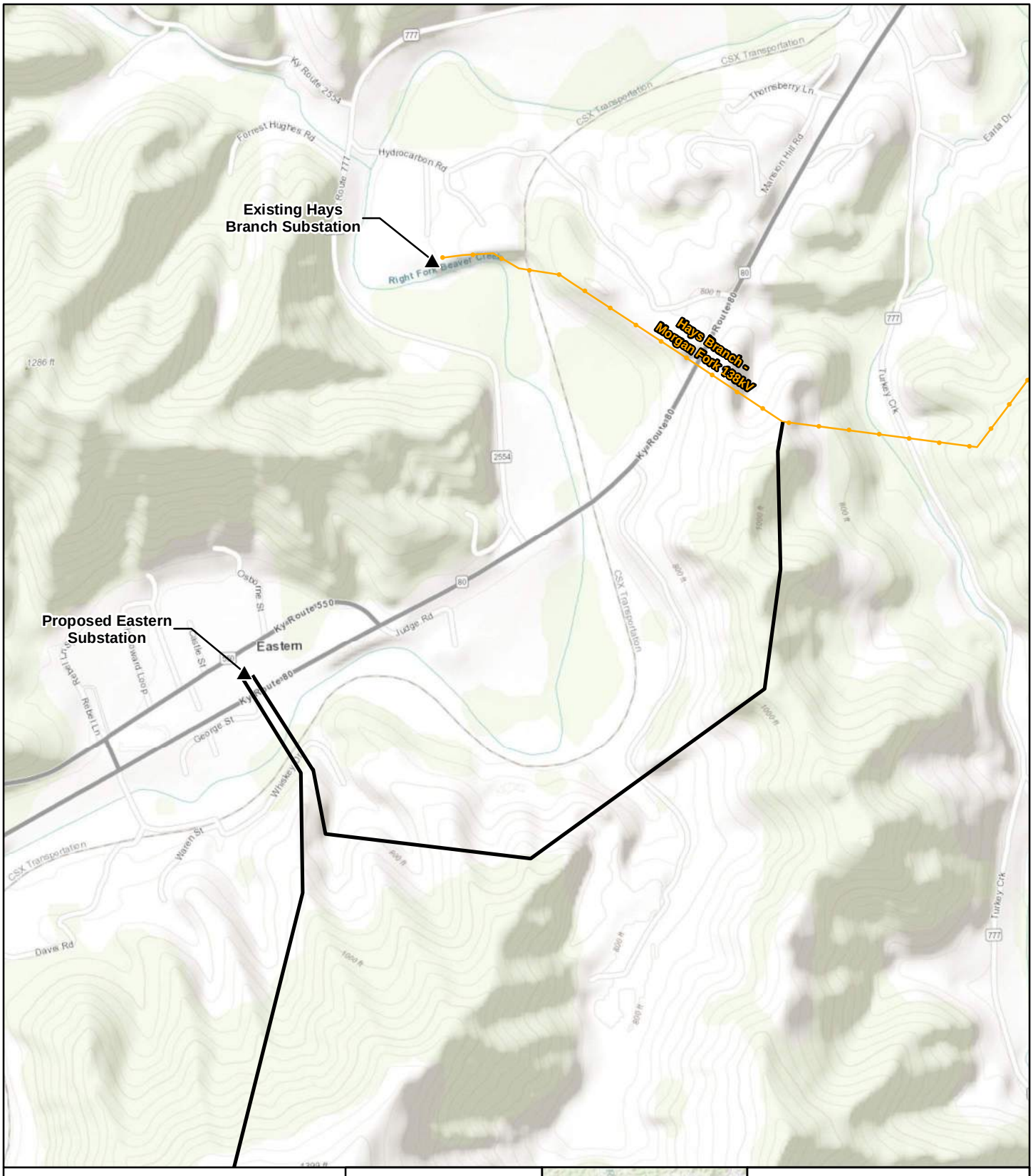


Map 3D Constraints Map

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

Garrett Area Transmission Line Project

0 4,000
Feet



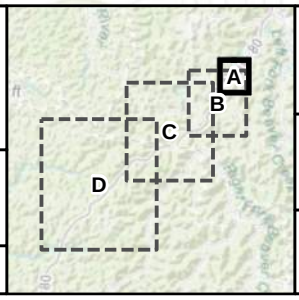
Legend

- Substation
- Proposed Route
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

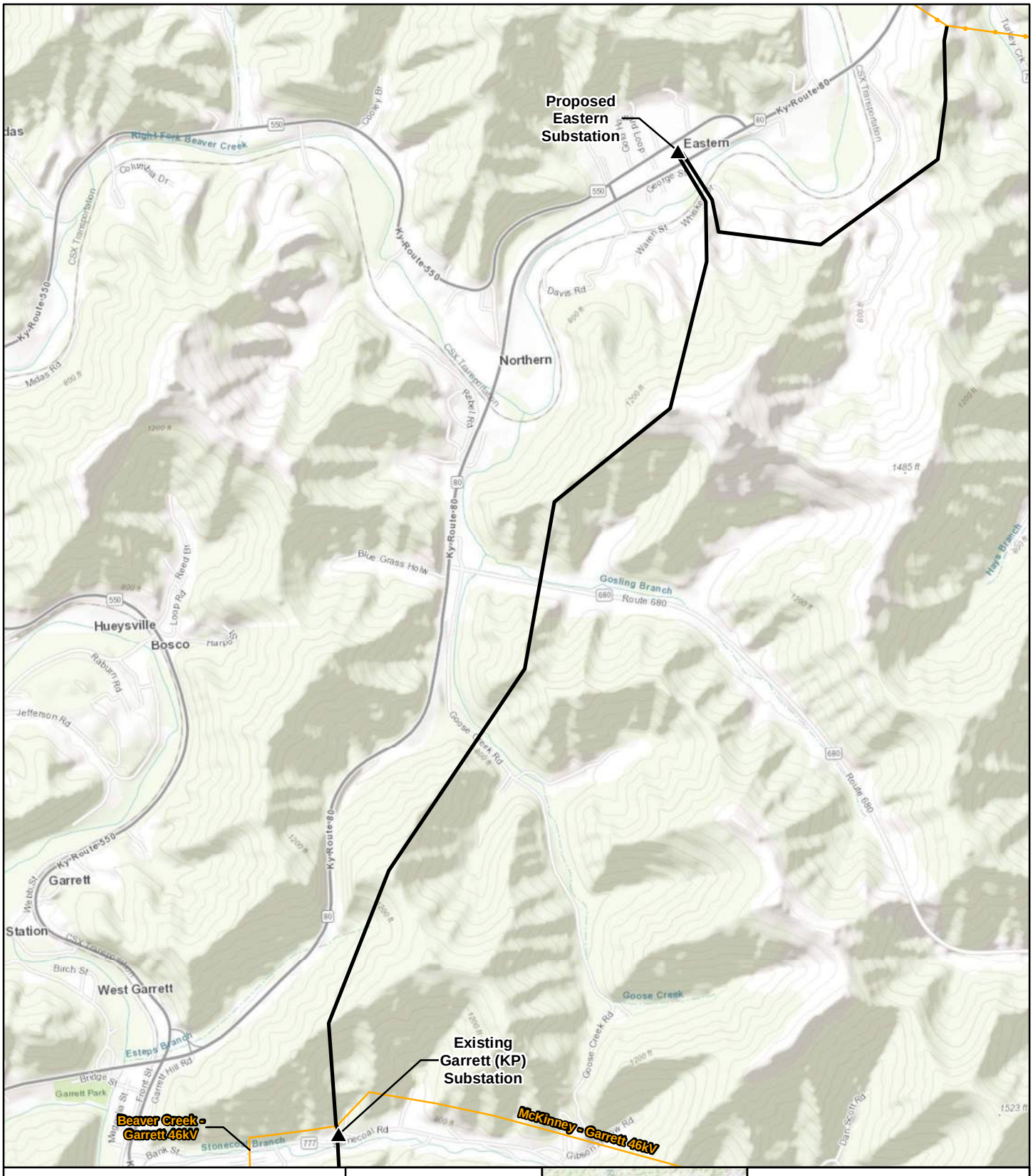


Map 4A
Proposed Route

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 1,000
Feet



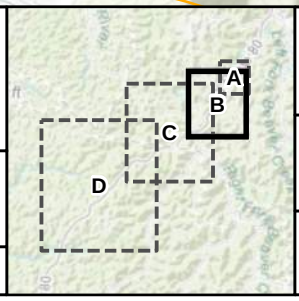
Legend

- Substation
- Proposed Route
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

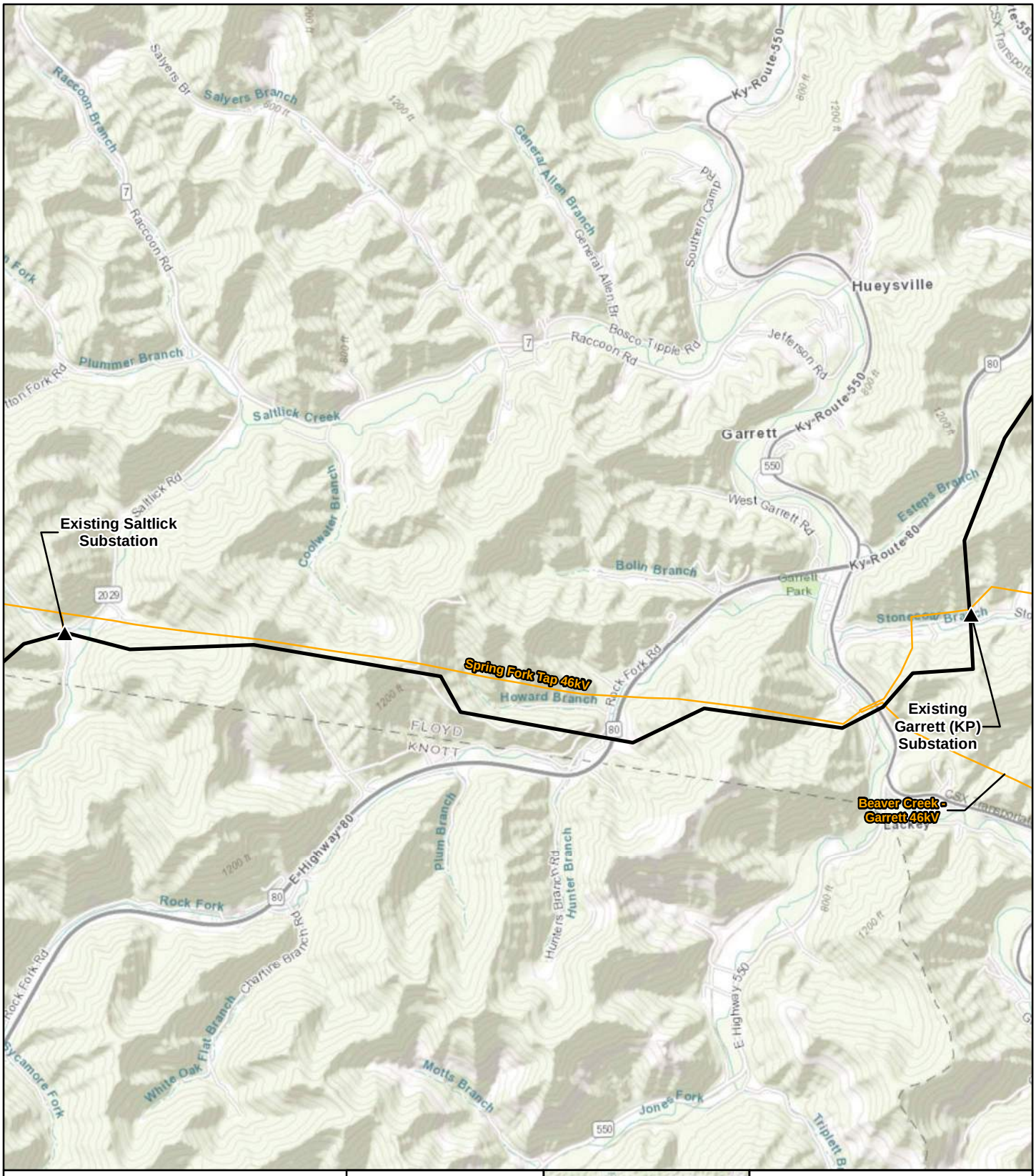


Map 4B
Proposed Route

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 2,000
Feet



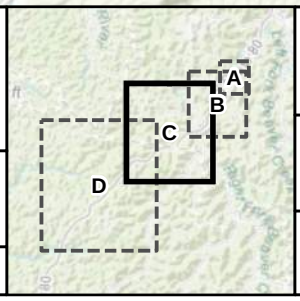
Legend

- Substation
- Proposed Route
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021

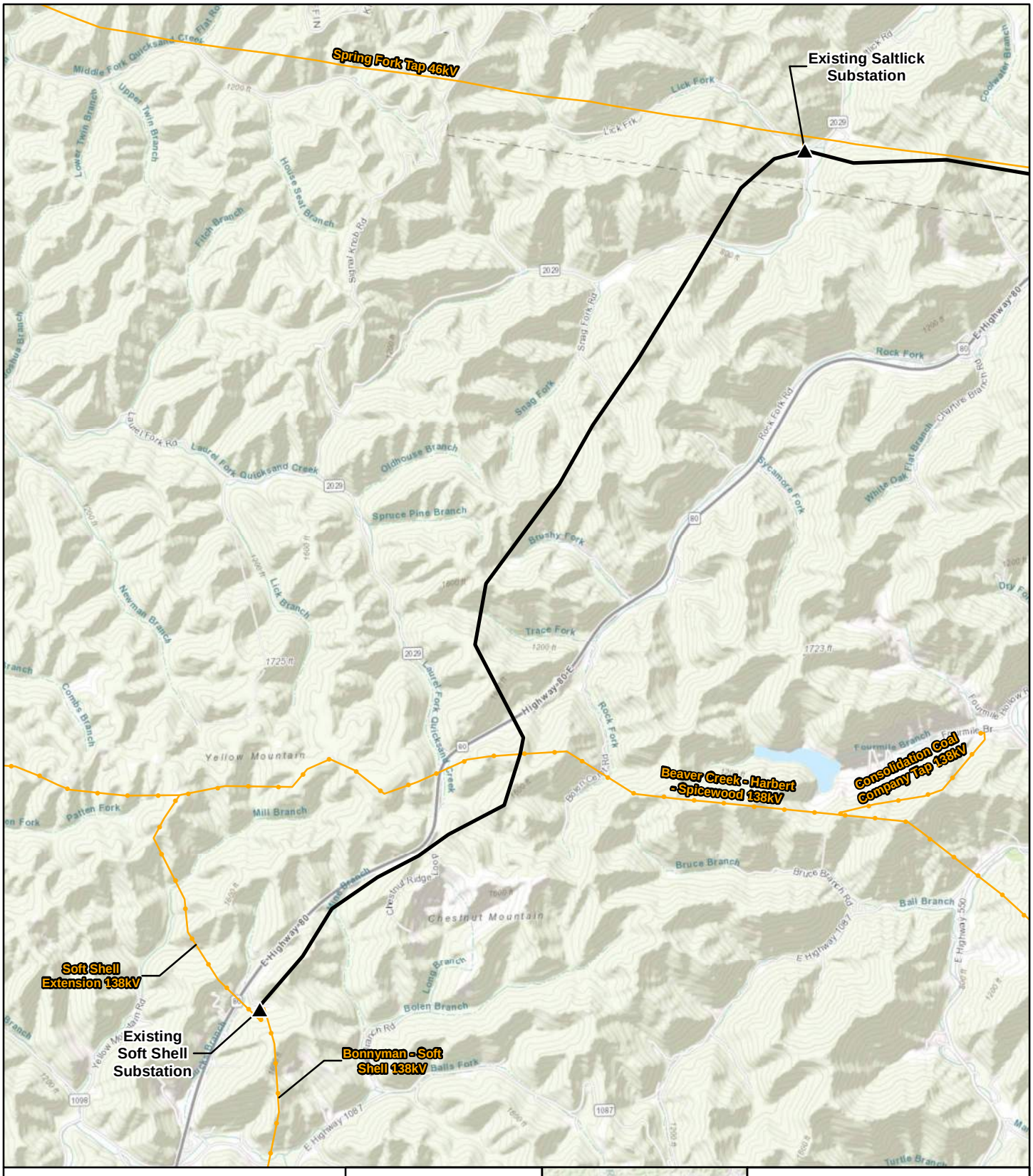


Map 4C
Proposed Route

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

Garrett Area Transmission Line Project

0 3,000
Feet



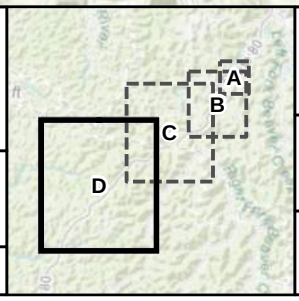
Legend

- Substation
- Proposed Route
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

Sources: ESRI (2020), AEP (2019)

NAD 1983 State Plane
Kentucky South Feet

September 08, 2021



Map 4D
Proposed Route

KENTUCKY POWER
An AEP Company
"BOUNDLESS ENERGY"

Garrett Area Transmission Line Project

0 4,000
Feet

Attachment C: Substation Siting Study

Substation Siting Study

Eastern 138 Kilovolt Substation Project

Prepared for:

KENTUCKY POWER
An AEP Company

Prepared by:

GAI Consultants, Inc.
385 East Waterfront Drive
Homestead, Pennsylvania 15120

gai consultants
transforming ideas into reality

February 2021

TABLE OF CONTENTS

Figures

Tables

Attachments

1.0 INTRODUCTION

Kentucky Power Company (Kentucky Power), a unit of American Electric Power (AEP), is proposing to construct a new 138 kilovolt (kV) transmission substation in Floyd County, Kentucky (KY). The Eastern 138 kV Substation Project (the Project) is required to establish a new 138 kV service point to a customer's natural gas liquids extraction facility in Eastern, KY. The Project is a component of the Garrett Area Improvements Project, which includes the development of a greenfield transmission line between the proposed Eastern 138 kV Substation (the Proposed Substation) and the existing Hays Branch Substation, currently served from the existing Hays Branch-Morgan Fork 138kV Transmission Line. Also associated with the Garrett Area Improvements Project is the development of a greenfield transmission line between the Proposed Substation, the existing Garrett Substation, the existing Saltlick Substation, and the existing Soft Shell Substation. Project details pertaining to the development of the greenfield transmission lines will be documented in a separate Siting Study Report. This Substation Siting Report provides a description of the process used to identify a site for the Proposed Substation.

1.1 Proposed Substation Description

The Proposed Substation will require an approximately 300' by 140' gravel-fenced area and includes equipment approximately 60' tall (including lightning mitigation). See comparable photograph for the Proposed Substation below in Figure 1 and see Attachment A for the Proposed Substation layout plan. The site must be approximately three to four acres in size to accommodate the construction area (grading), the substation equipment, and any necessary stormwater controls. Depending on final site selection, a 1.20- to 1.40-mile-long greenfield transmission line to Kentucky Power's existing Hays Branch-Morgan Fork 138kV line will be required. Selection of the greenfield route is described in a separate Siting Study Report documenting the Garrett Area Improvements Project.

Figure 1: Comparable Proposed Substation

1.2 Proposed Substation General Location

AEP's planners and engineers define the general location for the Proposed Substation to meet the Project's electrical need requirements (the Study Area, shown on Figure 2 below). A new substation in this Study Area (i) reasonably addresses the identified electrical issues; (ii) is in proximity to the existing Hays Branch-Morgan Fork 138kV line; and (iii) is in proximity to the natural gas liquids extraction facility currently serviced by the existing Hays Branch Substation.

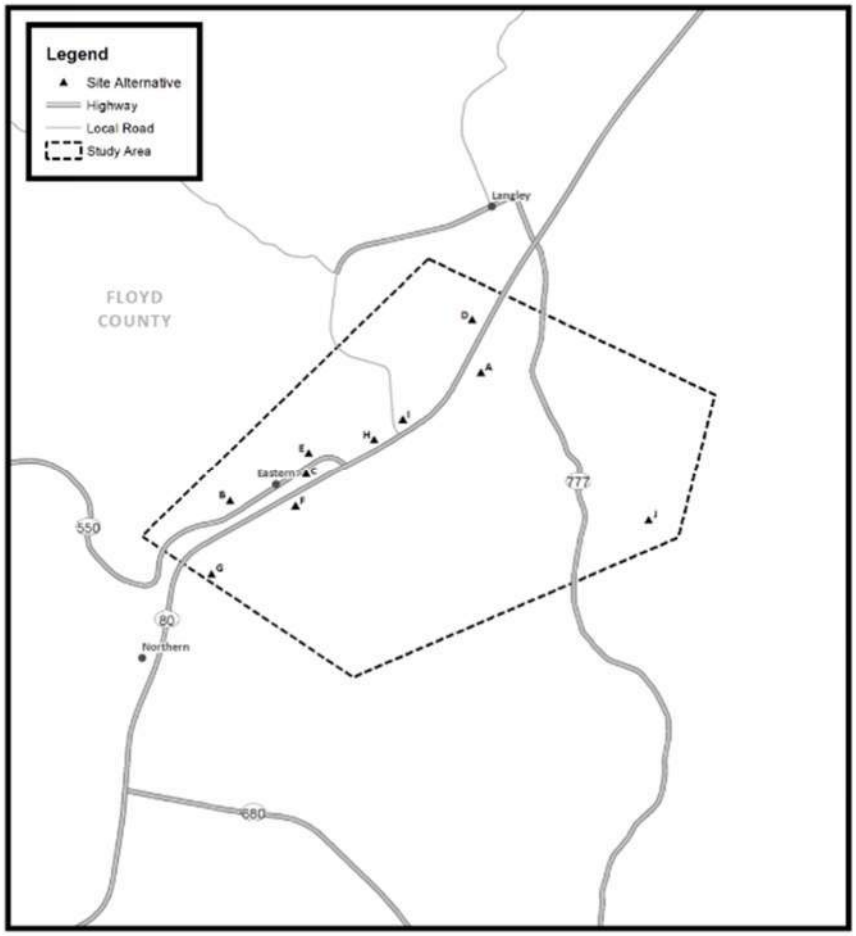


Figure 2: Study Area

The Study Area is characterized by land use typical of the mountainous regions of Eastern, KY. The topography includes mountains, side slopes, floodplains, and valleys. The prominent valley within the Study Area includes the floodplain and floodway of Right Fork Beaver Creek, which occupies much of the level terrain. Human development within the Study Area consists of the residences and businesses established with the community of Eastern, KY. Also prominent within the Study Area is KY Route 80 (KY-80), the natural gas liquids extraction facility, and numerous underground pipelines feeding it. Undeveloped regions of the Study Area consist of forested mountain tops and side slopes, and agricultural areas generally located within floodplains.

1.3 Goals of the Substation Siting Study

The overall goal of the Eastern 138 kV Substation Siting Study (the Substation Siting Study) is to evaluate potential sites within the Study Area and identify a suitable substation site that represents a balance between impacts on the natural and human environments while meeting the engineering and operational needs of the Project in an effective manner. To the extent reasonable and practical, the proposed site is the site that:

- Considers safety in all aspects of the substation's construction, operation and maintenance.
- Is located in the defined Study Area (as described in Section 1.2) and in reasonable proximity to the existing Hays Branch Substation.
- Reasonably minimizes adverse impacts on the natural and human environments realized from construction of the proposed substation and associated transmission line entrances and exits.
- Meets the Project's site engineering and operational requirements, which can include, but are not limited to, the following: space and clearance requirements; access road requirements such as slopes, turning radius, and line of sight; site development requirements such as grading, existing contaminants, and geotechnical; distribution and transmission line exit requirements; and existing infrastructure conflicts such as sewer, gas, and water lines.
- Fairly considers the environmental impacts on the surrounding community and area imposed by both the substation and associated line routes.
- Typically has a willing seller; however, there are exceptions where this is not always practical or reasonable.
- Considers landowner and stakeholder input.
- Minimizes special design requirements and unreasonable costs to the greatest extent feasible.
- Can be constructed and operated in a safe, timely, cost-effective, and reliable manner.

Refer to the Garrett Area Improvements Project's Siting Study Report for additional siting guidelines used in development of the Project.

2.0 SUBSTATION SITE IDENTIFICATION PROCESS

The following provides a general overview of the typical process used to identify a suitable substation site for a project. The process is modified and adapted depending on location, regulatory requirements, and unique project needs.

The substation site identification process begins by assembling a multi-disciplinary team with a wide range of experiences. Team member expertise includes (but is not always limited to) transmission siting, environmental impact assessment, impact mitigation, engineering, construction management, project management, electrical system planning, and public relations (the Siting Team). The Siting Team includes AEP employees and outside consultants. Additional expertise is added depending on the project needs.

Next, constraints and opportunity features are mapped within the Study Area. The initial constraints and opportunity features are typically identified using readily available public data sources (property lines, existing land uses, natural resources, cultural resources, transportation facilities, existing utility and linear features, base mapping, etc.) and supplemented with stakeholder input and field inspections.

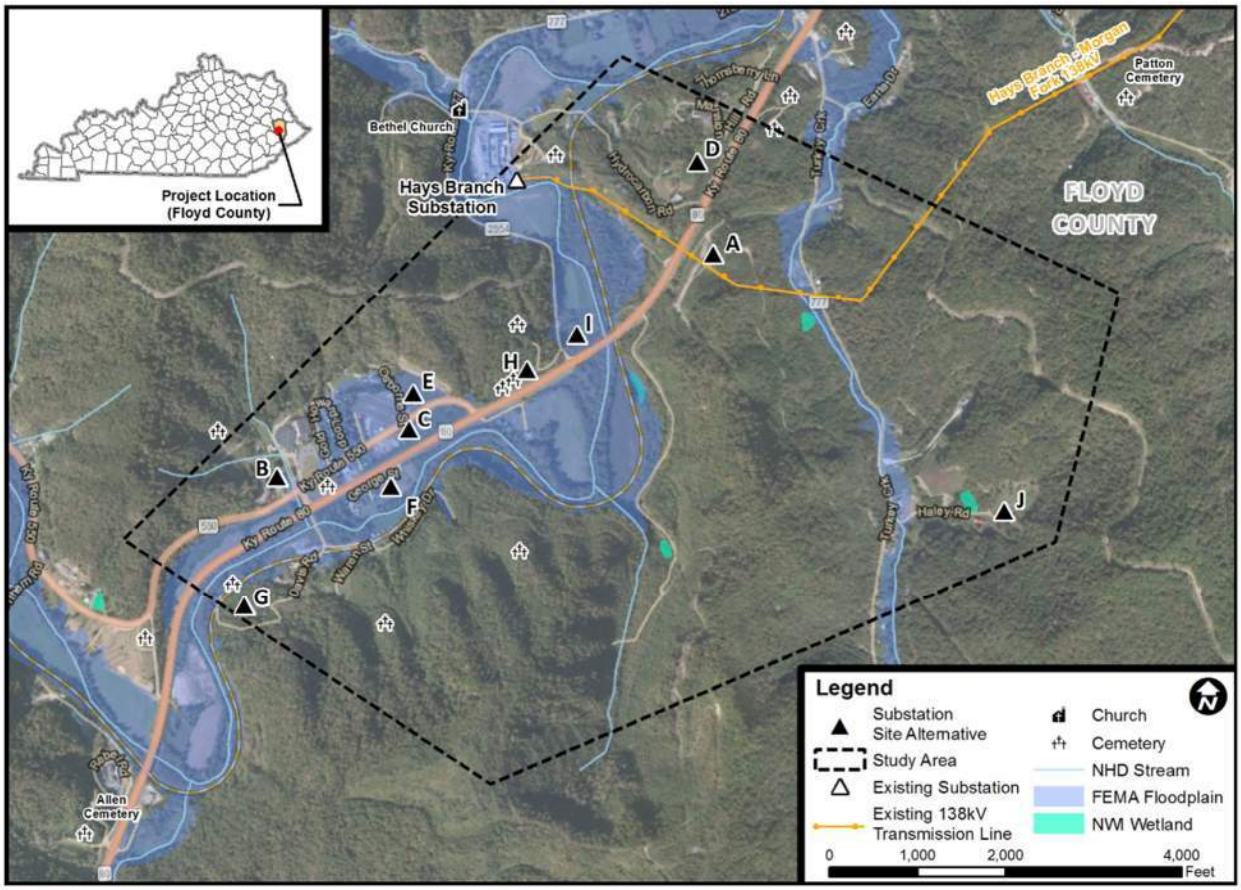
Once the Study Area and constraints and opportunity features are identified, the Siting Team identifies Study Sites (typically less than 10 sites) adhering to the goals outlined in Section 1.3 and a series of general siting and technical guidelines (see the Garrett Area Improvements Project's Siting Study Report). The number of Study Sites could be numerous, low, or even limited to one depending on the project.

The Siting Team conducts desktop reviews and field inspections of the Study Sites. Field inspections focus on the Study Sites and surrounding area from public roads (focusing on environmental constraints, visual impacts, construction needs, and engineering/operational requirements). As this process progresses, the Study Sites are refined or eliminated. The remaining sites are then elevated to Alternative Sites, which are studied in more detail.

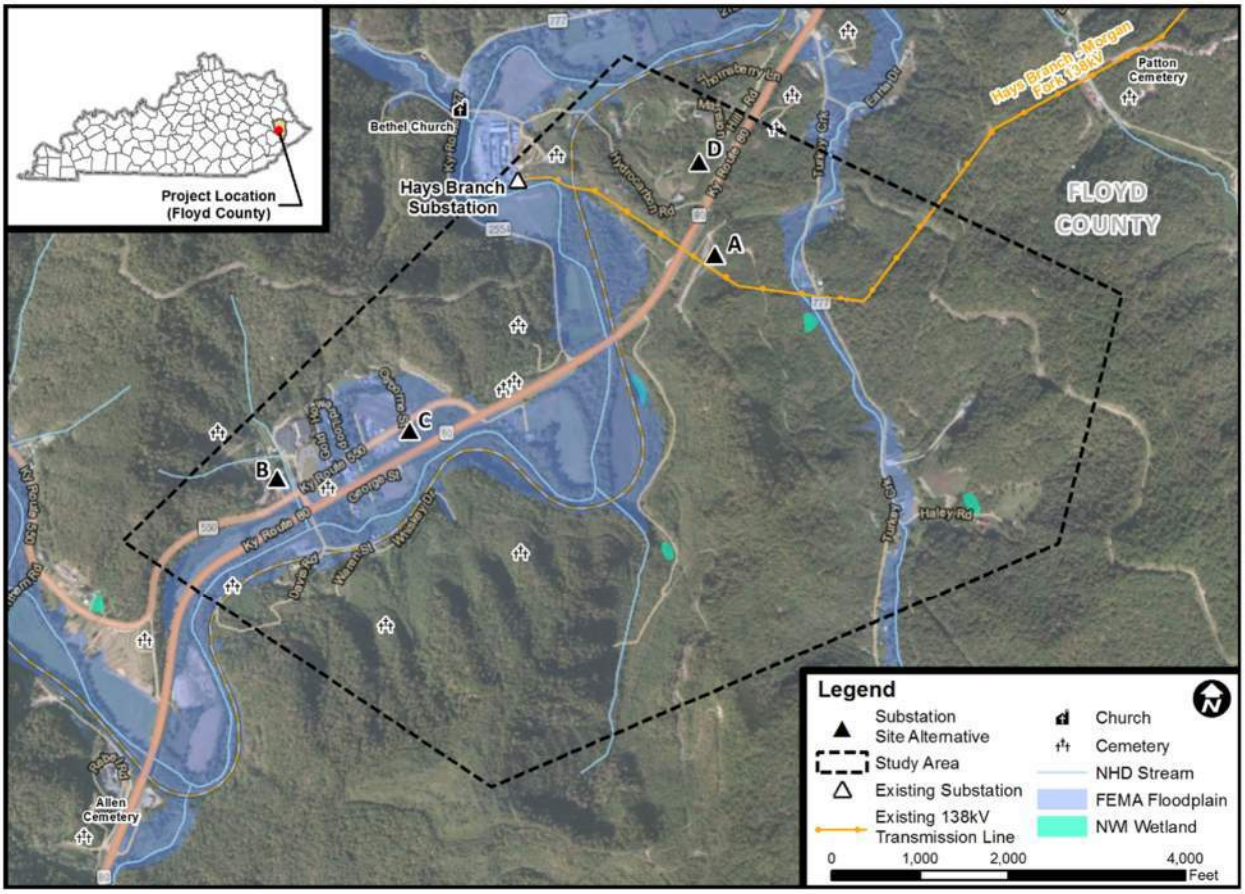
AEP real estate specialists contact the landowners of Alternative Sites to measure interest in selling, collect input, and to obtain permissions to survey. Local officials and key stakeholders are interviewed as needed. Additionally, further studies and examinations are completed as needed. Depending on the project, this could include (but is not limited to) the following: conceptual grading plans, conceptual transmission line entrances and exits, geotechnical investigations including core bores, environmental and/or cultural resource field surveys, ground surveys, previous use research, contaminants investigations, title search, etc. Ultimately, through a quantitative and qualitative analysis and comparison of the Alternative Sites, the Siting Team identifies a Proposed Substation Site, which is the most suitable site that meets the goals of the Substation Siting Study (Section 1.3).

3.0 STUDY SITES

The Siting Team identified 10 Study Sites within the Study Area, as shown and labeled (Sites A to J) on Map 1 below. Following communication with the property owner, Study Site E was eliminated due to the parcel being considered for a new manufacturing plant. Study Site H was eliminated due to its proximity to several cemeteries as well as problematic topography that would likely require significant grading. Study Sites I and F were eliminated due to being located within the floodplain and floodway of Right Fork Beaver Creek. Study Site G was eliminated due to access concerns involving narrow, winding access through a small residential neighborhood that also crosses an ungated railroad crossing. Study Site G is also adjacent to a residence, partially located within a previously recorded archeological site, and is near a cemetery. Study Site J was eliminated due to poor topography and access, anticipated environmental impacts, and its proximity to residencies. As a result of desktop reviews and field inspections, four Study Sites (A, B, C, and D) were carried forward for further analysis.



Map 1 - Study Sites



Map 2 - Alternative Sites

4.0 ALTERNATIVE SITES

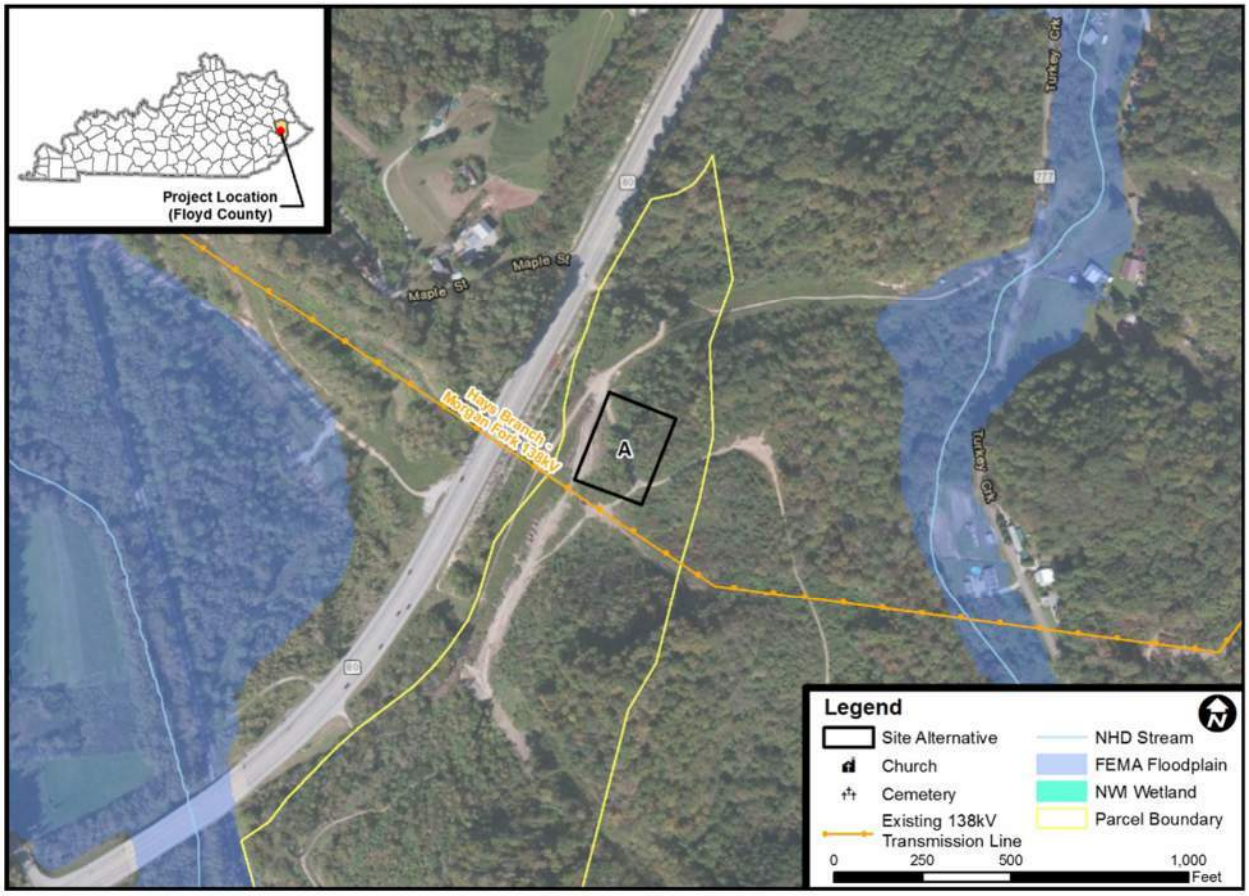
4.1 Alternative Site A Description - Eliminated

Alternative Site A is located adjacent and to the north of the Hays Branch-Morgan Fork 138kV line on a mostly forested parcel crossed by several underground pipelines. Highlights of the site include its development would have a low visual impact, it is not located within a floodplain, and it has few anticipated environmental impacts. Additionally, given its location directly adjacent to the Hays Branch-Morgan Fork 138kV line, its associated transmission line would be the shortest of any of the Alternative Sites considered.

Access to the site would use an existing, approximately 1,000-foot-long, dirt access road that has many challenges. The slope and curvature of the access road is not suitable for large vehicles, and the line of sight to the access road from its exit onto KY-80 would likely require installation of a deceleration lane. Additionally, access would require crossing multiple existing pipelines, and cathodic protection would likely be a necessary addition to the pipelines in the area. Finally, being located on the northern side of the Hays Branch-Morgan Fork 138kV line would require an extended outage that may not be feasible for the customer. Alternative Site A was eliminated from consideration for these reasons.

Photograph 1. Location of Alternative Site A, facing southeast, adjacent to the Hays Branch-Morgan Fork 138kV line.

Photograph 2. Access road to Alternative Site A, facing south, adjacent to large pipelines.



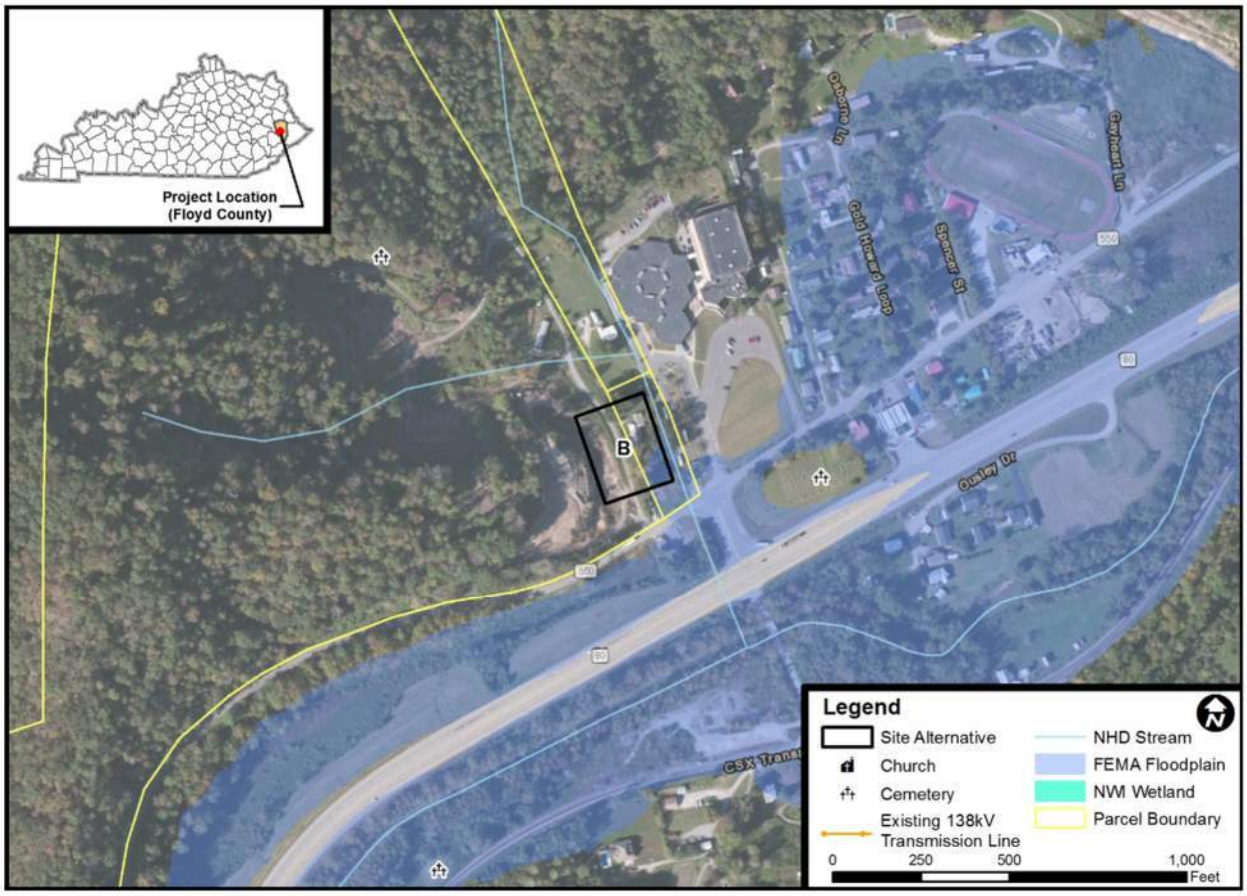
Map 3 - Alternative Site A

4.2 Alternative Site B Description - Eliminated

Alternative Site B is located adjacent to KY-550 along a private roadway that provides access to three residences and a wastewater treatment plant. The site is located in a relatively flat area (in comparison to the surrounding landscape) and is outside the floodplain. Although access to the site is favorable due to its proximity to KY-550, its development would require the purchase of three residences (across two parcels) and the rerouting of access to the wastewater treatment plant. Additionally, the location of underground infrastructure associated with the wastewater treatment plant is unknown, and previous disturbance of the site appears to have placed two streams underground in unknown locations. The site is also one of the furthest sites from the existing Hays Branch 138kV substation. For these reasons, Alternative Site B was eliminated from consideration.

Photograph 3. Alternative Site B, facing northeast. Site development would require removal of residences.

Photograph 4. Taken from access road toward Alternative Site B, facing south. Site development would require relocation of access road and removal of residences.



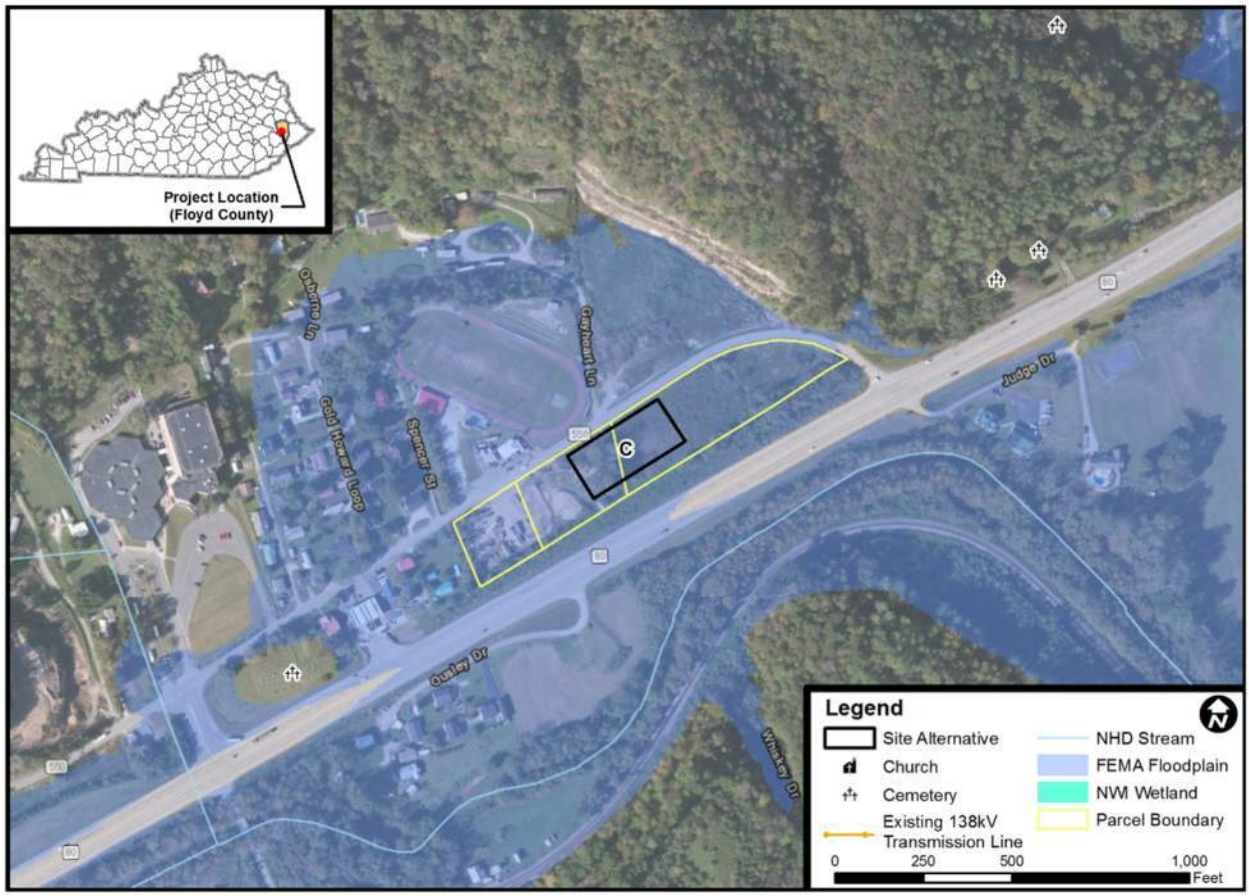
Map 4 - Alternative Site B

4.3 Alternative Site C Description - Retained

Alternative Site C is located on a narrow strip of land between KY-80 and KY-550. The site is previously disturbed and may contain fill material, with portions of the site currently being used for equipment and material storage. The site is located within the mapped 100-year floodplain of Right Fork Beaver Creek; however, a floodplain study is needed to confirm flooding risk. Although the site is narrow, the Siting Team determined the substation could be designed to fit the available space. Ultimately, Alternative Site C's accessibility, topography, and central location deemed it the most suitable option for construction of the Proposed Substation.

Photograph 5. Taken from KY-550 facing southwest, showing the portion of Alternative Site C used for material and equipment storage.

Photograph 6. Taken from KY-550 facing southeast, showing the undeveloped portion of Alternative Site C.



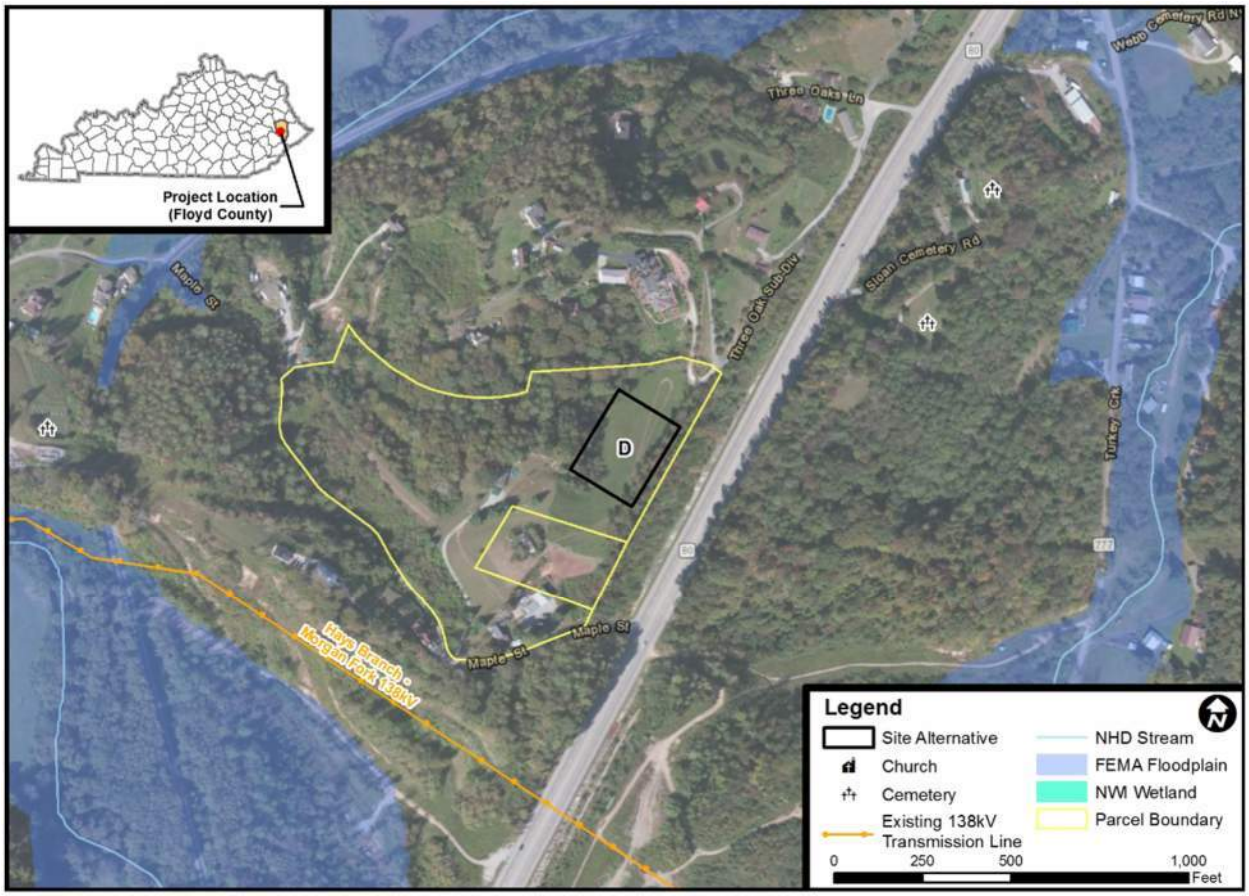
Map 5 - Alternative Site C

4.4 Alternative Site D Description - Eliminated

Alternative Site D is located north of the Hays Branch-Morgan Fork 138kV line on a parcel of mixed use (business, residential, and undeveloped field and forest). Development of the site would have a moderate visual impact as it is located within 500 feet of at least three residences and may require the relocation of an underground pipeline. Based on desktop analysis, no floodplains, wetlands, or streams are located in the vicinity of the site.

Access to the site would use County Road 1926 (CR-1926), an existing roadway that provides access to several residences. Access to CR-1926 from KY-80 would likely require the installation of a deceleration lane, and the slope of CR-1926 would not be suitable for large vehicles. Additionally, the site is located to the north of the Hays Branch-Morgan Fork 138kV line, which would likely require an extended outage that may not be feasible for the customer. For these reasons, Site D was eliminated from consideration.

Photographs of Alternative Site D were not available due to private property markings and limited publicly available vantages points.



Map 6 - Alternative Site D

4.5 Alternative Site Comparison

Table 1 compares the suitability and constraints associated with each Alternative Site.

Table 1: Alternative Site Comparison

* REQUIRED FIELD: Fails (site elimination), Deficient (requires mitigation), Satisfactory (average), Good (above expectations), or N/A

Use the best available data for the evaluation such as desktop, field reviews, conceptual grading plans, exploratory studies, etc.

Alternative Site	A	B	C	D
Engineering and Operational Requirements				
Site parcel(s) size (acres) and number of parcels (count)	8.0 1	7.5 3	5.0 3	7.5 2
Estimated site development area[1] (area of disturbance to construct substation) (acres)	4.0	4.0	4.0	4.0
Site contains a feature that immediately eliminates it from consideration (Y/N)	No	No	No	No
Sufficient size for standard design, stormwater, setbacks, etc.	✓	✓	✓	✓
Ability to minimize and balance cut and fill volumes	✓	✓	✓	✓
Ability of the site to promote proper drainage	✓	✓	✓	✓
Geotechnical Suitability: Geo-hazard or risk (landslides, karst, etc.) (Y/N)	No	No	No	No
Geotechnical Suitability: Specialty foundations and/or ground improvement required (Y/N)	No	No	No	No
Geotechnical Suitability: Significant rock excavation required (Y/N)	No	No	No	No
Ability to build a safe, efficient, and cost-effective access road to the site[2]	No	Yes	Yes	No
Ability to avoid previous use conflicts (e.g., mining, contaminants, pollutants, wells, landfills, etc.)	Yes	No	Yes	Yes
Ability to avoid existing infrastructure conflicts (oil, gas, or sewer pipelines)	No	No	Yes	No
Ability for AEP TFS to safely, efficiently operate and maintain the substation[3]	Yes	Yes	Yes	Yes
Ability to obtain any required regulatory and site development approvals (e.g., CPCN, zoning, development plan, comprehensive plan conformance) in timely manner	Yes	Yes	Yes	Yes
The site location addresses Transmission and Distribution operational needs	Yes	Yes	Yes	Yes
***OVERALL** ability to efficiently and cost effectively develop the site, obtain approvals, avoid non-standard designs and mitigations, build the substation, and operate and maintain (*)*	Defi	Satis	Good	Defi
Natural Environment				
Protected species and habitats or natural areas on/near the site (count)[4]	4	4	4	4
Perennial streams, water bodies, springs on/near development area (count)	0	2	0	0
Estimated wetlands (National Wetlands Inventory) in development area (acres)	0.0	0.0	0.0	0.0
100-year FEMA floodplain in development area (acres)	0.0	0.5	5.0	0.0
Estimated tree clearing in development area (acres)	3.5	0.5	0.0	1.5
***OVERALL** ability to avoid or minimize natural environment impacts and acquire the necessary environmental permits in timely manner for the site development area (*)*	Satis	Satis	Satis	Good

Table 1: Alternative Site Comparison

* REQUIRED FIELD: Fails (site elimination), Deficient (requires mitigation), Satisfactory (average), Good (above expectations), or N/A

Use the best available data for the evaluation such as desktop, field reviews, conceptual grading plans, exploratory studies, etc.

Alternative Site	A	B	C	D
Human Environment				
Site's existing land use (Infrastructure, Residential, Industrial, etc.)	Infra	Res	Ind	Res
Residences within 1,000 feet of development area (count)	6	49	45	18
Community gathering place (school, daycare, church, etc.) within 1,000 feet (count)	0	0	0	0
Cemetery(s) within 500 feet of development area (count)	0	2	0	0
Listed and eligible archaeological sites on/near development area (count)	0	0	0	0
Listed and eligible architectural resources and districts within ¼ mile of the site (count)	0	0	0	0
Designated park, recreation, or scenic resources nearby (count)	0	0	1	0
Avoids impacts on existing and proposed land uses and existing visual character	✓	☒	✓	☒
***OVERALL** ability to avoid or minimize human environment impacts (*)*	Good	Satis	Satis	Satis
Associated Transmission Line Impacts[5]				
A transmission line route to the site is feasible and reasonable	✓	✓	✓	✓
Associated transmission line length (miles)	0.1	1.5	1.25	0.25
***OVERALL** ability to efficiently and cost-effectively develop a route to the site and reasonably avoid or minimize environmental impacts[6](*)*	Defi	Satis	Good	Defi

Notes

1 Development Area: Estimated limits of disturbance to construct the substation includes the area for cut and fill earthwork, stormwater management, clearing, access roads, etc. For example, a 1.0 acre fenced substation could need 3.0 or more acres to develop. A conceptual grading plan might be required especially in more rugged terrain.

2 Permanent access is required to stations. Poor access can increase operation and maintenance costs, construction costs, and safety risks. Factors to consider include safety, slope percentage (<10% = challenging), bridging, railroad crossings, turn radius, maintenance, line-of-sight, night-time access, proximity to main public road, etc. Refer to Station Standards SS-700001 for more details.

3 Ability in the future to safely access and maintain the station. Factors include location, access, clearances, non-standard design, poor line-of-sight, tiered yards, flooding, etc. Request review by Transmission Field Services (TFS).

4 All sites are located within the range of four federally listed species. No site is located within a Protected Species Habitat or Natural Area.

5 Associated Transmission Line: New transmission line extension from the existing transmission line source to the new substation.

6 The feasibility and high-level impacts from the associated transmission line route must be considered. Working with engineering, determine line exits, develop conceptual route (if feasible), and identify potential impacts for site comparison.

5.0 PROPOSED SUBSTATION SITE

The Siting Team recommends Alternative Site C as the Proposed Substation Site as it best addresses the goals outlined in Section 1.3. While Alternative Sites A, B, and D, are constructible, they are not recommended as the proposed substation site. Both Alternative Sites A and D are located on the northern side of the Hays Branch-Morgan Fork 138kV line, meaning their construction may require extended outages as compared to options on the southern side of the line. Additionally, both sites have access concerns including (but not limited to) the need for the installation of a deceleration lane on KY-80 and the existing access to each site not being suitable for large vehicles. Alternative Route B is the furthest option from the existing Hays Branch Substation, requiring a long conceptual route that would need to avoid the more developed areas of the Eastern, KY community. Its development would require the purchase of three residences and the rerouting of access to a wastewater treatment plant. Additionally, the location of underground infrastructure in the area is unknown, and previous disturbance of the site appears to have placed two streams underground into unknown locations.

Alternative Site C's associated constraints include floodplain and viewshed concerns as well as requiring a long transmission line to tap the Hays Branch-Morgan Fork 138kV line, and ultimately serve the Hays Branch Substation. Preliminary analysis identified the site as being located within the 100-year floodplain of Right Fork Beaver Creek. However, the Siting Team anticipates the floodplain in this area to be revised due to the elevation of KY-80, which separates Right Fork Beaver Creek from the site. Although there are approximately 45 residences within 1,000 feet of the site, and the site is adjacent to a track and field facility, viewshed changes to the residences of Eastern, KY and patrons of the track should be low due to the site currently being used for commercial purposes, including the storage of heavy equipment and construction materials. Finally, the longer conceptual route required to tap the Hays Branch-Morgan Fork 138kV line from the proposed site is necessary as the site is the closest viable location to the line that is not located on the line's northern side.

Collectively, the Siting Team believes the Proposed Substation Site meets the overall goals of the Project and represents a balance between impacts on the natural and human environments while meeting the operational needs of the Project in an effective manner.

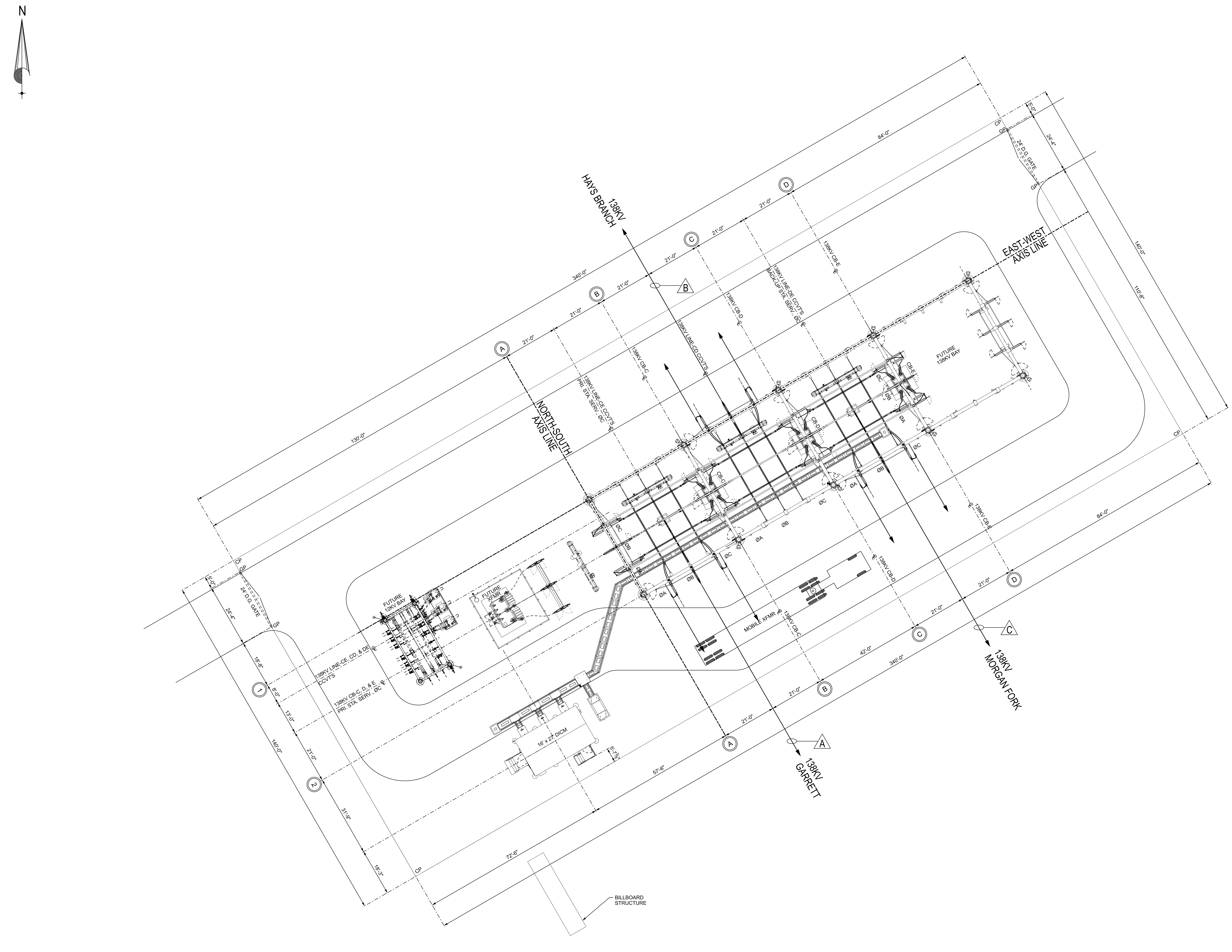
The following was not conducted as part of this evaluation, and should be conducted prior to acquiring any property:

- Phase I Environmental Site Assessment
- Geotechnical borings and groundwater elevation
- Wetland delineation

- Threatened and Endangered species surveys
- Access road design and line of sight survey

Attachment A. Proposed Substation Layout Plan

DWG. NO. E-1201



LINE SIZES & TENSIONS:

A — 3-- MCM @ ---# NESC H.L. T.O. HT --'-"
1-- MCM @ ---# NESC H.L. T.O. HT --'-"

B — 3-- MCM @ ---# NESC H.L. T.O. HT --'-"
1-- MCM @ ---# NESC H.L. T.O. HT --'-"

C — 3-- MCM @ ---# NESC H.L. T.O. HT --'-"
1-- MCM @ ---# NESC H.L. T.O. HT --'-"

DETAILED SCOPING DOCUMENT

PRELIMINARY

GENERAL NOTES:

1. FOR CONSTRUCTION NOTES SEE AEP "TECHNICAL SPECIFICATION FOR SUBSTATION AND SWITCHING STATION CONSTRUCTION" #SS-160102.

LEGEND:

NUMBERS IN ◯ REFER TO COLUMN LINE DESIGNATION

REFERENCE DRAWINGS:

138KV ONE LINE DIAGRAM	E-1200
138KV ELEC. ASS'YS	E-2201-E-2205
FOUNDATION PLAN	E-3201
GROUNDING PLAN	E-3202
GRADING PLAN	E-3203 SH.A-_
CONDUIT & CABLE PLAN	E-3261

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

OLD DWG #: | STD DWG #:

KENTUCKY POWER COMPANY

EASTERN STATION

LANGLEY — KENTUCKY

138 KV

STATION LAYOUT PLAN

SCALE: 1" = 15'	DR: PPG	ENG: PPG	CH:
AMERICAN ELECTRIC POWER — BOUNDLESS ENERGY	WO#: 42962784	APPD:	DATE: 08/01/20
	1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1201	REV 0

STATION ENGINEERING
PLOTTED BY MLively ON 2/18/2021 AT 2:55:33 PM
AEP G (30 X 46)

CM 1 2 3 4 5 6 7 | 1/16 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

D:\aaa_Mike\Leah\E1201.dgn

Attachment D: Data Collection Summary

Data Source	Description
GIS Data	See typical GIS data sources in the scope of work templates.
Field Inspections	Siting Team members conducted field inspections throughout the Study Area and along the proposed Study Segments in August 2020.
Federal Agencies	• U.S. Fish and Wildlife Service's (USFWS), KY Ecological Services Office utilizing the Information, Planning and Consultation (IPAC) System – May 5, 2020 • U.S. Army Corps of Engineers (USACE) utilizing the Regulatory In-lieu Fee and Bank Information Tracking System – August 2, 2021
State Agencies	• KY Heritage Council (KHC) data request – February 2020 • KY Office of State Archaeology (KOSA) data request - February 2020 • KY Division of Water (KDOW) online Water Quality Certification Viewer – August 02, 2021. • KY Department of Fish and Wildlife Resources (KDFWR) data request – May 2020 • KY State Nature Preserves Commission (KSNPC) data request – February 2020 • KY Transportation Cabinet email correspondence - June 2021
Local Agencies/Officials	• Floyd and Knott County Officials – virtual presentation to officials by Siting personnel – February 24, 2021
Other Stakeholders	• Western Pocahontas Properties (WPP) – May 2020
Open House(s)	• Virtual Open House with 30-day public comment period held in March and April 2021. • Live Virtual Town Hall held at 12:00pm and 5:00pm on April 1, 2021
Website and Mailed-In Comments	Received approximately 48 public comments. Kentucky Power representatives reviewed the comments and reached out to the authors to address concerns or discuss the Project further.

Attachment E: GIS Data Sources

Attachment E. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Land Use		
Number of parcels crossed by the ROW	Knott County Property Value Administrator (March 2020) Floyd County Property Value Administrator (March 2020)	Count of the number of parcels crossed by the ROW
Number of residences within various distances of an Alternative Route centerline	Digitized from Google Earth (March 2020) and field verified from points of public access	Count of the number of residences within the ROW and within up to 500 feet of the centerline of the Alternative Routes
Number of commercial buildings within various distances of an Alternative Route centerline	Digitized from Google Earth (March 2020) and field verified from points of public access	Count of the number of commercial buildings within the ROW and within up to 500 feet of the centerline of the Alternative Routes
Number of NRHP-listed or eligible archeological sites within the ROW of an Alternative Route centerline	Data received as part of information request from the Kentucky Heritage Council and the Kentucky Office of State Archaeology (February 2020)	Previously identified archeological resources listed or eligible on the National Register of Historic Places (NRHP) acquired through the Kentucky Heritage Council and the Kentucky Office of State Archaeology
Number of NRHP-listed or eligible historic architectural resources or historic districts within one mile of an Alternative Route centerline	Data received as part of information request from the Kentucky Heritage Council and the Kentucky Office of State Archaeology (February 2020)	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through the Kentucky Heritage Council and the Kentucky Office of State Archaeology
Institutional uses (schools, places of worship and cemeteries) within various distances of an Alternative Route centerline	Digitized from Google Earth (March 2020) and Esri base data (2015)	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools within varying distances of the centerline of the Alternative Routes.

Attachment E. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Airfield and heliports within one mile of an Alternative Route centerline	Esri base data (2021) and FAA Sectional Charts	Distance from airfields and heliports
Natural Environment		
Forest clearing within the ROW of an Alternative Route centerline	Digitized based on Google Earth (April 2019)	Acres of forest within the ROW of an Alternative Route centerline
Number of National Hydrography Dataset (NHD) stream and waterbody crossings within the ROW of an Alternative Route centerline	USGS (2020)	The NHD is a comprehensive set of digital spatial data prepared by the USGS that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells
Acres of National Wetland Inventory (NWI) wetland crossings within the ROW of an Alternative Route centerline	U.S. Fish and Wildlife Service (USFWS) (2020)	The NWI produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats
Acres of 100-year floodplain crossing within the ROW of an Alternative Route centerline	U.S. Federal Emergency and Management Agency (FEMA) (2020)	Acres of 100-year floodplain within the ROW
Threatened, endangered, rare or sensitive species occurrence within the Project vicinity	Data requests utilizing the USFWS IPaC tool (2021) Data request to the Kentucky Department of Fish and Wildlife Resources (2020) and the Kentucky State Nature Preserves Commission (2020)	Known occurrences; locations of potential habitat based on land use

Attachment E. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Prime and unique farmland soils and farmland of statewide importance within the ROW of an Alternative Route centerline	USDA-NRCS SSURGO Database (2020)	Soil associations crossed by the ROW characterized as prime and unique farmland or farmland of statewide importance
Technical		
Route length	Measured in GIS	Length of route in miles
Heavy angle structures	Developed in GIS	Anticipated number of angled structures in excess of 30 degrees
Number of road crossings	TIGER Road Data, US Census Bureau (2015), Google Earth aerial review (2021)	Count of federal, state and local roadway crossings
Number of pipeline crossings	U.S. Department of Transportation National Pipeline Mapping System (2021)	Number of known pipelines crossed by the ROW of an Alternative Route
Number of transmission line crossings	Kentucky Power	Number of high voltage (69 kV or greater) transmission lines crossed by the ROW of an Alternative Route
Distance of steep slopes crossed	Derived from seamless Digital Elevation Models (DEMs) obtained from the U.S. Geologic Survey (2021)	Miles of slope greater than 20 percent crossed by the ROW of an Alternative Route
Length of transmission line parallel	Kentucky Power	Miles of an Alternative Route parallel to existing high voltage transmission lines
Length of pipeline parallel	U.S. Department of Transportation National Pipeline Mapping System (2021)	Miles of an Alternative Route parallel to existing pipelines
Length of road parallel	TIGER Road Data, US Census Bureau (2015), Google Earth aerial review (2021)	Miles of an Alternative Route parallel to existing roadways

Attachment F: Agency Correspondence

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Floyd, Knott and Magoffin counties, Kentucky

Local office

Kentucky Ecological Services Field Office

(502) 695-0468
(502) 695-1024

J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670

http://www.fws.gov/frankfort/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Gray Bat Myotis grisescens — Endangered

This species only needs to be considered if the following condition applies:

- The project area includes potential gray bat habitat.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6329

Indiana Bat Myotis sodalis — Endangered

This species only needs to be considered if any of the following conditions apply:

- The project area includes known 'summer 1' habitat.
- The project area includes known 'summer 1 (outer-tier)' habitat.
- The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis — Threatened

This species only needs to be considered if the following condition applies:

- The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Fishes

NAME	STATUS
Kentucky Arrow Darter Etheostoma spilotum There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/9063	Threatened

Clams

NAME	STATUS
Clubshell Pleurobema clava No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3789	Endangered
Fanshell Cyprogenia stegaria No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4822	Endangered

Northern Riffleshell Epioblasma torulosa rangiana — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/527

Pink Mucket (pearlymussel) Lampsilis abrupta — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7829

Purple Cat's Paw (=purple Cat's Paw Pearlymussel) Epioblasma obliquata obliquata — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5602

Rough Pigtoe Pleurobema plenum — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6894

Sheepnose Mussel Plethobasus cyphyus — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6903

Snuffbox Mussel Epioblasma triquetra — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4135

Crustaceans

NAME	STATUS
Big Sandy Crayfish Cambarus callainus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8285	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Kentucky Arrow Darter Etheostoma spilotum https://ecos.fws.gov/ecp/species/9063#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C
- PEM1Fh
- PEM1Fx

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A
- PSS1A
- PFO1C
- PSS1C

FRESHWATER POND

- PUBHh
- PUBHx
- PAB4H
- PUBF
- PUBFx
- PUBH

RIVERINE

- R5UBH
- R4SBC
- R3UBH
- R2UBH
- R3UBHx
- R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

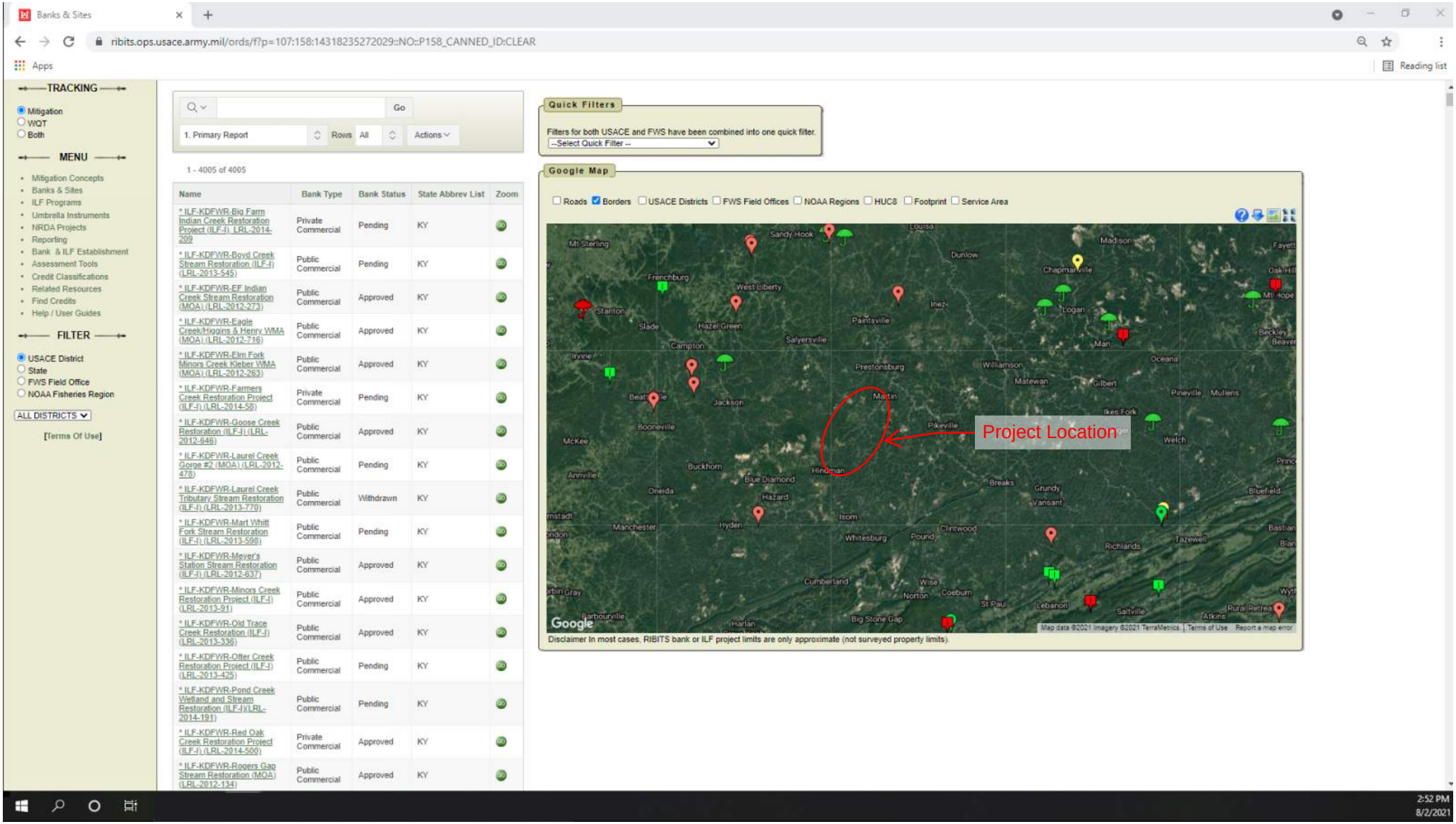
Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged

aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

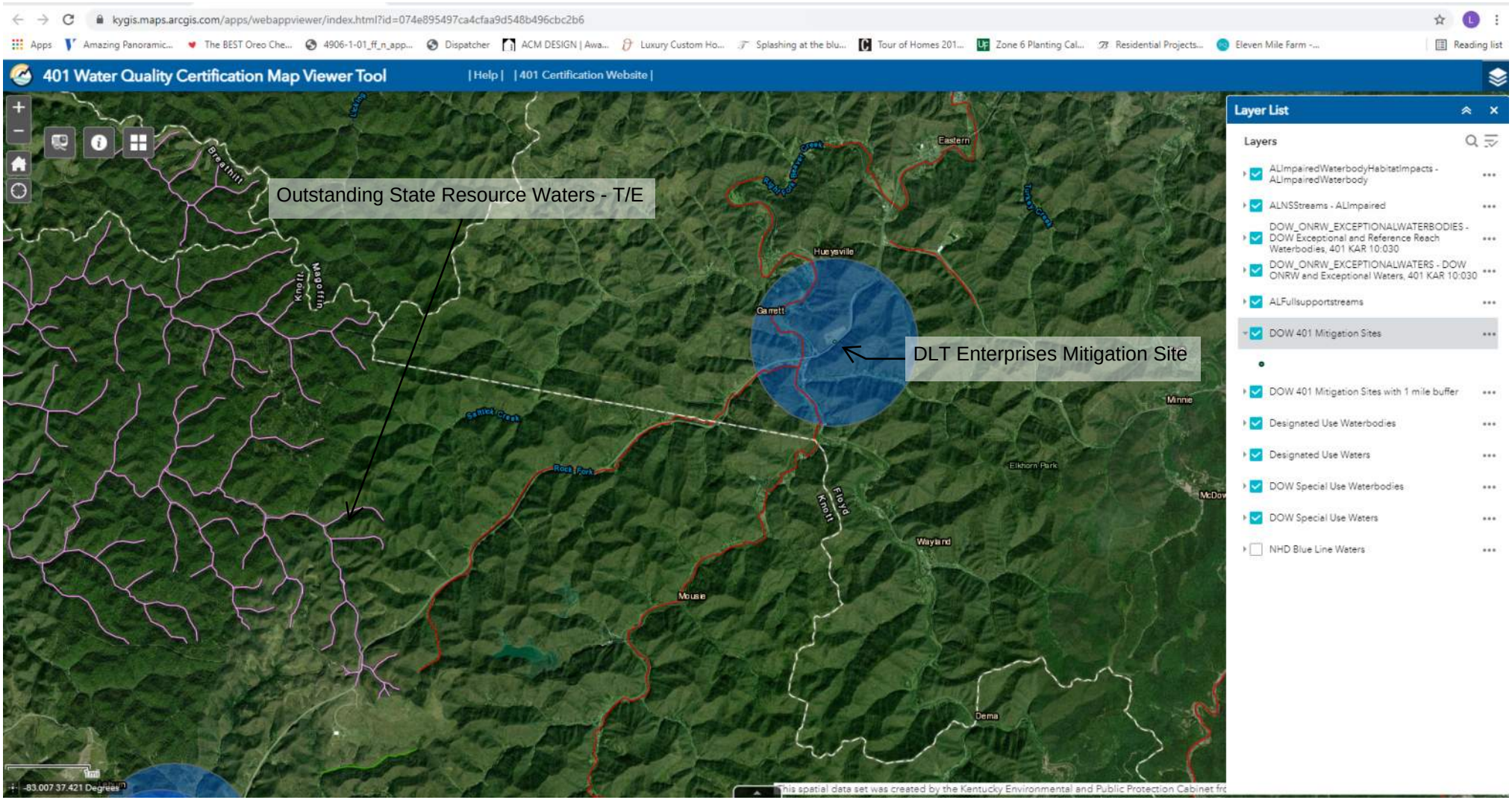
Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

U.S. Army Corps of Engineers
Regulatory In-lieu Fee and Bank Information Tracking System
August 02, 2021



Kentucky Division of Water - Water Maps Portal
401 Water Quality Certification Map Viewer Tool
August 02, 2021



Leah Jackson

From: James, Chris (KYTC-D12) <Chris.James@ky.gov>
Sent: Wednesday, June 9, 2021 3:50 PM
To: Leah Jackson
Cc: Hale, Samuel S (KYTC-D12); Stallard, Terry R (KYTC-D12); Johnson, John M (KYTC-D12); Skeens, Dave R (KYTC-D12); Sammons, Dewey L (KYTC-D12)
Subject: RE: Kentucky Power Project - KY 80 between KY 7 towards Prestonsburg
Attachments: 12_8703_00.kmz; 12_8703_00_Preliminary_RW_Plans.pdf

Ms. Jackson,
Attached are two files that show information relating to the proposed KY 80 Ramp project near Garrett (KYTC Item Number 12-8703.00). The first is a Google Earth KMZ file that shows approximate construction limits, r/w lines, etc. Please note that this information is still "Preliminary-Subject to Change" as the design details are currently in development. The attached PDF is for the current "Preliminary R/W Plans" for the project and may allow you to see some of the information better (due to line style issues with Google Earth). These plans are also currently in development. Please let us know if you have any questions or if you need any additional information.

Thanks,
Chris James, PE
KYTC District 12 Design Section Supervisor
109 Loraine Street | Pikeville, KY 41501
P 606.433.4117
C 606.794.5564

From: Johnson, John M (KYTC-D12) <JohnM.Johnson@ky.gov>
Sent: Wednesday, June 9, 2021 3:02 PM
To: James, Chris (KYTC-D12) <Chris.James@ky.gov>
Cc: Leah Jackson <L.Jackson@gaiconsultants.com>; Hale, Samuel S (KYTC-D12) <Samuel.Hale@ky.gov>; Stallard, Terry R (KYTC-D12) <Terry.Stallard@ky.gov>
Subject: FW: Kentucky Power Project - KY 80 between KY 7 towards Prestonsburg

Chris,

Can you forward a kmz file of this project to Ms. Jackson. Her firm is working on a project for AEP Transmission and was wanting to look and see if there are any conflicts with our project.

Thanks,

jmj

From: Leah Jackson <L.Jackson@gaiconsultants.com>
Sent: Monday, June 7, 2021 1:19 PM
To: Johnson, John M (KYTC-D12) <JohnM.Johnson@ky.gov>; Hale, Samuel S (KYTC-D12) <Samuel.Hale@ky.gov>
Subject: RE: Kentucky Power Project - KY 80 between KY 7 towards Prestonsburg

Thanks John. Is there a phone number I can reach you at? I only have email addresses at the moment.

From: Johnson, John M (KYTC-D12) <JohnM.Johnson@ky.gov>
Sent: Monday, June 7, 2021 1:14 PM
To: Leah Jackson <L.Jackson@gaiconsultants.com>; Hale, Samuel S (KYTC-D12) <Samuel.Hale@ky.gov>
Subject: RE: Kentucky Power Project - KY 80 between KY 7 towards Prestonsburg

Feel free to contact me and we can get together

jmj

From: Leah Jackson <L.Jackson@gaiconsultants.com>
Sent: Monday, June 7, 2021 1:09 PM
To: Hale, Samuel S (KYTC-D12) <Samuel.Hale@ky.gov>
Cc: Johnson, John M (KYTC-D12) <JohnM.Johnson@ky.gov>
Subject: Kentucky Power Project - KY 80 between KY 7 towards Prestonsburg

Hello Samuel,

Thank you for reaching out to Kentucky Power regarding the Garrett Area Improvements Project. I apologize for the delay in contacting you. You had left the following comment regarding the Project.

Comments: KYTC has a project in design on KY 80 between KY 7 and the top of the hill towards Prestonsburg. Please contact me or John M. Johnson at KYTC District 12, 109 Loraine St. Pikeville.

I was hoping we could discuss any concerns you may have with our study segments and your projects. Please feel free to write back or call me at the number in my signature.

Thank you!

Leah M. Jackson
D 412.399.5335 **M** 724.332.1070

GAI Consultants
ENGINEERING, PLANNING, AND ENVIRONMENTAL CONSULTING SINCE 1958

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R1

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

PLANS OF
PROPOSED PROJECT
Floyd County

IMPROVE ACCESS TO KY 80 AT GARRETT EASTBOUND

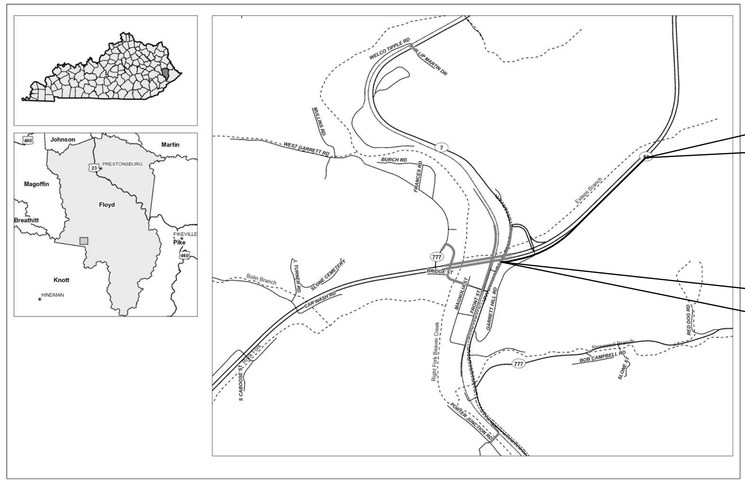
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
R1	LAYOUT SHEET
R2-R2e	TYPICAL SECTIONS-SUMMARY OF QUANTITIES
R3-R6	PLAN AND PROFILE SHEETS
	UTILITY REFERENCE SHEETS
R7	RIGHT OF WAY SUMMARY SHEETS
R8	RIGHT OF WAY STRIP MAP SHEETS
	DETAIL SHEETS
	TRAFFIC CONTROL SHEETS
	EROSION CONTROL SHEETS
	MITIGATION PLAN SHEETS
R9	COORDINATE CONTROL SHEETS
	SOIL PROFILE SHEETS
	PIPE DRAINAGE SHEETS
S	STRUCTURE PLANS
T	TRAFFIC PLANS
U	UTILITY RELOCATION PLANS
X1	CROSS SECTION SHEETS

SHEETS NOT INCLUDED IN TOTAL SHEETS

STANDARD DRAWINGS

NUMBER



PRELIMINARY
SUBJECT TO CHANGE

RIGHT OF WAY
PLANS

DESIGN CRITERIA

CLASS OF HIGHWAY	Rural Arterial
TYPE OF TERRAIN	Mountainous
DESIGN SPEED	30 mph
REQUIRED NPSD	
REQUIRED PSD	X
LEVEL OF SERVICE	
ADT PRESENT (X)	
ADT FUTURE (X)	X
DHV	X
D %	X
T %	X

GEOGRAPHIC COORDINATES

LATITUDE 37 DEGREES 29 MINUTES 2 SECONDS NORTH
LONGITUDE 82 DEGREES 49 MINUTES 35.5 SECONDS WEST

DESIGNED

% RESTRICTED SD	X
LEVEL OF SERVICE	X
MAX. DISTANCE W/O PASSING	X

LAYOUT MAP

LENGTH 2599.49 LIN. FT. 0.492 MILES	LENGTH LIN. FT. MILES	LENGTH LIN. FT. MILES	LENGTH LIN. FT. MILES
ADDED / DEDUCTED FOR EQUALITIES LIN. FT.	ADDED / DEDUCTED FOR EQUALITIES LIN. FT.	ADDED / DEDUCTED FOR EQUALITIES LIN. FT.	ADDED / DEDUCTED FOR EQUALITIES LIN. FT.
NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED
RAILROAD CROSSINGS NO. LIN. FT.	RAILROAD CROSSINGS NO. LIN. FT.	RAILROAD CROSSINGS NO. LIN. FT.	RAILROAD CROSSINGS NO. LIN. FT.
BRIDGES LIN. FT.	BRIDGES LIN. FT.	BRIDGES LIN. FT.	BRIDGES LIN. FT.

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF
Floyd

ITEM NO. 12.8703.00
PROJECT NUMBER: FD04 036 0080 001-002
LETTING DATE: May 1, 2022

RECOMMENDED BY: John Michael Johnson (PROJECT MANAGER) March 31, 2021 (DATE:)

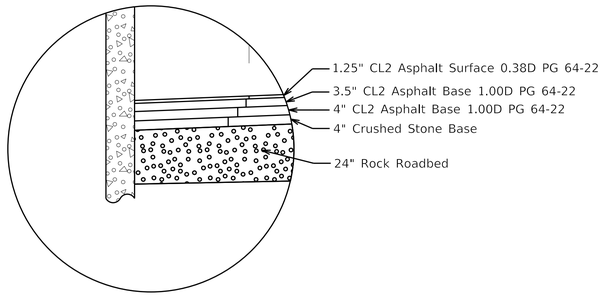
PLAN APPROVED BY: (STATE HIGHWAY ENGINEER) (DATE:)

FILE NAME: C:\PWWORK\JUSTIN.REICHENBACH\D1889047\12_8703_00_R_PLAN.DGN
USER: justin.reichenbach
DATE PLOTTED: September 7, 2005
OpenRoads Designer v10.14.4.4

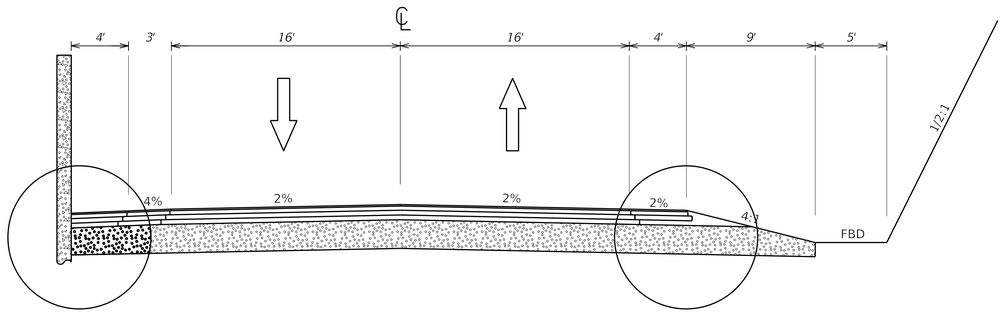
COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R2

TYPICAL SECTIONS

KY 80 RAMP



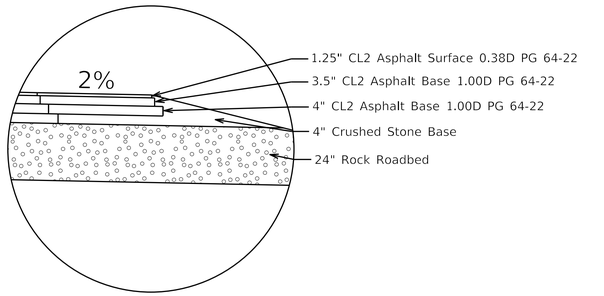
DETAIL 'A'



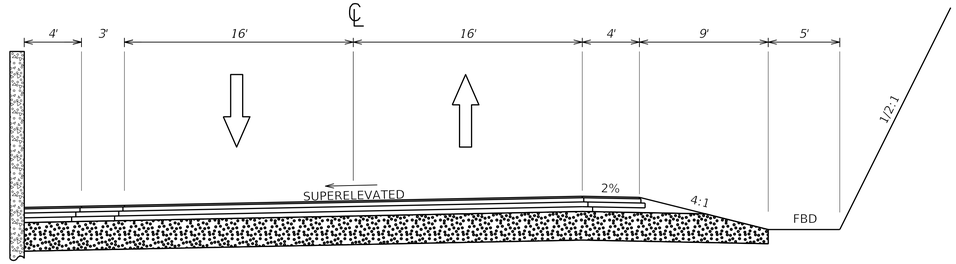
DETAIL 'A' DETAIL 'B'

NORMAL SECTION

STA. 10+00 to 15+50



DETAIL 'B'



SUPERELEVATED SECTION

STA. 10+00 to 15+50

SEE X - SECTIONS FOR SLOPES OUTSIDE SHOULDERS LIMITS

NEW CONSTRUCTION
GRADE, DRAIN & FLEXIBLE PAVEMENT
USING

APPROXIMATELY 35.5" BASE ..... 3.5" CL2 Asphalt Base 1.00D PG64-22; 4" CL2 Asphalt Base 1.00D PG64-22; 4" Crushed Stone Base; 24" Rock Roadbed

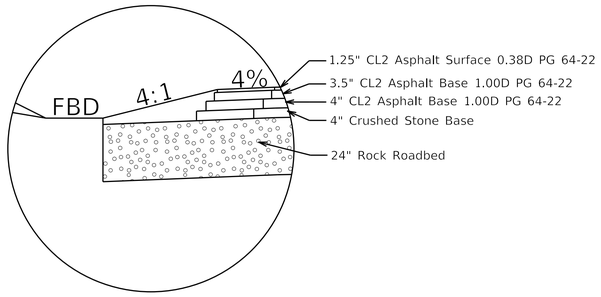
APPROXIMATELY 1.25" SURFACE ..... 1.25" COMPACTED DEPTH CL2 ASPHALT SURFACE 0.38D PG64-22

KY 80 Ramp - Typical Section
Sta. 10+00 - 16+50

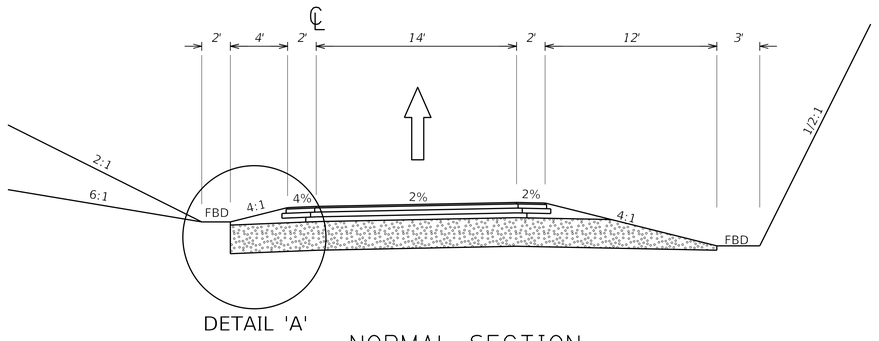
COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R2a

TYPICAL SECTIONS

KY 80 RAMP



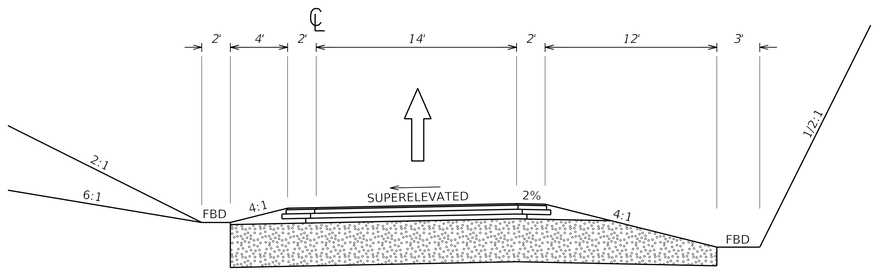
DETAIL 'A'



NORMAL SECTION

STA. 16+50 to 22+03.74

SEE X - SECTIONS FOR SLOPES OUTSIDE SHOULDERS LIMITS



SUPERELEVATED SECTION

STA. 16+50 to 22+03.74

NEW CONSTRUCTION
GRADE, DRAIN & FLEXIBLE PAVEMENT
USING

APPROXIMATELY 35.5" BASE ..... 3.5" CL2 Asphalt Base 1.00D PG64-22; 4" CL2 Asphalt Base 1.00D PG64-22; 4" Crushed Stone Base; 24" Rock Roadbed

APPROXIMATELY 1.25" SURFACE ..... 1.25" COMPACTED DEPTH CL2 ASPHALT SURFACE 0.38D PG64-22

KY 80 Ramp - Typical Section
Sta. 16+50 to End

FILE NAME: C:\PWWORK\JUSTIN.REICHENBACH\D1889047\12_8703_00_R_AUXILIARY.DGN
USER: justin.reichenbach
DATE PLOTTED: September 7, 2005
OpenRoads Designer v10.14.4.4

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R3

PRELIMINARY
SUBJECT TO CHANGE

RIGHT OF WAY PLANS

BEGIN R/W
STA. 10+00

PI STA 10+80.74
Δ = 12°05'47" LT
T = 52.98'
L = 105.56'
R = 500.00'
E = 2.80'
e = ___%
Runoff =
Runout =

PI STA 17+24.11
Δ = 32°14'38" LT
T = 433.57'
L = 844.14'
R = 1500.00'
E = 61.41'
e = ___%
Runoff =
Runout =

VERNAL LEE TURNER
GLADYS MARIE TURNER
DB 231, PG 178

AVANELL HICKS
DB 203, PG 358

KENTUCKY HIGHWAY 80

KENTUCKY HIGHWAY 7

FROG ALLEY

POB 10+00.00

PC 10+27.17

PT 11+38.33

PC 12+90.53

N89°17'16"E

N77°11'49"E

Exist. R/W

Prop. R/W

MATCHLINE STA 22+00.00

10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00

10+00.00
230.03'

10+82.90
342.28'

11+86.66
401.39'

12+21.20
374.11'

14+06.99
221.96'

16+07.10
335.72'

16+09.87
416.93'

17+34.41
435.12'

19+76.92
445.72'

21+34.68

P
1
ELKHORN COAL CORPORATION
Tract B

P
1
ELKHORN COAL CORPORATION
Tract A

P
2
DLT ENTERPRISES, INC.
Tract A

P
3
DIVERSIFIED GAS & OIL PLC.
MARTIN, ALEX #297
GAS WELL #740297

GAS WELL

3" GAS MAIN EXPOSED

METAL BLDG

FRAME BLDG

1½ STY

Temp. Esmt.

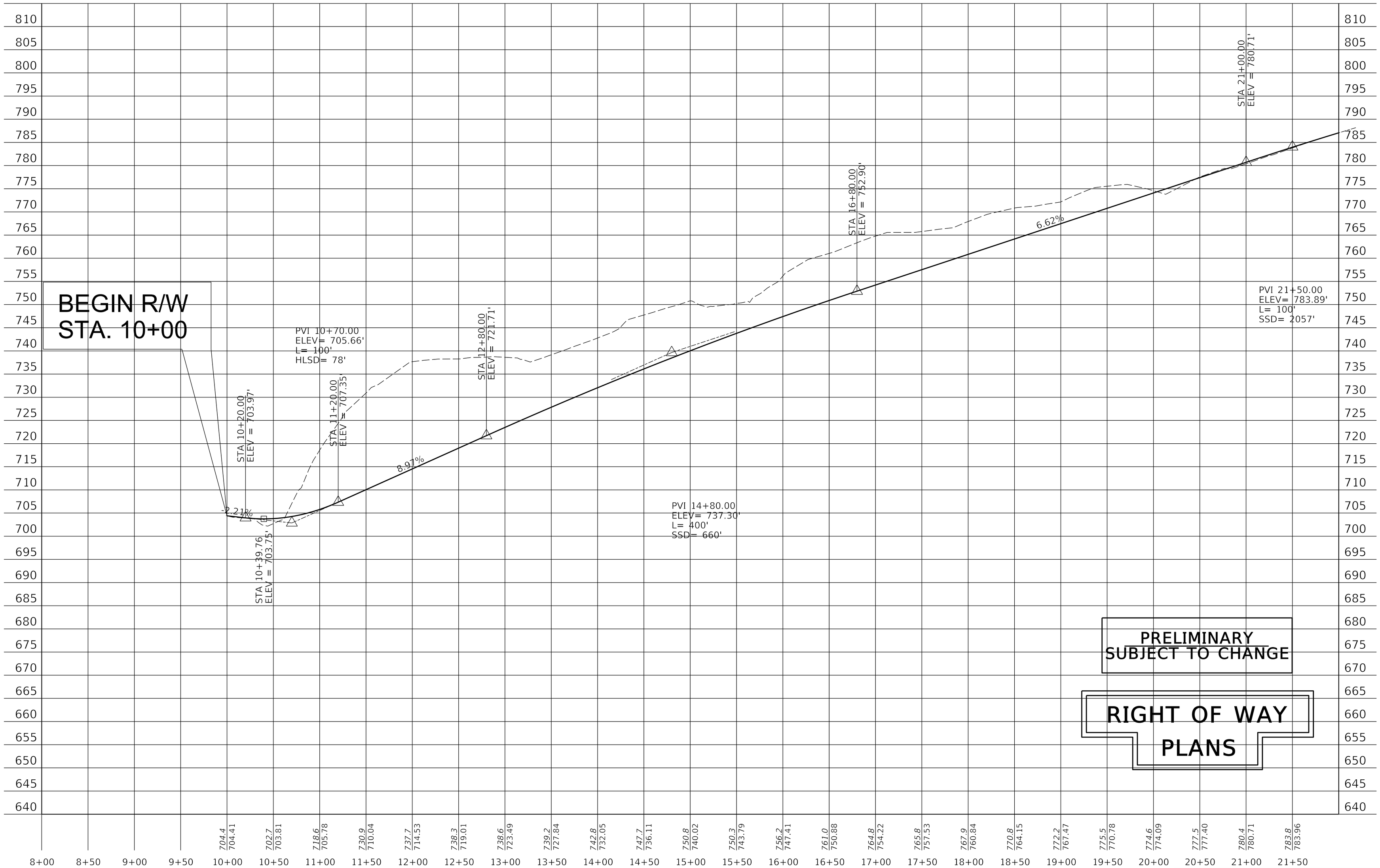
SCALE:1"=50'

Plan Sta 10+00 to 22+00

FILE NAME: C:\PW\WORK\JUSTIN.REICHENBACH\D198904\7\12_8703_00_R_PLAN.DGN
USER: justin.reichenbach
DATE PLOTTED: September 7, 2005
OpenRoads Designer v10.14.4.4

SCALE: 1" = 50 HORIZONTAL
1" = 10 VERTICAL

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R4

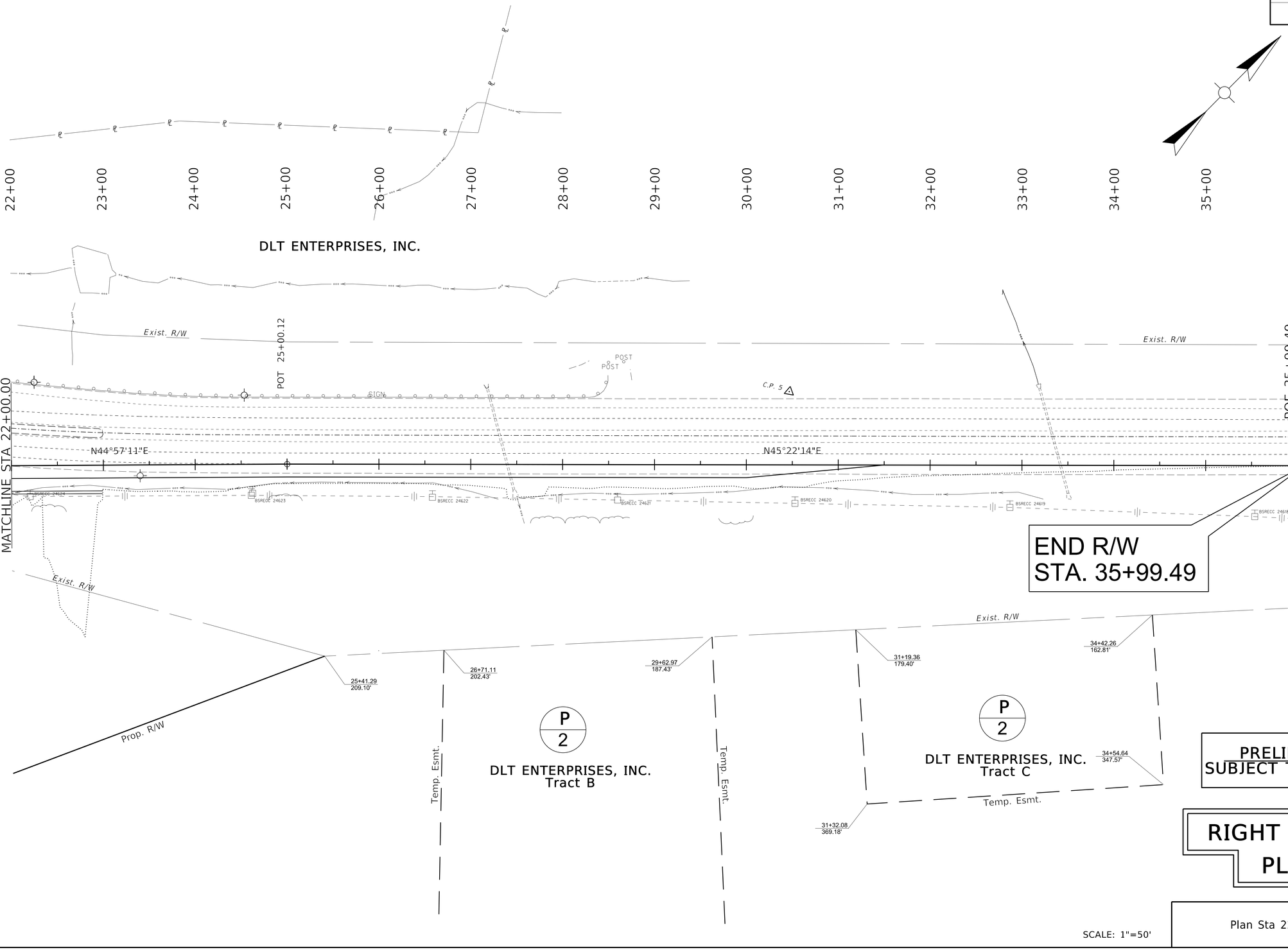


PRELIMINARY
SUBJECT TO CHANGE

RIGHT OF WAY
PLANS

Sta 8+00 to 22+00
Profile

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R5



PRELIMINARY
SUBJECT TO CHANGE

RIGHT OF WAY PLANS

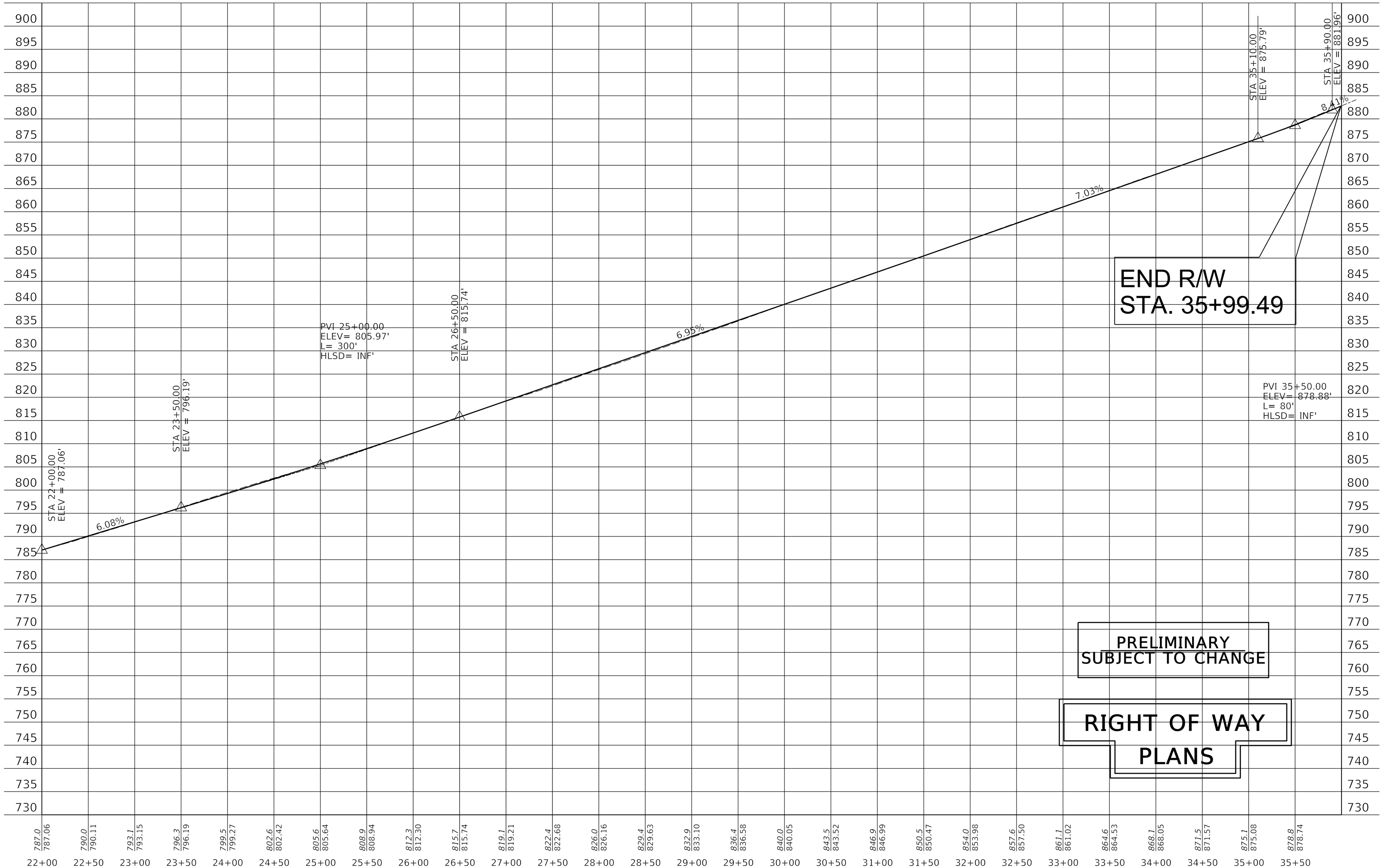
SCALE: 1"=50'

Plan Sta 22+00 to 35+99.49

FILE NAME: C:\PWWORK\JUSTIN.REICHENBACH\D188904\T12_8703_00_R_PLAN.DGN
USER: justin.reichenbach
DATE PLOTTED: September 7, 2005
OpenRoads Designer v10.14.4.4

SCALE: 1" = 50 HORIZONTAL
1" = 10 VERTICAL

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R6



PRELIMINARY
SUBJECT TO CHANGE

RIGHT OF WAY PLANS

Sta 22+00 to 35+99.49
Profile

FILE NAME: C:\PWWORKJUSTIN.REICHENBACH\D188904712_8703_00_R_PLAN.DGN
USER: justin.reichenbach
DATE PLOTTED: September 7, 2005
OpenRoads Designer v10.14.4.4

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R7

RIGHT OF WAY SUMMARY

PARCEL NO.	OWNER(S)	TOTAL AREA OF TRACT		PERMANENT R/W ACQUIRED		EASEMENTS		AREA SEVERED				EXCESS PURCHASED		PORTION REMAINING		SEWER SYSTEM TYPE	SEWER SYSTEM AFFECTED BY PROJECT		BUILDINGS ACQUIRED NUMBER				SOURCE OF TITLE	REMARKS*
						PERMANENT	TEMPORARY	LEFT		RIGHT														
		ACRES	SQ. FT.	ACRES	SQ. FT.	SQ. FT.	SQ. FT.	ACRES	SQ. FT.	ACRES	SQ. FT.	ACRES	SQ. FT.	ACRES	SQ. FT.		YES	NO	C	R	F	S		
P1	ELKHORNCOAL CORPORATION (1)	20.41		7.21			81,955							13.20		5						1	DB 133, PG 299 DB 28, PG 177	
P2	DLT ENTERPRISES, INC. (1)	158.14		3.14			421,716.2							155.00		5							DB 412, PG 81 DB 453, PG 126	
P3	DIVERSIFIED GAS & OIL PLC.																							EQT MARTIN, ALEX #297 GAS WELL

NOTE: PERMANENT R/W ACQUIRED + AREA SEVERED = TOTAL AREA OF TRACT.

BASIS FOR DETERMINATION OF AREA:

(1) DEED

(2) P.V.A.

(3) CALCULATED (Areas were calculated using approved property lines on PVA maps)

RIGHT OF WAY PLANS

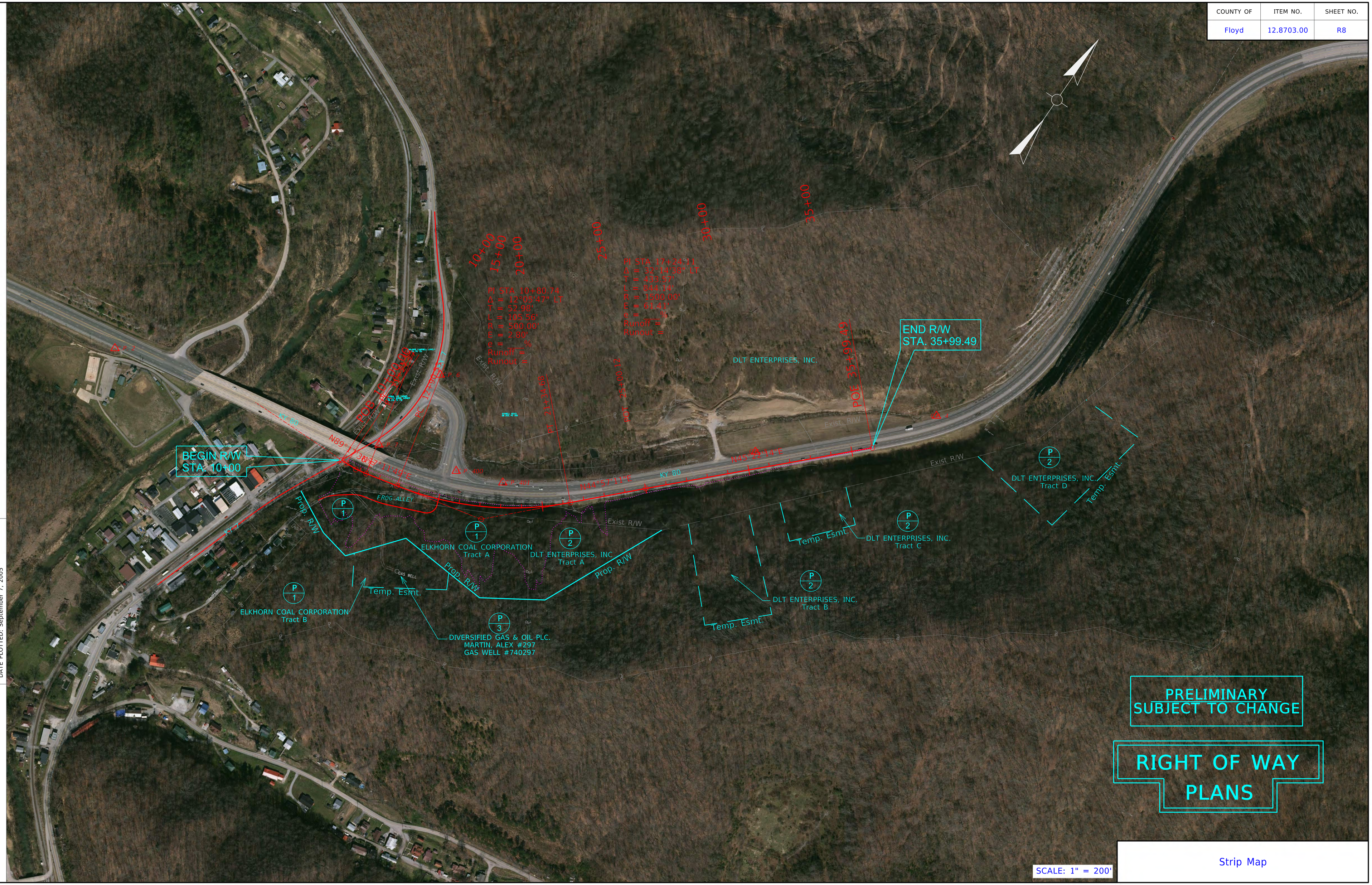
TYPE SEWER SYSTEM
1. PRIVATE - INDIVIDUAL
2. PRIVATE - MULTI PARTY
3. PUBLIC
4. NONE
5. NOT APPLICABLE

BUILDINGS ACQUIRED CODE
C - COMMERCIAL
R - RESIDENTIAL
F - FARM
S - STORAGE

*INCLUDES HAZARDOUS WASTE
(UST - UNDERGROUND STORAGE TANKS)

ROW SUMMARY SHEET

COUNTY OF	ITEM NO.	SHEET NO.
Floyd	12.8703.00	R8



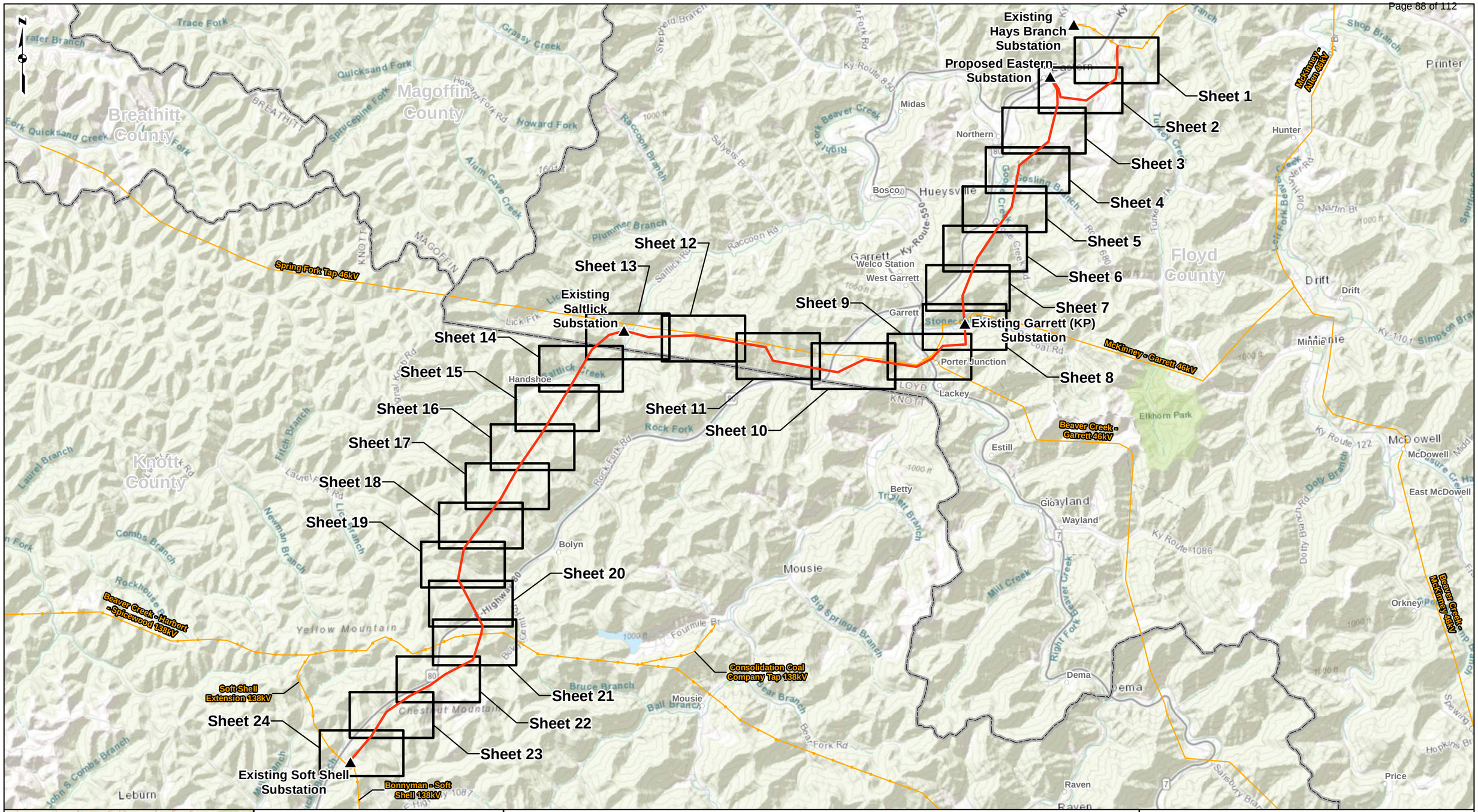
FILE NAME: C:\PW\WORKJUSTIN.REICHENBACH\D168904\7\12_8703_00_R_PLAN.DGN
USER: justin.reichenbach
DATE PLOTTED: September 7, 2005
OpenRoads Designer v10.14.4.4

Attachment G: Constraints and Opportunities Summary

CONSTRAINTS	
Recreational and Aesthetic Resources	Alternative Routes I and J cross the Knott County Sportsplex, however the routes generally parallel KY-80 and no impacts to the development potential of the facility are anticipated. Additionally, the routes avoid the only currently developed region of the facility. Desktop review identified Elk Horn Coal Hunting Access areas within the Study Area, however none are anticipated to be impacted by the Project. The majority of the Project will occur on undeveloped forested tracts and is not anticipated to be highly visible to the community.
Cultural, Tribal, and Historic Resources	There are no NRHP listed resources located within the Study Area. Numerous cemeteries are located within the Study Area, however none are anticipated to be impacted as part of the Project. Although archaeological and architectural surveys will be required, there is a low probability of identifying significant cultural resources along the Project route due to terrain, disturbed area from coal mining, and lack of architectural features.
Land Use and ROW	**Residences**: No substantial residential impact is anticipated due to lack of development. Valleys can be spanned with sufficient blowout without the need to acquire properties. **Land use**: The majority of the Study Area is generally rugged forest, with narrow valleys sparsely developed with residential structures and outbuildings. More densely developed areas are limited to the communities of Eastern and Garrett, with development extending outwards from the community centers along the major roadways in the Study Area including KY-80, KY-550, KY-7, and KY-777. Crossings of the more densely developed roadways are generally perpendicular and brief, spanning ridgetop to ridgetop.
Public Lands and Protected Easements	Desktop review identified Elk Horn Coal Hunting Access areas within the Study Area, however none are anticipated to be impacted by the Project. Additionally, the DLT Enterprises Mitigation Site is located with the Study Area, however the Proposed Route avoids the site.
Natural Resources	**Bats:** USFWS IPAC System (May 2020, Attachment F) indicated the Project is located within the overall ranges of the federally-listed gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*). **Aquatic Species:** USFWS IPAC System (May 2020, Attachment F) indicated the Project is located within the overall ranges of seven federally-listed mussel species, one federally-listed fish species, and one federally-listed crustacean. However, the Project is not anticipated to impact streams capable of supporting these aquatic species and any runoff will be abated with erosion and sediment control measures. **Anticipated Studies:** Wetland/stream delineations and bat studies (mist net surveys, habitat assessment, portal searches, and/or portal trapping) will be necessary.

CONSTRAINTS	
Transportation and Other Infrastructure	The Study Area is segmented east to west by the existing Spring Fork 46kV Tap and the Beaver Creek-Harbert-Spicewood 138kV line. Other transmission lines within the Study Area include the Soft Shell 138kV Extension, Bonnyman-Soft Shell 138kV line, Beaver Creek-Garrett 46kV line, McKinney-Garrett 46 kV line, and Hays Branch-Morgan Fork 138kV line. Study Segments were proposed that parallel the existing ROW of the Spring Fork 46kV Tap and the Soft Shell Extension. No other transmission line within the Study Area was oriented in a way that allowed for paralleling.
Local Zoning Requirements	No local Zoning requirements.
Constructability	Rugged terrain will likely require long access roads and substantial grading to create work pads for construction. Numerous existing and/or previous coal mine access roads and ATV trails occur in the area and can likely be utilized for the Project but may require upgrades.
OPPORTUNITIES	
Opportunity Features	Opportunities within the study for routing a transmission line are limited. There are no existing linear features with the same northeast-southwest orientation that could be paralleled for the entire route. However, three Study Segments were proposed that parallel existing ROW to the greatest extent feasible.

Attachment H: Aerial Mapbook (Proposed Route)



REFERENCE: ESRI WORLD TOPOGRAPHIC, ARCGIS ONLINE, ACCESSED 09/2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

LEGEND

- Substation
- Proposed Route*
- Sheet Index
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line

0 0.5 1 2 Miles

DETAILED MAPBOOK SHEET INDEX

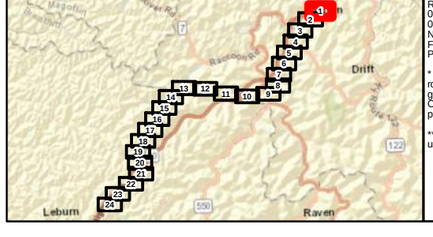
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
AN AEP COMPANY
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_Index_2021_09_16.mxd



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 1 OF 24

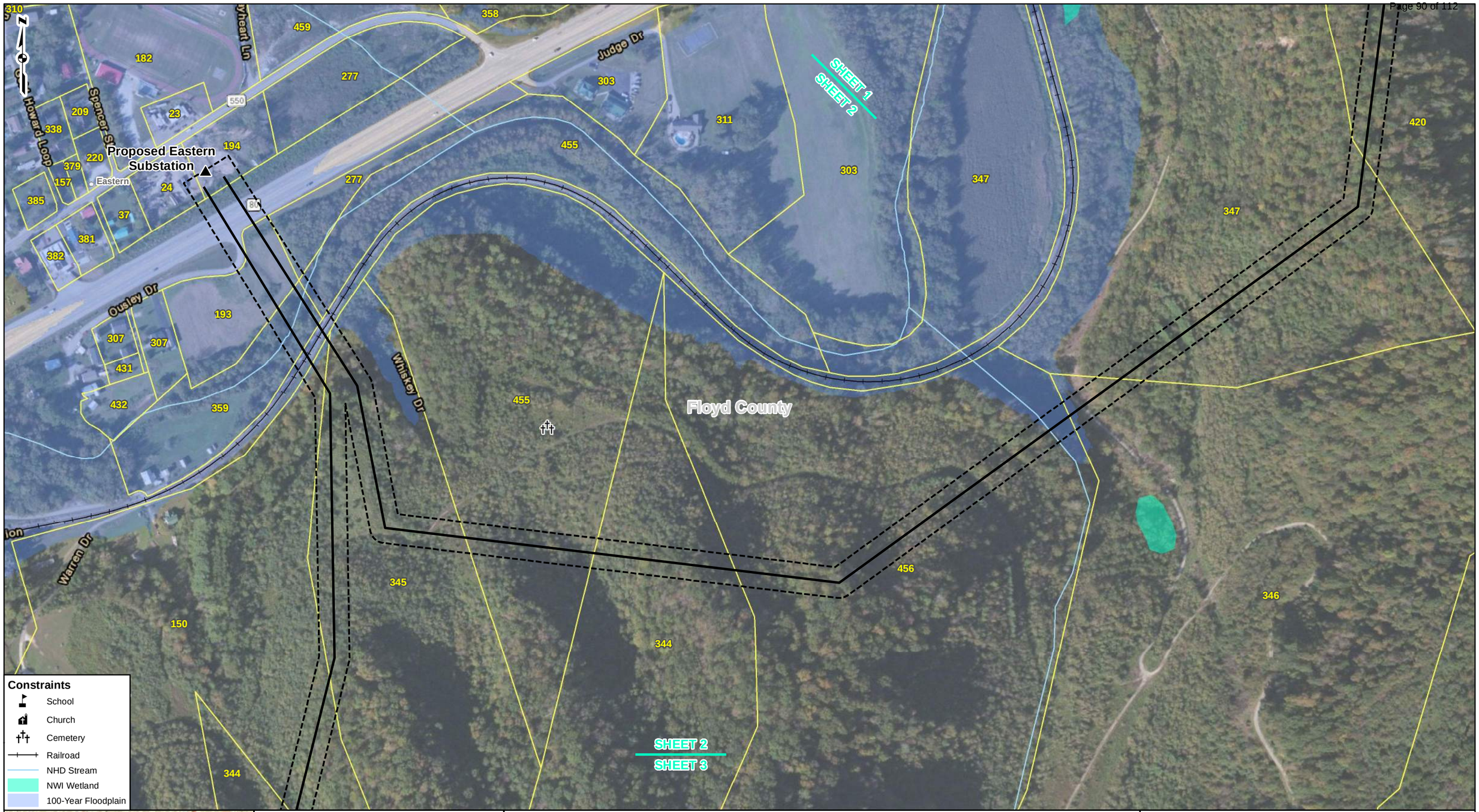
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
BOUNDLESS ENERGY

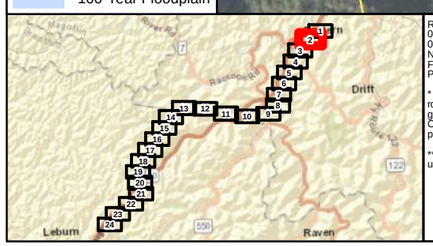
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 2 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

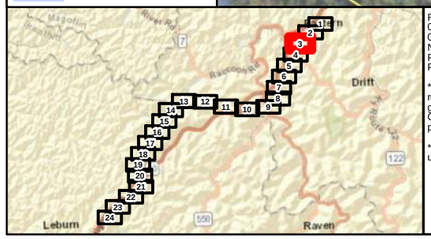
KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 3 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
AN AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
DATE: 9/16/2021
CHECKED: LMJ
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 4 OF 24

gai consultants

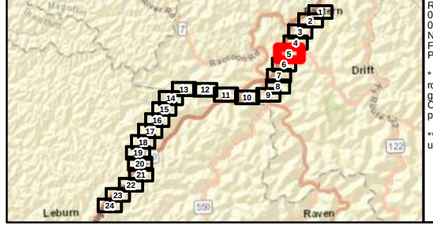
Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints
- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY). ARCGIS ONLINE. ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS. USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK SHEET 5 OF 24

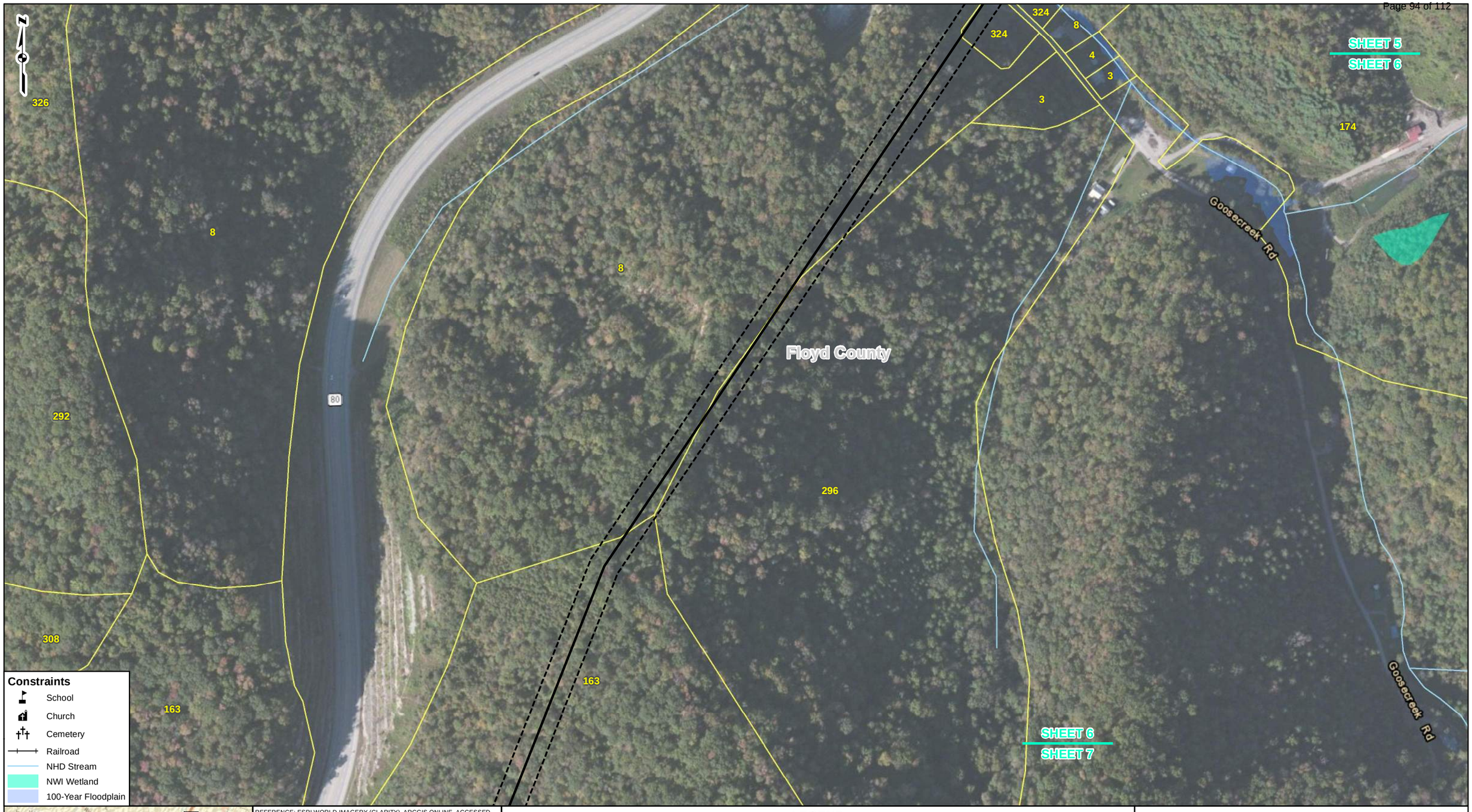
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

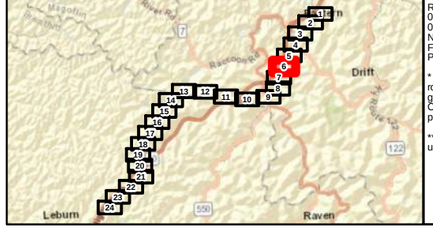
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 6 OF 24

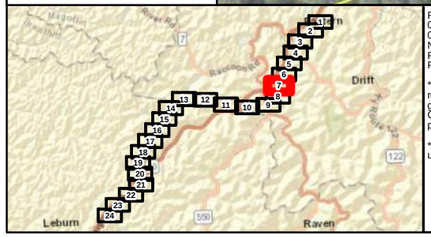
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ | DATE: 9/16/2021
CHECKED: LMJ | APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 7 OF 24

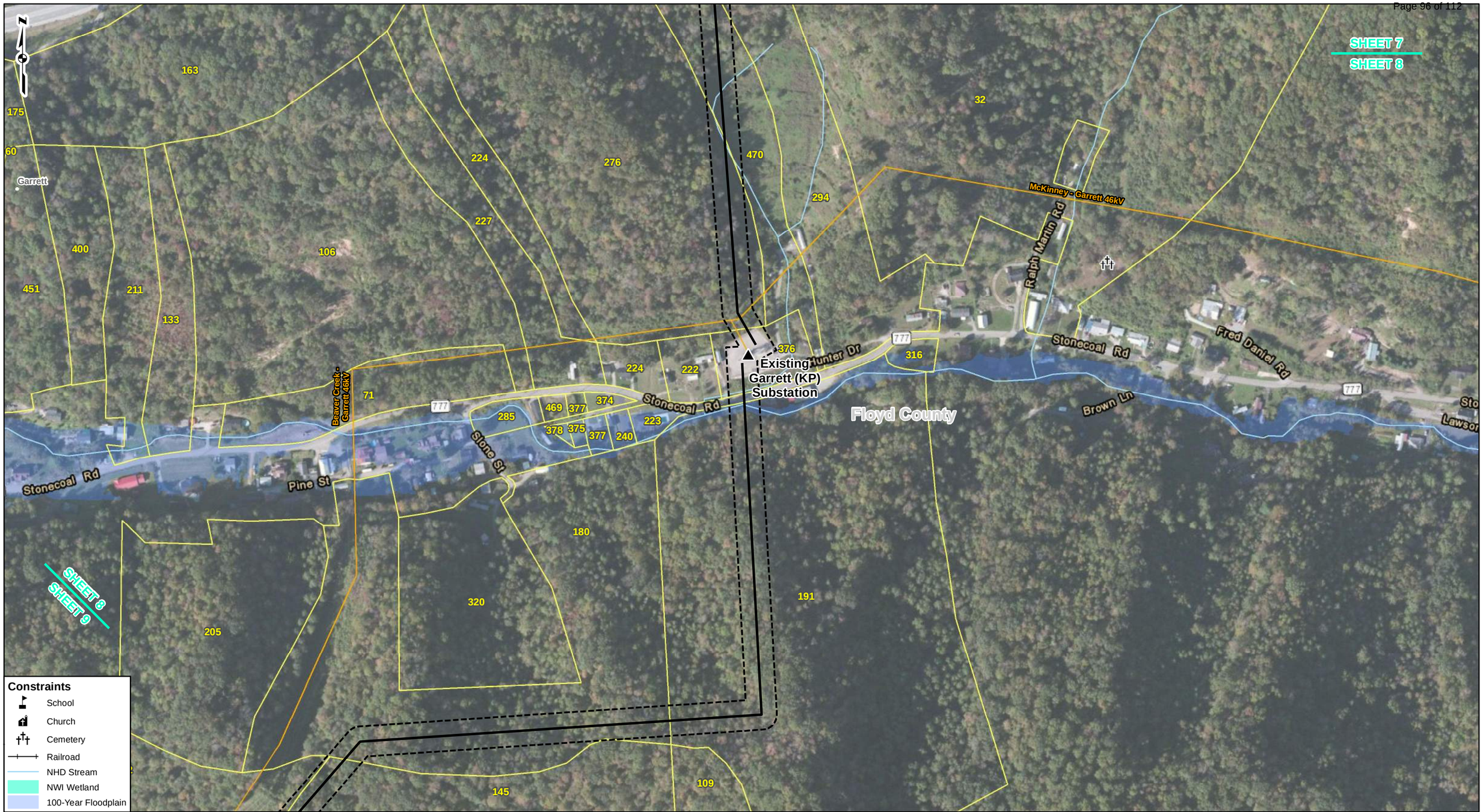
gai consultants

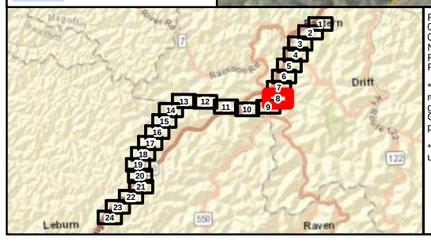
Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd





REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 8 OF 24

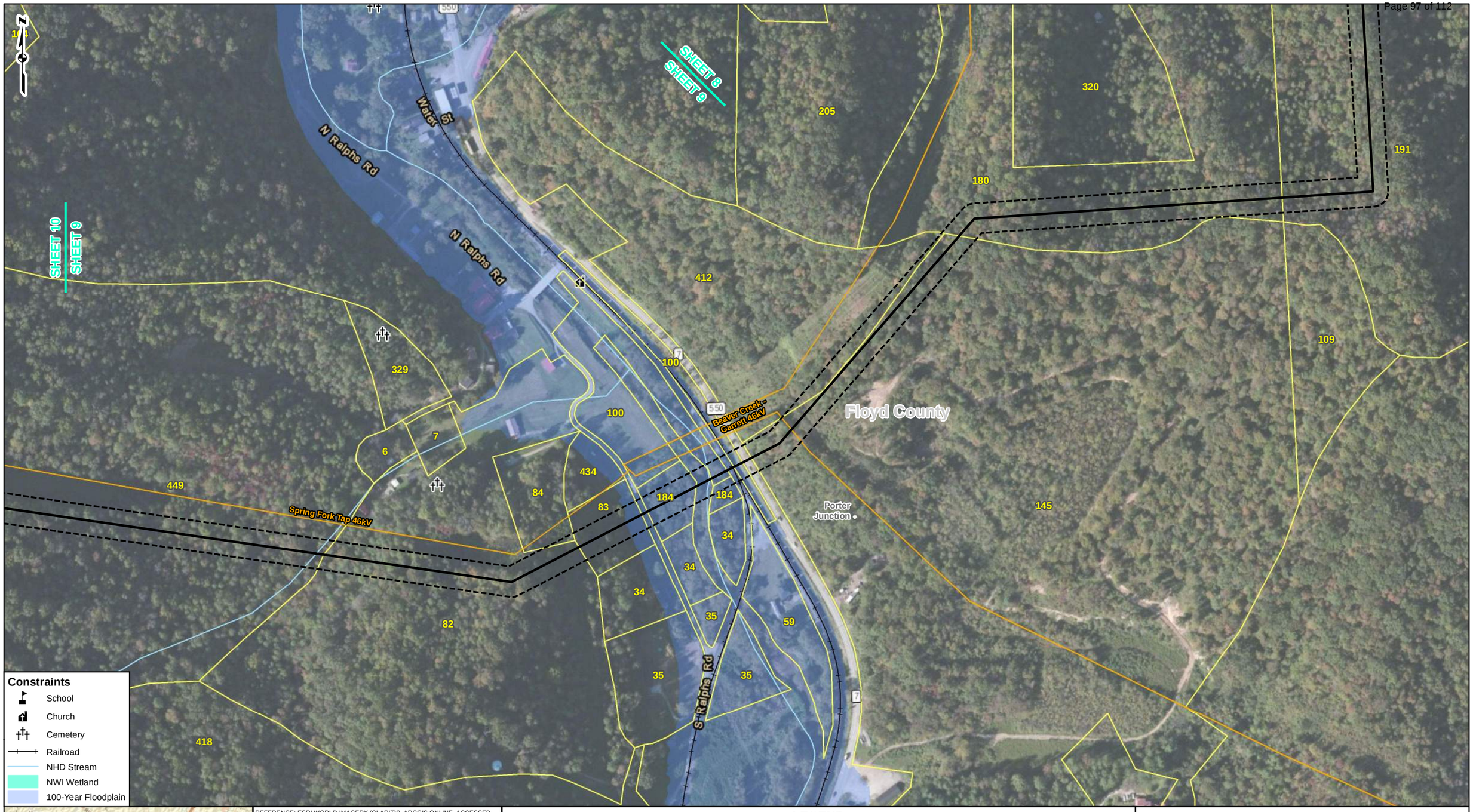
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

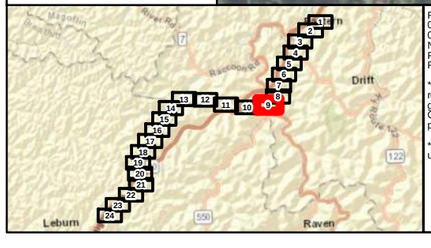
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK SHEET 9 OF 24

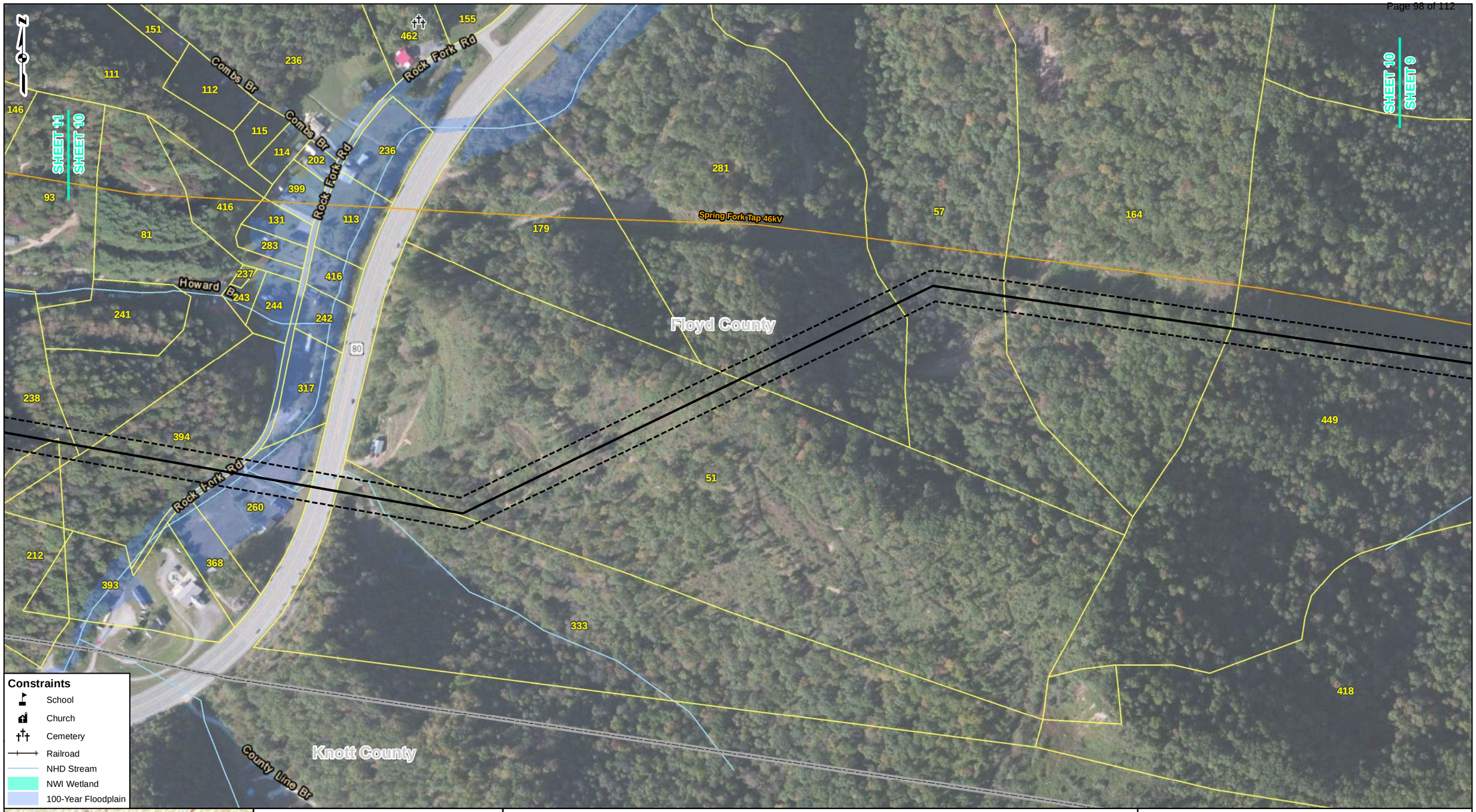
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY™

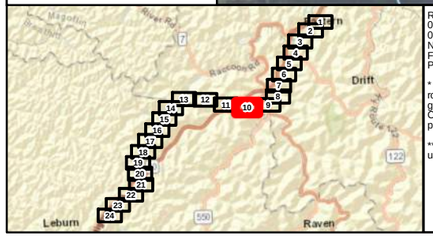
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 10 OF 24

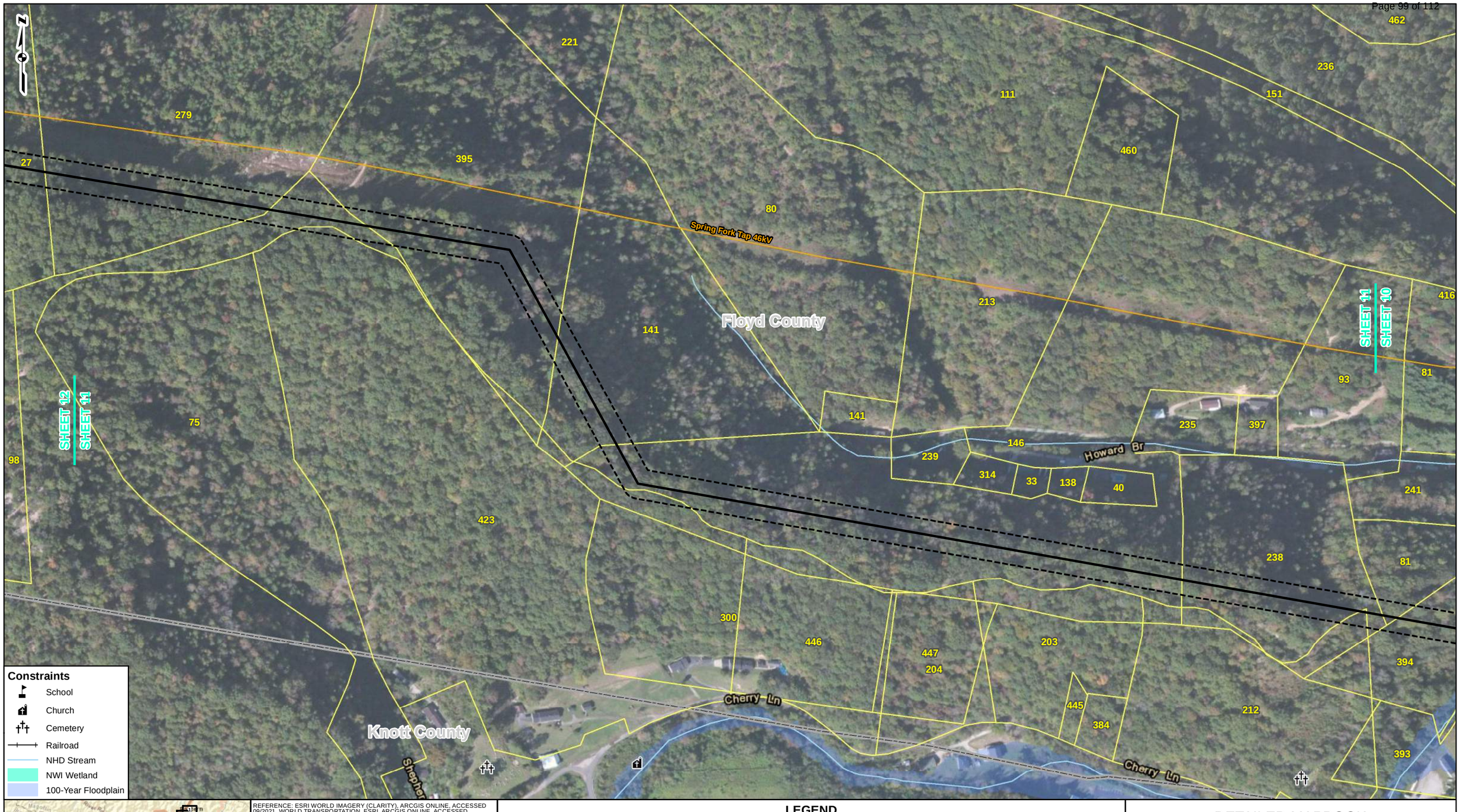
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

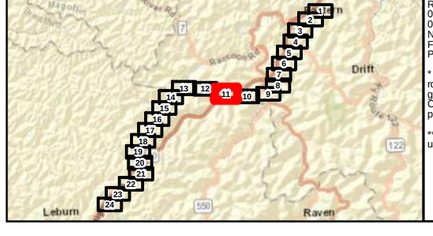
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 11 OF 24

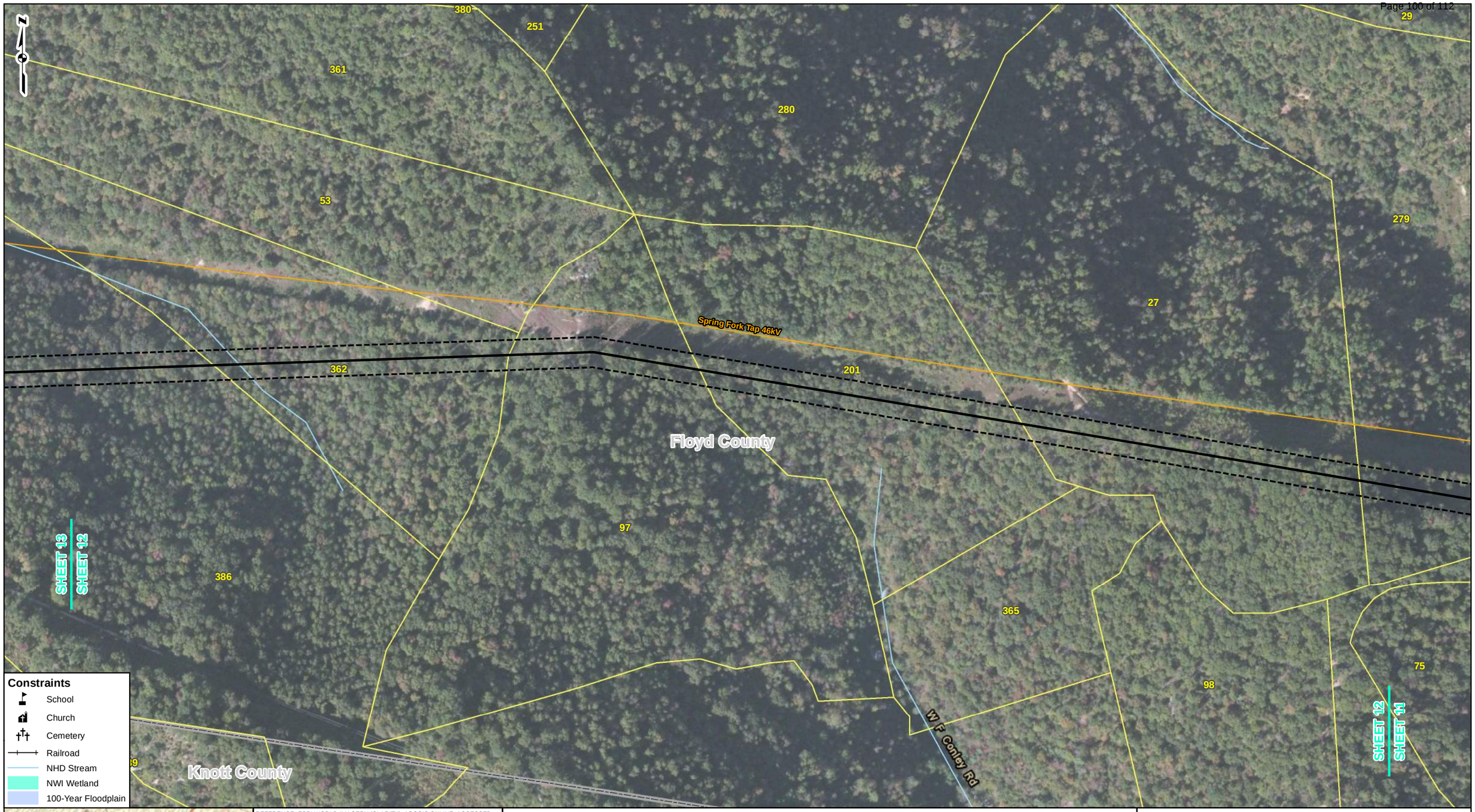
gai consultants

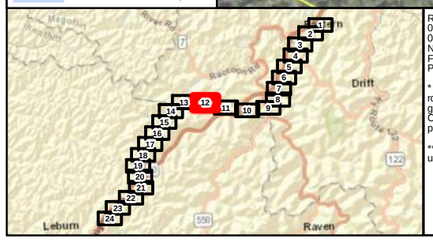
Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ DATE: 9/16/2021
CHECKED: LMJ APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd





REFERENCE: ESRI WORLD IMAGERY (CLARITY). ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 12 OF 24

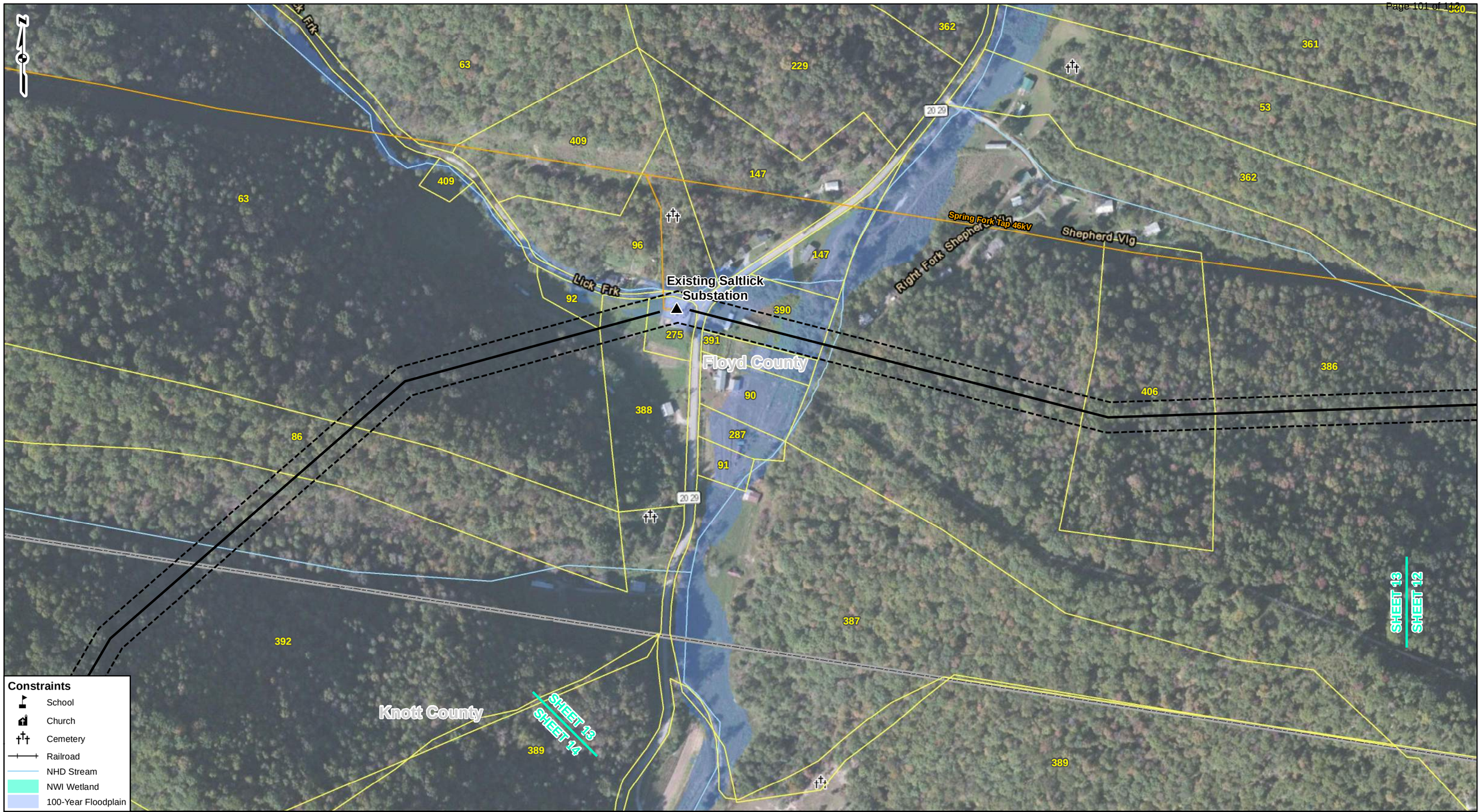
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 13 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

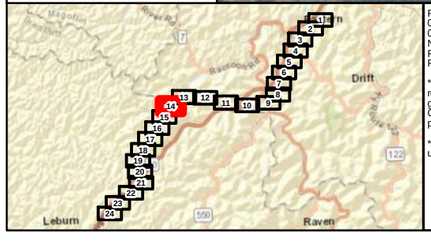
KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 14 OF 24

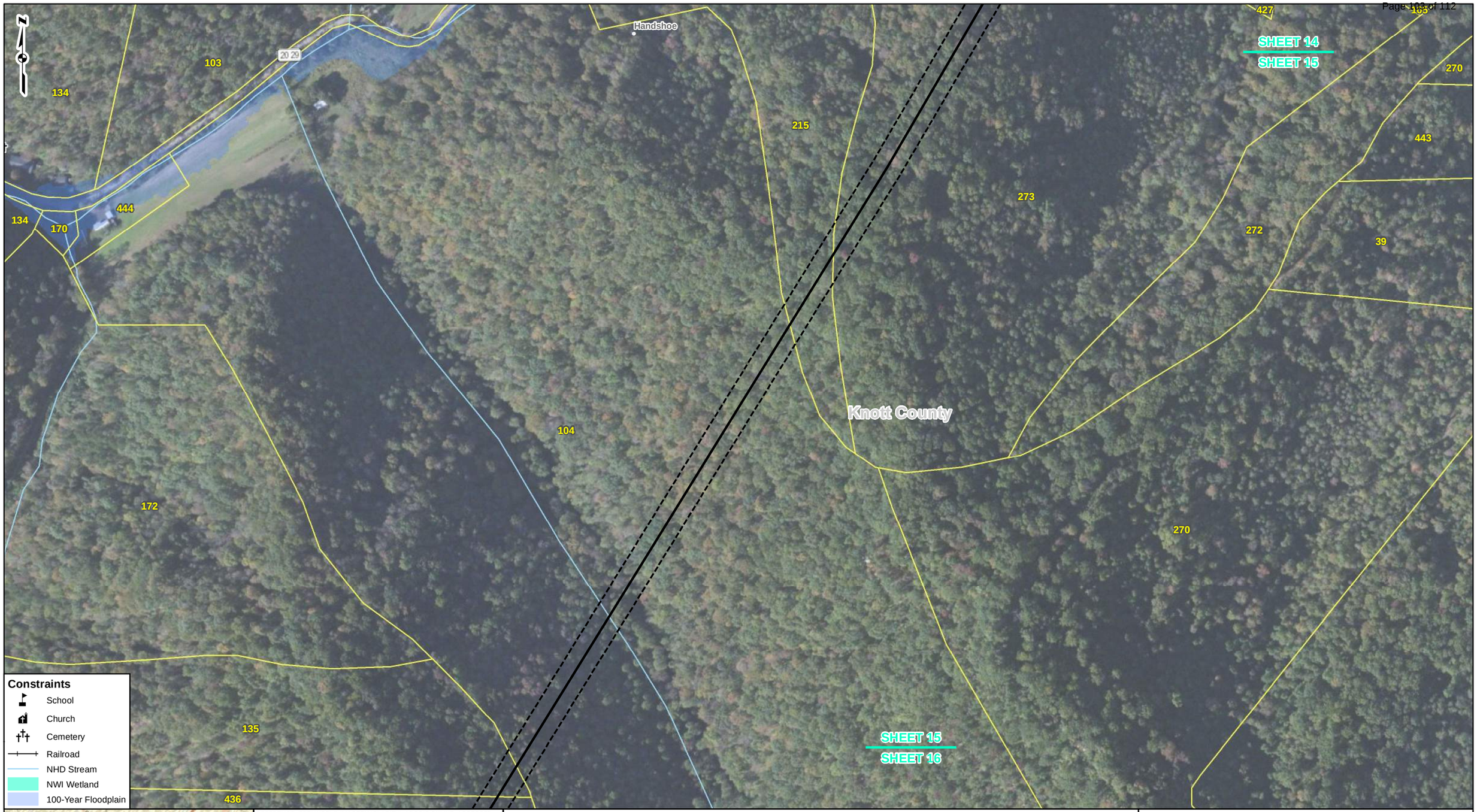
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
AN AEP COMPANY
BOUNDLESS ENERGY

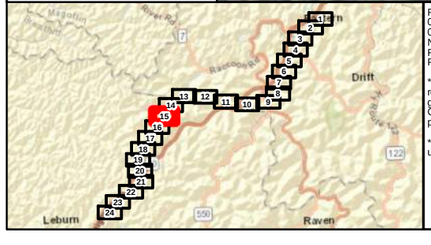
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 15 OF 24

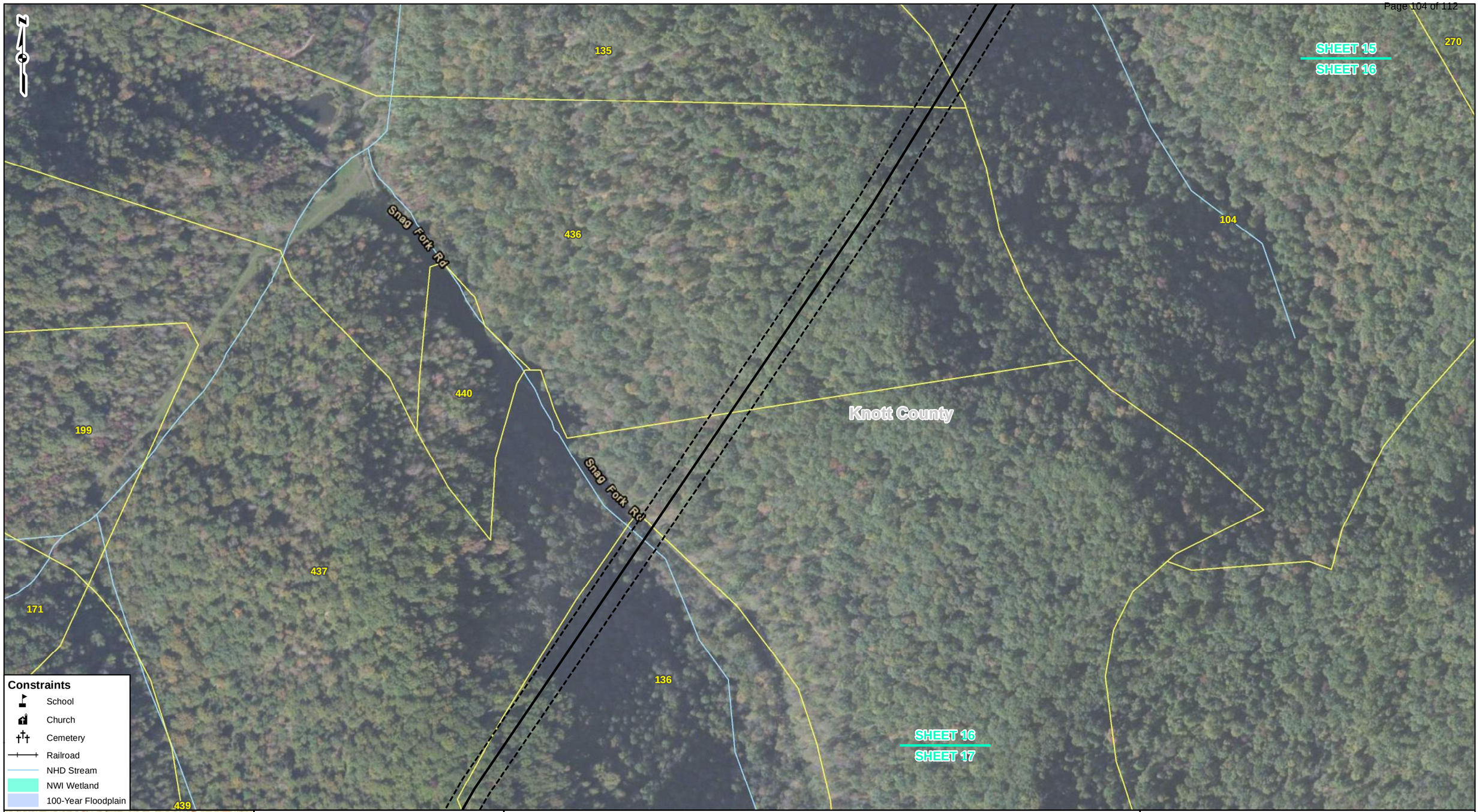
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

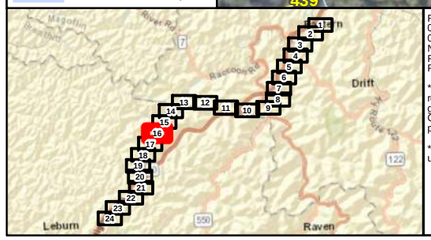
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 16 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

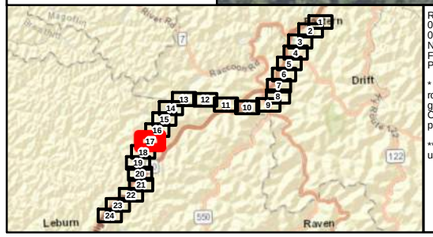
KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 17 OF 24

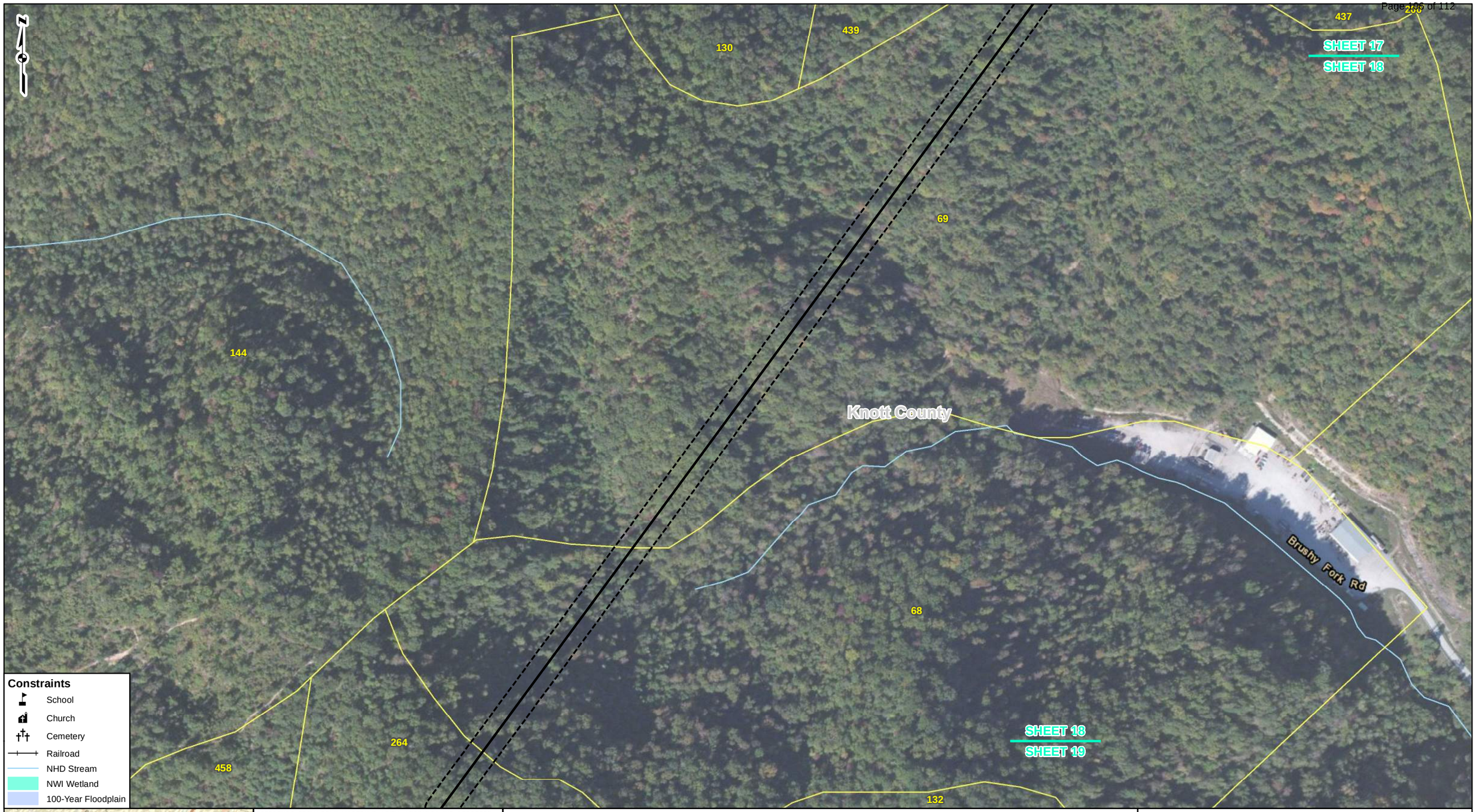
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

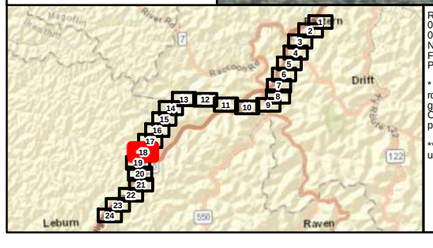
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 18 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

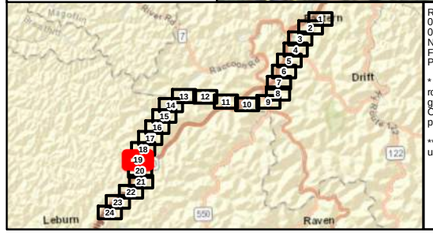
KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY™

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 19 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

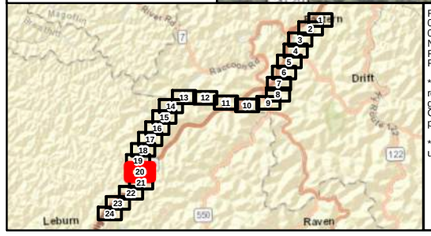
KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 20 OF 24

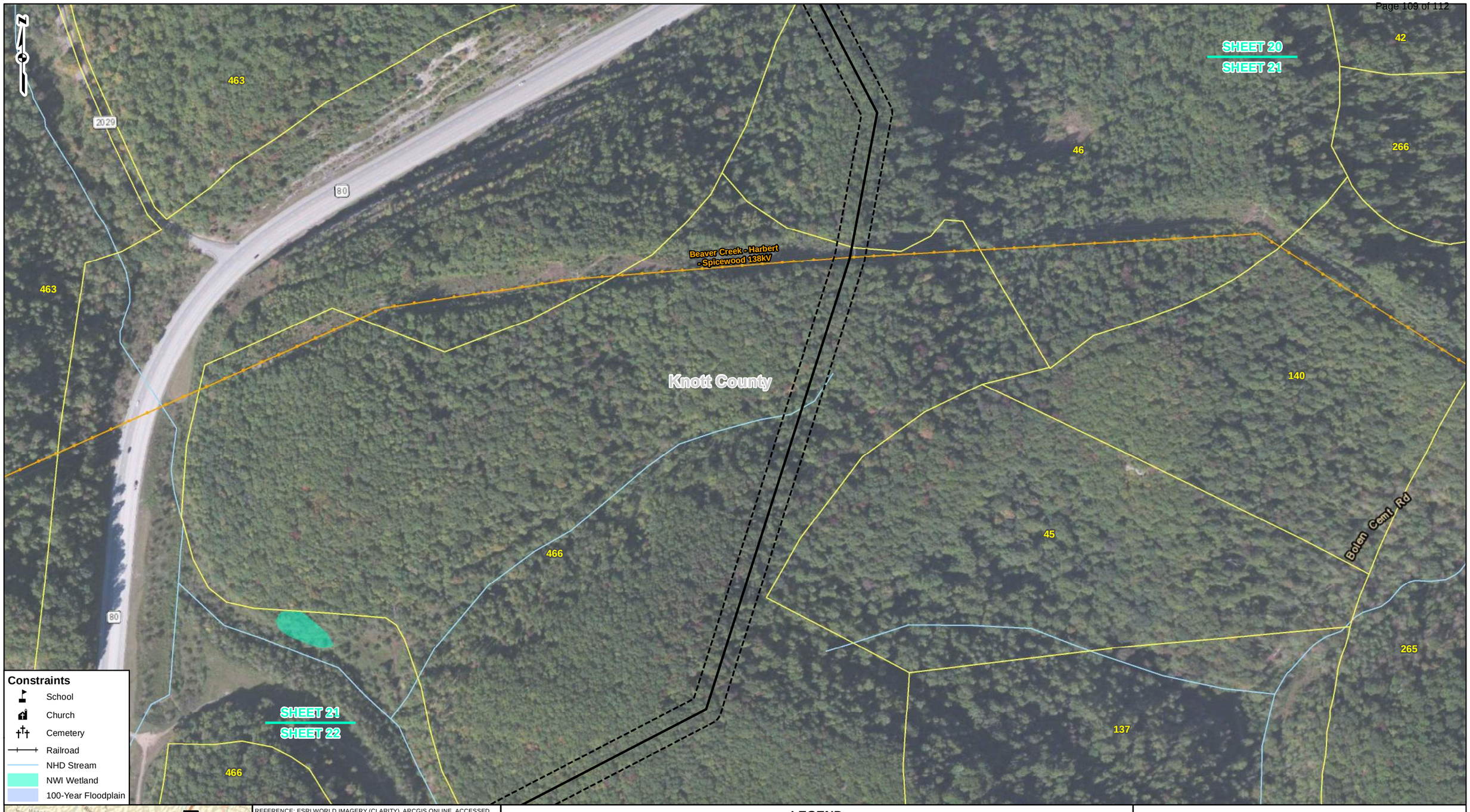
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

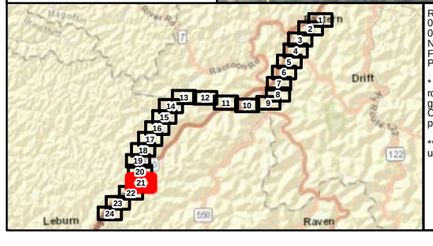
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 21 OF 24

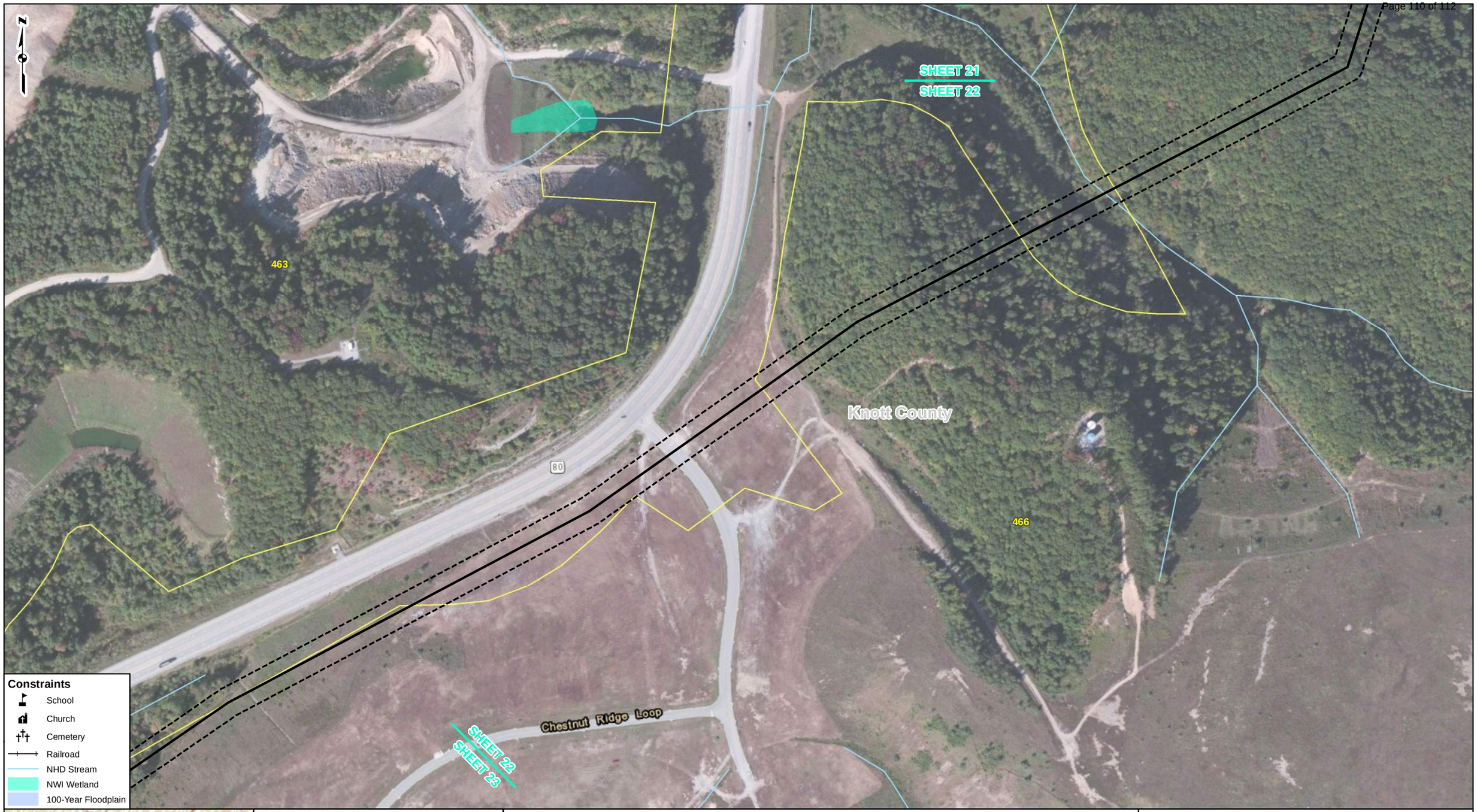
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

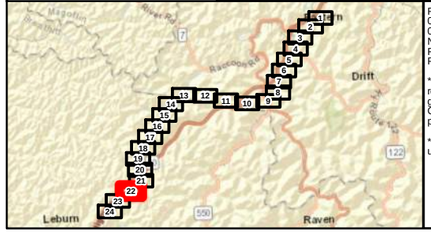
DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 22 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

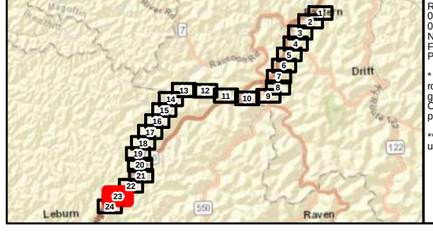
KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd

Constraints

- School
- Church
- Cemetery
- Railroad
- NHD Stream
- NWI Wetland
- 100-Year Floodplain



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 23 OF 24

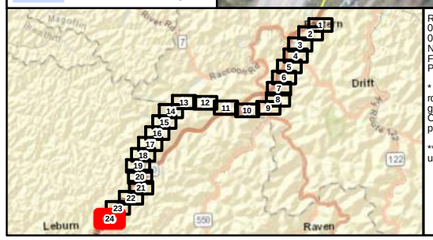
gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd



REFERENCE: ESRI WORLD IMAGERY (CLARITY), ARCGIS ONLINE, ACCESSED 09/2021. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 09/2021. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2020. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2020. 100-YEAR FLOODPLAINS, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), 2020. PARCEL DATA, COUNTY PVAs, 2021.

* Shown is a preliminary design. This design is not the final route centerline. Final line route and structure locations will be determined during final engineering, which includes ground survey and geotechnical and environmental studies. Nonetheless, the Company believes the centerline illustrated is the most suitable alignment based upon preliminary analysis.

**Parcels are not based on an accurate ground survey and should not be construed or used as exact descriptions of legal boundaries.

LEGEND

- Substation
- Proposed Route*
- Proposed 100-foot ROW*
- Parcel Boundary**
- Existing 69kV or Less Transmission Line
- Existing 138kV Transmission Line
- County Boundary

0 150 300 600 Feet

DETAILED MAPBOOK
SHEET 24 OF 24

gai consultants

Garrett Area
Transmission Line Project
Kentucky Power

KENTUCKY POWER
An AEP Company
BOUNDLESS ENERGY

DRAWN BY: EFJ
CHECKED: LMJ
DATE: 9/16/2021
APPROVED: LMJ

G:\C190264.37 - GIS\MXD\Siting\Detailed_Mapbook_2021_09_16.mxd