Siting Board 2-27:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Items 65 and 69. Provide:

a. the Preliminary Route Survey and plan for delivery of the Wartsila Engines and Project Transformers to the Project site, including the location where the equipment will be dropped off by railway; and.

b. the expected weight(s) for these pieces of equipment.

Response: The Engines (4 total) will go from Finland to Houston, TX by ship for unloading. Engine Blocks, about 460,000 pounds each, will go by rail to Fortner LP on Nebo Road in Madisonville. The Heavy Haul Contractor will move them to site on a Goldhoffer trailer with permits by Wartsila/Heavy Haul Contractor for final assembly and installation. A preliminary route survey was conducted by Fracht and is provided as Attachment 2-27. The final route and permitting will be in conjunction with State and Local officials. The Main Power or Generator Step-up (GSU) Transformers (2 total) will travel from China to Houston, TX by ship for unloading. Transformers, weighing 152,460 pounds for the main assembly, will go by truck to the Plant Site in Madisonville, KY.

Witness: Doug Buresh

Fracht GROUP
INTERNATIONAL FREIGHT FORWARDER
UNITED STATES

Fracht FWO Inc.

Presented to:

WÄRTSILÄ

Route Survey – Madisonville, KY

Conducted: May 17th 2024

Note: The order/flow of each stop below mirrors the order of each visit

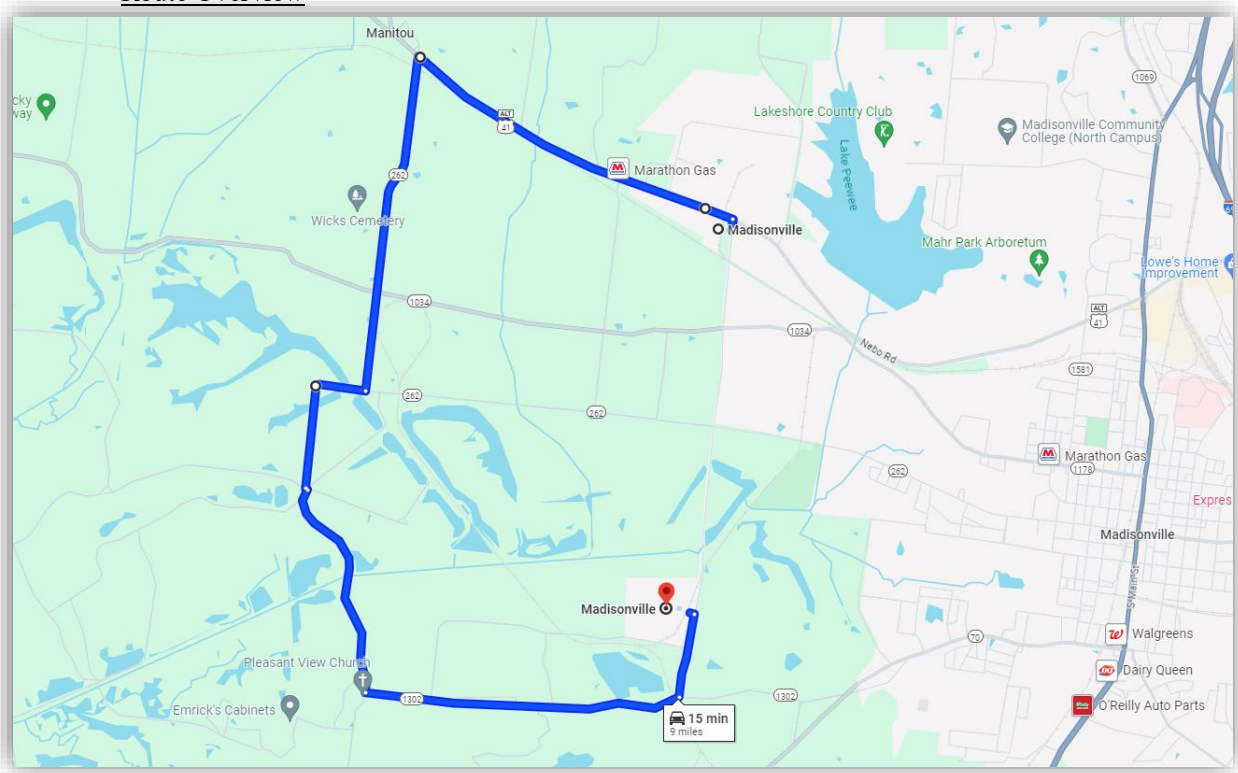
Summary: Option to Fortner LP is the overall best option. We have begun discussions with the rail siding owner, and they are open to us using it. There is easy access in/out of the facility. The road is only a two lane road, so we will need to see how DOT will allow us to move. There is one rail crossing to navigate over, which should not be an issue. Overhead lines are minimal.

Fracht GROUP
INTERNATIONAL FREIGHT FORWARDER
UNITED STATES

Fracht FWO Inc – 5/17/2024

Fortner LP (2955 Nebo rod, Madisonville, KY) to A C Slaton Rd, Kentucky 42431 | Coordinates: 37°19'17.6"N 87°33'01.5"W – route study conducted on 5/17/2024

Route Overview



- This is an active LP transloading site. Pipelines are metal incased in concrete with a minimum depth 5 feet. The site was not concerned about 500K# or more being handled in facility.

Fracht GROUP
INTERNATIONAL FREIGHT FORWARDER
UNITED STATES

Fracht FWO Inc – 5/17/2024

- Turn left out of Fortner on HWY 41-minimal overhead obstructions 2 groups of wires that may need to be raised.

- Turn left of 262/630 (signs show both names) – low lines at turn.

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INTERNATIONAL FREIGHT FORWARDER
UNITED STATES

Fracht FWO Inc – 5/17/2024

- 500ft after turn there is a rail crossing (asphalt on roads in thin, may have a 22 ton limit)

- Follow 262 to dead end – continue to the right on 262, then follow gravel road to 1302 (Pleasant View Rd)

- Left on Pleasant View Rd – no overhead obstruction on gravel road, it is a haul road for the coal plant.

- Road gets thing once on 1302, trees and power/comm lines may need to be raised, possible 22 ton weight limit. Small bridge crossing before Bean Cemetery Rd

Fracht GROUP
INTERNATIONAL FREIGHT FORWARDER
UNITED STATES

Fracht FWO Inc – 5/17/2024

- Turn left on Bean Cemetery Rd. This is another off-camber corner that has a steep downhill crest of turn.

- Turn left on AC Slaton Rd – site is 500ft up on the right

Siting Board 2-28:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Item 79. Provide a revised response that includes a Table and Figure for the equipment used in construction of:

a. the Project Substation/switching station; and

b. the natural gas transmission line, as requested in Staff's First Request and at the site visit.

Response: A report addendum (Attachment 2-28) was prepared which includes estimated sound levels during construction of the Project. Construction Equipment Tables utilized as input to calculate estimated construction sound levels have been provided for the Project Substation (switching station) on page 11 and for the Gas Pipeline on page 12.

Witness: Dave Parzych

Power Acoustics, Inc.
2730 NORTHAMPTON AVE • ORLANDO, FLORIDA • 32828
PHONE: (407) 381-1439
poweracoustics.com

January 7, 2025

Mr. Andy Ungerman, PE, Senior Project Manager
Stanley Consultants
100 Court Ave.,
Des Moines, IA 50309

Report 24-0702 Addendum: KYMEA Construction Noise Contours

Dear Mr. Ungerman;

This addendum includes estimated sound levels during construction of the KYMEA RICE Power Plant project. After construction, the KYMEA Facility will contain four (4) medium speed RICE engines, for a nominal output of approximately 74 MW. In addition to the RICE facility, the project will require a substation (switchyard) and a gas pipeline to be constructed. The total "worst case" construction noise of the RICE plant, switchyard and gas pipeline are accounted for in the current analysis and are presented in the attached A-weighted sound contours.

Typical equipment used in the construction of each portion of the total project are attached. Corresponding equipment noise levels are based on data from the Federal Highway Administration (FHWA-HEP-05-054 DOT-VNTSC-FHWA-05-01) and Power Acoustics, Inc. equipment sound level database.

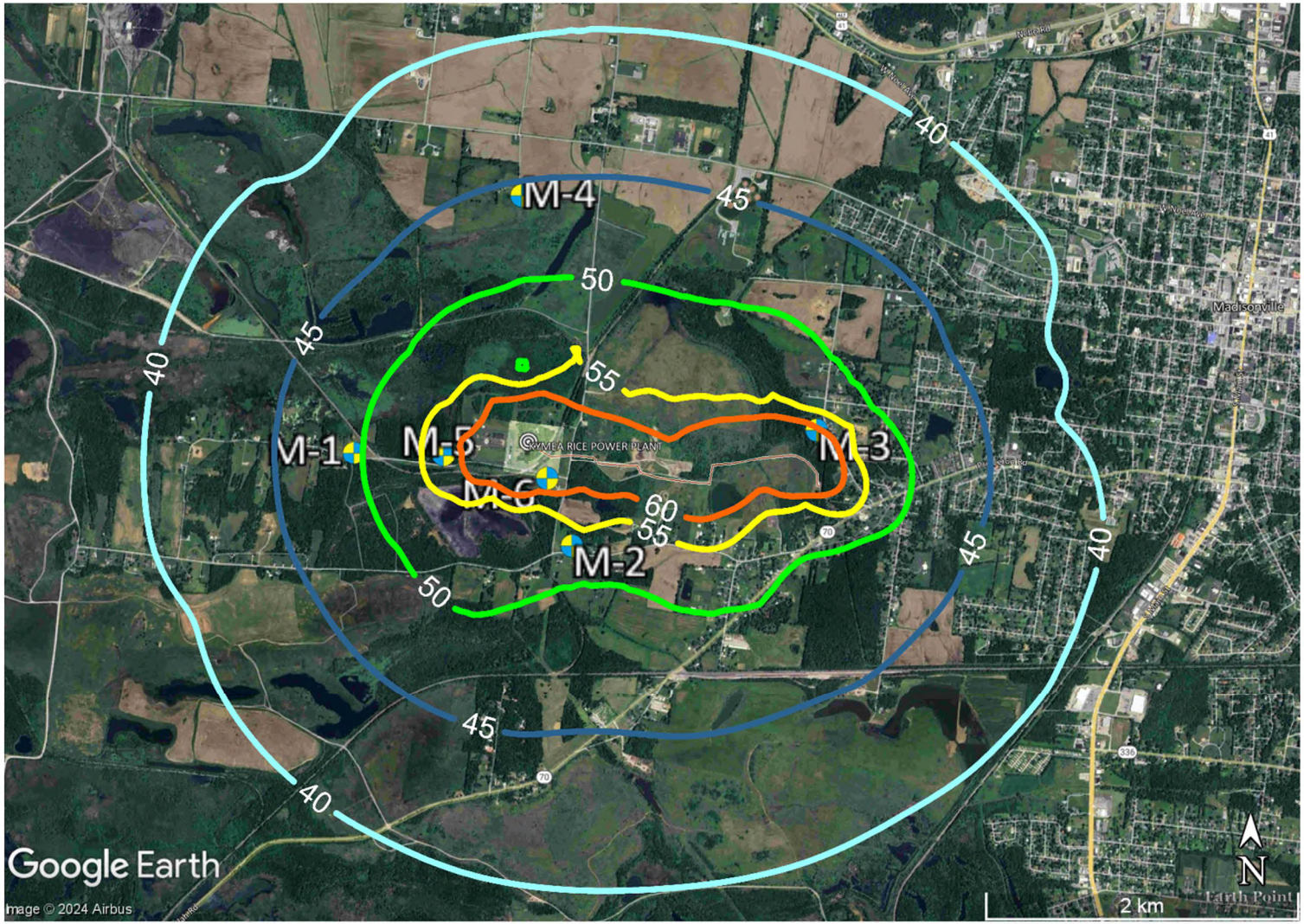
The environmental noise modeling was performed with a 3-D computer-based sound propagation model for calculating outdoor noise propagation in community and industrial environments. The computer model is based on the International Standard ISO 9613, parts 1 and 2. The worst-case noise was model or each portion of the construction (plant, switchyard and gas pipeline) and were modeled to occur simultaneously. The equipment were modeled as distributed sources acting over the areas of each of the construction sites. Ground absorption and atmospheric sound absorption were included in the model.

Sincerely,

David J. Parzych,
President, Power Acoustics, Inc.

Attachment 1: Estimated Worst Case Sound Level Contours
Attachment 2: Construction Equipment Sound Levels

Attachment 1: Estimated Worst Case Sound Level Contours:



ESTIMATED WORST CASE A-WEIGHTED SOUND LEVELS FOR CONSTRUCTION OF KYMEA RICE FACILITY, SWITCHYARD AND GAS PIPELINE

Attachment 2: Construction Equipment:

A.) The Rice Facility,
B.) The Switchyard,
C.) The Gas Pipeline

KYMEA RICE PLANT CONSTRUCTION NOISE STUDY

Jun-25		Jul-25		Aug-25		Sep-25		Oct-25
Site Balancing		Site Balancing		Site Balancing				
				Site UG Utilities		Site UG Utilities		
						Deep Foundations		Deep Foundations
								Electrical UG
	Estimated Sound Level		Estimated Sound Level		Estimated Sound Level		Estimated Sound Level	
7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM
Skytrak	80	Skytrak	80	Skytrak	80	Skytrak	80	Skytrak
F250 (assume 74 dB(A) ea x 5)	80	F250 (assume 74 dB(A) ea x 5)	80	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)
D8 Dozer	82	D8 Dozer	82	D8 Dozer	82			
D8 Dozer	82	D8 Dozer	82	D8 Dozer	82			
Water Truck	80	Water Truck	80	Water Truck	80			
Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller
Cat Loader	85	Cat Loader	85	Cat Loader	85	Cat Loader	85	
Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer
Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer
				Cat 336 Excavator	81	Cat 336 Excavator	81	Cat 336 Excavator
				Vibratory Plate Compactor	83	Vibratory Plate Compactor	83	Vibratory Plate Compactor
						Concrete Truck	79	Concrete Truck
						Concrete Truck	79	Concrete Truck
						Grout Pump	80	Grout Pump
						Bauer Drill Rig BG28	79	Bauer Drill Rig BG29
						Cat 328 Long Stick	81	Cat 328 Long Stick

Jun-25	Jun-25	Jul-25	Jul-25	Aug-25	Aug-25	Sep-25	Sep-25	Oct-25
Total Sound at 50 ft	93.5	Total Sound at 50 ft	93.5	Total Sound at 50 ft	93.8	Total Sound at 50 ft	93.5	Total Sound at 50 ft

KYMEA RICE PLANT CONSTRUCTION NOISE STUDY

Oct-25		Nov-25		Dec-25		Jan-26
Deep Foundations						
Electrical UG		Electrical UG		Electrical UG		Electrical UG
		Foundations		Foundations		Foundations
						PEMB Erection
	Estimated Sound Level		Estimated Sound Level		Estimated Sound Level	
7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM	in dB(A) at 50 ft	7 AM to 5 PM
Skytrak	80	Skytrak	80	Skytrak	80	Skytrak (2)
F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (5 ea)	81	F250 (assume 74 dB(A) ea x 5)
Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller	74	Two Wheel Vibratory Roller
Semi Truck & Trailer	88					
Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer	88	Semi Truck & Trailer
Cat 336 Excavator	81	Cat 336 Excavator	81	Cat 336 Excavator	81	Cat 336 Excavator
Vibratory Plate Compactor	83	Vibratory Plate Compactor	83	Vibratory Plate Compactor	83	Vibratory Plate Compactor
Concrete Truck	79	Concrete Truck (One day a week)	79	Concrete Truck (One day a week)	79	Concrete Truck (One day a week)
Concrete Truck	79	Concrete Truck (One day a week)	79	Concrete Truck (One day a week)	79	Concrete Truck (One day a week)
Grout Pump	80					
Bauer Drill Rig BG29	79					
Cat 328 Long Stick	81					
		Concrete Pump Truck (One day a week)	81	Concrete Pump Truck (One day a week)	81	Concrete Pump Truck (One day a week)
						80 Ton Rough Terrain Crane
						80' Boom Lift (2)
						Diesel Welding Machine

Oct-25	Oct-25	Nov-25	Nov-25	Dec-25	Dec-25	Jan-26
Total Sound at 50 ft	92.9	Total Sound at 50 ft	90.5	Total Sound at 50 ft	90.5	Total Sound at 50 ft

KYMEA RICE PLANT CONSTRUCTION NOISE STUDY

Jan-26		Feb-26		Mar-26	
Electrical UG					
Foundations		Foundations			
PEMB Erection		PEMB Erection		PEMB Erection	
	Estimated Sound Level		**Estimated Sound Level**		**Estimated Sound Level**
7 AM to 5 PM	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**
Skytrak (2)	80	Skytrak (2)	80	Skytrak	80
F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81
Two Wheel Vibratory Roller	74				
Semi Truck & Trailer	88				
Cat 336 Excavator	81				
Vibratory Plate Compactor	83				
Concrete Truck (One day a week)	79	Concrete Truck (One day a week)	79		
Concrete Truck (One day a week)	79	Concrete Truck (One day a week)	79		
Concrete Pump Truck (One day a week)	81	Concrete Pump Truck (One day a week)	81		
80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85
80' Boom Lift (2)	83	80' Boom Lift (2)	83	80' Boom Lift (2)	83
Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80

Jan-26	Jan-26	Feb-26	Feb-26	Mar-26	Mar-26
Total Sound at 50 ft	92.4	Total Sound at 50 ft	89.9	Total Sound at 50 ft	89.3

KYMEA RICE PLANT CONSTRUCTION NOISE STUDY

Apr-26		May-26		Jun-26		Jul-26	
PEMB Erection		PEMB Erection					
Building Interior Systems		Building Interior Systems		Building Interior Systems			
				Engine Set		Engine Set	
	Estimated Sound Level		**Estimated Sound Level**		**Estimated Sound Level**		**Estimated Sound Level**
7 AM to 5 PM	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**
Skytrak (2)	83	Skytrak (2)	83	Skytrak (2)	83	Skytrak (2)	83
F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81
80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85
80' Boom Lift (2)	83	80' Boom Lift (2)	83	80' Boom Lift (2)	83	80' Boom Lift (2)	83
Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80
Electric Scissor Lift (2)	75	Electric Scissor Lift (2)	75	Electric Scissor Lift (2)	75	Electric Scissor Lift (4)	78

Apr-26	Apr-26	May-26	May-26	Jun-26	Jun-26	Jul-26	Jul-26
Total Sound at 50 ft	89.9	Total Sound at 50 ft	89.9	Total Sound at 50 ft	89.9	Total Sound at 50 ft	90.0

Aug-26		Sep-26		Oct-26		Nov-26	
Engine Set							
MEP Installation		MEP Installation		MEP Installation		MEP Installation	
	Estimated Sound Level		**Estimated Sound Level**		**Estimated Sound Level**		**Estimated Sound Level**
7 AM to 5 PM	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**
Skytrak (2)	83	Skytrak (2)	83	Skytrak (2)	83	Skytrak (2)	83
F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81
80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85	80 Ton Rough Terrain Crane	85
80' Boom Lift (2)	83	80' Boom Lift (2)	83	80' Boom Lift (2)	83	80' Boom Lift (2)	83
Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80
Electric Scissor Lift (4)	78	Electric Scissor Lift (6)	80	Electric Scissor Lift (6)	80	Electric Scissor Lift (6)	80

Aug-26	Aug-26	Sep-26	Sep-26	Oct-26	Oct-26	Nov-26	Nov-26
Total Sound at 50 ft	90.0	Total Sound at 50 ft	90.2	Total Sound at 50 ft	90.2	Total Sound at 50 ft	90.2

Dec-26		Jan-27		Feb-27		Mar-27	
MEP Installation		MEP Installation		MEP Installation		MEP Installation	
	Estimated Sound Level		**Estimated Sound Level**		**Estimated Sound Level**		**Estimated Sound Level**
7 AM to 5 PM	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**	**7 AM to 5 PM**	**in dB(A) at 50 ft**
Skytrak (2)	83	Skytrak (2)	83	Skytrak	83	Skytrak	83
F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81	F250 (assume 74 dB(A) ea x 5)	81
80 Ton Rough Terrain Crane	85		85				
80' Boom Lift (2)	83	80' Boom Lift (2)	83				
Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80	Diesel Welding Machine	80
Electric Scissor Lift (6)	80	Electric Scissor Lift (4)	78				

Dec-26	Dec-26	Jan-27	Jan-27	Feb-27	Feb-27	Mar-27	Mar-27
Total Sound at 50 ft	90.2	Total Sound at 50 ft	90.0	Total Sound at 50 ft	86.3	Total Sound at 50 ft	86.3

Summary of SUBSTATION (Switchyard) Construction Equipment.							
Preliminary Schedule is shown below							
	May-25	**Aug-26**	**Sep-26**	**Oct-26**	**Nov-26**	**Dec-26**	**Jan-27**
D8 Dozer - 4 weeks - May 2025	82						
Cat 336 Excavator - 1 week - May 2025	81						
John Deere Backhoe - 4 weeks - September 2026			81				
Trencher – 4 weeks – October 2026				80			
Concrete Truck - 4 weeks - October 2026				79			
Two Wheel Vibratory Roller - 4 weeks – November 2026					74		
Skytrak/manlift - 5 months - September - January 2026			80	80	80	80	80
Watson 2500 Track Mount Drill rig - 6weeks – August 2026		79	79				
60 foot Crane – 4 weeks November – 2026					81		
Digger Derrick- 2 weeks- December 2026						88	
65' Bucket Trucks - 2 months - November 2026-January 2027					74	74	
SUM per month at 50 ft	**85**	**79**	**85**	**84**	**84**	**89**	**80**
Sound Power Level	**116**	**111**	**116**	**116**	**116**	**120**	**112**

Summary of Gas Pipeline Construction Equipment.

Preliminary Schedule is for March 2026

			Pipeline Construction				
Source	**Fuel**	**Engine Rating-Each (bhp)**	**Quantity**	**Operating Days On Site (Each)**	**Operating Time-Each (hr/day)**	**dB(A) per machine at 50 ft**	**dB(A) all machines at 50 ft**
20 Ton Cherry Picker	Diesel	85	1	5	10	81	81
330 Backhoe/Hydraulic Excavator	Diesel	270	1	20	10	81	81
D6 Bulldozer	Diesel	205	1	20	10	82	82
Side Boom	Diesel	306	1	20	10	85	85
Forklift	Diesel	85	1	20	10	75	75
Generator	Diesel	25 / 120	2	20	10	81	84
Welding Rig	Diesel	25	2	20	10	80	83
Pickup Trucks	Diesel	200	5	20	10	74	81
RT Backhoes	Diesel	102	1	20	10	81	81
1500 CFM Air Compressors	Diesel	600	2	20	10	85	88
Drill Rig	Diesel	800	1	10	10	82	82
Drilling Mud Pumps	Diesel	300	1	10	10	81	81
Fill Pumps-Low Head	Diesel	120	1	10	10	81	81
Fill Pumps-High Pressure	Diesel	120	1	10	10	81	81
Semi Trucks	Diesel	400	1	20	10	88	88
Lowboy	Diesel	500	1	20	10	88	88
Trailer			2	20	10		
						SUM of All at 50 ft	**96**
						Sound Power Level	**128**

The maximum TOTAL SOUND **POWER** LEVEL for the RICE plant, switchyard and pipeline are:

125 LwA RICE Plant,
120 LwA Switchyard,
128 LwA Pipeline.

Sound power is the rate which sound energy is emitted per unit time. Sound power is not dependent on distance from the sound source or the environment the sound source is in. On the other hand, sound pressure is highly sensitive to its environment and distance from the sound source. Sound power is analogous to the power rating on a light bulb. For a given type of light bulb technology, a bulb with a higher power rating would produce more light. However, the environment the light bulb is put in (room paint color, lamp shape, distance from the light bulb, etc.) will determine how much light is ultimately observed.

When sound power is presented as a "level," it shares the same logarithmic decibel (dB) scale as sound pressure level, but uses a reference of 1 picowatt as its basis.

The sound frequency spectrum used in the modeling is based on 'typical" diesel mobile equipment.

Siting Board 2-29:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Item 85. State whether the home listed as 800 feet from the Project boundary is the same home as listed for adjoining property #6 in the response to Staff's First Request, Item 49.

Response: Yes. The house trailer owned by Sharon and Donna Hendricks is approximately 800 feet from the equipment on the Plant Site and approximately 280 feet from the substation (switching station) equipment.

Witness: Doug Buresh

Siting Board 2-30:

Explain what involvement Wartsila will have in the construction and operation of the project.

Response: Wartsila is responsible for assembling the Generator Sets consisting of the Engine, generator and base frame on-site and placing the Generator Sets on the Engine Hall foundation. Wartsila is also responsible for providing 785-man days of Advisory Service during the construction, installation and commissioning of the plant.

In addition, KYMEA is considering a proposal for an Optimized Maintenance Solution from Wartsila which would also provide an on-site advisor Operations and Maintenance for up to three years.

Witness: Doug Buresh

Siting Board 2-31:

Explain in detail which Wartsila experts will be on site during the first three years of operations and explain their roles in relation to the project.

Response: The Wartsila onsite advisor would provide technical direction for plant operators and maintenance personnel but would not be responsible for supervision of personnel or the plant. The Optimized Maintenance Solution being considered from Wartsila would also cover maintenance management and services, with fixed prices for planned maintenance and inspections, remote operational support and spare parts. Separate from the onsite advisor, Wartsila's Expertise Centers would provide off-site advanced data analytics, artificial intelligence, and machine learning, combined with Wartsila vast knowledge and expertise to support plant Operations and Maintenance.

Witness: Doug Buresh

Siting Board 2-32:

Provide copies of any studies Wartsila has conducted for the Project.

Response: The only study performed by Wartsila has been the Low Voltage Ride Through (LVRT) Simulation which is provided as Attachment 2-32.

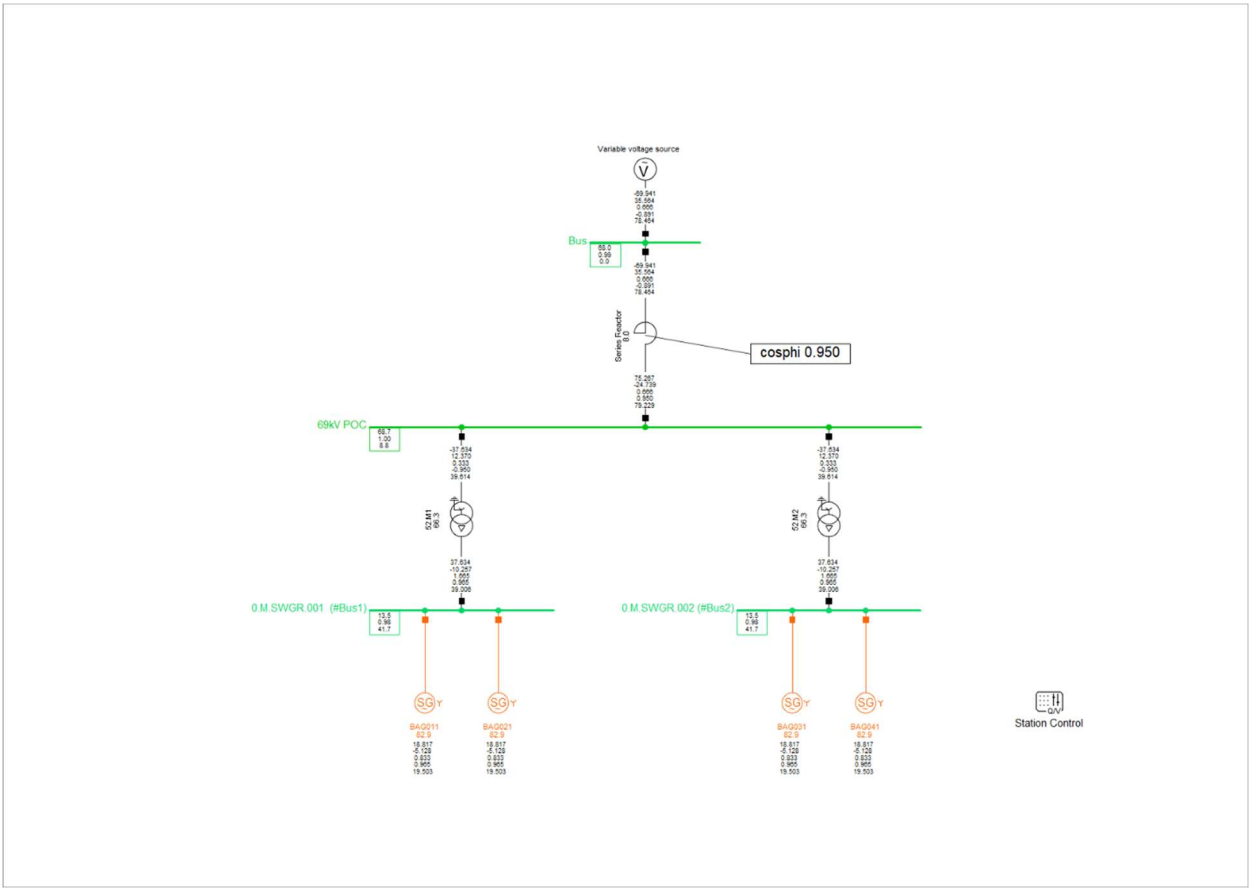
Witness: Doug Buresh

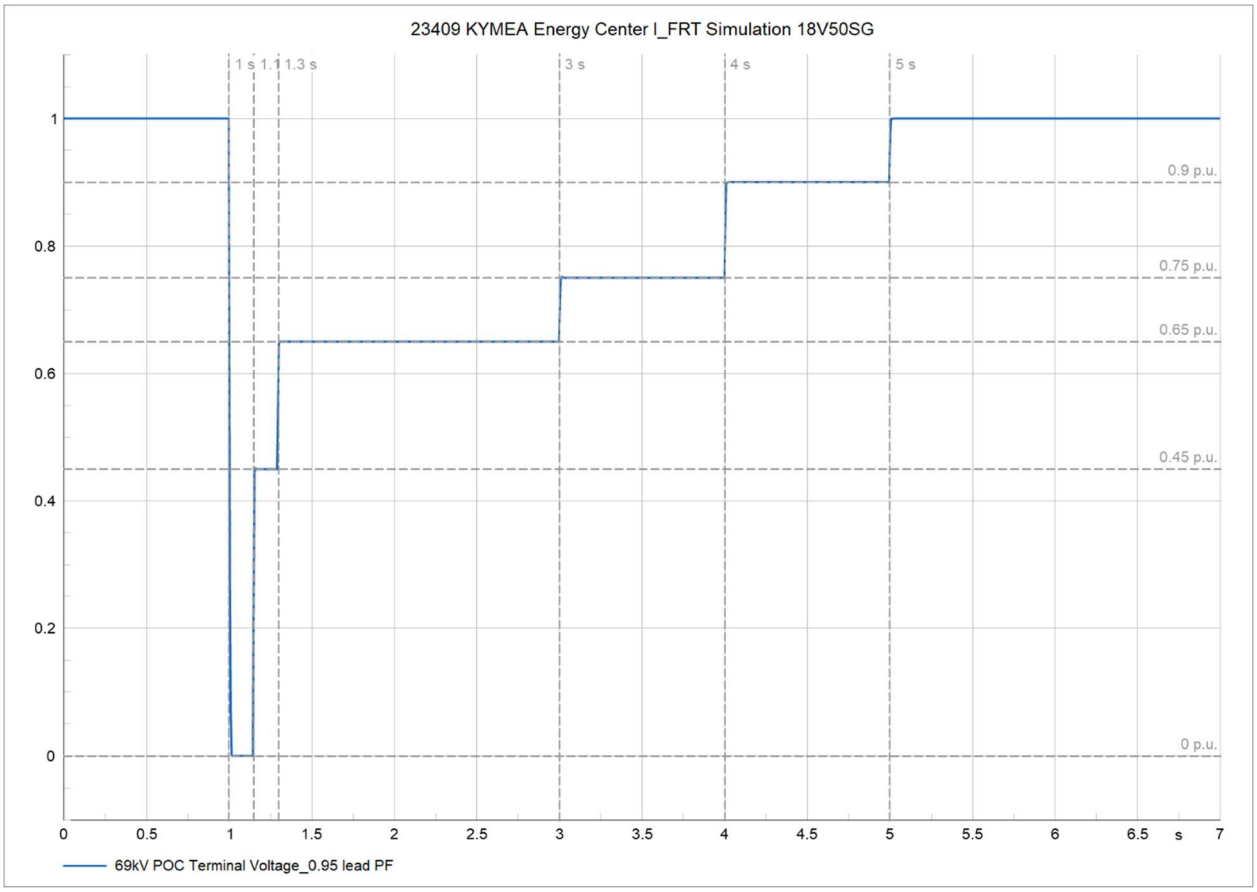
23409 KYMEA Energy Center I – LVRT Simulation

The results for the LVRT simulation, include the scenarios for UNITY, 0.8 Lag, and 0.95 Leading, as per the NERC requirements for LVRT compliance.
The results are summarized below. The simulation plots are shown for reference.

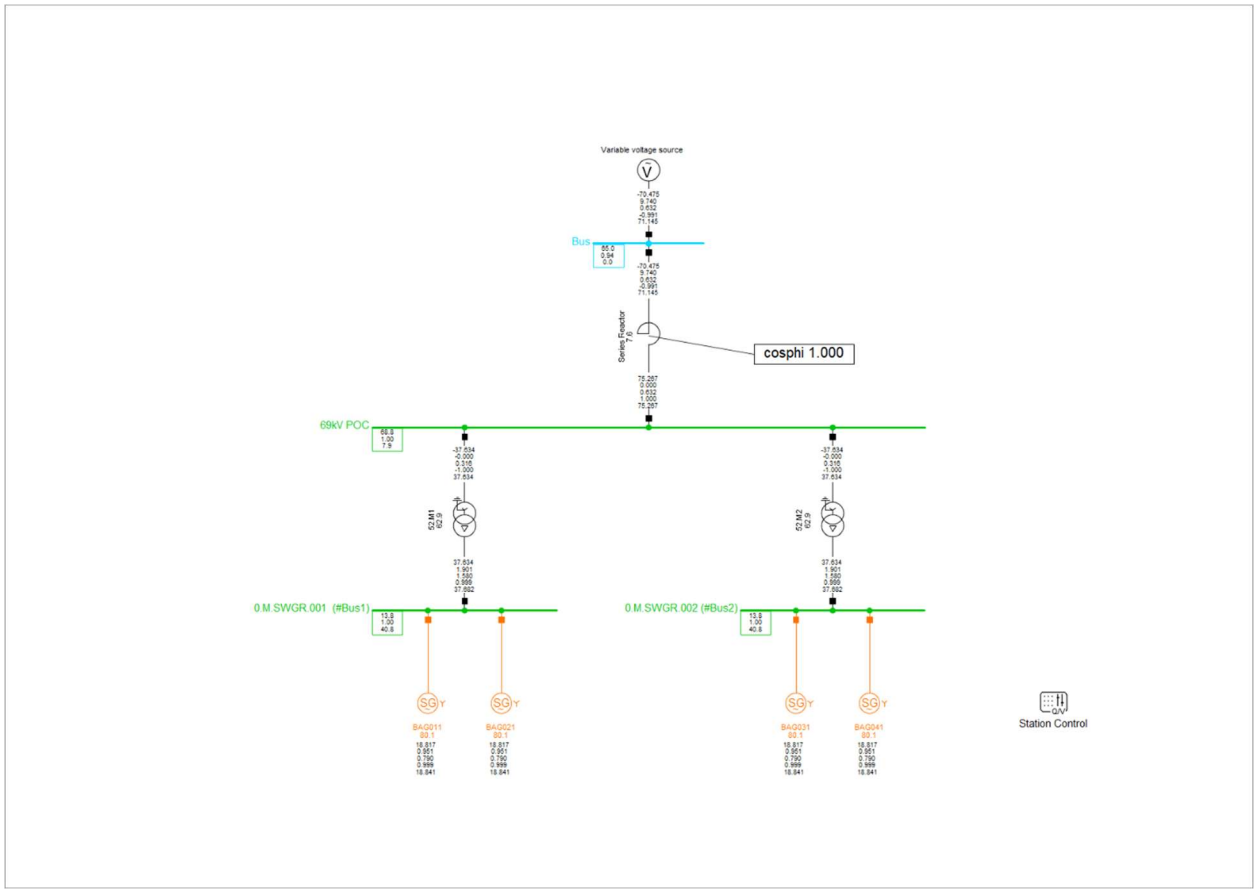
1. Grid short circuit details: Simulation is performed with standard AC voltage source.
2. Transformer rating is: 60MVA, 69/13.8kV, YNd11, short-circuit impedance 8%@100MVA base. PoC (Point of common coupling) bus is considered as 69kV.
3. Torque reduction factor of 35% is used (ignition retard function).
4. Simulation is performed with **Standard AVR**.
5. EG details: 4x18V50SG, Indar IGE28NY14W22 (23521 KVA).
6. Short circuiting power used for the simulation 975MVA.

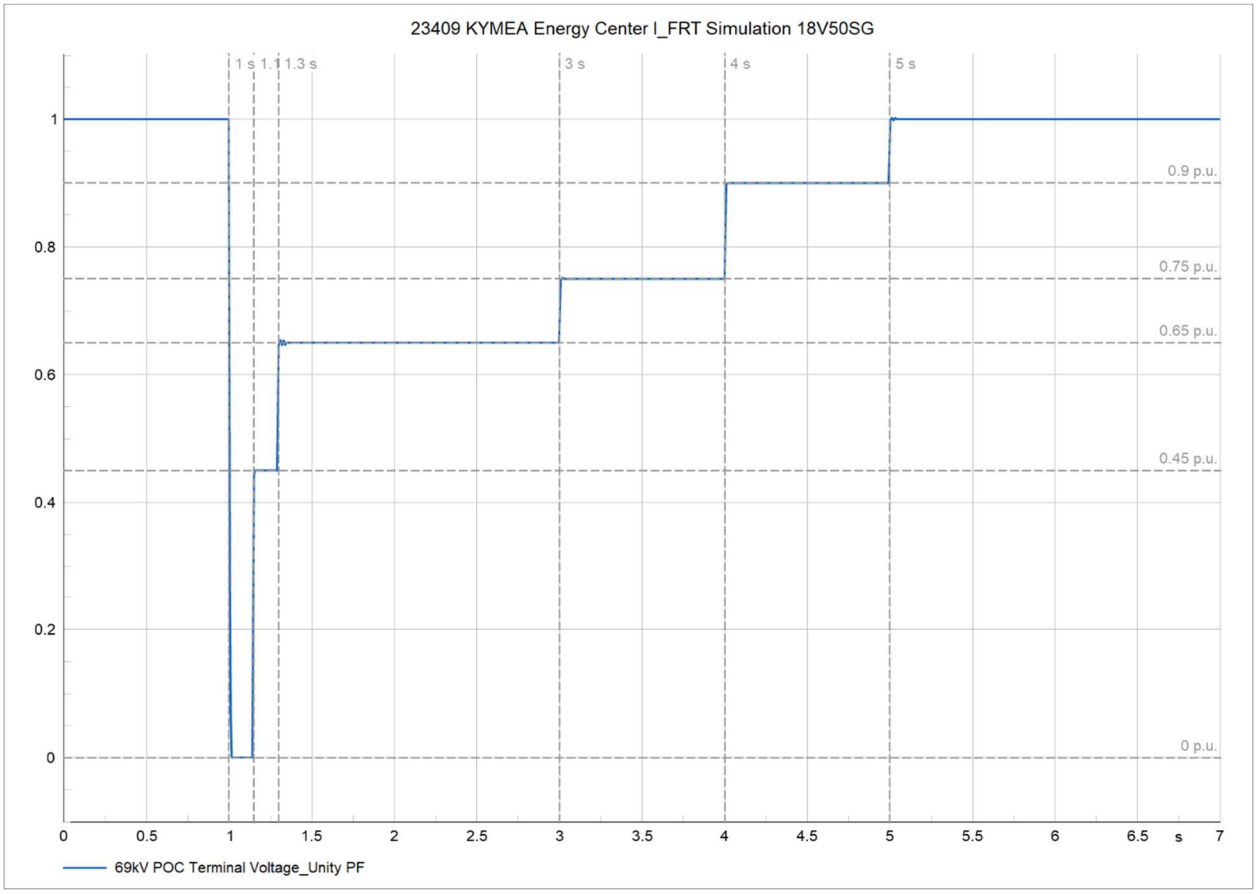
1. 0.95 Lead PF with 69 kV voltage curve at PoC: **Compliance without pole slip**



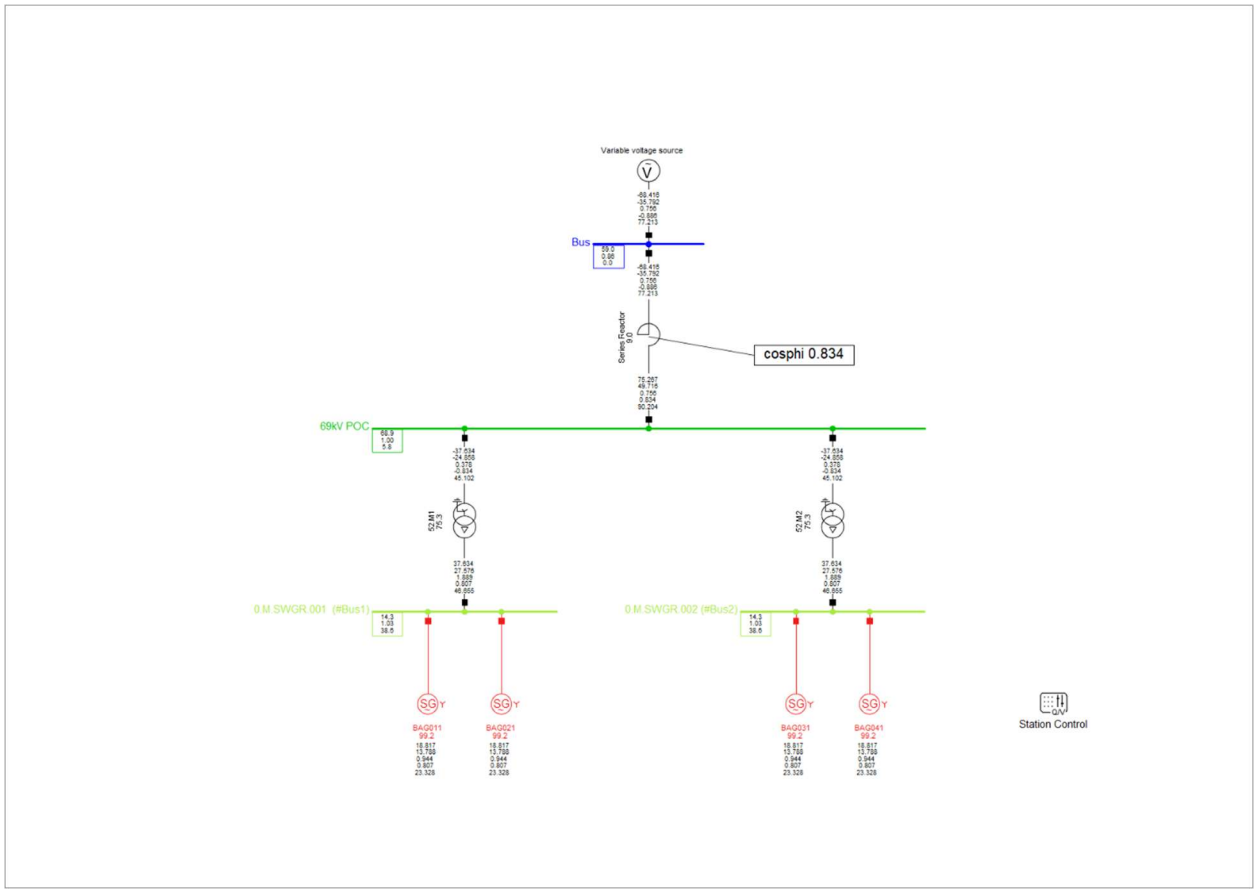

23409 KYMEA Energy Center I_FRT Simulation 18V50SG
1 s
1.1
1.3 s
3 s
4 s
5 s
0.9 p.u.
0.75 p.u.
0.65 p.u.
0.45 p.u.
0 p.u.
1
0.8
0.6
0.4
0.2
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
s
7
69kV POC Terminal Voltage_0.95 lead PF

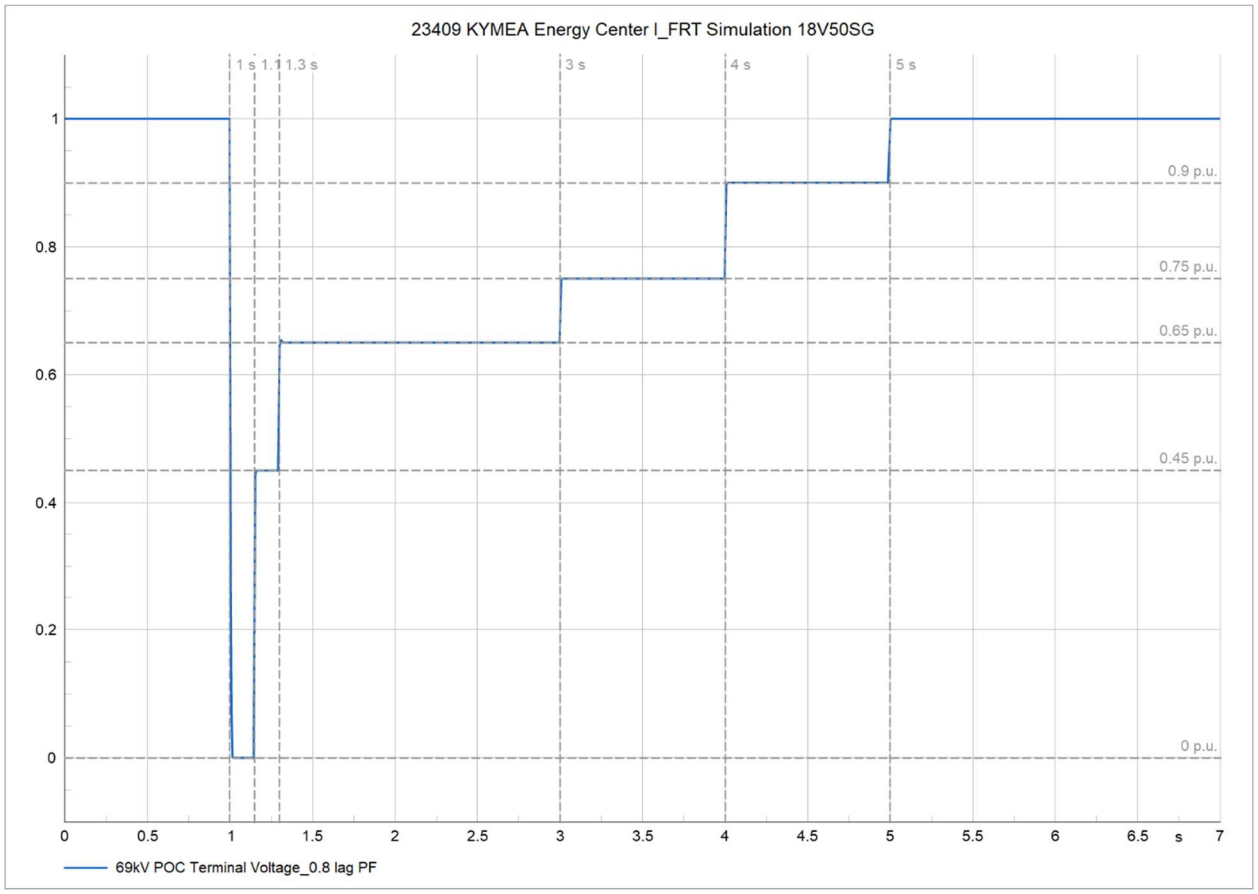
2. Unity PF with 69 kV voltage curve at PoC: **Compliance without pole slip**




23409 KYMEA Energy Center I_FRT Simulation 18V50SG
1 s
1.1
1.3 s
3 s
4 s
5 s
0.9 p.u.
0.75 p.u.
0.65 p.u.
0.45 p.u.
0 p.u.
1
0.8
0.6
0.4
0.2
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
s
7
69kV POC Terminal Voltage_Unity PF

3. 0.8 Lag PF with 69 kV voltage curve at PoC: **Compliance for 0.834 lag without pole slip.** In this case, the reactive power capability limits are reached. It is not possible to provide more reactive power for Gensets than the limit. As a result, the power factor at POC is 0.834 lag.





Conclusion

Standard plate (Unitrol 1020 Full+PSS 2CH Wärtsilä Plate, UL) will fulfill the FRT requirement.

It is not possible to calculate system behavior with perfect accuracy. It is noticeable that the simulation results of generating set, in other words fluctuation of the voltage and the frequency, or any physical quantities are only indicative, not accuracy definition. This is since all simulation models have restricted accuracy. However, these results are valid as long as the defined settings of the generating sets and the whole system remain unchanged.

Siting Board 2-33:

Explain who will be responsible for obtaining all necessary road use permits and detail the required permits.

Response: Each equipment supplier will be responsible for delivering all equipment to the jobsite and, as such, will be responsible for obtaining any necessary road use permits, including overweight/overdimensional load permits. Encroachment permits from Hopkins County or the Commonwealth of Kentucky will be required to construct entrances to the site.

Witness: Doug Buresh and Josh Coburn

Siting Board 2-34:

Provide any communication that has occurred with CSX regarding the project. This should include all letters, memoranda, or email correspondence. If communication has occurred through other means including telephone conversations or meetings, indicate the date and time of those communications, the parties involved, and a summary of the communication.

Response: See Attachment 2-34 for CSX directive on permitting process.

Witness: Doug Buresh

RE: [E] Fw: KYMEA Energy Center I - RR Crossing

From: Gilmore, Anthony [redacted]@csx.com)

To: conz@bellsouth.net

Date: Monday, November 18, 2024 at 05:33 AM CST

It is necessary to submit documentation via the application process for project review. If you do not already have an account to access the materials on our site you will be directed to create one. Please visit CSX Property Portal to establish an account and submit an application at www.csx.com. Once on the site, please utilize links by following this path: CUSTOMERS/CSX Real Estate/CSX Property Portal. After accessing Property Portal select "Submit a Utility Application."

An application review fee for utility encroachments is now required to be collected prior to the review. You may elect to pay the fee by credit card. Review fees are based on the type of encroachment, casing pipe size and method of installation. Ex: subgrade installation by jack & bore for 8in steel casing pipe is currently $2500 and $3950 when installed by horizontal directional drill (HDD). For application review fee amounts please consult CSX's permitting fee schedule located on CSX permitting website at www.csx.com (CUSTOMERS/CSX Real Estate/Permitting: Utility Installations and Rights of Entry/Utility Permits.

Utility permitting instructions and support are also available on the website www.csx.com (CUSTOMERS/CSX Real Estate/ Permitting: Utility, Wireless Infrastructure Installations and Rights of Entry/Utility Permits). Due to time constraint dictated by the level of contracts under my review, I ask that you please consult CSX website for permitting to answer any questions you may have. If there are additional questions that the site does not address please feel free to email me your questions and I will respond as soon as I can.

I work projects in the order received. Currently my workload is dictating a review within 30 days measured from your actual application submittal date.

No construction or entry upon CSXT's corridor is permitted until; (i) the document transaction is completed, (ii) you are in receipt of a fully executed document, and (iii) you have obtained authority from CSXT's local Roadmaster and/or designated field representative.

Attention: For utility encroachment application request/submittal and permitting support please visit CSXT's website to apply online at www.csx.com. Once on the site please follow these paths: Customers/CSX Real Property/Property Portal // (Customers/CSX Real Property/Permitting: Utility Installations and Rights of Entry)

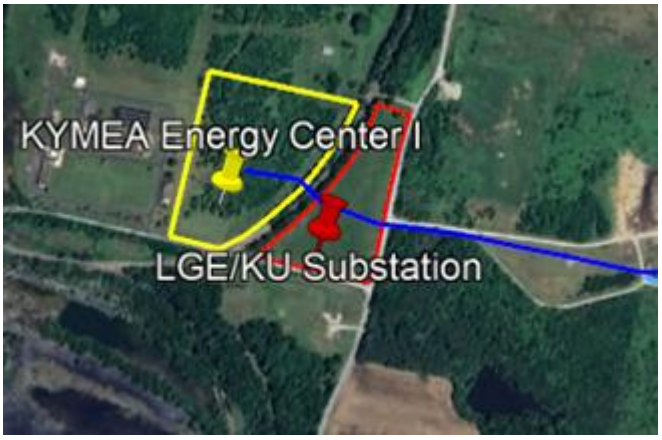
Respectfully,

Anthony L. Gilmore
Track Analyst of Corridor Services, Business Development & Real Estate – FL, GA, KY, MD, SC, DC & Towers
Tele: [redacted]
Email: [redacted]@csx.com
CSX Transportation
500 Water Street J-180, Jacksonville, FL 32202

From: Stanley Conn <conz@bellsouth.net>
Sent: Wednesday, November 13, 2024 6:31 PM
To: Gilmore, Anthony [redacted]@csx.com>
Subject: [E] Fw: KYMEA Energy Center I - RR Crossing

The Kentucky Municipal Energy Agency (KYMEA) intends to construct the KYMEA Energy Center I, a natural gas electric generating facility in Madisonville, Kentucky with a capacity of approximately 75 net megawatts (MW). The Plant Site will be located at 1757 AC Slaton Road in Madisonville, Kentucky (next to Madisonville WWTP) with the LGE/KU Interconnection Facilities (Substation) located adjacent to the Plant at the corner of A C Slaton Road and Bean Cemetery Road. A high pressure natural gas line will be constructed to serve the Plant running from the Texas Gas high pressure network near Frank Hill Road to the Plant Site. Site development is expected to begin in April 2025 with a proposed in-service date for the Project of June 2027. The Project is expected to have an operating life of not less than 30 years. We are currently in the permitting and engineering phase of the project.

I am serving as the Owner's engineer for the project and I am reaching out to you as we will need to cross your rail line with both an overhead electric transmission line and an underground natural gas line. I am attaching a preliminary plan drawing of the electric transmission line crossing. A sketch of the preliminary location of the gas line is show below. Please let me know if you are the proper contact for this area of rail or direct me to the proper contact if possible. If you would like to have a preliminary call to discuss your requirements, let me know your availability. Otherwise, please send me any design and construction standards you may have along with suggested approval timelines for this project. Thanks for you time.



Stanley K Conn, PE

CONNSULTING, LLC

3283 Curdsville Delaware Road

Owensboro, KY 42301

270-771-4240

cell 270-929-5739

conz@bellsouth.net

Siting Board 2-35:

Provide a map highlighting the drop off point for any project components being delivered by railway. Also, highlight the route that will be utilized to deliver the components to the project from the drop off point.

Response: The Engines (4 total) will go from Finland to Houston, TX by ship for unloading and will go by rail to Fortner LP on Nebo Road in Madisonville. The Heavy Haul Contractor will move them to site on a Goldhoffer trailer. Final unloading details will be developed between Heavy Haul Contractor and Fortner LP. A preliminary route survey was conducted by Fracht which includes a map of the route and is provided as Attachment 2-27. The final route and permitting will be in conjunction with State and Local officials.

Witness: Doug Buresh

Siting Board 2-36:

Detail the current condition of the proposed drop off point and any improvements that will need to be made ahead of construction.

Response: Final unloading details will be developed between the Heavy Haul Contractor (to be determined) and Fortner LP.

Witness: Doug Buresh

Siting Board 2-37:

Submit a copy of the CSX requirements for any natural gas lines proposed to be constructed under existing railroads.

Response: CSX Design and Construction Standards for Pipeline Occupancies and Horizontal Directional Drilling Guidelines are submitted as Attachment 2-37a and 2-37b respectively.

Witness: Doug Buresh

DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS

Pipeline Occupancies

OFFICE OF:
VICE PRESIDENT - ENGINEERING
JACKSONVILLE, FLORIDA
ISSUED: September 15, 2003
REVISED: June 5, 2018

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Part 1 – Introduction

Part 2 – General Requirements

Part 3 – Design Requirements

Part 3 – Design Requirements (Continued) PAGE

Part 4 – Construction Requirements

Part 5 – Publication Standards Sources

Tables

END OF TABLE OF CONTENTS

PART 1 – INTRODUCTION

1.1 Scope

a) This specification shall apply to the design and construction of pipelines carrying flammable or non-flammable substances and casings containing wires, cables, and carrier pipes across and along CSXT property and facilities. This specification shall also apply to tracks owned by others (sidings, industry tracks, etc.) over which CSXT operates its equipment.

b) It is to be clearly understood that CSXT owns its right-of-way for the primary purpose of operating a railroad. All occupancies shall therefore be designed and constructed so that rail operations and facilities are not interfered with, interrupted, or endangered. In addition, the proposed facility shall be located to minimize encumbrance to the right-of- way so that the railroad will have unrestricted use of its property for current and future operations.

1.2 Definitions

CSXT	CSX Transportation, Inc.
CS	Corridor Services
Owner (Applicant)	Individual, Corporation, or Municipality desiring occupancy of CSXT property
Professional Engineer	Engineer licensed in the state where the facilities are to be constructed
Carrier Pipe	Pipe used to transport the commodity
Casing Pipe	Pipe through which the carrier pipe is installed under main tracks
Sidings or Industry Tracks	Tracks located off of CSXT's right-of-way, serving an industry

1.3 Application for Occupancy

a) Owner (Applicant) desiring occupancy of CSXT property by pipeline occupations must satisfy the following: receive approval by CSXT of all engineering and construction details, execute an appropriate CSXT occupational agreement, and remit payment of any required fees and/or rentals specified therein.

b) Occupancy applications shall be completed in full with all of the required information requested in order for the application to be processed. Review the entire application package, as well as the engineering specifications, before completing the application.

Applications must be submitted through the CSX Property Portal. Visit www.csx.com to establish an account and submit an application. Once on the site, use the following path: CUSTOMERS→CSX Real Estate→CSX Property Portal.

1.4 Right of Entry

a) Entry upon CSXT property for the purpose of conducting surveys, field inspections, obtaining soils information, or any other purposes associated with the design and construction for the proposed occupancy, will not be permitted without a proper entry permit prepared by CSXT. The applicant must pay the associated fees and execute the entry permit.

b) The issuance of an entry permit does not constitute authority to proceed with any construction. Construction cannot begin until a formal agreement is executed by CSXT and the Owner receives permission, from the designated inspection agency of CSXT, to proceed with the work.

1.5 Site Inspection

a) For longitudinal occupancy of CSXT property, a site inspection along the proposed pipeline route may be required before final design plans are prepared. When a site inspection is required, the applicant and/or the engineer must meet with a CSXT Field Representative to view the entire length of the proposed occupancy; the applicant will be informed of the need for a meeting during application processing.

b) Prior to the site inspection the applicant must submit the following information:

i) A plan view of the proposed route showing all tracks, both CSXT right-of-way lines, and all other facilities located on the right-of-way. The distance from the proposed pipeline to the adjacent track and to the right-of-way lines must be shown.

ii) A complete application form.

c) Site inspections for pipe crossings are not required unless, in the opinion of CSXT, the size and location of the facility warrant an inspection.

1.6 Information Required for Submission

a) All plans and documents required in the application package shall be submitted as per the instructions in the application package.

b) Failure to follow these instructions may result in the return of the information provided without further action taken.

1.7 Notification to Proceed with Outside Party Request Form

a) After approval of the engineering plans and full execution of the facility encroachment agreement, the Owner will receive an e-mail notification containing a special reference number and link to the CSX Property Portal – Outside Party Request Form application. CSX requires 30 days' advance notice to schedule any activity.

b) Once the OP Form is received, the Owner or their Contractor will be contacted to discuss construction scheduling.

c) CSXT will determine if the project requires flagging, construction monitoring, or both. All costs associated with flagging and/or construction monitoring will be the responsibility of the Owner. CSXT, at its sole discretion, may elect to have the Owner remit payment for the estimated flagging/construction monitoring cost in advance or elect to invoice the Owner the actual cost as incurred.

END OF PART 1

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PART 2 – GENERAL REQUIREMENTS

2.1 Use of Casing Pipe

a) A casing pipe will be required for all pipeline crossings carrying liquid or gaseous substances. The casing pipe for liquid and gaseous substances may be omitted if the proposed pipe will be installed by the horizontal directional drilling (HDD) method. Reference section 4.1.5 for additional information and requirements.

b) For natural gas pipelines, the casing pipe may be omitted provided the carrier pipe meets the requirements in the Uncased Pipelines Carrying Gas section of this document. CSXT may require the use of a casing pipe at locations where increased risks from specific site conditions (traffic speed, traffic density, etc.) are present.

c) For non-pressure sewer or drainage crossings, where the installation can be made by open cut (see Construction Requirements Section) or reinforced concrete pipe can be jacked under the railroad (see Construction Requirements Section), the casing pipe may be omitted.

d) Pressure pipelines that are located within 25 feet of the centerline of any track shall be encased.

e) At proposed pipe crossing the casing pipe shall be laid **across the entire width of the right-of-way**, except where a greater length is required to comply with the Design Requirements-Casing Pipe Section of this specification, even though such extension is beyond the right-of-way.

f) At the discretion of CSXT a casing pipe may be required for any application regardless of the commodity carried.

2.2 Location of Pipeline on the Right-of-Way

a) Pipelines laid longitudinally on CSXT's right-of-way shall be located as far as practicable from any tracks or other important structures and as close to the railroad property line as possible. Longitudinal pipelines must not be located in earth embankments or within ditches located on the right-of-way.

b) Pipelines shall be located, where practicable, to cross tracks at approximate right angles to the track, but preferably at not less than 45 degrees.

c) Pipelines shall not be placed within a culvert, under railroad bridges, nor closer than 45 feet to any portion of any railroad bridge, building, or other important structure, except in special cases, and then by special design, as approved by CSXT's Chief Engineer, Design and Construction. Proposed pipelines that are to be located within the public right-of-way will be considered pending engineering review. An effort should be made to maximize distance to any substructure.

d) Pipelines shall not be located within the limits of a turnout (switch) when crossing the track. The limits of the turnout extend from the point of the switch to 15 feet beyond the last long timber.

e) Pipeline installations shall not be designed as an open cut installation where the pipeline is to be located within the limits of a grade crossing. If it is shown that no other method of installation is possible, the owner will be responsible for reimbursing CSXT for all costs associated with the removal and reconstruction of the grade crossing (This cost will require advance funding by the pipeline owner).

f) Pipelines carrying liquefied petroleum gas shall, where practicable, cross the railroad where tracks are carried on embankment.

2.3 Depth of Installation

2.3.1 Pipelines conveying non-flammable substances

a) Casing/carrier pipes placed under CSXT track(s) shall be not less than 5.5 feet from base of rail to top of pipe at its shallowest point.

b) Pipelines laid longitudinally on CSXT's right-of-way, 50 feet or less from centerline track shall be buried not less than 4 feet from ground surface to top of pipe. Where the pipeline is laid more than 50 feet from centerline of track, the minimum cover shall be at least 3 feet.

2.3.2 Pipelines conveying flammable substances

a) Casing pipes under CSXT track(s) shall be not less than 5.5 feet from base of rail to top of pipe at its closest point. On other portions of the right-of-way, where the pipe is not directly beneath any track, the depth from ground surface or from bottom of ditch to top of pipe shall not be less than 3 feet. Where 3 feet of cover cannot be provided from bottom of ditch, a 6-inch thick reinforced concrete slab shall be provided over the pipeline for protection.

b) Uncased natural gas pipelines under CSXT track(s) shall not be less than 10 feet from the base of rail to the top of the pipe at its closest point and not less than 6 feet from ground surface to top of pipe in all other locations. Where it is not possible to obtain the above depths, use of a casing pipe will be required.

c) Pipelines laid longitudinally on CSXT's right-of-way, 50 feet or less from centerline track shall be buried not less than 6 feet from ground surface to top of pipe. Where the pipeline is laid more than 50 feet from centerline of track, the minimum cover shall be at least 5 feet.

2.3.3 Pipelines within Limits of a Dedicated Highway

a) Pipelines within the limits of a dedicated highway are subject to all the requirements of this specification and must be designed and installed in accordance with this specification.

b) The limits of the dedicated highway (right-of-way) must be clearly shown on the plans.

c) Construction cannot begin until an agreement has been executed between CSXT and the Owner and proper notification has been given to CSXT's Regional Engineering Officer (See Notification to Proceed with Outside Party Request Form).

2.4 Modification of Existing Facilities

a) Any replacement of an existing carrier pipe and/or casing shall be considered as a new installation, subject to the requirements of this specification.

b) Modification of an existing carrier pipe and/or casing pipe by in-place, non-intrusive methods, such as Cured-in-Place Pipe (CIPP), may be considered as maintenance if there is an agreement between CSXT and the owner covering the existing pipe(s).

c) CIPP installations will only be considered for the following scenarios:

i) Circular Pipes

ii) Within the following host pipe materials: brick, concrete, clay tile, vitrified clay, PVC, corrugated steel, cast and ductile iron, fiberglass, or AC pipe. CIPP will not be allowed within smooth wall steel pipes.

d) CIPP design and installation plans and calculations must be submitted to CSXT's Corridor Services (CS) office for an engineering review if the following scenarios exist:

i) Excavation within CSXT right-of-way or TREL is required to access the existing facilities.

ii) The host pipe that the CIPP is being applied to is not within a casing pipe, such that the host pipe and CIPP will be subject to all external loads.

iii) The CIPP will be within a pipe that is parallel or longitudinal to the CSXT tracks.

e) CIPP design requirements are included in the Cured-in-Place-Pipes (CIPP) section of this document.

2.5 Abandoned Facilities

a) The owner of all pipe crossings proposed for abandonment shall notify CSXT, in writing, of the intention to abandon.

b) Abandoned pipelines shall be removed or completely filled with cement grout, compacted sand, or other methods, as approved by CSXT.

c) Abandoned manholes and other structures shall be removed to a minimum depth of 2 feet below finished grade and completely filled with cement grout, compacted sand, or other methods as approved by CSXT.

2.6 Conflict of Specifications

a) Where laws or orders of public authority prescribe a higher degree of protection than specified herein, then the higher degree so prescribed shall be deemed a part of this specification.

2.7 Insulation

a) Pipelines and casings shall be suitably insulated from underground conduits carrying electric wires on CSXT property.

2.8 Corrosion Protection and Petroleum Leak Prevention

a) Pipelines on CSXT property that carry petroleum products, hazardous gases, or hazardous liquids shall be designed in accordance with current federal, state, and/or local regulations that mandate leak detection automatic shutoff, leak monitoring, sacrificial anodes, and/or exterior coatings to minimize corrosion and prevent petroleum releases.

2.9 Plastic Carrier Pipe Materials

a) Plastic carrier pipe materials include, but are not limited to thermoplastic and thermoset plastic pipes, Thermoplastic types include Polyvinyl Chloride (PVC), Acrylonitrile Butadiene Styrene (ABS), High Density Polyethylene (HDPE), Polyethylene (PE), Polybutylene (PB), Cellulose Acetate Butyrate (CAB), and Styrene Rubber (SR), Thermoset types include Reinforced Plastic Mortar (RPM), Reinforced Thermosetting Resin (FRP) and Fiberglass Reinforce Plastic (FRP).

b) Plastic carrier pipelines shall be encased according to AREMA Chapter 1 Section 5.1.5.

c) Plastic pipe material shall not be used to convey **liquid** flammable substances.

d) Plastic pipe material shall be resistant to the chemicals with which contact can be anticipated. Plastic carrier pipe shall not be utilized where there is potential for contact with petroleum contaminated soils or other non-polar organic compounds that may be present in surrounding soils.

e) Plastic carrier pipe can be utilized to convey flammable **gas** products provided the pipe material is compatible with the type of product conveyed and the maximum allowable operating pressure is less than 100 PSI. Carrier pipe materials, design, and installation shall conform to Code of Federal Regulation 49CFR§178 to §199, specifically §192 and American National Standards Institute ASME B31.8 and ASTM D2513. Codes, specifications, and regulations current at time of construction of the pipeline shall govern the installation of the facility within the railway right-of-way. The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements. Plastic carrier pipes will be encased according to AREMA Chapter 1 Section 5.1.5.

f) Plastic carrier pipe conveying flammable substances shall be encased the entire limits of the right-of-way. If special conditions exist which prevent encasement within the entire limits

of the right-of-way, the Chief Engineer, Design and Construction must approve the minimum encased length.

g) Plastic carrier pipe must be encased under all tracks, including sidings and industrial tracks within the limits of the right-of-way.

h) Longitudinal carrier pipeline shall be steel or ductile iron. Plastic carrier pipe may be utilized for longitudinal installation with approval by the Chief Engineer, Design and Construction, but shall be fully encased within the limits of the right-of-way.

i) Codes, specifications, and regulations current at the time of construction the pipeline shall govern the installation of the facility within the railway rights-of- way. The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements.

Specification Number	Carrier Pipe Properties
ANSI/AWWA C900	PVC pressure pipe 4” through 12”
ANSI/AWWA C901	PE pressure pipe and tubing ½” through 3” for water
ANSI/AWWA C902	PE pressure pipe and tubing ½” through 3” for water
ANSI/AWWA C905	PVC water pipe, 14” through 36”
ANSI/AWWA C906	PE pressure pipe and fittings 4” – 63” for water
ANSI/AWWA C907	PVC pressure fittings 4” – 8”
ANSI/AWWA C950	Fiberglass pressure pipe

END OF PART 2

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PART 3 – DESIGN REQUIREMENTS

3.1 Soil Investigation

3.1.1 General Requirements

a) Test borings or other soil investigations, approved by CSXT's Chief Engineer, Design and Construction, shall be made to determine the nature of the underlying material for all pipe crossings with casing pipe sizes greater or equal to 48 inches in diameter and larger under track(s).

b) Test borings or other soil investigations, approved by CSXT's Chief Engineer, Design and Construction, may be required when, in the judgment of CSXT, they are necessary to determine the adequacy of the design and construction of pipe crossings with casings less than 48 inches in diameter and for other facilities located on the right-of-way. Note: the applicant shall be responsible for the notification of all underground utilities including CSX signal cables.

3.1.2 Location

a) Borings shall be made on each side of the track(s), on the centerline of the pipe crossing, and as close to the track(s) as practicable. **Entry upon CSXT property for the purpose of conducting borings requires a Right of Entry permit.**

b) Test boring logs shall be accompanied with a plan, drawn to scale, showing the location of the borings in relation to the track(s) and the proposed pipe.

3.1.3 Sampling

a) Test borings shall be made in accordance with current ASTM Designation D1586 except that sampling must be continuous from the ground surface to 5 feet below the proposed invert unless rock is encountered before this depth. Where rock is encountered, it is to be cored using a Series "M" Double Tube Core Barrel, with a diamond bit, capable of retrieving a rock core at least 1 5/8" in diameter. Individual core runs are not to exceed 5 feet in length.

b) All borings shall be sealed, for their full depth, with a 4-3-1 bentonite-cement- sand grout after accurate ground water readings have been taken and recorded.

c) Soil samples taken from auger vanes or return washwater are not acceptable.

3.1.4 Boring Logs

a) Test boring logs shall clearly indicate **all** of the following:

i) Boring number as shown on the required boring location plan.

ii) Ground elevation at each boring using same datum as the pipeline construction plans.

iii) Engineering description of soils or rock encountered.

iv) Depth and percent recovery of all soil samples.

v) Depth from surface for each change in strata.

vi) Blows for each 6 inches of penetration for the standard penetration test described in ASTM D 1586. Blows for lesser penetrations should be recorded.

vii) Percent recovery and Rock Quality Designation (RQD) for all rock cores.

viii) Depth to ground water while sampling and when it has stabilized in the bore hole.

b) The location of the carrier pipe and/or casing pipe shall be superimposed on the boring logs before submission to CSXT.

3.1.5 Additional Information

a) When directed by CSXT, additional borings may be required for the purpose of taking undisturbed thin-wall piston samples or Dennison type samples for laboratory testing to determine the index and engineering properties of certain soil strata.

3.2 Design Loads

3.2.1 General Requirements

a) All pipes, manholes, and other facilities shall be designed for the external and internal loads to which they will be subjected.

b) To allow for placement of additional track(s) or shifting of the existing track(s), all proposed pipelines or structures shall be designed as if a railroad loading is directly above the facility.

3.2.2 Earth Load

a) The dead load of the earth shall be considered as 120 pounds per cubic foot unless soil conditions warrant the use of a higher value.

3.2.3 Railroad Load (live load and impact)

a) The railroad live load used shall be a Cooper E-80 loading. This loading consists of 80 kip axle loads spaced 5 feet on centers.

b) An impact factor of 1.75 (multiply live load by the impact factor) shall be used for depth of cover up to 5 feet. Between 5 and 30 feet, the impact factor is reduced by 0.03 per foot of depth. Below a depth of 30 feet, the impact factor is one.

c) The values shown in Table 1 shall be used for the vertical pressure on a buried structure for the various heights of cover.

Table 1 - Live loads, including impact for various heights of cover for a Cooper E-80 loading

Height of Cover	Load	
Feet	Pound per square foot	(kPa)
2	3800	(162.8)
3	3150	(150.8)
4	2850	(136.5)
5	2550	(122.1)
6	2250	(107.7)
7	1950	(93.4)
8	1700	(81.4)
9	1500	(71.8)
10	1300	(62.2)
12	1000	(47.9)
14	800	(38.3)
16	625	(29.9)
18	500	(23.9)
20	400	(19.2)
25	250	(12.0)
30	150	(7.2)

d) To determine the horizontal pressure caused by the railroad loading on a sheet pile wall or other structure adjacent to the track, the Boussinesq analysis shall be used. The load on the track shall be taken as a strip load with a width equal to the length of the ties which is typically, 8.5 feet. The vertical surcharge, q (psf), caused by each axle, shall be uniform and equal to the axle load divided by the tie length and the axle spacing, 5 feet. For the E-80 loading this results in:

$$q = 80{,}000 / (8.5 \text{ X } 5) = 1882 \text{ psf}$$

The horizontal pressure due to the live load surcharge at any point on the wall or other structure is p_h and can be calculated by the following:

$$p_h = (2q/\pi)(\beta - \sin\beta(\cos 2\propto))$$

e) The vertical and horizontal pressures given above shall be used unless an alternate design method is approved by CSXT. Proposals to use an alternate design method must include acceptable references and a statement explaining the justification for choosing the alternate method.

3.3 Design Assumptions

a) To design a casing pipe or an uncased carrier pipe for the external loads on CSXT's right-of-way, the following design assumptions shall be used, unless site conditions indicate more conservative values are required:

3.3.1 Flexible Pipe (Steel, DIP, CMP, and Tunnel Liner Plate)

a) Steel Pipe (Bored and jacked in place)

i) Spangler's Iowa formula shall be used for design with:

Deflection lag factor	-	$D_f = 1.5$
Modulus of soil reaction	-	$E' = 1080$ psi
Bedding constant	-	$Kb = 0.096$
Soil loading constant	-	$K_{u'} = 0.13$
Allowable deflection of pipe	-	3% of pipe diameter

b) Ductile Iron Pipe (Open Cut)

i) AWWA Specification C150 shall be used for design with:

Pipe laying condition = Type 3
Earth load - ANSI A 51.50 prism method

c) Corrugated Steel Pipe & Corrugated Structural Steel Plate Pipe (Open Cut)

i) AREMA Chapter 1, Sections 4.9 & 4.10 shall be used for design with:

Soil stiffness factor - $K = 0.33$
Railroad impact as per Design Requirements-Casing Pipe Section of this specification.

d) Tunnel Liner Plate (Tunneled)

i) AREMA Chapter 1, Part 4, Section 4.16 shall be used for design with:

Soil stiffness factor - $K = 0.33$
Railroad impact as per Design Requirements-Casing Pipe Section of this specification.

3.3.2 Rigid Pipe (RCP, Vitrified Clay Pipe, and PCCP)

a) Reinforced Concrete Pipe, Vitrified Clay Pipe and Prestressed Concrete Cylinder Pipe (Open Cut)

i) American Concrete Pipe Association design manual shall be used for design with:

Marston load theory used for earth load

Bedding (Load Factor) - $L_f = 1.9$
Factor of safety - FS = 1.25 for RCP
FS = 1.50 for VCP
Railroad impact as per Design Requirements-Casing Pipe Section of this specification.

b) Reinforced Concrete Pipe (Jacked)

i) American Concrete Pipe Association design manual shall be used for design with:

Marston load theory used for earth load
Bedding (Load Factor) - $L_f = 3.0$
Factor of safety = 1.25
Railroad impact as per Design Requirements-Design Loads Section of this specification.
Others – As approved by CSXT

3.4 Casing Pipe

3.4.1 General Requirements

a) Casing pipe shall be so constructed as to prevent leakage of any substance from the casing throughout its length, except at ends of casing where ends are left open, or through vent pipes when ends of casing are sealed. Casing shall be installed so as to prevent the formation of a waterway under the railroad, and with an even bearing throughout its length, and shall slope to one end (except for longitudinal occupancy).

b) The casing pipe and joints shall be of steel and of leakproof construction when the pipeline is carrying liquid flammable products or highly volatile substances under pressure.

c) The inside diameter of the casing pipe shall be such as to allow the carrier pipe to be removed subsequently without disturbing the casing or the roadbed. For steel pipe casings, the inside diameter of the casing pipe shall be at least 2 inches greater than the largest outside diameter of the carrier pipe joints or couplings, for carrier pipe less than 6 inches in diameter; and at least 4 inches greater for carrier pipe 6 inches and over in diameter.

d) For flexible casing pipe, a maximum vertical deflection of the casing pipe of 3 percent of its diameter, plus ½ inch (13 mm) clearance shall be provided so that no loads from the roadbed, track, traffic, or casing pipe itself are transmitted to the carrier pipe. When insulators are used on the carrier pipe, the inside diameter of the flexible casing pipe shall be at least 2 inches greater than the outside diameter of the carrier pipe for pipe less than 8 inches in diameter; at least 3¼ inches greater for pipe 8 inches to 16 inches, inclusive, in diameter and at least 4½ inches greater for pipe 18 inches and over in diameter.

e) In no event shall the casing pipe diameter be larger than is necessary to permit the insertion of the carrier pipe.

f) Casing pipe under railroad tracks and across CSXT's right-of-way shall extend the **greater** of the following distances, measured at right angle to centerline of track:

i) Across the entire width of the CSXT right-of-way.

ii) 3 feet beyond ditch line.

iii) 2 feet beyond toe of slope.

iv) A minimum distance of 25 feet from each side of centerline of outside track when casing is sealed at both ends.

v) A minimum distance of 45 feet from centerline of outside track when casing is open at both ends.

vi) Beyond the theoretical railroad embankment line. This line begins at a point 12 feet horizontally from centerline track, 18 inches below top-of-rail, and extends downward on a 1½ (H) to 1 (V) slope.

g) If additional tracks are constructed in the future, the casing shall be extended correspondingly at the Owner's expense.

3.4.2 Steel Pipe

a) Steel pipe may be installed by open cut, boring or jacking depending on situation.

b) Steel pipe shall have a specified minimum yield strength, SMYS, of at least 35,000 psi. The ASTM or API specification and grade for the pipe are to be shown on the Application Form.

c) Joints between the sections of pipe shall be constructed to be capable of withstanding railroad loading. Joints can either be constructed through butt welding or through the use of interlocking joints.

d) Steel casing pipe, with a **minimum** cover of 5.5 ft., shall have a minimum wall thickness as shown in Table 2, unless computations indicate that a thicker wall is required.

Table 2 – Steel Casing Pipe Wall Thicknesses

Pipe Diameter Nominal Pipe Size (in.)	Coated or Cathodically Protected Nominal Wall Thickness (in.)	Uncoated and Unprotected Nominal Wall Thickness (in.)
10 and under	0.188	0.188
12 & 14	0.188	0.250
16	0.219	0.281
18	0.250	0.312
20 & 22	0.281	0.344
24	0.312	0.375
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 & 36	0.469	0.532
38	0.500	0.562
40	0.531	0.594
42	0.562	0.625
44 & 46	0.594	0.657
48	0.625	0.688
50	0.656	0.719
52	0.688	0.750
54	0.719	0.781
56 & 58	0.750	0.812
60	0.781	0.844
62	0.812	0.875
64	0.844	0.906
66 & 68	0.875	0.938
70	0.906	0.969
72	0.938	1.000

e) Coated steel pipe that is bored or jacked into place shall conform to the wall thickness requirements for uncoated steel pipe since the coating may be damaged during installation.

f) For the required wall thicknesses on uncased steel carrier pipes conveying natural gas, refer to Uncased Pipelines Carrying Gas section in this document.

g) Smooth wall steel pipes with a nominal diameter over 72 inches will not be permitted.

3.4.3 Ductile Iron Pipe

a) Ductile iron pipe may be used only at the sole discretion of the Chief Engineer, Design and Construction when placed by the open cut method. Jacking or boring through the railroad embankment is not permitted due to the bell and spigot joints.

b) Ductile iron pipe shall conform to the requirements of ANSI A21.51/AWWA C-151. Class 56 pipe shall be used unless computations, in accordance with the Design Requirements-Design Loads and Design Assumptions sections, are provided.

c) Table 3 is based on the design assumptions given in the Design Requirements-Design Loads Section with a minimum cover of 5.5 feet. This table is provided for information only.

Table 3 – Ductile Iron Pipe Wall Thicknesses

Pipe Diameter (in.)	Thickness Class		Pressure Class
	Wall Thickness (in.)	Class	
3	0.25	51	350
4	0.25	51	350
6	0.25	50	350
8	0.25	50	350
10	0.26	51	350
12	0.28	51	350
14	0.31	52	350
16	0.34	52	350
18	0.36	53	350
20	0.38	53	350
24	0.42	55	350
30	0.49	56	350
36	0.56	56	350
42	0.63	56	350
48	0.70	56	350
54	0.79	56	350

d) The pipe shall have mechanical or push on type joints.

3.4.4 Corrugated Steel Pipe and Corrugated Structural Steel Plate Pipe

a) Corrugated steel pipe and corrugated structural steel plate pipe may be used for a casing only when placed by the open cut method. Jacking or boring through the railroad embankment is not permitted.

b) Corrugated steel pipe and corrugated structural steel plate pipe may be used for a casing provided the pressure in the carrier pipe is less than 100 psi.

c) Pipe shall be bituminous coated and shall conform to the current AREMA Specifications Chapter 1, Part 4.

d) Corrugated steel pipe shall have a minimum sheet thickness as shown in Table 4. Corrugated structural steel plate pipe shall have a minimum plate thickness of 8 gage, 0.168 in. If computations indicate that a greater thickness is required, the thicker sheet or plate shall be used.

Table 4 – Corrugated Steel Pipe Wall Thicknesses

Pipe Diameter	Sheet Thickness	
(in.)	(Gauge)	(in.)
12 to 30	14	0.079
36	12	0.109
42 to 54	10	0.138
60 to 120	8	0.168

3.4.5 Steel Tunnel Liner Plate

a) Liner plates shall be installed by the tunneling method as detailed in the Construction Requirements-Method of Installation section of this specification.

b) Tunnel liner plates shall be galvanized and bituminous coated and shall conform to current AREMA guidelines. If the tunnel liner plates are used only to maintain a tunneled opening until the carrier pipe is installed, and the annular space between the carrier pipe and the tunnel liner is completely filled with cement grout within a reasonably short time after completion of the tunnel, then the tunnel liner plates need not be galvanized and coated.

c) Tunnel liner plates are to be a minimum of 12 gage and shall be fabricated from structural quality, hot-rolled, carbon-steel sheets or plates conforming to ASTM Specification A 1011.

d) The following liner plate information must be shown on the Application Form:

i) Number of flanges (2 or 4)

ii) Width of plate

iii) Type of plate (smooth or corrugated)

3.4.6 Reinforced Concrete Pipe

a) Reinforced concrete pipe shall be installed by the open cut (at the sole discretion of the Chief Engineer, Design and Construction) or jacking method.

b) Reinforced concrete pipe shall conform to ASTM Specification C 76. Class V pipe, Wall B or C shall be used unless computations, in accordance with the Design Requirements-Design Assumptions, are provided.

c) Reinforced concrete pipe may be used for a casing provided the pressure in the carrier pipe is less than 100 psi.

d) Pipe placed by open cut shall be installed in accordance with AREMA Guidelines except that backfill and compaction shall be in accordance with the Construction Requirements-Method of Installation section of this specification.

e) Pipe jacked into place shall have tongue and groove joints and shall be installed in accordance with the Construction Requirements-Method of Installation section of this specification.

f) Joints between sections of the RCP shall be sealed with a gasket conforming to ASTM C 443 or approved equal**.**

3.4.7 Concrete Encasement

a) At locations where the installation is by open cut and a casing pipe is required, but cannot be installed due to elbows or other obstructions, concrete encasement may be used when approved by CSXT.

b) The concrete encasement must provide a minimum cover of 6 inches of concrete around the pipe. A 6 x 6 - W 2.9 x W 2.9 welded wire fabric shall be placed in the concrete on all sides.

3.5 Carrier Pipe

3.5.1 General Requirements

a) The pipe shall be laid with sufficient slack so that it is not in tension.

b) Steel pipe shall not be used to convey sewage, storm water, or other liquids that could cause corrosion.

c) Carrier pipes located on CSXT's right-of-way or under tracks which CSXT operates, shall be manufactured in accordance with the following specifications:

i) Steel Pipe - The ASTM or API specification and grade for the pipe is to be shown on the Application Form. The specified minimum yield strength is to be at least 35,000 psi. For flammable substances, see the Design Requirements-Carrier Pipe Section of this document for additional requirements.

ii) Ductile Iron Pipe - ANSI A21.51/AWWA C151

iii) Corrugated Metal Pipe - AREMA Chapter 1, Part 4

iv) Reinforced Concrete Pipe - ASTM C 76

v) Vitrified Clay Pipe - ASTM C 700

vi) Prestressed Concrete Cylinder Pipe - AWWA C301

vii) Reinforced Concrete Cylinder Pipe - AWWA C300

viii) Others - As approved by CSXT.

d) Carrier pipes installed within a casing pipe shall be designed for the internal pressure to which it will be subjected.

e) Gravity flow carrier pipes, installed without a casing pipe, shall meet the requirements, of the particular pipe material, as given in Design Requirements-Casing Pipe Section of this specification.

f) Design computations, stamped by a Professional Engineer, must be submitted for all uncased pressure pipelines installed on CSXT's right-of- way. The pipe must be designed for the internal and external loads (see the Design Requirements Section of this document) to which it may be subjected. The design assumptions given in Design Requirements Section shall apply.

3.5.2 Pipelines Carrying Flammable Substances

a) Products shall be of steel and conform to the requirements of the current ASME B 31.4 Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols, and other applicable ASME codes, except that the maximum allowable stresses for design of steel pipe shall not exceed the following percentages of the specified minimum yield strength (multiplied by the longitudinal joint factor) of the pipe as defined in the above codes:

b) The following percentages apply to hoop stress in steel pipe within a casing under railroad tracks, across railroad right-of-way and longitudinally on railroad right-of-way:

i) Seventy-two percent on oil pipelines.

ii) Fifty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.

iii) Sixty percent for installations on gas pipelines.

c) The following percentages apply to hoop stress in steel pipe laid longitudinally on railroad right-of-way without a casing:

i) Sixty percent for oil pipelines.

ii) Forty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.

d) Computations, based on the above requirements and stamped by a Professional Engineer shall be submitted with the application for occupancy.

3.5.3 Uncased Pipelines Carrying Gas

a) Pipelines carrying flammable and nonflammable gas products shall be steel and shall conform to the requirements of the current ASME B 31.8 Gas Transmission and Distribution Piping Systems, and other applicable ANSI codes.

b) The minimum wall thickness for uncased carrier pipe shall be in accordance with the values provided in AREMA, Chapter 1, Part 5, Section 5.2.

c) A durable coating, which will resist abrasion (fusion bonded epoxy or other suitable material), shall be used to protect the uncased pipeline when the boring method of installation is used.

d) If CSXT determines there is the potential for damage to the uncased pipeline (foreign material in the subgrade, third party damage, etc.), special protection of the pipeline will be required. Special protection may include the use of concrete jacketed carrier pipe, a protection slab over the pipeline, increased depth of bury or other means.

3.6 Casing Pipe End Seals

a) Casings for carrier pipes of flammable and hazardous substances shall be suitably sealed to the outside of the carrier pipe. Details of the end seals shall be shown on the plans.

b) Casings for carrier pipes of non-flammable substances shall have both ends of the casing blocked up in such a way as to prevent the entrance of foreign material, but allowing leakage to pass in the event of a carrier break.

c) The ends of a casing pipe may be left open when the ends are at or above ground surface and above high water level, provided drainage is afforded in such a manner that leakage will be conducted away from railroad tracks and structures.

3.7 Vents

a) Sealed casings for flammable substances shall be properly vented. Vent pipes shall be of sufficient diameter, but in no case less than two inches in diameter, and shall be attached near each end of the casing and project through the ground surface at right-of-way lines or not less than 45 feet, measured at right angles from centerline of nearest track.

b) Vent pipes shall extend not less than 4 feet above the ground surface. Top of vent pipe shall have a down-turned elbow, properly screened, or a relief valve. Vents in locations subject to high water shall be extended above the maximum elevation of high water and shall be supported and protected in a manner approved by CSXT.

c) Vent pipes shall be at least 4 feet, vertically, from aerial electric wires or greater if required by National Electrical Safety Code (ANSI C2).

d) When the pipeline is in a public highway, street-type vents shall be installed.

3.8 Signs

a) All pipelines (except those in streets where it would not be practical to do so) shall be prominently marked at right-of-way lines (on both sides of track for crossings) by durable, weatherproof signs located over the centerline of the pipe. Signs shall show the following:

i) Name and address of owner

ii) Contents of pipe

iii) Pressure in pipe

iv) Pipe depth below grade at point of a sign

v) Emergency telephone number in event of pipe rupture

b) For pipelines running longitudinally on CSXT property, signs shall be placed over the pipe (or offset and appropriately marked) at all changes in direction of the pipeline. Such signs should also be located so that when standing at one sign the next adjacent marker in either direction is visible. In no event shall they be placed more than 500 feet apart unless otherwise specified by CSXT.

c) The Owner must maintain all signs on CSXT's right-of-way as long as the occupational agreement is in effect.

3.9 Warning Tape

a) All pressure pipelines installed by the trench method, without a casing, shall have a warning tape placed directly above the pipeline, 2 feet below the ground surface.

3.10 Shut-off Valves

a) Accessible emergency shut-off valves shall be installed within 2,000 feet on both sides of the pipeline crossing or longitudinal occupancy.

b) Steel pipelines conveying Natural Gas may exceed the 2,000 foot spacing requirement provided the following conditions are met:

i) The pipeline is equipped with Automatic or Remotely Controlled shut-off valves.

ii) Location of valves shall be in compliance with all State and Federal Regulations.

iii) The pipeline is monitored on a continuous, 24 hour - 365 day basis from a central control center.

iv) The pipeline operator shall provide CSXT with current emergency contact information

3.11 Cathodic Protection

a) Cathodic protection shall be applied to all pipelines carrying flammable substances on CSXT's right-of-way.

b) For crossings and at other locations where the pipeline must be placed within a casing, the casing is to have cathodic protection or the wall thickness is to be increased to the requirements of the Design Requirements Section Table 2.

c) Uncased gas carrier pipes must be coated and cathodically protected to industry standards and test sites, for monitoring the pipeline, provided within 50 feet of the crossing.

d) Where casing and/or carrier pipes are cathodically protected by other than anodes, CSXT shall be notified and a suitable test made to ensure that other railroad structures and facilities are adequately protected from the cathodic current in accordance with the recommendation of current Reports of Correlating Committee on Cathodic Protection, published by the National Association of Corrosion Engineers.

e) Where sacrificial anodes are used, the locations shall be marked with durable signs.

3.12 Manholes

a) Manholes shall not be located on CSXT property where possible. At locations where this is not practical, including longitudinal occupancies, manholes shall be precast concrete sections conforming to ASTM Designation C 478, "Specification for Precast Concrete Manhole Sections."

b) The top of manholes located on CSXT property shall be flush with top of ground.

c) The distance from centerline of adjacent track to centerline of proposed manhole shall be shown on the plans.

3.13 Box Culverts

a) Reinforced concrete box culverts shall be designed in conformance with CSX Standards and AREMA Guidelines.

3.14 Drainage

a) Occupancies shall be designed, and their construction shall be accomplished, so that adequate and uninterrupted drainage of CSXT's right-of-way is maintained.

b) All pipes, ditches, and other structures carrying surface drainage on CSXT property and/or under CSXT track(s) shall be designed to carry the run-off from a one hundred (100) year storm. Plans submitted to CSXT for approval shall be prepared by a Professional Engineer and should indicate design, suitable topographic plan, and outline of total drainage area.

c) If the drainage is to discharge into an existing drainage channel on CSXT's right- of-way and/or through a drainage structure under CSXT's track(s), the computations must include the hydraulic analysis of any existing ditch and/or structure.

d) When calculating the capacity of existing or proposed drainage structures, under CSXT's track(s), the headwater calculation at the structure shall not be greater than one (1) pipe diameter.

e) Pipe(s) used to carry surface drainage on CSXT's right-of-way shall have a minimum diameter of 24 inches.

f) Detention ponds must not be placed on any part of CSXT's right-of-way. Also, the railroad embankment must not be used as any part of a detention pond structure.

g) Formal approval of the proposed design, by the appropriate governmental agency having jurisdiction, shall be submitted with the drainage computations.

3.15 Pipelines on Bridges

a) Pipelines **cannot** be installed on any bridge carrying CSXT tracks.

b) Overhead pipe bridges will only be considered over CSXT right-of-way when underground installation of the pipeline is not possible. The Applicant must show that no practicable alternative is available and overhead pipe bridges will be permitted provided the conditions in Section 3.17 are met.

c) Pipelines carrying flammable substances or non-flammable substances, which by their nature might cause damage if escaping on or near railroad facilities or personnel, shall not be installed on bridges over CSXT tracks. In special cases when it can be demonstrated to CSXT's satisfaction that such an installation is necessary and that no practicable alternative is available, CSXT may permit the installation and only by special design approved by the Chief Engineer, Design and Construction.

d) When permitted, pipelines on bridges over CSXT tracks shall be so located as to minimize the possibility of damage from vehicles, railroad equipment, vandalism, and other external causes. They shall be encased in a casing pipe as directed by CSXT.

3.16 Cured-in-Place Pipes (CIPP)

a) CIPP installations shall be designed in accordance with ASTM F1216 Appendix X1.

b) CIPP to be installed in a casing pipe or an uncased carrier pipe shall be designed for a Fully Deteriorated condition. A Partially Deteriorated design condition will only be accepted for CIPP of carrier pipe that is already within a casing pipe. All CIPP calculations must be signed and sealed by a licensed Professional Engineer.

c) CIPP designs will not be accepted when the wall thickness of the CIPP liner is greater than 2 inches.

3.17 Pipe Bridges / Conveyors

a) The following are minimum requirements for the construction of pipe bridges:

i) The vertical clearance, distance from top of rail to closest component of structure, is shown and is a minimum of 23 feet, measured at a point 6 feet horizontally from centerline track.

ii) The support bents for the overhead structure are located off CSXT's right-of-way or a minimum clear distance of 20 feet from centerline track, whichever distance is greater.

iii) Support bents within 25 feet of centerline track have pier protection in accordance with AREMA, Chapter 8 Section 2.1.5.

iv) Complete structural plans and design computations for the structure and foundations, sealed by a licensed Professional Engineer, are submitted with the application.

v) A fence (topped with barbed wire) or other measures are provided which will prevent access to the bridge by unauthorized personnel or vandals.

b) The following are minimum requirements for the construction of conveyors:

i) The vertical clearance, distance from top of rail to closest component of structure, is shown and is a minimum of 23 feet, measured at a point 6 feet horizontally from centerline track.

ii) The support bents for the overhead structure are located off CSXT's right-of-way or a minimum clear distance of 20 feet from centerline track, whichever distance is greater.

iii) Support bents within 25 feet of centerline track have pier protection in accordance with AREMA, Chapter 8 Section 2.1.5.

iv) Complete structural plans and design computations for the structure and foundations, sealed by a licensed Professional Engineer, are submitted with the application.

v) A fence (topped with barbed wire) or other measures are provided which will prevent access to the bridge by unauthorized personnel or vandals.

vi) Plan revisions, if applicable, are to include all proposed utilities attached to the proposed conveyor that do not service the conveyor.

END OF PART 3

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PART 4 – CONSTRUCTION REQUIREMENTS

4.1 Method of Installation

4.1.1 General Requirements

a) Bored, jacked, or tunneled installations shall have a bore hole essentially the same as the outside diameter of the pipe plus the thickness of the protective coating.

b) The use of water or other liquids to facilitate casing emplacement and spoil removal is prohibited.

c) If, during installation, an obstruction is encountered which prevents installation of the pipe in accordance with this specification, notify CSXT immediately, abandon the pipe in place, and immediately fill with grout. A new installation procedure and revised plans must be submitted to, and approved by, CSXT before work can resume.

4.1.2 Bore and Jack (Steel Pipe)

a) This method consists of pushing the pipe into the earth with a boring auger rotating within the pipe to remove the spoil.

b) The boring operation shall be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.

c) The front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger from leading the pipe so that no unsupported excavation is ahead of the pipe.

d) The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered.

e) The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than ½ inch. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating) by more than approximately 1 inch grouting (see the Construction Requirements-Grouting Section) or other methods approved by CSXT, shall be employed to fill such voids.

f) The face of the cutting head shall be arranged to provide a reasonable obstruction to the free flow of soft or poor material.

g) Plans and description of the arrangement to be used shall be submitted to CSXT for approval and no work shall proceed until such approval is obtained.

h) Any method that employs simultaneous boring and jacking for pipes over 8 inches in diameter that does not have above approved arrangement **will not be permitted**. For pipe 8 inches and less in diameter, auguring or boring without this arrangement may be considered for use only as approved by CSXT.

4.1.3 Jacking (RCP and Steel Pipe)

a) This method consists of pushing sections of pipe into position with jacks placed against a backstop and excavation performed by hand from within the jacking shield at the head of the pipe. Ordinarily 36 inch pipe is the least size that should be used, since it is not practical to work within smaller diameter pipes.

b) Jacking shall be in accordance with the current AREMA Guidelines, Chapter 1, Section 4.13, "Earth Boring and Jacking Culvert Pipe Through Fills." This operation shall be conducted without hand mining ahead of the pipe and without the use of any type of boring, auguring, or drilling equipment.

c) Bracing and backstops shall be so designed and jacks of sufficient rating used so that the jacking can be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.

d) When jacking reinforced concrete pipe, a jacking shield shall be fabricated as a special section of reinforced concrete pipe with a steel cutting edge, hood, breasting attachments, etc., cast into the pipe. The wall thickness and reinforcing shall be designed for the jacking stresses.

e) When jacking reinforced concrete pipe tapped for no smaller than 1½- inch pipe, grout holes shall be cast into the pipe at manufacture. Three grout holes equally spaced around the circumference and 4 feet longitudinally shall be provided for greater than 54 inches and smaller. Four grout holes equally spaced around the circumference and 4 feet longitudinally shall be provided for RCP 60 inches and larger.

f) Immediately upon completion of jacking operations, the installation shall be pressure grouted as per Construction Requirements-Grouting Section of this specification.

4.1.4 Tunneling (Tunnel Liner Plate)

a) This method consists of placing rings of liner plate within the tail section of a tunneling shield or tunneling machine. A tunneling shield shall be used for all liner plate installations unless otherwise approved by CSXT.

b) The shield shall be of steel construction, designed to support a railroad track loading as specified in the Design Requirements-Casing Pipe of this specification, in addition to the other loadings imposed. The advancing face shall be provided with a hood, extending no less than 20 inches beyond the face and extending around no less than the upper 240 degrees of the total circumference. It shall be of sufficient length to permit the installation of at least one complete ring of liner plates within the shield before it is advanced for the installation of the next ring of liner plates. The shield shall conform to and not exceed the outside dimensions of the liner plate tunnel being placed by more than 1 inch at any point on the periphery unless otherwise approved by CSXT.

c) The shield shall be adequately braced and provided with necessary appurtenances for completely bulkheading the face with horizontal breastboards, and arranged so that the excavation can be benched as may be necessary. Excavation shall not be advanced beyond the edge of the hood, except in rock.

d) Manufacturer's shop detail plans and manufacturer's computations showing the ability of the tunnel liner plates to resist the jacking stresses shall be submitted to CSXT for approval.

e) Unless otherwise approved by CSXT, the tunneling shall be conducted continuously, on a 24-hour basis, until the tunnel liner extends at least beyond the theoretical railroad embankment line.

f) At any interruption of the tunneling operation, the heading shall be completely bulkheaded.

g) The liner plates shall have tapped grout holes for no smaller than 1½- inch pipe, spaced at approximately 3 feet around the circumference of the tunnel liner and 4 feet longitudinally.

h) Grouting behind the liner plates shall be in accordance with the Construction Requirements-Grouting Section of this specification.

4.1.5 Horizontal Directional Drilling

a) **Installations by this method are considered a variance to CSXT Pipeline Occupancy Specifications,** but special consideration will be given where the depth of cover is substantial, 15 feet or greater, or the bore is in rock. Factors considered will be track usage, pipe size, contents of pipeline, soil conditions, boring equipment and procedures, etc. Reference the CSXT Interim Guidelines for Horizontal Directional Drilling (HDD) for additional information and instructions.

4.1.6 Jack Conduit

a) Installations by this method are generally not acceptable, but may be considered under special circumstances. This method consists of using hydraulic jacking equipment to push a solid steel rod under the railroad from a launching pit to a receiving pit. At the receiving pit, a cone shaped “expander” is attached to the end of the rod and the conduit (casing pipe) is attached to the expander. The rod, expander, and conduit are then pulled back from the launching pit until the full length of the conduit is in place.

b) This method may be used to place steel conduit (casing pipe), up to and including 6 inches in diameter, under the railroad.

c) The project specifications must require the contractor to submit, to CSXT for approval, a complete construction procedure of the proposed boring operation. Included with the submission shall be the manufacturer’s catalog information describing the type of equipment to be used.

4.1.7 Open Cut – Not a readily accepted practice

a) The Owner must request open cut approval when making application for occupancy. All procedures will be in compliance with AREMA Chapter 1 Section 5.1.5.1(b).

b) Installations beneath the track by open trench methods will be permitted only with the approval of the Chief Engineer, Design and Construction.

c) Installations by open cut will not be permitted under mainline tracks, tracks carrying heavy tonnage or tracks carrying passenger trains. Also, open cut shall not be used within the limits of a highway/railroad grade crossing or its approaches, 25 feet either side of traveled way, where possible.

d) Rigid pipe (RCP, VCP, and PCCP) must be placed in a Class B bedding or better.

e) At locations where open cut is permitted, the trench is to be backfilled with crushed stone with a top size of the aggregate to be a maximum of 2 inches and to have no more than 5% passing the number 200 sieve. The gradation of the material is to be such that a dense stable mass is produced.

f) The backfill material shall be placed in loose 6 inch lifts and compacted to at least 95% of its maximum density with a moisture content that is no more than 1% greater than or 2% less than the optimum moisture as determined in accordance with current ASTM Designation D - 1557 (Modified Proctor). When the backfill material is within 3 feet of the subgrade elevation (the interface of the ballast and the subsoil) a compaction of at least 98% will be required. Compaction test results confirming compliance must be provided to CSXT's Regional Engineering Office by the Owner.

g) All backfilled pipes laid either perpendicular or parallel to the tracks must be designed so that the backfill material will be positively drained. This may require the placement of lateral drains on pipes laid longitudinally to the track and the installation of stub perforated pipes at the edge of the slopes.

h) Unless otherwise agreed upon, all work involving rail, ties, and other track material will be performed by railroad employees at the sole expense of the Owner, subject to advance payments by the owner.

4.2 Grouting

a) For jacked and tunneled installations a uniform mixture of 1:6 (cement: sand) cement grout shall be placed under pressure through the grout holes to fill any voids, which exist between the pipe or liner plate and the undisturbed earth.

b) Grouting shall start at the lowest hole in each grout panel and proceed upwards simultaneously on both sides of the pipe.

c) A threaded plug shall be installed in each grout hole as the grouting is completed at that hole.

d) When grouting tunnel liner plates, grouting shall be kept as close to the heading as possible, using grout stops behind the liner plates if necessary. Grouting shall proceed as directed by CSXT, but in no event shall more than 6 lineal feet of tunnel be progressed beyond the grouting.

4.3 Soil Stabilization

a) Pressure grouting of the soils or freezing of the soils before jacking, boring, or tunneling may be required at the direction of CSXT Chief Engineer, Design and Construction to stabilize the soils, control water, prevent loss of material, and prevent settlement or displacement of embankment. Grout shall be cement, chemical, or other special injection material selected to accomplish the necessary stabilization.

b) The materials to be used and the method of injection shall be prepared by a Licensed Professional Soils Engineer, or by an experienced and qualified company specializing in this work and submitted for approval to CSXT before the start of work. Proof of experience and competency shall accompany the submission.

4.4 Dewatering

a) When water is known or expected to be encountered all plans and specification must be submitted to the Chief Engineer, Design and Construction for approval before the process begins. Pumps of sufficient capacity to handle the flow shall be maintained at the site, provided the contractor has received approval from CSXT to operate them. Pumps in operation shall be constantly attended on a 24-hour basis until, in the sole judgment of CSXT, the operation can be safely halted. When dewatering, a process for monitoring for any settlement of track or structures must be in place.

4.5 Safety Requirements

a) All operations shall be conducted so as not to interfere with, interrupt, or endanger the operation of trains nor damage, destroy, or endanger the integrity of railroad facilities. All work on or near CSXT property shall be conducted in accordance with CSXT safety rules and regulations. Specifically all licensee's employees and agents, while on CSXT property, shall be required to wear an orange hard hart, safety glasses with side shields, 6" lace up boots with a distinct heel, shirts with sleeves, and long pants; additional personal protective equipment may be required for certain operations including abrasive cutting, use of torches, use of chainsaws, etc. The contractor and its employees shall comply with the CSXT safety rules at all times while occupying CSXT's property. Operations will be subject to CSXT inspection at any and all times.

b) All cranes, lifts, or other equipment that will be operated in the vicinity of the railroad's electrification and power transmission facilities shall be electrically grounded as directed by CSXT. Use of a crane or other lifting equipment is subject to requirements as stated in the CSXT Public Projects manual.

c) Whenever equipment or personnel are working closer than 25 feet from the centerline of an adjacent track, that track shall be considered as being obstructed. Insofar as possible, all operations shall be conducted no less than this distance. All operations shall be conducted only with the permission of, and as directed by, a duly qualified railroad employee present at the site of the work. All costs related to Railroad protection will be passed on to the applicant.

d) Crossing of tracks at grade by equipment and personnel is prohibited except by prior arrangement with and as directed by, CSXT.

4.6 Blasting

a) Blasting will not be permitted under or on CSXT's right-of-way.

4.7 Temporary Track Supports

a) When the jacking, boring or tunneling method of installation is used, and depending upon the size and location of the crossing, temporary track supports shall be installed at the direction of CSXT.

b) The Owner's contractor shall supply the track supports with installation and removal performed by CSXT employees.

c) The Owner shall reimburse CSXT for all costs associated with the installation and removal of the track supports.

4.8 Protection of Drainage Facilities

a) If, in the course of construction, it may be necessary to block a ditch, pipe, or other drainage facility, temporary pipes, ditches, or other drainage facilities shall be installed to maintain adequate drainage, as approved by CSXT. Upon completion of the work, the temporary facilities shall be removed and the permanent facilities restored.

b) Soil erosion methods shall be used to protect railroad ditches and other drainage facilities during construction on and adjacent to CSXT's right-of-way.

4.9 Support of Excavation Adjacent to Track

4.9.1 Launching and Receiving Pits

a) The location and dimensions of all pits or excavations shall be shown on the plans. The distance from centerline of adjacent track to face of pit or excavation shall be clearly labeled. Also, the elevation of the bottom of the pit or excavation must be shown on the profile.

b) The face of all pits shall be located a minimum of 25 feet from centerline of adjacent track, **measured at right angles to track,** unless otherwise approved by CSXT.

c) If the bottom of the pit excavation intersects the theoretical railroad embankment line, interlocking steel sheet piling, driven prior to excavation, must be used to protect the track stability. The use of trench boxes or similar devices is not acceptable in this area

d) Design plans and computations for the pits, sealed by a Licensed Professional Engineer, must be submitted by the Owner at time of application or by the contractor prior to start of construction. If the pit design is to be submitted by the contractor, the project specifications must require the contractor to obtain approval from CSXT's Chief Engineer, Design and Construction prior to beginning any work on or which may affect CSXT property.

e) The sheeting shall be designed to support all lateral forces caused by the earth, railroad and other surcharge loads. See Design Requirements- Design Loads for railroad loading.

f) After construction and backfilling, all sheet piling within 10 feet of centerline track must be cut off 3' – 0" below final grade and left in place.

g) All excavated areas are to be illuminated (flashing warning lights not permitted), fenced, and otherwise protected as directed by CSXT.

4.9.2 Parallel Trenching and Other Excavation

a) When excavation for a pipeline or other structure will be within the theoretical railroad embankment line of an adjacent track, interlocking steel sheet piling will be required to protect the track.

b) The design and construction requirements for this construction shall be in accordance with the requirements of the Construction Requirements – Support of Excavation Adjacent to Track section of this document.

4.9.3 Inspections and Testing

a) For pipelines carrying flammable or hazardous materials, ANSI Codes, current at time of constructing the pipeline, shall govern the inspection and testing of the facility on CSXT property, except as follows:

b) One hundred percent of all field welds shall be inspected by radiographic examinations, and such field welds shall be inspected for 100 percent of the circumference.

c) The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements.

4.9.4 Reimbursement of CSXT Costs

a) All CSXT costs associated with the pipe installation (inspection, flagging, track work, protection of signal cables, etc.) shall be reimbursed to CSXT by the Owner of the facility. Estimates for Railroad costs will be provided to the Owner prior to the commencement of any work on Railroad right-of-way. **At CSX's option, CSX may require the funds to be paid in advance of any work being done.**

END OF PART 4

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PART 5 – PUBLICATION STANDARDS SOURCES

5.1 Publication Standards Sources

Table 5 – Publication Standards Sources

Organization	Contact Information
ANSI	American National Standards Institute 1899 L Street, NW, 11th Floor Washington, DC 20036 Tel: 202-293-8020
AREMA	The American Railway Engineering and Maintenance-of-Way Association 4501 Forbes Blvd., Suite 130 Lanham, MD 20706 Tel: 301-459-3200
ASTM	American Society for Testing and Materials PO Box C700 West Conshohocken, PA 19428-2959 Tel: 877-909-2786
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 Tel: 1-800-926-7337
NACE	Then National Association of Corrosion Engineers Houston, TX USA 1-800-797-6223

a) NOTE: If other than AREMA, ASTM, or AWWA specifications are referred to for design, materials, or workmanship on the plans and specifications for the work, then copies of the applicable sections of such other specifications referred to shall accompany the plans and specification for the work.

END OF PART 5

INTERIM GUIDELINES FOR HORIZONTAL DIRECTIONAL DRILLLING (HDD) UNDER THE PROPERTY AND TRACK(S) OF CSX TRANSPORTATION, INC.

Preface: In order to facilitate use of the latest technology available for construction of pipelines that traverse the property and tracks(s) of CSX Transportation, Inc., the following interim guidelines to govern the approval and execution of pipeline and wire line occupancies utilizing Horizontal Directional Drilling (HDD) have been adopted.

Scope: The guidelines detailed in this document do not nullify or supersede existing policies, standards, or practice currently approved by CSXT.

1. For pipelines conveying gas or liquid substances, steel pipe only may be installed under track(s) and/or CSXT right-of-way utilizing HDD.

2. For wire line installations, including fiber optic cable, High Density Polyethylene (HDPE) pipe with a dimension ratio (DR) of 11 or better may be installed as the outermost pipe. Mechanical protection is required for electrical installations that exceed 750 volts.

3. **Bundling is prohibited.** All inner ducts must have an outer casing pipe.

4. Any pipe/conduit, regardless of commodity, with an outside diameter exceeding eight (8) inches shall be installed at a minimum depth of twenty-five (25) feet from base of rail. Any pipe that contains a liquid commodity (flammable or non-flammable) shall be installed at a minimum depth of 25’ from base of rail. For natural gas, fiber optics, and electrical installations within a pipe/conduit with an outside diameter of eight (8) inches or less shall be installed at minimum depth of 15 feet from base of rail.

5. Applicant engineering drawing submittal shall include actual planned depth of pipe under each railroad track. The plan and profile views must show the entire bore, including the sending and receiving pits, regardless of the railroad right-of-way limits.

6. Applicant must provide pipe specifications for casing and carrier pipes. Pipe must satisfy all applicable governmental and industry regulations.

7. Applicant must provide qualifications of drilling contractor, including specific instances of previous successful experience in drilling under railroad and other sensitive surface facilities.

8. Prior to commencement of drilling:

   a) The contractor must submit a Boring Plan, using the CSXT Horizontal Directional Drilling (HDD) Bore Plan Template found on the CSXT’s permitting website at www.csx.com. Bore Plan template found on the CSX Website.

   b) The contractor must provide a detailed Fraction Mitigation (frac-out) Plan, including method of monitoring quantity and capturing the return of drilling fluids with particular attention to variation from proposed plan (i.e. volumes, pressure, or consistency). The CSX frac-out plan, can be found on the CSXT’s permitting website at www.csx.com, and may be adopted.

   c) Establish a Survey Grid Line and provide a program of monitoring and documenting the actual location of the bore hole during drilling operations.

d) Both the bore plan template and frac-out plan may be submitted at the time of application submittal via the online application process or to the CSXT Construction Monitor prior to construction.

9. A construction monitor is required to monitor the ground and track for movement during the drilling reaming, and pullback processes. The construction monitor will be provided by CSX at the applicant's sole cost and expense. The installation process and all train movement must be immediately stopped if movement is detected. The damaged area must be immediately repaired. The installation process must be reviewed and modified as required before the installation may proceed. Applicant must pay Railroad's expenses for review and inspection.

10. Upon completion of the HDD installation work, the contractor shall provide an accurate as-built drawing of the installed HDD segment. As-built drawings will include both plan and profile views. The latitude and longitude coordinates of the entry, exit, and turn points shall be provided on the as-built drawing(s).

11. A subsurface exploration is required for bores twenty (20) inches or larger.

12. All back reaming must utilize trailing rods.

Office of Corridor Services

Original: March 4, 2007

Revision: Items Nos. 2 and 4 were revised by CSXT, Project Engineering, Corridor Occupancy Services, on
May 4, 2009.

Revision: Items Nos. 2, 3, 7(a), and 10 were revised/added by CSXT, Project Engineering, Corridor Occupancy Services, on July 1, 2015.

Revision: Item No. 11 added by CSXT, Project Engineering, Corridor Occupancy Services, on February 23, 2016.

Revision: Items Nos. 2, 5, 8(a), 8(b), 8(d), 9, and 10 were revised by CSXT, Project Engineering, Corridor Services on April 3, 2018.

Siting Board 2-38:

Detail any plans to make the public more aware of the project.

Response: The Kentucky Municipal Energy Agency (KYMEA) is committed to ensuring the public is well-informed about its new initiative, the Energy Center I project. As part of this commitment, KYMEA has developed a comprehensive plan to raise public awareness and understanding of the project's goals, benefits, and implementation timeline. Attachment 2-38 outlines the various strategies and approaches that KYMEA will employ to achieve effective communication with the public.

Witness: Doug Buresh

KYMEA's Plan to Raise Public Awareness for the Energy Center I Project

Strategies and Approaches for Effective Communication

The Kentucky Municipal Energy Agency (KYMEA) is committed to ensuring the public is well-informed about its new initiative, the Energy Center I project. As part of this commitment, KYMEA has developed a comprehensive plan to raise public awareness and understanding of the project's goals, benefits, and implementation timeline. This document outlines the various strategies and approaches that KYMEA will employ to achieve effective communication with the public.

Press Releases

KYMEA will issue press releases to provide updates on any significant activities affecting the general public regarding the Energy Center I project. These press releases will be distributed to stakeholders and local newspapers to ensure community coverage.

Public Meetings and Information Sessions

KYMEA hosted a public meeting and information session on July 1, 2024 to foster direct engagement with the community. The event served as a forum for KYMEA representatives to present detailed information about the Energy Center I project, address any questions or concerns, and gather feedback from attendees.

Website and Social Media Outreach

KYMEA is in the process of developing a dedicated section on its website for the Energy Center I project. This section will feature comprehensive information about the project, including its objectives, timeline, and frequently asked questions. Regular updates will be posted to keep the public informed of any new developments. In addition to the website, KYMEA will leverage its LinkedIn platform to share news, updates, and engage with the community.

Newsletters and Email Campaigns

KYMEA will distribute newsletters and emails to its subscribers, stakeholders, and the City of Madisonville. These communications will include detailed updates on the project's progress, key milestones, and upcoming construction events and activities. By providing regular and consistent information, KYMEA aims to keep the public well-informed and engaged throughout the project's lifecycle.

Signage at the Plant Site

As part of KYMEA's commitment to raising public awareness for the Energy Center I project, comprehensive signage will be installed at the plant site. Informational signs will be installed providing the plant name, contact information, and the Energy Center I webpage, where the public can access updates and details about the project, including its objectives, timeline, and key milestones. The signage will be designed to be easily visible and understandable, using clear

language and symbols to convey important information effectively. This initiative is part of KYMEA's broader strategy to ensure transparency and maintain an open dialogue with the community throughout the project's development.

Feedback Mechanisms

KYMEA is committed to maintaining an open dialogue with the public. To facilitate this, KYMEA will establish feedback mechanisms that allow community members to share their thoughts, concerns, and suggestions. Online feedback forms will be provided on KYMEA's Energy Center I project web page and contact information will be published on plant site signage.

Conclusion

KYMEA is dedicated to making the public aware of the Energy Center I project through a multi-faceted and inclusive communication strategy. By leveraging various channels and approaches, KYMEA aims to reach and engage with the community and ensure that the public is well-informed and supportive of the project. Through transparency, collaboration, and consistent communication, KYMEA will demonstrate its commitment to the community and the successful implementation of the Energy Center I project.

Siting Board 2-39:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Item 93. Explain the preliminary plan for the types, anticipated locations, and height at maturity of vegetation used in screening around the substation/switching station fencing.

Response: Any vegetative screening of the substation (switching station) is subject to its final layout and overhead line design. Specific location of vegetation cannot be determined until the final configuration is set, which will be after completion of the interconnection study in May 2025. In the interim, KYMEA will be initiating a Facilities Study (FS) Agreement with LGE/KU to study electric substation (switching station) configuration alternatives including vegetative screening.

Witness: Doug Buresh

Siting Board 2-40:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Items 96 and 98. Explain whether the economic impacts of construction included in Attachment H of the application should be considered conservative or low-end estimates of Project benefits to the region, based on the understanding that construction employment and labor income associated with the construction of the substation/ switching station are not included in that analysis.

Response: Yes, the $130 million investment only includes KYMEA's costs. Accordingly, the economic impacts of construction included in Attachment H of the application should be considered conservative or low-end estimates, based on the understanding that construction employment and labor income associated with the construction of the substation/ switching station are not included in that analysis.

Witness: Paul Coomes

Siting Board 2-41:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Items 96 and 99. State whether the economic impacts of operations included in Attachment H of the application should be considered conservative or low-end estimates of Project benefits to the region, based on the understanding that employment and labor income associated with the operation of the substation/ switching station are not included in that analysis.

Response: The operations impact only includes KYMEA's costs. Accordingly, the economic impacts of operations included in Attachment H of the application should be considered marginally conservative or low-end estimates of Project benefits to the region, based on the understanding that employment and labor income associated with the operation of the substation/ switching station are not included in that analysis

Witness: Paul Coomes

Siting Board 2-42:

Refer to Kentucky Municipal Energy's response to Staff's First Request, Item 101. Explain whether "local" investment refers to expenditures made within the Commonwealth of Kentucky as a whole.

Response: The following statement, "The project represents a $130M local investment, reflecting our dedication to the economic vitality of the region" was intended to represent the anticipated construction costs for the plant being built in Madisonville, Kentucky and was not intended to reflect how much would be spent on Kentucky labor or materials.

Witness: Doug Buresh

Siting Board 2-43:

Refer to the Application, Attachment H, Economic Impact Report, at 7. Explain whether the estimate of direct economic output during construction ($34.6M) is the portion of total Project costs ($130M) that would occur in Hopkins County, Kentucky.

Response: Yes, the $34.6 million is an estimate of the value of sales (output) for enterprises in Hopkins County. The estimate comes from the IMPLAN model, based on the construction employment projection. The $130 million figure is an accounting-based estimate by the developer of the total investment. These dollars do not necessarily get spent in Hopkins County, as so much of the materials and services for the plant must be purchased from companies based outside of Hopkins County.

Witness: Paul Coomes

Siting Board 2-44:

Refer to the SAR, Appendix K, Cumulative Environmental Assessment. Describe the best management practices for mitigating dust that contractors will be required to implement during Project construction.

Response: After site clearing and topsoil removal, the contractor is expecting to raise site grades for foundation installation. During this time, plant roads and parking/lay down areas will be built up with gravel. Disturbed areas, once foundations are installed, will be topped and finished with gravel base. The gravel will greatly reduce dust created by construction. The construction team will also utilize sprinkling/irrigation for dust control where required to minimize dust from the construction site. Finally, if required by site activities or weather, spray-on chemical soil treatments may be used to stabilize the soil.

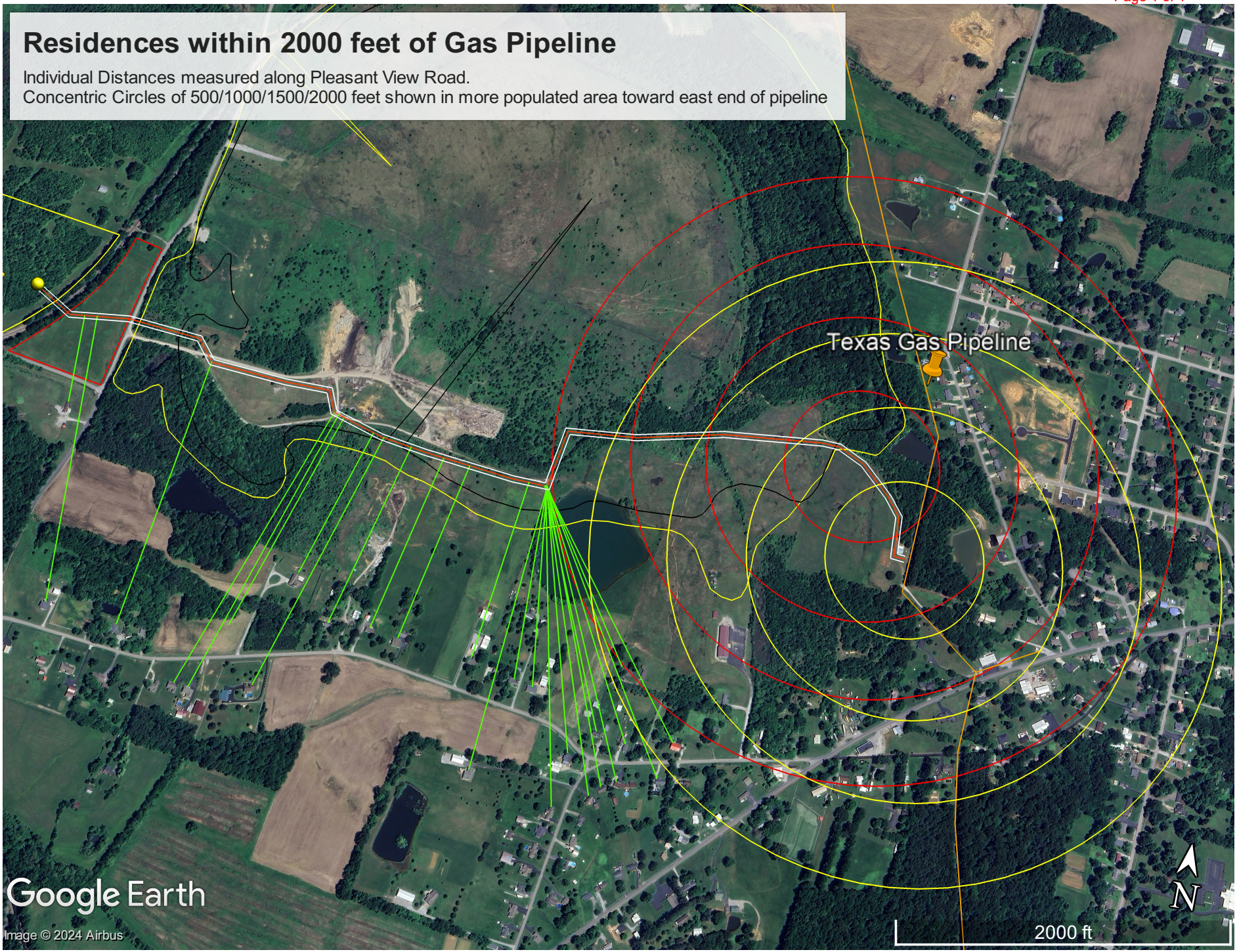
Witness: Doug Buresh

Siting Board 2-45:

Identify all residences within 2,000 feet of the revised natural gas line route. Provide a table stating the distance between each residence and the gas line, and a corresponding map of the residences.

Response: Individual distances were measured to residences along Pleasant View Road. In the more populated area toward east end of pipeline, concentric circles of 500/1000/1500/2000 feet were utilized to determine distance ranges. A map is provided as Attachment 2-45a and a table of distances is provided as Attachment 2-45b.

Witness: Doug Buresh


Residences within 2000 feet of Gas Pipeline
Individual Distances measured along Pleasant View Road.
Concentric Circles of 500/1000/1500/2000 feet shown in more populated area toward east end of pipeline
Texas Gas Pipeline
Google Earth
Image © 2024 Airbus
N
2000 ft

Residences within 2000 feet of TGT tap point

Distance	ParcelID	ParcelClass	PropertyAddress	OwnerAddress1	OwnerAddress2	OwnerAddress3
590	MAP-66-23-1	Farm	BEAN CEMETERY RD 02529	HENDRICKS DONNA & SHARON HENDRICKS	2529 BEAN CEMETERY RD	MADISONVILLE,KY 42431
1500-2000	M-12-5-2A	Residential	BEAGLE PARK LOOP 00101	TURNER LAURIE BERRY	101 BEAGLE PARK LOOP	MADISONVILLE,KY 42431
1000-1500	M-12-3-2B-1	Residential	BEAGLE PARK LOOP 00236	DAME SEAN L & JENNIFER	236 BEAGLE PARK LOOP	MADISONVILLE,KY 42431-
1500-2000	M-12-5-3C	Residential	BEAGLE PARK LP 00045	ARNOLD LLOYD & DONNA	135-B BEAGLE PARK LP	MADISONVILLE,KY 42431
1000-1500	M-12-3-5	Residential	BEAGLE PARK LP 00170	SHAFFER AUSTIN T & ELIZABETH R	170 BEAGLE PARK LP	MADISONVILLE,KY 42431
1000-1500	M-13-1-11	Residential	BEAGLE PARK LP 00205	HANCOCK CARL W & CHERYL D HANCOCK	205 BEAGLE PARK LP	MADISONVILLE,KY 42431
1000-1500	M-13-1-12	Farm	BEAGLE PARK LP 00235	HANCOCK WILLIAM GREGORY AND FONDA	235 BEAGLE PARK LOOP	MADISONVILLE,KY 42431
1000-1500	M-13-1-10	Residential	BEAGLE PARK LP 00260	JOSEPH CHESTER A	260 BEAGLE PARK LP	MADISONVILLE,KY 42431
1000-1500	M-13-1-9	Residential	BEAGLE PARK LP 00295	SIMMS RONNIE G & DEBRA	295 BEAGLE PARK LP	MADISONVILLE,KY 42431
1000-1500	M-13-1-8	Residential	BEAGLE PARK LP 00335	SIMMS RONNIE G & DEBRA	295 BEAGLE PARK LP	MADISONVILLE,KY 42431
1500-2000	M-13-1-7	Residential	BEAGLE PARK LP 00365	MICHAEL RAY MELTON & JANE ANN	365 BEAGLE PARK LOOP	MADISONVILLE,KY 42431
1000-1500	M-13-1-4	Residential	BEAGLE PARK LP 00395A	LISANBY MAURICE JR & SHIRLEY	395A BEAGLE PARK LOOP	MADISONVILLE,KY 42431
1000-1500	M-13-1-3	Residential	BEAGLE PARK LP 00415	COTTON DAVID L & JEANETTE	415 BEAGLE PARK LOOP	MADISONVILLE,KY 42431
500-1000	M-12-3-2A	Residential	BEULAH RD 01565	ROSE ROBERT JR	1565 BEULAH RD	MADISONVILLE,KY 42431
500-1000	M-12-1-14B	Residential	BEULAH RD 01580	HUDDLESTON THOMAS F & SHERRY	1580 BEULAH RD	MADISONVILLE,KY 42431
500-1000	M-12-1-15	Residential	BEULAH RD 01600	MICHAEL RAY M & JANE A	365 BEAGLE PARK LOOP	MADISONVILLE,KY 42431-
500-1000	M-12-1-16	Residential	BEULAH RD 01630	GUNN JOSEPH W & MICHELLE L	1630 BEULAH RD	MADISONVILLE,KY 42431-
500-1000	M-12-3-1	Residential	BEULAH RD 01635	KNIGHT JOHN B & MILDRED SUE	1635 BEULAH RD	MADISONVILLE,KY 42431
500-1000	MAP-79-11	Residential	BEULAH RD 01690	FRANKLIN KELLY	PO BOX 1152	MADISONVILLE,KY 42431
1000-1500	MAP-79-12	Farm	BEULAH RD 01770	FRANKLIN MILDRED C/O KELLY FRANKLIN	PO BOX 1152	MADISONVILLE,KY 42431
1000-1500	M-13-1-2	Residential	BEULAH RD 01815	FAULK MITCHELL W & MAGEN E	1815 BEULAH RD	MADISONVILLE,KY 42431
1500-2000	M-6-3-1	Residential	BEULAH RD 01865	CLAYTON DON GARY & CAROLYN L	2350 BEULAH RD	MADISONVILLE,KY 42431
1500-2000	M-6-2-3	Residential	BEULAH RD 01880	BROWN RONNIE D	1880 BEULAH RD	MADISONVILLE,KY 42431-
1500-2000	M-6-2-4	Residential	BEULAH RD 01920	EAVES KENNETH	1920 BEULAH RD	MADISONVILLE,KY 42431-
500-1000	M-12-1-12	Residential	FRANK HILL RD 00086	HILL KENNETH R JR	86 FRANK HILL RD	MADISONVILLE,KY 42431
190	M-12-1-13A	Farm	FRANK HILL RD 00170	HILL KENNETH RAY JR	86 FRANK HILL RD	MADISONVILLE,KY 42431
1500-2000	M-12-2-21N-1	Residential	LAKECHESTER 01139	BROWN KENNETH W & CAROL J	1139 LAKECHESTER DR	MADISONVILLE,KY 42431-
1500-2000	M-12-2-21E-31	Residential	LAKECHESTER DR 01040	MCNARY VALARIE D	1040 LAKECHESTER DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-30	Residential	LAKECHESTER DR 01050	CHOATE ALVIN B & BETSY B	1050 LAKECHESTER	MADISONVILLE,KY 42431-
1500-2000	M-12-2-21G	Residential	LAKECHESTER DR 01066	MCKINSEY BILLY O & JUDY	1066 LAKECHESTER DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-32-1	Farm	LAKECHESTER DR 01075	BRUCE ALICE & DAVID	1075 LAKECHESTER DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21H-34	Residential	LAKECHESTER DR 01080	DAVIS JOHN M	1080 LAKE CHESTER DR	MADISONVILLE,KY 42431-
1000-1500	M-12-2-21H-35	Residential	LAKECHESTER DR 01098	BARNETT ERIC C & CONNIE S	1098 LAKECHESTER DR	MADISONVILLE,KY 42431-
1500-2000	M-12-2-21N-4	Residential	LAKECHESTER DR 01101	ROACH ROBIN & BEVERLY	1101 LAKE CHESTER DR	MADISONVILLE,KY 42431-
1000-1500	M-12-2-21N-3	Residential	LAKECHESTER DR 01111	SNORTON TERRY L & VIVIAN D	1111 LAKE CHESTER DR	MADISONVILLE,KY 42431-
1000-1500	M-12-2-21H-36	Residential	LAKECHESTER DR 01116	BEARDEN CLINTON J & KELLY J	1116 LAKE CHESTER DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21N-2	Residential	LAKECHESTER DR 01125	KING MICHAEL W & TERESA F	1125 LAKE CHESTER	MADISONVILLE,KY 42431-
1000-1500	M-12-2-21H-37	Residential	LAKECHESTER DR 01134	GAMBLIN DAVID L & CONNIE L	1134 LAKE CHESTER DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-27	Residential	LAKEMONT 00719	TUCKER BARBARA L & RICHARD C	719 LAKEMONT DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21E-25	Residential	LAKEMONT 00727	DUVALL WILLIAM D & PEARL JUNE	727 LAKEMONT DR	MADISONVILLE,KY 42431-4100
1500-2000	M-12-2-21E-15	Residential	LAKEMONT DR 00708	RUTH HARRY & SHIRLEY	708 LAKEMONT DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-29	Residential	LAKEMONT DR 00711	HENDRIX JAMES E & RUTH	711 LAKEMONT DRIVE	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-16	Residential	LAKEMONT DR 00712	SMITH BILLY HERMAN & ANN KAY	712 LAKEMONT DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-28	Residential	LAKEMONT DR 00715	GRIFFITH DONALD E & BRENDA K	715 LAKEMONT DR	MADISONVILLE,KY 42431

Residences within 2000 feet of TGT tap point

1500-2000	M-12-2-21E-18	Residential	LAKEMONT DR 00720	WILLIAMS STEPHEN A & SHARON H	720 LAKEMONT DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-26	Residential	LAKEMONT DR 00723	HIGGS BRIAN & KIMBERLY	723 LAKEMONT	MADISONVILLE,KY 42431
1000-1500	M-12-2-21E-24	Residential	LAKEMONT DR 00731	BRANDON BRADLEY B & SARAH K	731 LAKEMONT DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-22A	Residential	LAKESIDE 00727	FLORIDA DONNA RUTH LIFE ESTATE CHAD BRYNCE FLORIDA	727 LAKESIDE DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21-46	Residential	LAKESIDE DR 00723	LANCASTER ALLISON E	723 LAKESIDE DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-19	Residential	LAKEWOOD DR 01000	ROBERTS PAMELA	1000 LAKEWOOD DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-20	Residential	LAKEWOOD DR 01010	MEADE BOBBY & TONYA M	1010 LAKEWOOD DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-21	Residential	LAKEWOOD DR 01020	SCOTT TREG L & ALAYSHA ROGERS-	1020 LAKEWOOD DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-22A-1	Residential	LAKEWOOD DR 01025	BROWN WILLIAM HENRY	1025 LAKEWOOD DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-21E-22	Residential	LAKEWOOD DR 01030	KELLER DAVID RUSSELL & SARAH KAY	1030 LAKEWOOD DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21E-23	Residential	LAKEWOOD DR 01040	VANOVER ROGER D & SUSAN P	1040 LAKEWOOD DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21E-23A	Residential	LAKEWOOD DR 01050	STIRSMAN JERALD W & MILDRED	1050 LAKEOOD DR	MADISONVILLE,KY 42431-
1000-1500	M-12-2-21-56-17	Residential	LAKEWOOD DR 01074	PITTMAN CLAYTON T & HANNAH D	1074 LAKEWOOD DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-16	Residential	LAKEWOOD DR 01098	HICKERSON ASHLEIGH D & CHRISTOPHER C	1098 LAKEWOOD DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-18	Residential	LAKEWOOD DR 01115	GARST ALLEN WAYNE	1115 LAKEWOOD DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-15	Residential	LAKEWOOD DR 01126	OLDHAM TABETHA & MICHAEL J STANLEY	1126 LAKEWOOD DR	MADISONVILLE,KY 42431
500-1000	M-12-2-21-56-14	Residential	LAKEWOOD DR 01140	MILLER DAVID C & MARLA J	1140 LAKEWOOD DR	MADISONVILLE,KY 42431
500-1000	M-12-2-21-56-56	Residential	LAKEWOOD DR 01152	CLARK MARTHA A & JOSEPH E CLARK II	1152 LAKEWOOD DR	MADISONVILLE,KY 42431
500-1000	M-12-2-21-56-55	Residential	LAKEWOOD DR 01155	FORD KELLY S & MARJORIE D	1155 LAKEWOOD DR	MADISONVILLE,KY 42431
1500-2000	M-12-4-1	Residential	LEGION DR 00709	ELLIS DANIEL WADE	709 LEGION DR	MADISONVILLE,KY 42431
1500-2000	M-12-6-15	Residential	LEGION DR 00718	CAVANAUGH TIMOTHY SR & LAVENA M	482 NEW SALEM CIRCLE	NORTONVILLE,KY 42442
1500-2000	M-12-4-2	Residential	LEGION DR 00727	DURHAM ELIZABETH F & DUSTIN A	727 LEGION DR	MADISONVILLE,KY 42431
1500-2000	M-12-6-14	Residential	LEGION DR 00728	SORREL HUDSON & CHARLOTTE	728 LEGION DR	MADISONVILLE,KY 42431
1500-2000	M-12-6-13	Commercial	LEGION DR 00730	MEAGHAN TEAL PHOTOGRAPHY LLC	1990 MARTY DR	MADISONVILLE,KY 42431-
1500-2000	M-12-5-1	Residential	LEGION DR 00741	YOUNG SANDRA	741 LEGION DR	MADISONVILLE,KY 42431
1500-2000	M-12-5-2	Residential	LEGION DR 00749	TURNER JESSICA	101 BEAGLE PARK LP	MADISONVILLE,KY 42431-
1500-2000	M-12-6-12	Residential	LEGION DR 00750	LUTZ DAVID & MELISSA	750 LEGION DR	MADISONVILLE,KY 42431-
1500-2000	M-12-6-11	Residential	LEGION DR 00756	TUCKER NATHAN DALE & RUTH DIANE	756 LEGION DR	MADISONVILLE,KY 42431-
1500-2000	M-12-5-3A	Residential	LEGION DR 00759	SMITH DONNA C	PO BOX 217	MADISONVILLE,KY 42431-
1500-2000	M-12-5-3B	Residential	LEGION DR 00769 AND 00771	WERNER ROBERT & SANDRA	1552 OAK PARK DRIVE	OWENSBOROR,KY 42301
1500-2000	M-12-5-4	Residential	LEGION DR 00779	CARTER JAMES MICHAEL	779 LEGION DR	MADISONVILLE,KY 42431-3109
1500-2000	M-12-6-10A	Residential	LEGION DR 00780	TUCKER BRAD & ALLYSON	780 LEGION DR	MADISONVILLE,KY 42431
1500-2000	M-13-1-13	Residential	LEGION DR 00789	REASONS TIMOTHY F & LUCINDIA D	789 LEGION DR	MADISONVILLE,KY 42431
1500-2000	M-13-1-14	Residential	LEGION DR 00809	LAMB DAVID & BARBARA	809 LEGION DR	MADISONVILLE,KY 42431
1985	M-6-1-8-7	Residential	N POOLE RD 00250	ASHLEY JOHN PHILLIP & BAYLEE SHEA	189 N POOLE RD	MADISONVILLE,KY 42431
1900	M-6-2-1-5	Residential	N POOLE RD 00250	FOSTERS NICHOLAS & MISTY	250 N POOLE RD	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-52	Residential	NOBILITY DR 01241	BEACH DENISE L	1241 NOBILITY DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-43	Residential	NOBILITY DR 1307	GROSE RAINNELLA	1307 NOBILITY DR	MADISONVILLE,KY 42431
500-1000	M-12-1-8	Residential	OSBORN LN 00031	JONES HAROLD D & MARY S	31 OSBORN LANE	MADISONVILLE,KY 42431
500-1000	M-12-2-28	Residential	OSBORN LN 00042	MICHAEL RAY MELTON & JANE ANN	365 BEAGLE PARK LOOP	MADISONVILLE,KY 42431
500-1000	M-12-2-28A	Residential	OSBORN LN 00056	MICHAEL STEVEN R & TERI A	2689 PLEASANT VIEW RD	MADISONVILLE,KY 42431
500-1000	M-12-1-7-5	Residential	OSBORN LN 00085	WEST TIMOTHY D	85 OSBORNE LN	MADISONVILLE,KY 42431-
500-1000	M-12-2-29	Residential	OSBORN LN 00098	HENLEY DOUGLAS E & SUZANNE	98 OSBORN LN	MADISONVILLE,KY 42431
500-1000	M-12-1-7-4	Residential	OSBORN LN 00111	JONES JUSTIN	111 OSBORNE LN	MADISONVILLE,KY 42431-

Residences within 2000 feet of TGT tap point

500-1000	M-12-2-30	Residential	OSBORN LN 00130	REYNOLDS TONY J & LINDA K	130 OSBORN LN	MADISONVILLE,KY 42431-
500-1000	M-12-2-21-56-11	Residential	OSBORN LN 00222	AJIBOYE TAIWO & FOLARANMI	222 OSBORNE LN	MADISONVILLE,KY 42431
500-1000	M-12-1-6B	Residential	OSBORN LN 00253	DEXTER KEITH A & CAROL DIANE	253 OSBORN LN	MADISONVILLE,KY 42431
500-1000	M-12-1-6-6	Residential	OSBORN LN 00275	FLOREA JEFFREY M & KATRINA M	275 OSBORN LN	MADISONVILLE,KY 42431-
1000-1500	M-12-1-6-5	Residential	OSBORN LN 00295	LARKINS DANA L	295 OSBORN LN	MADISONVILLE,KY 42431-
1000-1500	M-12-1-6-4	Residential	OSBORN LN 00315	SIGLER CAROL	315 OSBORN LN	MADISONVILLE,KY 42431-
1000-1500	M-12-1-6-3	Residential	OSBORN LN 00335	WESTER KAYLA & ANTHONY	335 OSBORNE LN	MADISONVILLE,KY 42431
1500-2000	M-12-1-5-1	Residential	OSBORN LN 00505A	PEYTON CYNTHIA MARIE c/o JIMALEE AVITUD & JAVIER LUCERO	505A OSBORNE LN	MADISONVILLE,KY 42431
1500-2000	M-12-1-5-2	Residential	OSBORN LN 00505B	LOCKE WALTER & SHEILA	1694 SOUTH DRIVE	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-1	Residential	OSBORN LN 00698	SMITH KERRY L & ILONA J	698 OSBORNE LN	MADISONVILLE,KY 42431-
1000-1500	M-12-2-21-56-2	Residential	OSBORN LN 00714	CHILDS LOGAN & MACI LYNN	714 OSBORNE LN	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-3	Residential	OSBORN LN 00720	ALLEN CHRISTOPHER MATTHEW & CARRIE L	720 OSBORNE LN	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-4	Residential	OSBORN LN 00726	SHANNON MEAGAN J & DAVID M	726 OSBORNE LN	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-5	Residential	OSBORN LN 00732	BRASHER PATRICK S & MATTHEW N ARNOLD	732 OSBORNE LN	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-6	Residential	OSBORN LN 00738	TAPP EUGENE - LIFE ESTATE JIMMY WAYNE GAMBLE	738 OSBORN LN	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-7	Residential	OSBORN LN 00744	DOYLE JOHN M & GLENDA F	744 OSBORN LN	MADISONVILLE,KY 42431
500-1000	M-12-2-21-56-8	Residential	OSBORN LN 00750	LAMB CATHY J	750 OSBORNE LN	MADISONVILLE,KY 42431-
500-1000	M-12-2-21-56-9	Residential	OSBORN LN 00756	OATES MARY JOYCE & LUANN O DEMOSS	756 OSBORN LN	MADISONVILLE,KY 42431-
1000-1500	M-12-1-6-1	Residential	OSBORNE LN 00363	RAY ANITA G	363 OSBORNE LN	MADISONVILLE,KY 42431
500-1000	M-12-2-21-56-10	Residential	OSBORNE LN 00762	PETERS TRAVIS G	762 OSBORNE LN	MADISONVILLE,KY 42431
1000-1500	MAP-79-13	Residential	PLEASANT VIEW 00080	SHELTON DARRIN T	80 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1500-2000	M-6-2-2	Residential	PLEASANT VIEW 00153	GOODMAN MARTY J & CARLA L	153 PLEASANT VIEW	MADISONVILLE,KY 42431
1800	MAP-79-15	Residential	PLEASANT VIEW 00170	GATLIN GARY A & KIMBERLY A	170 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1960	M-6-2-1-9	Residential	PLEASANT VIEW 00185	RHYE PHILIP A SR & WANDA SUE	185 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1695	MAP-79-18	Residential	PLEASANT VIEW 00220	VANDIVER JAMES EDWARD	220 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1890	M-6-2-1-7	Residential	PLEASANT VIEW 00225	UTLEY JAMES PERRY & SHANNON L	225 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1675	M-6-1-7	Residential	PLEASANT VIEW 00307	MILLER MICHELLE RENEE	307 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1230	MAP-79-22	Farm	PLEASANT VIEW 00372	CARTWRIGHT MIKEL JAMES & JOAN	372 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1170	MAP-79-23	Farm	PLEASANT VIEW 00430	FULCHER KENNETH R & INEZ M	430 PLEASANTVIEW RD	MADISONVILLE,KY 42431
1180	MAP-79-24-3	Residential	PLEASANT VIEW 00512	LIGON DOLORES A	512 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1165	MAP-79-24B	Residential	PLEASANT VIEW 00536	ORTEN MICHAEL S	536 [;EASAMT VOEW RD	MADISONVILLE,KY 42431
1750	M-6-1-5-1-1	Residential	PLEASANT VIEW 00645	CLAYTON KEVIN W	645 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1010	MAP-79-25-2	Residential	PLEASANT VIEW 00680	BRADEN BRANDON & MEGAN	680 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1490	MAP-79-25B-3	Residential	PLEASANT VIEW 00704	CUNNINGHAM CHAD NELSON & ROBIN DELL	17899 BEULAH RD	PRINCETON, KY 42445
1935	M-6-1-5-1-3	Residential	PLEASANT VIEW 00743	BLUE TRENT A & DEBORAH	743 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1955	M-6-1-5-1-5	Residential	PLEASANT VIEW 00747	BRASHER MARIE	747 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1780	MAP-79-26-3	Residential	PLEASANT VIEW 00838	FLEMING MIKE G & NANCY L	838 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1890	MAP-79-26-2	Residential	PLEASANT VIEW 00920	HELM ROBERT DOUGLAS & COLEEN M	920 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1250	MAP-79-19	Farm	PLEASANT VIEW RD 00210	LINDSEY CHRISTOPHER J & BAPTISTA R	210 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1580	MAP-79-20-1	Residential	PLEASANT VIEW RD 00300	MICHAEL STEVEN R & TERI A	2689 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1265	MAP-79-21	Residential	PLEASANT VIEW RD 00352	INGRAM EDWARD J	352 PLEASANT VIEW RD	MADISONVILLE,KY 42431
1000-1500	MAP-79-19-1	Residential	PLEASANTVIEW RD 00100	WEAVER LARRY	100 PLEASANT VIEW RD	MADISONVILLE,KY 42431-
1825	M-6-1-8-9	Residential	POOLE RD 00229	OWEN RICHARD DON & PAMELA KAY	229 N POOLE RD	MADISONVILLE,KY 42431

Residences within 2000 feet of TGT tap point

1940	M-6-2-1-4	Residential	POOLE RD 00230	BROOKS CARL & CHRISTY	230 POOLE RD	MADISONVILLE,KY 42431-
1500-2000	M-12-6-3	Residential	PRINCETON RD 01062	SMALL MATTHEW	1062 PRINCETON RD	MADISONVILLE,KY 42431
1500-2000	M-12-6-2	Residential	PRINCETON RD 01070	CRICK JEFFREY T & BEVERLY K	576 NEW SALEM CIRCLE	NORTONVILLE,KY 42442
1500-2000	M-12-6-1	Residential	PRINCETON RD 01086	CUNNINGHAM MARK & SANDRA	1086 PRINCETON RD	MADISONVILLE,KY 42431-
1500-2000	M-12-2-24A	Residential	PRINCETON RD 01101	BRATCHER BEEDIE E JR & MARY L	1101 PRINCETON RD	MADISONVILLE,KY 42431
1000-1500	M-12-3-3	Residential	PRINCETON RD 01150	LISANBY MAURICE JR	395A BEAGLE PARK LP	MADISONVILLE,KY 42431
1000-1500	M-12-2-26	Residential	PRINCETON RD 01155	RODGERS CHESLEY T & SHIRLEY F	1155 PRINCETON RD	MADISONVILLE,KY 42431
1000-1500	M-12-2-27	Residential	PRINCETON RD 01165	MICHAEL RAY M & JANE A	365 BEAGLE PARK LOOP	MADISONVILLE,KY 42431-
1000-1500	M-12-1-9	Residential	PRINCETON RD 01179	JEWELL GREGORY & MELISSA	1179 PRINCETON RD	MADISONVILLE,KY 42431
1000-1500	M-12-3-4	Residential	PRINCETON RD 01188	WILLIAMS WANDA L	1188 PRINCETON RD	MADISONVILLE,KY 42431
1000-1500	M-12-2-21-56-51	Residential	ROYAL CT 01254	OSBORNE ROBERT L & KIMBERLY D	1254 ROYAL COURT	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-6	Residential	WEST DR 00667	AYER STEPHEN W & VICKY L	667 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-7	Residential	WEST DR 00670	ADCOCK FRANCES I	670 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-5	Residential	WEST DR 00673	HILL JERRY	2913 S MAIN ST	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-8	Residential	WEST DR 00676	SMITH MATTHEW J	676 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-4	Residential	WEST DR 00679	JACKSON LESLIE K	679 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24C	Residential	WEST DR 00680	WARE RUBY N	140 PIN OAK LN	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-3	Residential	WEST DR 00685	BOYD KATRICE D	685 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24	Residential	WEST DR 00686	SEATON DENNIS ROSS	686 WEST DR	MADISONVILLE,KY 42431
1500-2000	M-12-2-24D	Residential	WEST DR 00690	WHITFIELD ROGER & TERRI	690 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-2	Residential	WEST DR 00691	FRANCIS JAMES & KIMBERLI ADAMS-	691 WEST DR	MADISONVILLE,KY 42431
1000-1500	M-12-2-24-1	Residential	WEST DR 00695	TAPP MISTY L & ROBERT C	695 WEST DR	MADISONVILLE,KY 42431

Siting Board 2-46:

Provide a noise contour map of the worst-case sound levels generated by construction for each of the following:

a. the Project plant;

b. the switching station; and

c. the natural gas line, including contours in the 5 dB increments for 40 dB and above.

Response: A report addendum (Attachment 2-28) was prepared which includes estimated sound levels during construction of the Project. The estimated worst case sound levels for Construction is provided on page 3.

Witness: Dave Parzych

Siting Board 2-47:

Provide the length and width of the paved access loop within the Plant site.

Response: The paved access loop will be approximately 20 feet wide and 1800 feet long.

Witness: Doug Buresh

Siting Board 2-48:

Provide the lengths and width of the internal gravel surfacing for the Plant site.

Response: The area bounded by the paved access loop and not otherwise covered by buildings or concrete foundations (approximately 295 feet x 540 feet) will be covered with gravel surfacing as shown on Attachment 2-10 to support mobile equipment for O&M access.

Witness: Doug Buresh

Siting Board 2-49:

Provide the lengths and widths of the internal gravel surfacing for the Substation/switchyard site.

Response: The Substation (switching station) will have a fenced gravel area approximately 240 feet by 260 feet based on preliminary layouts.

Witness: Doug Buresh

Siting Board 2-50:

Explain any traffic management strategies that will be implemented during construction for Project deliveries.

Response: Besides the major deliveries noted in Siting Board response 1-69, The project expects to have 5 or less deliveries per day on average. These deliveries will be from a variety of over-the-road trucks including flat beds, enclosed trailers, and delivery vans. Deliveries will be immediately received at the site upon arrival, not staged on A.C. Slaton Road or other local roads. Delivery times will be scheduled during normal working hours – 8 AM to 4 PM.

Witness: Doug Buresh

Siting Board 2-51:

Explain whether a complaint resolution program is going to be created for this project. If so, explain in detail the program.

Response: KYMEA has developed a Construction Project Complaint Resolution Program outlined in Attachment 2-51. It provides a structured and efficient process for addressing and resolving complaints related to the construction project, ensuring transparency and accountability at all levels, including construction and subcontractors.

Witness: Doug Buresh

Construction Project Complaint Resolution Program

Objective**:** To provide a structured and efficient process for addressing and resolving complaints related to the construction project, ensuring transparency and accountability at all levels, including construction and subcontractors.

Levels of Complaint Resolution:

1. Initial Complaint Submission:
    - Method: Complaints can be submitted through online feedback forms available on the project web page, via email, or via KYMEA's main phone line.
    - Details Required: Complainant's contact information, description of the issue, date and time of occurrence, and any supporting documentation or evidence.
2. Level 1: Construction Team Review:
    - Responsibility: The construction team will handle complaints related to on-site activities, safety concerns, and construction quality.
    - Process: The team will acknowledge receipt of the complaint within 24 hours, conduct an on-site investigation, and provide a response within 7 business days.
    - Outcome: Resolution or escalation to the subcontractor level if the issue involves subcontractor activities.
3. Level 2: Subcontractor Review:
    - Responsibility: Subcontractors will address complaints related to their specific scope of work.
    - Process: Subcontractors will acknowledge receipt of the complaint within 24 hours, investigate the issue, and provide a response within 5 business days.
    - Outcome: Resolution or escalation to the project management team if the issue remains unresolved.
4. Level 3: Project Management Review:
    - Responsibility: The project management team will oversee the entire complaint resolution process and handle escalated complaints.
    - Process: The team will review the escalated complaint, conduct a thorough investigation, and provide a final resolution within 10 business days.
    - Outcome: Final resolution and communication to the complainant.

Feedback and Follow-Up:

- Complainants will receive regular updates on the status of their complaint.
- A follow-up survey will be conducted to ensure satisfaction with the resolution process.

Documentation and Reporting:

- All complaints and resolutions will be documented and maintained in a centralized database.
- Regular reports will be generated to identify trends and areas for improvement.

Siting Board 2-52:

Provide a copy of the Wetland Permit Application and any accompanying map(s).

Response: The Wetland Permit Application is provided as Attachment 2-52.

Witness: Doug Buresh

Wetland Services
I n c o r p o r a t e d
3880 Trigg-Turner Rd
Corydon, KY 42406
270-499-7782
wetlandservices.net

◊ Delineation
◊ Permitting
◊ Mitigation
◊ Survey
◊ Design
◊ Construction
◊ Monitoring
◊ Maintenance

7NOV24

TO: Darrin Parrent
U.S. Army Corps of Engineers
6855 State Road 66 East
Newburgh, IN 47630

RE: Energy Center PCN, KYMEA Energy Center, Madisonville, KY; **LRL-2024-00568**

Hello Darrin,

Please find enclosed a revised PCN and associated information for the KYMEA Energy Center. Revisions are based on our correspondence since your initial review. Impacts to WOUS has not changed, but the mitigation type for stream has been revised to KY FILO as instructed.

Site drainage will be handled by two drainage swales as shown on the Site Grading Plan as well as a storm drain as shown on the Underground Utility Plan drawing. A stormwater detention basin is also necessary and is shown on both the Site Grading Plan and the Site Plan. Outfall from the basin and stormwater pipe will discharge into the existing channel.

If you have any questions or require more information, please don't hesitate to contact me. Thank you.

Rick Liggett

14OCT24

Please find the enclosed Pre-Construction Notification (PCN) and associated information for the KYMEA Energy Center. We are requesting permit authorization as a Nationwide 39 – Commercial and Institutional Developments. I am enclosing the notification in pdf format bookmarked for your convenience: 1) Cover Letter/Page, 2) 404 Application, 3) PCN Narrative 4) Engineering Plans, 5) Maps, & 6) T&E Species Report.

If you have any questions or require more information, please don't hesitate to contact me.

Sincerely,

Rick Liggett
Regulatory Specialist
270-454-0900
rl@wetland.services

CC: Doug Buresh, KYMEA President & CEO
Stanley Conn, PE, Connsulting, LLC

Pre-Construction Notification (PCN)
For Nationwide 39 (Commercial and Institutional Developments)
Permit Authorization

KYMEA Energy Center
LRL-2024-00568

August, 2024
Revised November, 2024

Madisonville, KY

For:

Kentucky Municipal Energy Agency
1700 Eastpoint Parkway, Suite 220
Louisville, KY 40223

By:

Wetland Services
3880 Trigg-Turner RD
Corydon, KY 42406
270-860-8141

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 02-28-2022

e public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of ormation. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT ETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

thorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, ction 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form l be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and cal government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good producible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) d be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. stem of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) d may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
st - Doug Middle - Last - Buresh	First - Rick Middle - Last - Liggett
mpany - Kentucky Municipal Energy Agency	Company - Wetland Services, Inc.
mail Address - dburesh@kymea.org	E-mail Address - rl@wetland.services
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
ldress- 1700 Eastpoint Pkwy, Suite 220	Address- 3880 Trigg Turner Rd
y - Louisville State - KY Zip - 40223 Country - USA	City - Corydon State - KY Zip - 42406 Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 502-242-5636 c. Fax	a. Residence b. Business 270-454-0900 c. Fax

STATEMENT OF AUTHORIZATION

. I hereby authorize, Wetland Services, Inc. to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

see original
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

. PROJECT NAME OR TITLE (see instructions)
nergy Center

. NAME OF WATERBODY, IF KNOWN (if applicable)
nnamed tributaries to Greasy Creek

. LOCATION OF PROJECT
titude: ◦N 37.32018 Longitude: ◦W -87.55015

14. PROJECT STREET ADDRESS (if applicable)
Address 1757 AC Slaton Road
City - Madisonville State- KY Zip- 42431

. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
ate Tax Parcel ID Municipality
ction - Township - Range -

17. DIRECTIONS TO THE SITE

From Newburgh, take I-69 South to Madisonville Exit 116. Turn right and continue straight for about 2.5-miles. Turn left onto Rose Creek Rd and then take an immediate right continuing on Rose Creek Rd for 0.7-mile. Turn left onto Bean Cemetery. In 1.7-miles, there is an entryway on the right from which you can access the property: N37.321111°, W-87.547358°.

18. Nature of Activity (Description of project, include all features)

See attached.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

See attached.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

See attached.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
750-cu yds fill dirt		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres Stream 0.04-ac, PEM 0.41-ac, PSS 0.001-ac

or

Linear Feet Intermittent-757'

23. Description of Avoidance, Minimization, and Compensation (see instructions)

For optimal utilization of the property, the applicant has taken WOUS into consideration, avoided and minimized impacts to the greatest extent possible, while still being able to develop a viable project. 286-ft of intermittent stream will be minimized, 0.059-ac PSS minimized, and 0.09-ac PFO avoided. For the unavoidable remaining features, the applicant will mitigate for direct impacts with the purchase of PFO wetland mitigation bank credits and amus from KY FILO.

Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

sses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

See attached.

State - Zip -

State - Zip -

State - Zip -

State - Zip -

State - Zip -

Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

ENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
Board	Elec Gen & Trans	2024-00290	2024-10-04	Pending	

lude but is not restricted to zoning, building, and flood plain permits

tion is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is nd accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the

see original
SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE

cation must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly l agent if the statement in block 11 has been filled out and signed.

Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent s or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent s or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Adjoining Property Owners

MADISONVILLE CITY OF PO BOX 705 MADISONVILLE, KY 42431	FRENCH PULLIN LLC & ST DEVELOPMENT 25 BROWN BADGETT LP SUITE B MADISONVILLE, KY 42431
HENDRICKS DONNA & SHARON HENDRICKS 2529 BEAN CEMETERY RD MADISONVILLE, KY 42431	ORTEN TANNA & BRIAN 1151 LOFLIN RD WINNSBORO, LA 71295
CATES RICHARD W & RITA A 708 KATHY DR MADISONVILLE, KY 42431	

Energy Center
Pre-Construction Notification

Project Purpose: The Kentucky Municipal Energy Agency (KYMEA) is a joint agency organized under the Interlocal Cooperation Act of the Commonwealth of Kentucky. KYMEA was created to allow its Members to collaborate effectively to do all things necessary or convenient to serve the current and future electric power and energy requirements of the Members and to provide assistance to the Members related to their electric power and energy utility systems. The Agency's Members currently consist of the following Kentucky municipalities: Barbourville, Bardwell, Benham, Berea, Corbin, Falmouth, Frankfort, Madisonville, Owensboro, Paris, and Providence. KYMEA Energy Center I will be 100% financed through the issuance of debt by KYMEA. No federal, state, or local funds will be utilized for construction of the Project.

The Project will construct a new electric generating unit comprised of four natural gas fired Wartsila 18V50SG reciprocating internal combustion engine (RICE) generators. The public works facility includes buildings for personnel and equipment, exhaust ductwork with pollution control facilities, exhaust stacks, oil and reagent storage tanks, medium voltage equipment enclosure, generator step-up transformer(s), electric utility lines, natural gas lines, storm water management facilities, roads, and parking lots. The main public works buildings housing the project include the engine hall for the engines and generators and the connected administration building which houses the low voltage electrical room, control room, warehouse, maintenance shop, offices and personnel facilities. The Project construction is not subject to FERC jurisdiction.

KYMEA will construct the facility in Madisonville, Kentucky with a capacity of approximately 75 net megawatts. The Plant Site will be located at 1757 AC Slaton Road in Madisonville, Kentucky with the LGE/KU Interconnection Facilities (Substation) located adjacent to the Plant at the corner of AC Slaton Road and Bean Cemetery. A high pressure natural gas line will be constructed to serve the Plant.

Site development is expected to begin in April 2025 with a proposed in-service date for the Project of June 2027. The Project is expected to have an operating life of not less than 30 years.

Environmental Effects: According to aerial imagery dating back to the 1950s, the project area was completely cleared and actively farmed until sometime between 1998 and 2006. At this time, farming ceased and early successional trees began growing. The perimeter was maintained by mowing to accommodate a powerline on the east and south side of the site and as a buffer to the water treatment facility on the west side. Historically, surface coal mining has occurred all around the site within the 12-digit HUc watershed, but not on the site itself.

Wetland: There are four wetlands onsite totaling 0.69-ac. There are two PEM, one PSS, and one PFO. 1MW1 developed as a narrow wetland floodplain to intermittent stream 1MS1. 1MW2 is a small depression at the top of 1MS1 whose hydrology is fed by precipitation, surface runoff directed along the railroad tracks, and a pipe running under the tracks that collects water from the upper end of the watershed for 1MS1. This location is mowed as part of the powerline corridor maintenance. 1MW3 is a narrow, low flow path for the surrounding small sub-watershed and runs offsite to the north. 1MW4 is the south end of a larger wetland that formed between the elevated railroad tracks and Bean Cemetery Road. It is well outside the impact footprint.

Stream: 757-ft of intermittent stream will be filled as a result of this public works facility. Measurements and constraints are itemized in the tables below. Stream to be impacted is considered poor quality. The applicant will adhere to Kentucky's Best Management Practices (BMPs) as outlined in the University of Kentucky's Kentucky Transportation Center *BMPs for*

Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites Planning and Technical Specifications Manual.

Issue	Measurement and/or Constraint
Wetlands	0.411-acres of direct impact
Intermittent	0.04-ac of direct impact

Stream	Total Length	Direct Impact	Mitigation Ratio	Mitigation Required	Constraint
1MS1	1,043-ft	757-ft	500:1	1.51*	Public Works Facility and attendant features

*AMU=Adjusted Mitigation Units

Unit ID	Wetland Type	Total Acres	Direct Impact	Mitigation Ratio	Mitigation Required	Constraint
1MW1	PEM	0.34	0.21	1:1	0.21*	Public Works Facility and attendant features
1MW2	PEM	0.20	0.20	1:1	0.20*	Public Works Facility and attendant features
1MW3	PSS	0.06	0.001	1:1	0.001*	Public Works Facility and attendant features
1MW4	PFO	0.09	0.0	N/A	N/A	N/A

* AMU=Adjusted Mitigation Units

Mitigation

Wetland: Direct impacts to wetland total 0.41-ac (rounded to nearest hundredth). Due to the location, size, and quality of the wetlands to be impacted, we are requesting a 1:1 mitigation ratio for all wetland impacts. At that ratio, 0.41-ac of impact would equate to 0.41-amu. Compensation is being proposed for impacts to wetland by purchasing amu credits from Creekbankers McNary Wetland Mitigation Bank.

Stream: Direct impacts to stream total 757-ft. Stream impacts are to be mitigated in-kind through the KY FILO program as no known stream mitigation banks are available in this service area. When input into the Stream Mitigation Calculator, total cost of mitigation is $480,544 (see table below).

Summary: In total, 0.41-amu are required to be purchased from Creekbankers McNary Wetland Mitigation Bank to offset wetland impacts and 908.4-amu must be purchased from KY FWS for the Energy Center project prior to any discharge of fill into “waters of the United States”.

Stream Mitigation Calculator

AMU Calculator for In-Lieu Fee

	Stream Flow	intermittent	
	Stream Quality	poor	
	Impact Length =	757	**(ft)**
	Compensatory Mitigation Ratio =	**1.00**	
	Adjusted Mitigation Unit (AMU)=	**757**	
	***AMUs needed to provide mitigation =**	**908.4**	
	***(adjusted to offset cumulative impacts)**		
529	Cost per AMU	$480,544	

GENERAL PLAN SYMBOLS

- PROPERTY LINE
- ROW — RIGHT-OF-WAY
- BASE LINE, DATUM LINE
- ONE STATION MARK
- FIVE STATION MARK
- POINT OF CURVE, POINT OF TANGENT
- SURVEY HUB, POINT OF INTERSECTION
- SURVEY MONUMENT
- 110 — EXISTING CONTOUR
- 110 — PROPOSED CONTOUR
- EDGE OF WATER
- DITCH FLOWLINE
- SWALE OR DEPRESSION
- 3:1 — SLOPE (3 HORIZ TO 1 VERT)
- SWAMP OR WETLAND)
- BENCH MARK
- SOIL BORING
- FENCE
- GUARD RAIL
- RIPRAP
- RAILROAD (ONE LINE)
- RAILROAD (TWO LINE)
- SIGN (ONE POST)
- SIGN (TWO POST)
- 120.0 — EXISTING SPOT ELEVATION
- 110.50 — PROPOSED SPOT ELEVATION
- 110.50 / 110.00 — TOP OF CURB ELEVATION / GUTTER OR GROUND ELEVATION
- EXISTING CUT OR FILL SLOPE; ARROWS POINT DOWN SLOPE
- NEW CUT OR FILL SLOPE; ARROWS POINT DOWN SLOPE

GENERAL SECTION SYMBOLS

- EARTH
- ROCK
- CRUSHED ROCK
- CONCRETE
- RIPRAP
- RIPRAP (LARGE)
- WATER LEVEL
- CORRUGATED METAL PIPE (SMALL)
- CORRUGATED METAL PIPE (LARGE)

GENERAL TREE SYMBOLS

- DECIDUOUS TREE (SMALL)
- DECIDUOUS TREE (MEDIUM)
- DECIDUOUS TREE (LARGE)
- CONIFEROUS TREE (SMALL)
- CONIFEROUS TREE (MEDIUM)
- CONIFEROUS TREE (LARGE)
- PALM TREE (SMALL)
- PALM TREE (LARGE)
- TREE LINE
- TREE LINE (SMALL)
- MISCELLANEOUS LANDSCAPING TREES/SHUBBERY, REFER TO APPROPRIATE PLANS

UTILITY PLAN SYMBOLS

- MH — MANHOLE
- MH — MANHOLE WITH VALVE
- CB — CATCH BASIN
- HEADWALL
- CULVERT END SECTION
- YARD/FIRE HYDRANT
- YCO — YARD CLEAN OUT
- DW — DEWATERING WELL
- UTILITY POLE
- LIGHT POLE
- POLE SUPPORT
- TOWER
- TELEPHONE REDESTAL

VALVE SYMBOLS

- GATE VALVE
- CHECK VALVE
- PLUG VALVE
- GLOBE VALVE
- BALL VALVE
- POST INDICATOR VALVE

PAVEMENT MARKING SYMBOLS

- TRAFFIC FLOW ARROW (STRAIGHT ONLY)
- TRAFFIC FLOW ARROW (TURN ONLY)
- TRAFFIC FLOW ARROW (STRAIGHT OR TURN ONLY)
- HANDICAP PAVEMENT MARKING
- RAILROAD CROSSING PAVEMENT MARKING
- PAINTED TRAFFIC STRIPE

ROAD SIGN SYMBOLS

- INTERSTATE HIGHWAY
- US HIGHWAY
- OR — STATE HIGHWAY

NOTES:

1. ALL SYMBOLS SHOWN ON THIS LEGEND MAY NOT APPEAR ON THIS SET OF DRAWINGS.
2. FOR GENERAL LEGEND AND ABBREVIATIONS, SEE GG DRAWINGS.
3. FOR SITE LAYOUT, SEE CS101.
4. FOR SITE GRADING, SEE CG101.
5. FOR UNDERGROUND UTILITIES, SEE CU101.

AT FULL SIZE
0 1 2 3 IN
0 1 2 3 4 5 6 7 8 cm

FOR WETLAND PERMIT APPLICATION
11-1-24

NO.	REVISIONS	DSGN	CHKD	APVD	DATE

Stanley Consultants INC.
225 Iowa Avenue, Muscatine, Iowa 52761-3764
www.stanleyconsultants.com

CHRISTMAN SINCE 1894
KYMEA

KENTUCKY MUNICIPAL ENERGY AGENCY
KYMEA ENERGY CENTER I
MADISONVILLE, KENTUCKY

CIVIL LEGEND

DESIGNED	S.L. ROENFELDT
DRAWN	S.L. ROENFELDT
CHECKED	
APPROVED	
APPROVED	
DATE	

SCALE: NONE
NO. 31825.01
REV. A
CG001

CADD D1-R6

SITE GRADING PLAN

SCALE: 1"=50'

AT FULL SIZE
0 1 2 3 IN
0 1 2 3 4 5 6 7 8 cm

FOR WETLAND PERMIT APPLICATION

11-1-24

NO.	REVISIONS	DSGN	CHKD	APVD	DATE

Stanley Consultants INC.
225 Iowa Avenue, Muscatine, Iowa 52761-3764
www.stanleyconsultants.com

CHRISTMAN SINCE 1934
KYMEA

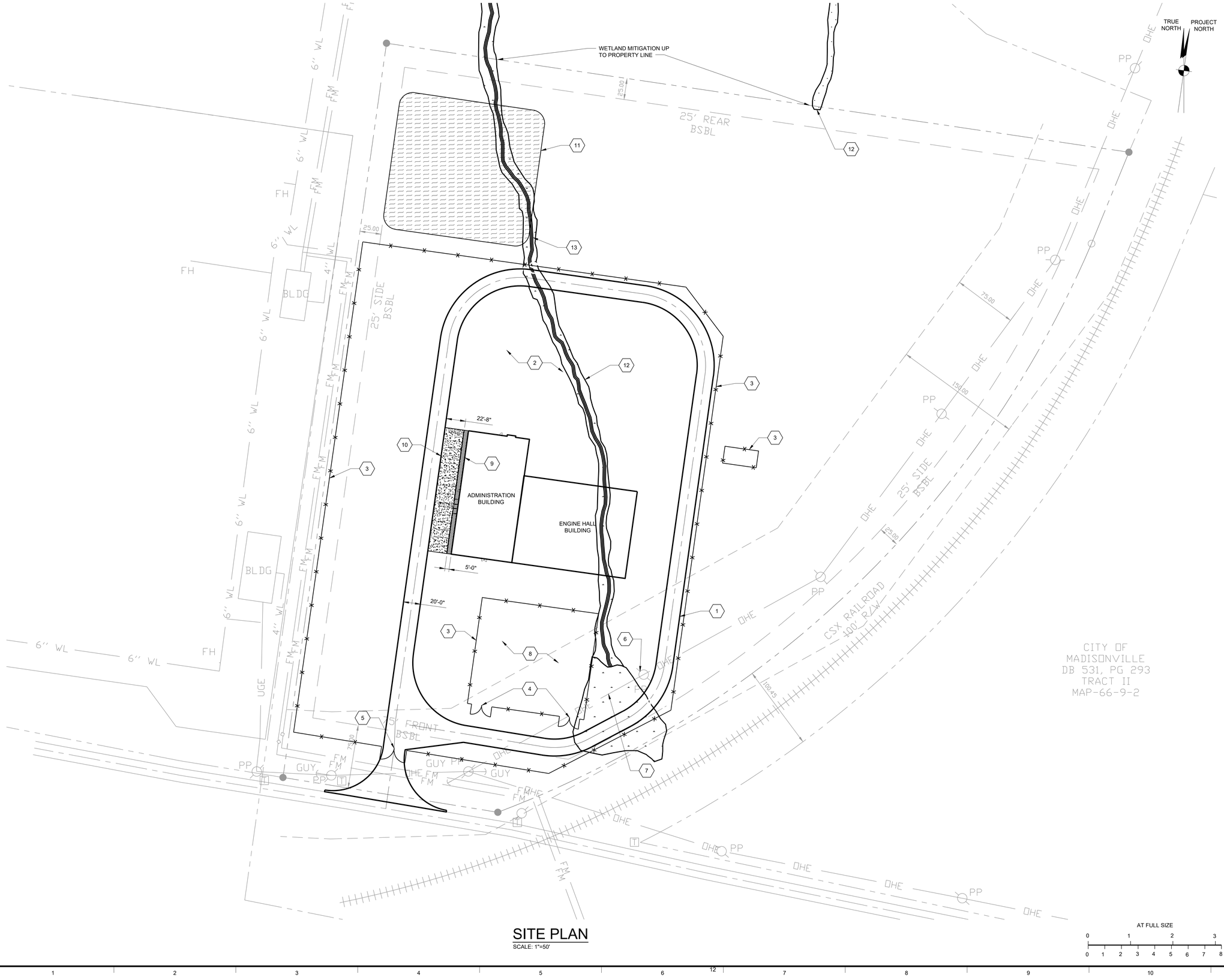
KENTUCKY MUNICIPAL ENERGY AGENCY
KYMEA ENERGY CENTER I
MADISONVILLE, KENTUCKY

SITE GRADING PLAN

DESIGNED	V.J. SCHROCK
DRAWN	S.L. ROENFELDT
CHECKED	
APPROVED	
APPROVED	
DATE	

SCALE: AS NOTED
NO. 31825.01
REV. A
CG101

CADD D1-R6
STANLEY CONSULTANTS



KEYNOTE LEGEND:

1. PERIMETER ACCESS ROAD. HMA PAVEMENT.
2. SURFACE AGGREGATE.
3. PERIMETER CHAIN LINK FENCE.
4. 24' WIDE DOUBLE SWING GATE.
5. 30' WIDE DOUBLE SWING GATE.
6. POWER POLE TO BE RELOCATED.
7. OVERHEAD POWER LINE TO BE RELOCATED.
8. ELECTRICAL EQUIPMENT YARD.
9. PCC SIDEWALK.
10. EMPLOYEE PARKING. PCC PAVEMENT
11. DETENTION BASIN. SEE SHEET CG101.
12. EXISTING WETLAND TO BE REMOVED.
13. EXISTING WETLAND STREAM TO BE REMOVED.

SITE PLAN

SCALE: 1"=50'

AT FULL SIZE
0 1 2 3 IN
0 1 2 3 4 5 6 7 8 cm

FOR WETLAND PERMIT APPLICATION

11-1-24

NO.	REVISIONS	DSGN	CHKD	APVD	DATE

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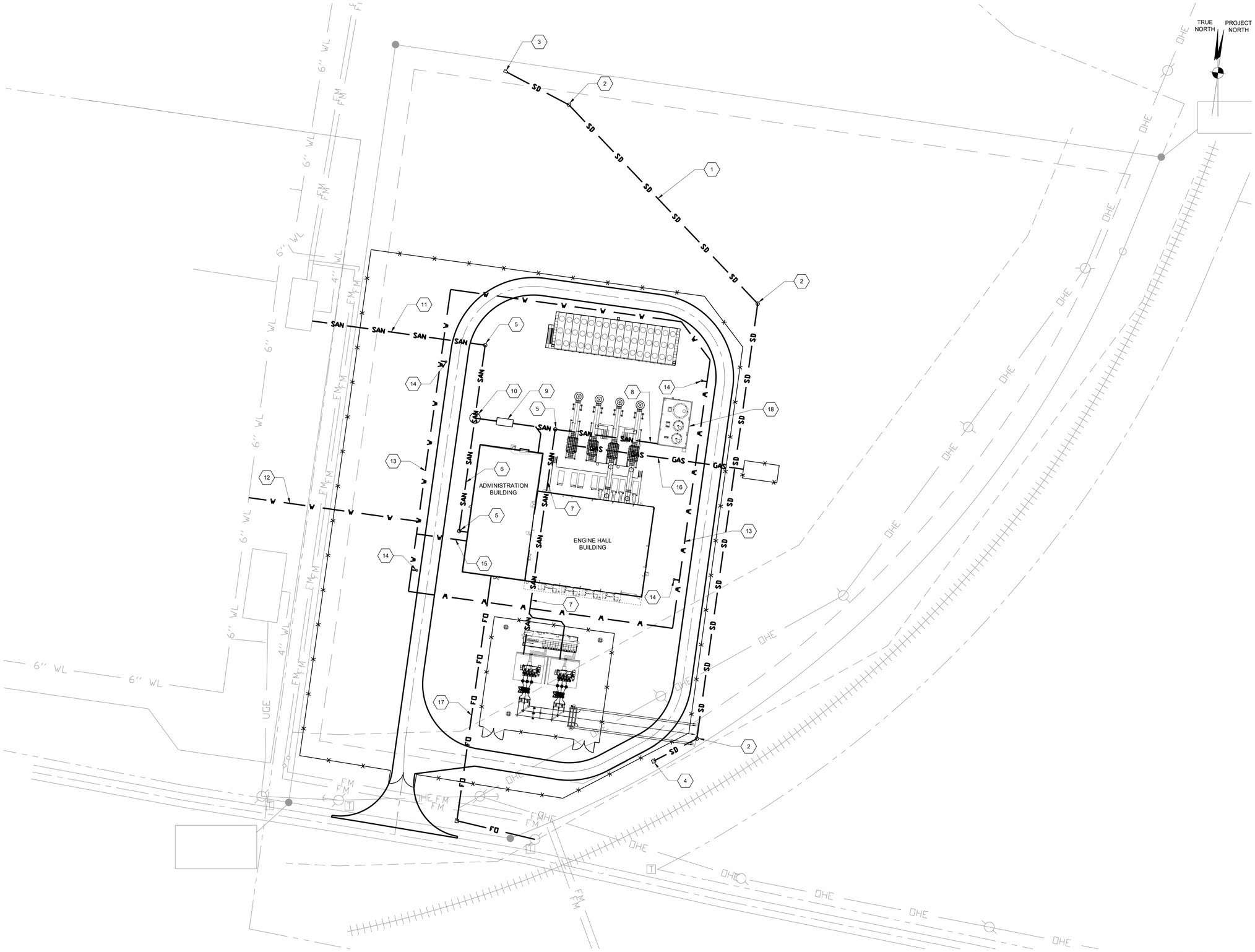
KENTUCKY MUNICIPAL ENERGY AGENCY
KYMEA ENERGY CENTER I
MADISONVILLE, KENTUCKY

SITE PLAN

DESIGNED	V.J. SCHROCK
DRAWN	S.L. ROENFELDT
CHECKED	
APPROVED	
APPROVED	
DATE	

SCALE: AS NOTED
NO. 31825.01
REV. A
CS101

CADD D1-R6



KEYNOTE LEGEND:

1. STORM SEWER DIVERTING STREAM FLOW. SIZE TBD.
2. STORM SEWER MANHOLE. SIZE TBD.
3. STORM SEWER FLARED END SECTION.
4. STORM DRAIN INTAKE STRUCTURE.
5. SANITARY MANHOLE.
6. SANITARY DRAIN FROM ADMIN. BUILDING.
7. SEWER DRAIN FOR GSU AND ENGINE HALL.
8. SEWER DRAIN FOR TANK FARM.
9. OIL-WATER SEPERATOR.
10. SANITARY PUMP STATION.
11. SANITARY FORCE MAIN TO EXISTING PUMP STATION BUILDING.
12. 6" WATER MAIN, CONNECTION TO EXISTING.
13. 6" WATER MAIN, FIRE WATER LOOP.
14. FIRE HYDRANT.
15. DOMESTIC WATER SERVICE TO ADMIN. BUILDING.
16. NATURAL GAS SERVICE LINE.
17. FIBER OPTIC SERVICE LINE.
18. TANK FARM

UNDERGROUND UTILITY PLAN

SCALE: 1"=50'

AT FULL SIZE

0 1 2 3 IN
0 1 2 3 4 5 6 7 8 cm

FOR WETLAND PERMIT APPLICATION

11-1-24

NO.	REVISIONS	DSGN	CHKD	APVD	DATE

Stanley Consultants INC.
225 Iowa Avenue, Muscatine, Iowa 52761-3764
www.stanleyconsultants.com

CHRISTMAN SINCE 1884

KYMEA

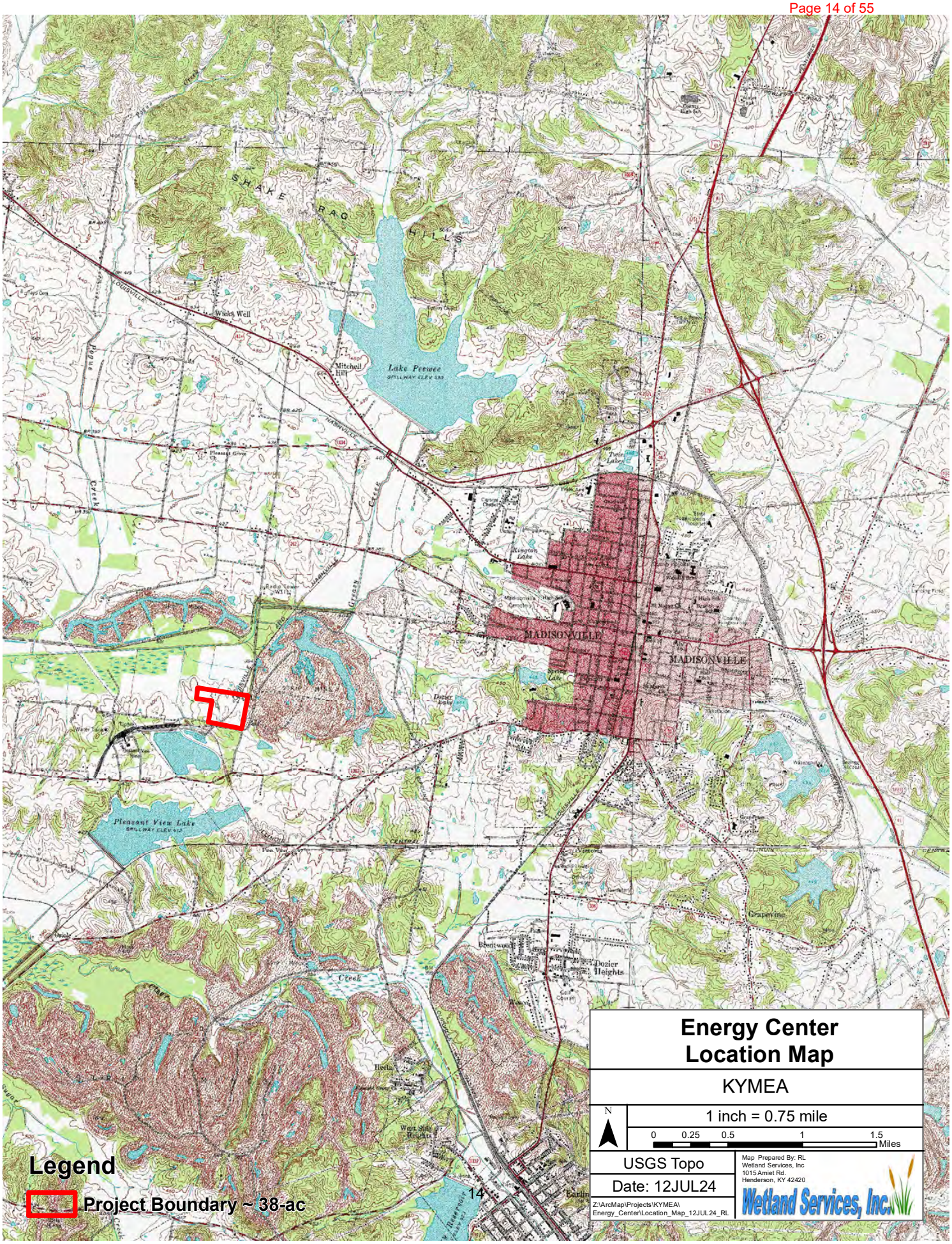
KENTUCKY MUNICIPAL ENERGY AGENCY
KYMEA ENERGY CENTER I
MADISONVILLE, KENTUCKY

UNGERGROUND UTILITY PLAN

DESIGNED	V.J. SCHROCK
DRAWN	S.L. ROENFELDT
CHECKED	
APPROVED	
APPROVED	
DATE	

SCALE: AS NOTED
NO. 31825.01
REV. A
CU101

CADD D1-R6


SHAKE RAG HILLS
Wicks Well
Mitchell Hill
Lake Peewee
SPILLWAY ELEV 430
Pleasant Grove Ch.
Kington Lake
MADISONVILLE
MADISONVILLE
Dozier Lake
Pleasant View Lake
SPILLWAY ELEV 413
Grapevine
Dozier Heights
Creek
Legend
Project Boundary ~ 38-ac
Energy Center
Location Map
KYMEA
N
1 inch = 0.75 mile
0 0.25 0.5 1 1.5
Miles
USGS Topo
Date: 12JUL24
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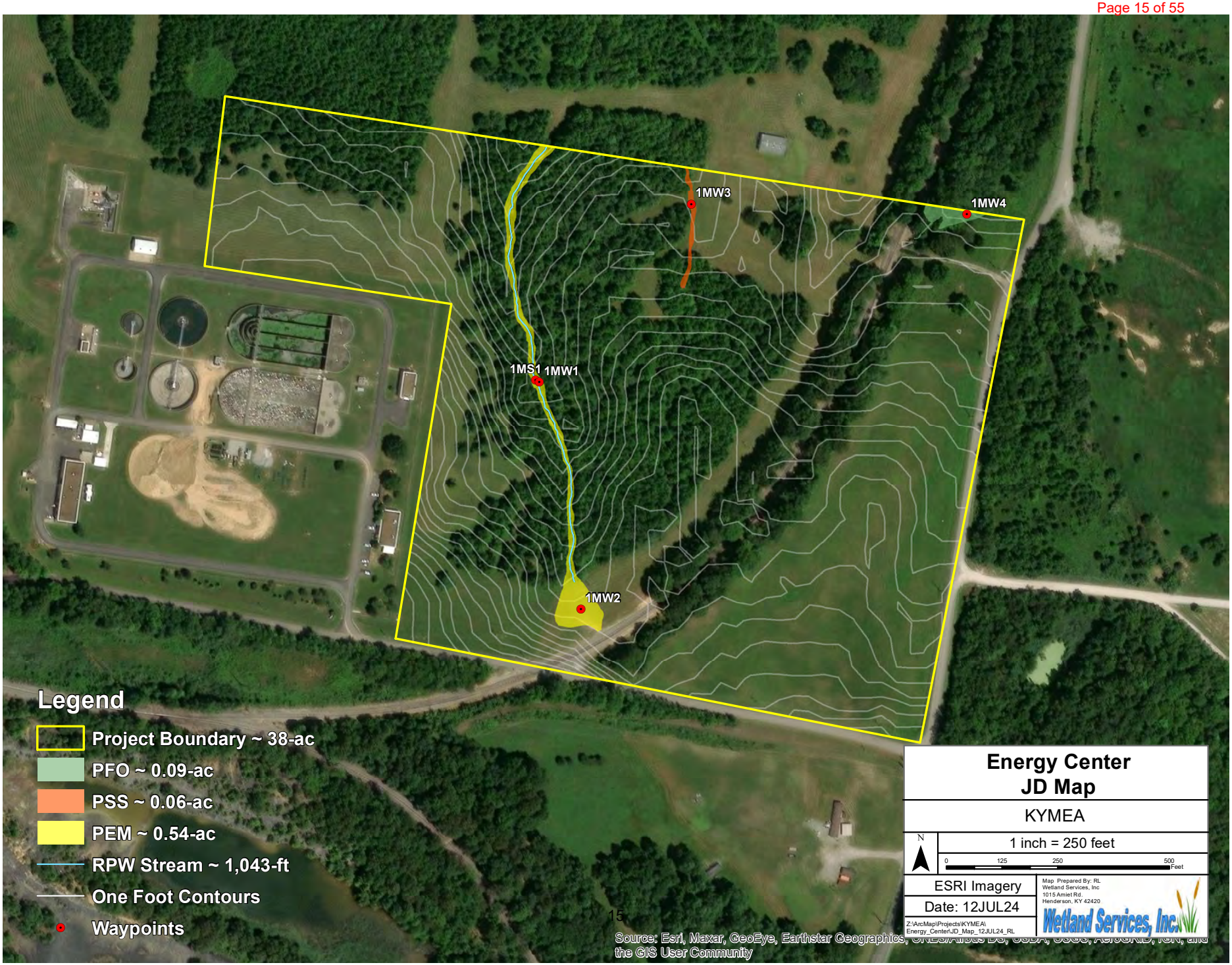
Map Prepared By: RL
Wetland Services, Inc
1015 Amiet Rd.
Henderson, KY 42420
Wetland Services, Inc.


1MW3
1MW4
1MS1
1MW1
1MW2
Legend
Project Boundary ~ 38-ac
PFO ~ 0.09-ac
PSS ~ 0.06-ac
PEM ~ 0.54-ac
RPW Stream ~ 1,043-ft
One Foot Contours
Waypoints
Energy Center
JD Map
KYMEA
N
1 inch = 250 feet
0
125
250
500
Feet
ESRI Imagery
Date: 12JUL24
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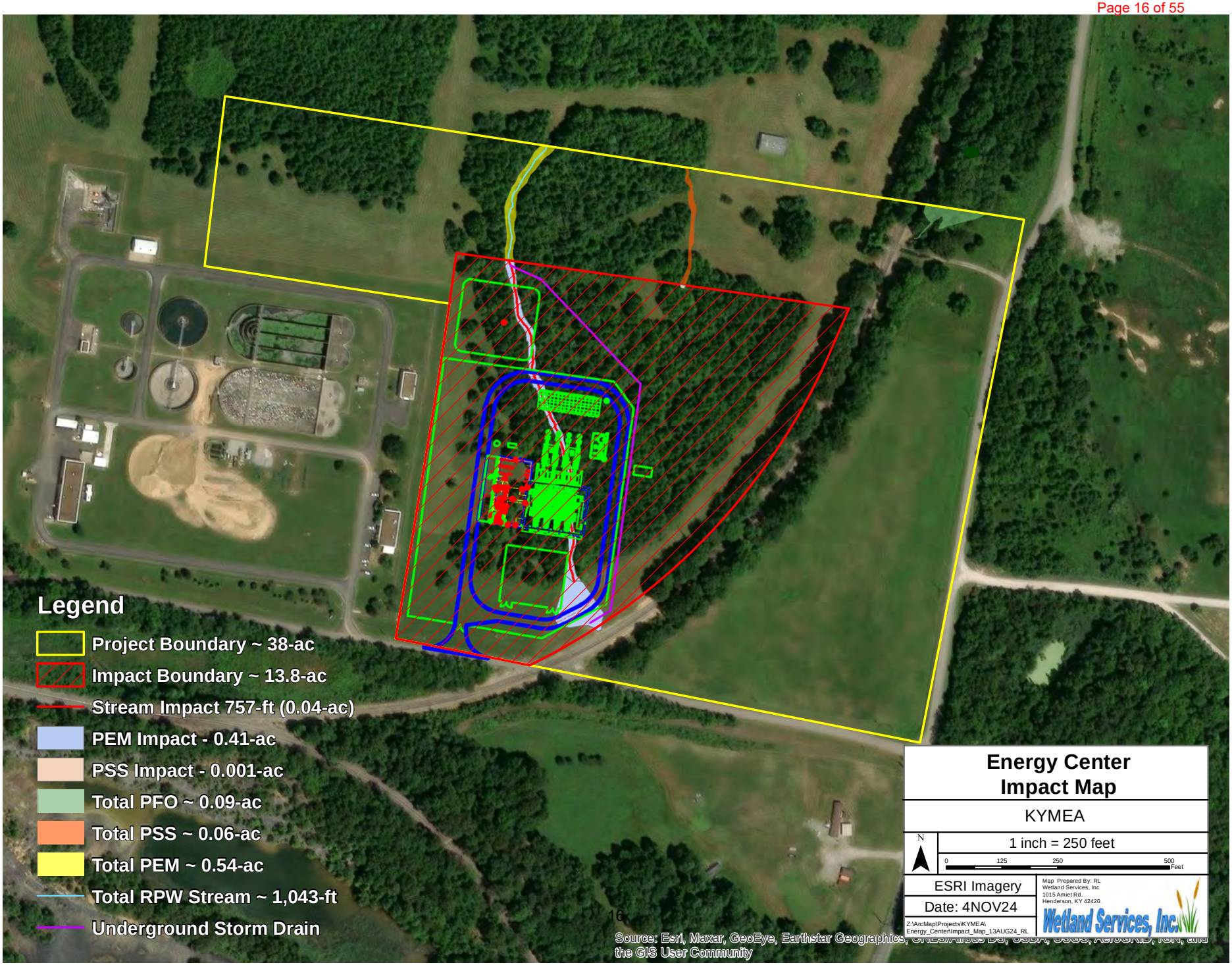
Map Prepared By: RL
Wetland Services, Inc
1015 Amiet Rd.
Henderson, KY 42420
Wetland Services, Inc.
15
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Legend
Project Boundary ~ 38-ac
Impact Boundary ~ 13.8-ac
Stream Impact 757-ft (0.04-ac)
PEM Impact - 0.41-ac
PSS Impact - 0.001-ac
Total PFO ~ 0.09-ac
Total PSS ~ 0.06-ac
Total PEM ~ 0.54-ac
Total RPW Stream ~ 1,043-ft
Underground Storm Drain
Energy Center
Impact Map
KYMEA
N
1 inch = 250 feet
0 125 250 500
Feet
ESRI Imagery
Date: 4NOV24
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Map Prepared By: RL
Wetland Services, Inc
1015 Amiet Rd.
Henderson, KY 42420
Wetland Services, Inc.
16
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Bat Habitat Assessment

Project Purpose: Kentucky Municipal Energy Agency (KYMEA) is proposing to construct a natural gas electric generating facility in Madisonville, Kentucky. They need 13.8-ac to complete their project. Of this area, approximately 4.8-ac of trees will need to be cleared within their site plan footprint.

Federally Protected Species: According to the U.S. Fish & Wildlife Service (USFWS), Kentucky lies near the center of the Indiana bat's range and within the southeastern portion of the NLEB's range. Kentucky contains numerous caves and forestlands known to provide habitat for both species. In July 2024, the USFWS Kentucky Ecological Services Field Station website was accessed and as of August 2019, there is no known habitat for the Indiana Bat nor the NLEB in Hopkins County nor in the proposed project area. Gray Myotis and the Tricolored Bat, both threatened species, are also of consideration in Hopkins County, however there is no known species within the proposed project area.

Components of Project: About 63% of this project area is forested while 27% is open area. The project area is currently believed to contain trees that could be used as potential roosting sites. These bat species tend to forage near riparian habitat, therefore the likelihood of roosts tends to be proportional to the proximity to such habitat. This location has riparian habitat along the small intermittent stream and is adjacent to a large forested contiguous riparian habitat along Greasy Creek, therefore the potential for summer roosts may exist.

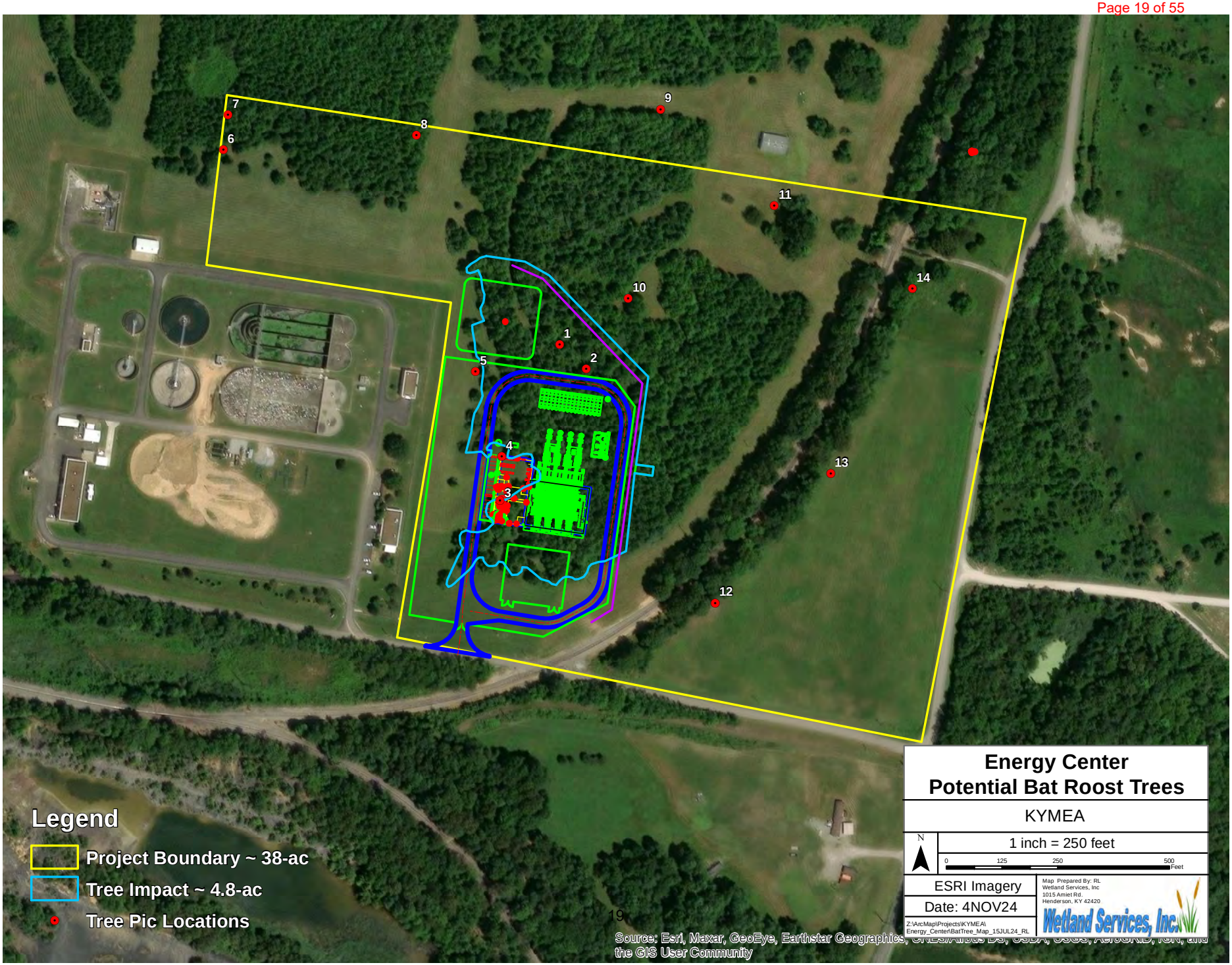
Habitat in Proposed Project Area: Bats tend to roost beneath exfoliating bark, in cavities of dead, dying, live trees, and in snags. There are approximately 4.8 acres of mixed mast trees and brush which need to be removed in order to develop this site. On July 11th, 2024, a biologist from Wetland Services did a walk-through assessment of the project area to identify any suitable roost trees for the bats. The trees in this location are somewhere between 18 and 24 years old and many were considered suitable roost trees for either the Indiana Bat, NLEB, Gray Myotis, and Tricolored Bat.

Tree species include: Olive, Ash, Cedar, Sycamore, Birch, Locust, Maple, Sweetgum, Black Gum, Persimmon, Willow, Cherry, , Bradford Pear, Elm, and Oak. Brush consists primarily Olive, Blackberry, Maple, Elm, and Ash.

Effects Analysis: The proposed development will require the removal of approximately 4.8 acres of trees and brush. Within these 4.8 acres are suitable roost trees that may be potential habitat for the bats. The actual acres of habitat to be disturbed was calculated using the block tree method: **4.8-ac of habitat loss.** See the attached map for the area to be cleared and points where representative potential roost trees photographed.

Recommendation: In order to mitigate this loss of potential bat roost habitat, it is recommended the applicant contribute to the Imperiled Bat Conservation Fund (IBCF) utilizing the block method to calculate the contribution. The following calculations illustrate the different options according to USFWS Mitigation Multipliers by Habitat Type and Season. It is recommend that trees only be cut between October 15 and March 31. If they are cut outside these dates, the contribution must match the season in which the trees are removed as shown in the table below.

Mitigation Multipliers for Potential Habitat and Season				
Season	**Mitigation Multiplier**	**Acres Suitable Habitat**	**Current Rate Per Acre**	**ICBF Contribution Amount**
April 1 – August 15 (swarming unoccupied; potential, summer occupied)	1.0	4.8	$4,700	$22,560
June 1 – July 31 (non-volant period: swarming unoccupied; potential, summer occupied)	2.0	4.8	$4,700	$45,120
August 16 – October 14 (swarming & potential occupied; summer unoccupied)	1.0	4.8	$4,700	$22,560
October 15 – March 31	0.5	4.8	$4,700	$11,280


7
8
9
6
11
14
10
1
2
5
4
13
3
12
Legend
Project Boundary ~ 38-ac
Tree Impact ~ 4.8-ac
Tree Pic Locations
Energy Center
Potential Bat Roost Trees
KYMEA
N
1 inch = 250 feet
0
125
250
500
Feet
ESRI Imagery
Date: 4NOV24
Z:\ArcMap\Projects\KYMEA\
Energy_Center\BatTree_Map_15JUL24_RL
Map Prepared By: RL
Wetland Services, Inc
1015 Amiet Rd.
Henderson, KY 42420
Wetland Services, Inc.
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

oto 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

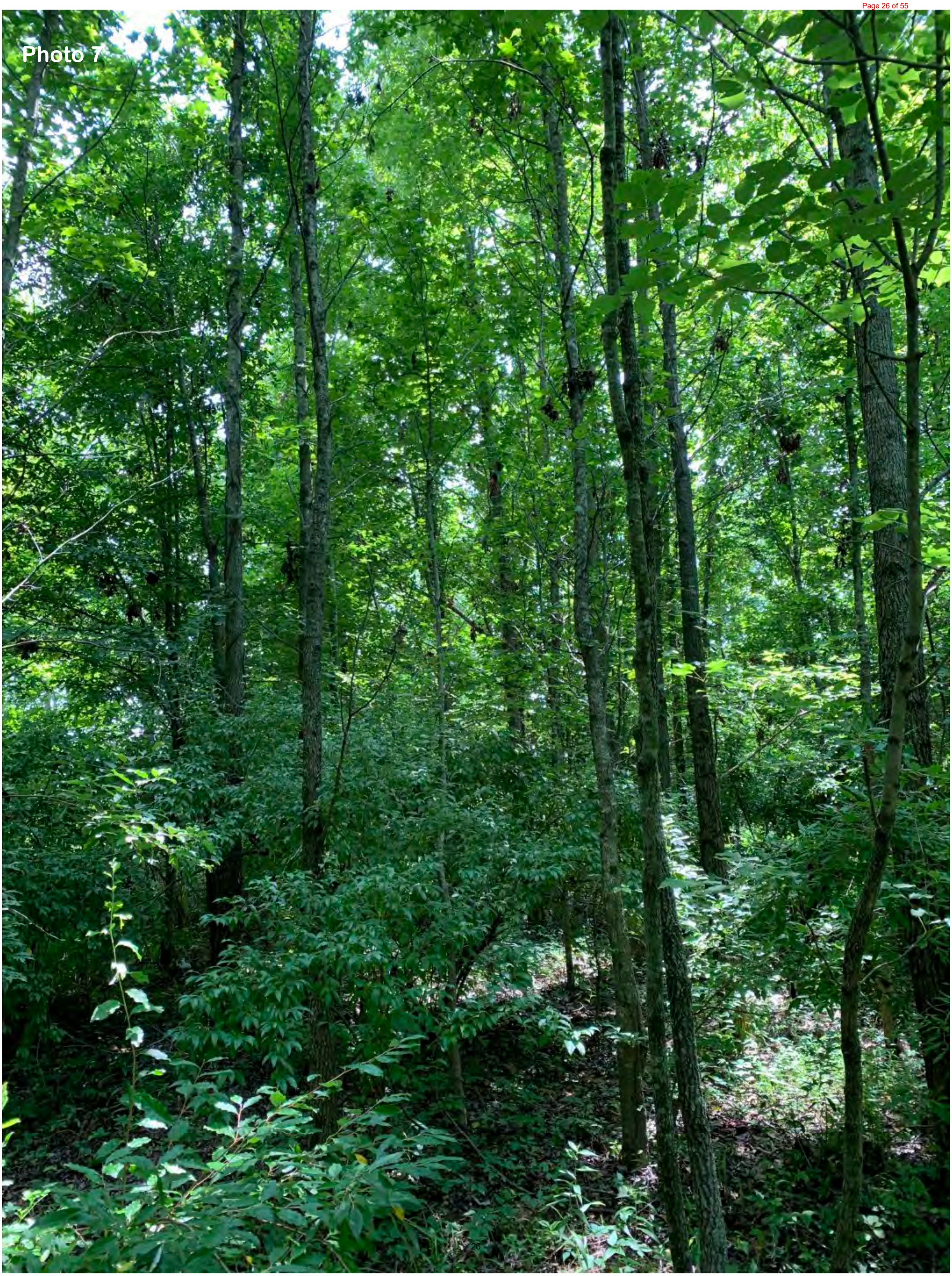
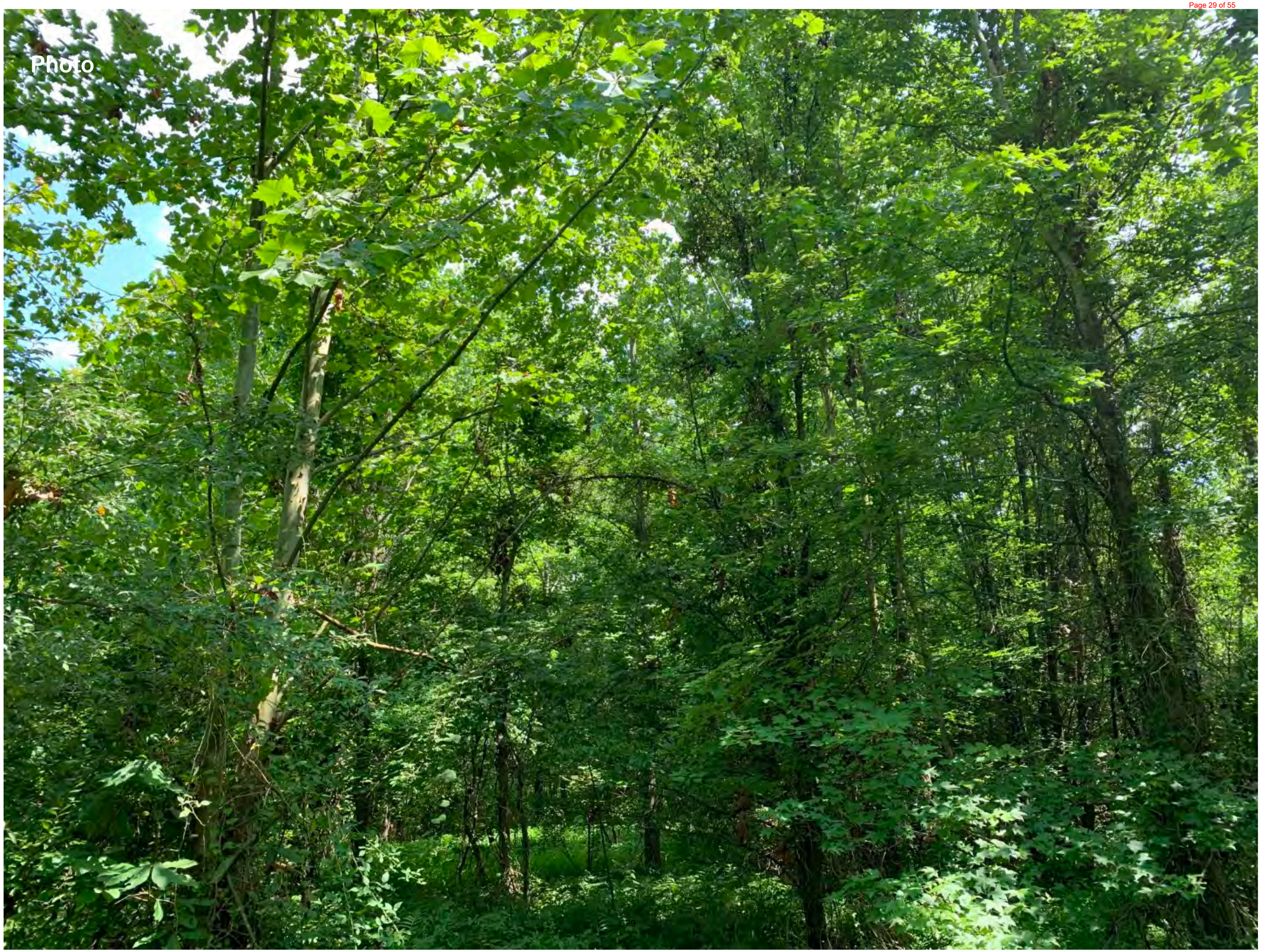


Photo 8

Photo 9

Photo



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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov

In Reply Refer To: 08/17/2024 20:46:01 UTC
Project Code: 2024-0131719
Project Name: KYMEA - Energy Center

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do..

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0467

PROJECT SUMMARY

Project Code: 2024-0131719

Project Name: KYMEA - Energy Center

Project Type: Operations and Maintenance - Electric Power Transmission and Distribution Facilities

Project Description: KYMEA will construct a natural gas electric generating facility in Madisonville, Kentucky with a capacity of approximately 75 net megawatts (KYMEA Energy Center I or Project). The Plant Site will be located at 1757 AC Slaton Road in Madisonville, Kentucky with the LGE/KU Interconnection Facilities (Substation) located adjacent to the Plant at the corner of A C Slaton Road and Bean Cemetery. They need 13.2-ac to complete their project.

Site development is expected to begin in June 2025 with a proposed in-service date for the Project of June 2027. The Project is expected to have an operating life of not less than 30 years.

The Public Works facility will provide electric energy and capacity to KYMEA's ten municipal utility all requirements customers.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.320021749999995,-87.55052842375088,14z

Counties: Hopkins County, Kentucky

ENDANGERED SPECIES ACT SPECIES

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 5 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens*	Endangered

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:

- The project area includes potential gray bat habitat.

Species profile: https://ecos.fws.gov/ecp/species/6329
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/S2O6RQ2WTFBYJCL3WVASOIV4HA/documents/generated/6422.pdf

Indiana Bat *Myotis sodalis*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
This species only needs to be considered under the following conditions:

- The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.

Species profile: https://ecos.fws.gov/ecp/species/5949
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/S2O6RQ2WTFBYJCL3WVASOIV4HA/documents/generated/6422.pdf

BIRDS

NAME	STATUS
Whooping Crane *Grus americana*	Experimental Population, Non-Essential

Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY)
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/758

CLAMS

NAME	STATUS
Clubshell *Pleurobema clava*	Endangered

Population: Wherever found; Except where listed as Experimental Populations
No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

Species profile: https://ecos.fws.gov/ecp/species/3789
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/S2O6RQ2WTFBYJCL3WVASOIV4HA/documents/generated/5639.pdf

Fanshell *Cyprogenia stegaria*	Endangered

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

NAME STATUS

Species profile: https://ecos.fws.gov/ecp/species/4822
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/S2O6RQ2WTFBYJCL3WVASOIV4HA/documents/generated/5639.pdf

Northern Riffleshell *Epioblasma rangiana* Endangered
No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

Species profile: https://ecos.fws.gov/ecp/species/527
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/S2O6RQ2WTFBYJCL3WVASOIV4HA/documents/generated/5639.pdf

Pink Mucket (pearlymussel) *Lampsilis abrupta* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7829
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/S2O6RQ2WTFBYJCL3WVASOIV4HA/documents/generated/5639.pdf

INSECTS

NAME STATUS

Monarch Butterfly *Danaus plexippus* Candidate
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Rick Liggett
Address: 3880 Trigg Turner Rd.
City: Corydon
State: KY
Zip: 42406
Email rl@wetland.services
Phone: 2704540900

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers
Name: Darrin Parrent
Email: Darrin.S.Parrent@usace.army.mil
Phone: 8128537632

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov

In Reply Refer To: 08/17/2024 20:53:28 UTC
Project code: 2024-0131719
Project Name: KYMEA - Energy Center

Subject: Consistency letter for the project named 'KYMEA - Energy Center' for the endangered Indiana bat and its critical habitat in the proposed project location, pursuant to the Indiana Bat Determination Key (DKey)

Dear Rick Liggett:

The U.S. Fish and Wildlife Service (Service) received on **August 17, 2024** your effect determination(s) for the 'KYMEA - Energy Center' using the Indiana Bat DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

You have agreed to the following conservation measures:

- The project proponent will implement all Best Management Practices associated with applicable federal and/or state permits during construction to minimize sedimentation in streams.

Based on your answers and the assistance of the Service's Indiana Bat DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Indiana Bat (*Myotis sodalis*)	Endangered	May affect

Consultation Status

May Affect Determinations: Species with May Affect determinations are those for which the DKey was unable to provide a conclusion or those for which you were either unsure about the determination or you chose to make a "may affect" determination. If the DKey was unable to provide a conclusion, this does not necessarily mean that the project is likely to adversely affect the species. If you think the project may affect the species or want additional technical

assistance, please follow the instructions in the "Additional Coordination" section below. If a federal action agency chooses to make a "no effect" determination for the species, there is no statutory requirement to request concurrence with that determination; however, the federal action agency should document the supporting information for this determination in their files. This documentation would typically demonstrate a lack of suitable habitat within the action area, show that no impacts to suitable habitat would occur, or provide information that the species is not reasonably certain to occur in the action area even though suitable habitat is present.

In addition to the Indiana bat, the following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Clubshell *Pleurobema clava* Endangered
- Fanshell *Cyprogenia stegaria* Endangered
- Gray Bat *Myotis grisescens* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Northern Rifffleshell *Epioblasma rangiana* Endangered
- Pink Mucket (pearlymussel) *Lampsilis abrupta* Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

To address effects to other federally listed or proposed species and/or their designated critical habitat, you can request project-specific review by following the instructions in the “Next Steps” section of your species list letter, or you may use another determination key, if available.

Additional Coordination

To request additional technical assistance or consultation, please contact the Kentucky Ecological Services Field Office . When you contact the office, please provide all relevant site-specific information regarding the proposed Action. The Kentucky Ecological Services Field Office will respond within 30 to 60 days of your submittal.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

KYMEA - Energy Center

2. Description

The following description was provided for the project 'KYMEA - Energy Center':

> KYMEA will construct a natural gas electric generating facility in Madisonville, Kentucky with a capacity of approximately 75 net megawatts (KYMEA Energy Center I or Project). The Plant Site will be located at 1757 AC Slaton Road in Madisonville, Kentucky with the LGE/KU Interconnection Facilities (Substation) located adjacent to the Plant at the corner of A C Slaton Road and Bean Cemetery. They need 13.2-ac to complete their project.
>
> Site development is expected to begin in June 2025 with a proposed in-service date for the Project of June 2027. The Project is expected to have an operating life of not less than 30 years.
>
> The Public Works facility will provide electric energy and capacity to KYMEA's ten municipal utility all requirements customers.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.320021749999995,-87.55052842375088,14z

QUALIFICATION INTERVIEW

1. Will the proposed action involve Federal funding, permitting, or authorization, or will it be carried out by a Federal Agency?

   Yes

2. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead Federal Agency for this action?

   No

3. Are you the lead Federal Action Agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

   No

4. [Semantic] Is the Action Area within 1/2-mile of a known Indiana bat hibernaculum?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact the Field Office listed in the letterhead of this letter.

   Automatically answered
   No

5. Will the proposed Action involve construction or operation of wind turbines?

   No

6. Will the proposed Action involve blasting, other than a fireworks display?

   No

7. Will the proposed Action involve a new point source discharge from a facility other than a water treatment plant or storm water system?

   No

8. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

   Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

   No

9. Will the proposed Action include the removal, replacement, repair and/or maintenance of an existing bridge?

   No

10. Will the proposed Action involve perennial stream loss that would require an individual permit under 404 of the Clean Water Act?

    No

11. Will the proposed Action involve discharge of sediment into a stream?

    Yes

12. Will the project proponent implement all Best Management Practices associated with applicable state and/or federal permits to minimize sedimentation in streams?

    Yes

13. Does the Action Area contain any caves (including their associated sinkholes, fissures, or other karst features), rockshelters, underground quarries, or abandoned mine portals (including associated underground workings)?

    No

14. Will the proposed project result in the removal of trees?

    Yes

15. Did a **FWS-approved** habitat model applicable to the project site determine the project site to be of low probability for use by Indiana bats?

    Note: This question will most commonly be answered "no." If the answer to this question is "yes", you will be required to upload your **Habitat Model Report**

    No

16. Will the proposed project result in the removal of potentially suitable summer habitat for the Indiana bat?

    Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel. This includes forests and woodlots, linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree (live tree and/or snag ≥5 inches diameter at breast height (dbh) (12.7 centimeter) that has exfoliating bark, cracks, crevices, and/or hollows) and are located within 1,000 feet (305 meters) of other forested/wooded habitat. See the Indiana Bat and Northern Long-eared Bat Survey Guidelines for additional description (https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines).

    Note: If "no" upload a document with photos representative of the forested habitat to be removed.

    Yes

17. Will the proposed Action remove any suitable (primary or alternate) Indiana bat roost trees? *Suitable Indiana bat roost trees are live trees and/or snags ≥5 inches diameter at breast height (dbh) (12.7 centimeter) that have exfoliating bark, cracks, crevices, and/or hollows*.

    Note: If "no" upload a document with photos representative of the forested habitat to be removed.

    Yes

18. Will the proposed Action remove any suitable primary roost trees?

    Suitable Indiana bat primary maternity roost tree refers to a dead tree or snag that is nine inches or greater in diameter at breast height and has loose or exfoliating bark, cracks, crevices, and/or hollows. A live tree may also qualify if it contains hollows or dead portions with loose or exfoliating bark, cracks, and/or crevices.

    Note: If "no" upload a document with photos representative of the forested habitat to be removed.

    Yes

19. If appropriate, would you like to conduct a voluntary emergence survey to determine if bats are using all of the suitable roost trees proposed for removal? *Emergence surveys require a surveyor to observe each suitable roost tree for the presence of bats. Surveys should follow the protocol in Appendix E in the USFWS' current Indiana Bat and Northern Long-eared Bat Survey Guidelines at https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.*

    No

20. Would you like to conduct a voluntary summer presence/absence survey (netting or acoustic) of the project area?

    Note: If "yes" upload a survey proposal for the Field Office to review. Surveys should be conducted in accordance with the USFWS' current Indiana Bat and Northern Long-eared Bat Survey Guidelines, found at https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    No

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Rick Liggett
Address: 3880 Trigg Turner Rd.
City: Corydon
State: KY
Zip: 42406
Email rl@wetland.services
Phone: 2704540900

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers
Name: Darrin Parrent
Email: Darrin.S.Parrent@usace.army.mil
Phone: 8128537632

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov

In Reply Refer To: 08/17/2024 20:58:09 UTC
Project code: 2024-0131719
Project Name: KYMEA - Energy Center

Subject: Consistency letter for the project named 'KYMEA - Energy Center' for specified threatened and endangered species that may occur in your proposed project location consistent with the Kentucky Determination Key (DKey)

Dear Rick Liggett:

The U.S. Fish and Wildlife Service (Service) received on **August 17, 2024** your effect determination(s) for the 'KYMEA - Energy Center' (Action) using the Kentucky (DKey) within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance of the Service's Kentucky DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Clubshell (*Pleurobema clava*)	Endangered	May affect
Fanshell (*Cyprogenia stegaria*)	Endangered	May affect
Gray Bat (*Myotis grisescens*)	Endangered	NLAA
Northern Rifflesheell (*Epioblasma rangiana*)	Endangered	May affect
Pink Mucket (pearlymussel) (*Lampsilis abrupta*)	Endangered	May affect

Consultation Status

May Affect Determinations: Species with May Affect determinations are those for which the DKey was unable to provide a conclusion or those for which you were either unsure about the determination or you chose to make a "may affect" determination. If the DKey was unable to provide a conclusion, this does not necessarily mean that the project is likely to adversely affect the species. If you think the project may affect the species or want additional technical assistance, please follow the instructions in the "Additional Coordination" section below. If a federal action agency chooses to make a "no effect" determination for the species, there is no

statutory requirement to request concurrence with that determination; however, the federal action agency should document the supporting information for this determination in their files. This documentation would typically demonstrate a lack of suitable habitat within the action area, show that no impacts to suitable habitat would occur, or provide information that the species is not reasonably certain to occur in the action area even though suitable habitat is present.

The Service recommends that your agency contact the Kentucky Ecological Services Field Office or re-evaluate the Action in IPaC if: 1) the scope, timing, duration, or location of the Action changes, 2) new information reveals the Action may affect listed species or designated critical habitat, or 3) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Kentucky Ecological Services Field Office should take place before project changes are final or resources committed.

The following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Indiana Bat *Myotis sodalis* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

To address effects to other federally listed or proposed species and/or their designated critical habitat, you can request project-specific review by following the instructions in the “Next Steps” section of your species list letter, or you may use another determination key, if available.

Additional Coordination

To request additional technical assistance or consultation, please contact the Kentucky Ecological Services Field Office . When you contact the office, please provide all relevant site-specific information regarding the proposed Action. The Kentucky Ecological Services Field Office will respond within 30 to 60 days of your submittal.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

KYMEA - Energy Center

2. Description

The following description was provided for the project 'KYMEA - Energy Center':

> KYMEA will construct a natural gas electric generating facility in Madisonville, Kentucky with a capacity of approximately 75 net megawatts (KYMEA Energy Center I or Project). The Plant Site will be located at 1757 AC Slaton Road in Madisonville, Kentucky with the LGE/KU Interconnection Facilities (Substation) located adjacent to the Plant at the corner of A C Slaton Road and Bean Cemetery. They need 13.2-ac to complete their project.
>
> Site development is expected to begin in June 2025 with a proposed in-service date for the Project of June 2027. The Project is expected to have an operating life of not less than 30 years.
>
> The Public Works facility will provide electric energy and capacity to KYMEA's ten municipal utility all requirements customers.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.320021749999995,-87.55052842375088,14z

QUALIFICATION INTERVIEW

1. Will the proposed Action involve Federal funding, permitting, or authorization, or will it be carried out by a Federal Agency?

   Yes

2. Are you the lead Federal Action Agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

   No

3. [Hidden Semantic] Does the action area intersect critical habitat?

   Automatically answered
   No

4. Will the proposed Action involve construction or operation of wind turbines?

   No

5. Will the proposed Action involve blasting (other than a fireworks display)?

   No

6. Will the proposed Action involve a new point source discharge from a facility other than a water treatment plant or storm water system?

   No

7. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g. leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

   No

8. Will the proposed Action include the removal, replacement, repair and/or maintenance of an existing bridge or culvert?

   No

9. Will the proposed Action involve perennial stream loss that would require an individual permit under 404 of the Clean Water Act?

   No

10. Will the proposed Action involve discharge of sediment into a stream?

    Yes

11. Will the project proponent implement all BMPs associated with applicable state and/or federal permits to minimize sedimentation in streams during construction?

    Yes

12. Does the Action Area contain any caves (including their associated sinkholes, fissures, or other karst features), rockshelters, underground quarries, or abandoned mine portals (including associated underground workings)?

    No

13. [Hidden Semantic] Does the Action Area intersect the Kentucky AOI of the gray bat?

    Automatically answered
    Yes

14. Will the proposed Action involve drilling or boring?

    Yes

15. Prior to the drilling or boring, will the project proponent conduct appropriate preliminary evaluations to ensure that proposed drilling or boring is unlikely to encounter karst voids or other voids?

    Yes

16. Will the project proponent contact the Field Office if potentially suitable gray bat hibernacula or roosting habitat is encountered during drilling or boring?

    Yes

17. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the gray bat.

    What is your effect determination for the **gray bat**?

    Note:*IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.*

    2. "May affect - not likely to adversely affect"

18. Will the proposed Action involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds)?

    Yes

19. [Hidden Semantic] Does the project area intersect the AOI of the clubshell (*Pleurobema clava*)?

    Automatically answered
    Yes

20. [Hidden Semantic] Does the project area intersect the AOI of the fanshell (*Cyprogenia stegaria*)?

    Automatically answered
    Yes

21. [Hidden Semantic] Does the project area intersect the AOI of the northern riffleshell (*Epioblasma torulosa rangiana*)?

    Automatically answered
    Yes

22. [Hidden Semantic] Does the project area intersect the AOI of the pink mucket (*Lampsilis abrupta*)?

Automatically answered

Yes

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Rick Liggett
Address: 3880 Trigg Turner Rd.
City: Corydon
State: KY
Zip: 42406
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LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers
Name: Darrin Parrent
Email: Darrin.S.Parrent@usace.army.mil
Phone: 8128537632

Siting Board 2-53:

Provide any environmental studies or reports that have been completed.

Response: Besides those provided with the Wetlands Permit Application in Attachment 2-52, a Critical Issues Analysis and Permitting Matrix was completed for the Project Site and is provided as Attachments 2-53a and 2-53b. In addition, an Environmental Review for the Substation (switching station) Site was completed as required for submittal to LGE/KU and is provided as Attachment 2-53c.

Witness: Doug Buresh

Stanley Consultants

Connect. Create. Contribute.

Critical Issues Analysis

KYMEA Energy Center I

Kentucky Municipal Energy Agency (KYMEA)

Project Number: 31825.01.00

Draft

July 28, 2024

Deliverable: Critical Issues Analysis
Project: KYMEA Energy Center I
Client: Kentucky Municipal Energy Agency (KYMEA)
Location: Hopkins County, Kentucky

Project No: 31825.01.00

Submittal: Draft
Date: July 28, 2024

Prepared by: Stanley Consultants, Inc.

Stanley Consultants

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Executive Summary

As part of the Phase 1 Development Tasks for the Kentucky Municipal Energy Agency (KYMEA) Energy Center I project located on A C Slaton Road in Hopkins County, Kentucky (Project Area), Kentucky Municipal Energy Agency (KYMEA (Client), has requested Stanley Consultants, Inc. (Stanley Consultants) conduct an initial desktop review of potential environmental critical issues. This report assesses the potential for environmental resources to occur within the Project Area and includes findings that may affect project development and design.

ES.1 Key Findings

- The development of a Stormwater Pollution Prevention Plan (SWPPP), completion of a Notice of Intent (NOI), and obtainment of a General Permit for Stormwater Discharges KYR100000 is required before construction activities can occur.
- Five special status species, the Whooping Crane, Monarch Butterfly, Northern Long-eared Bat, Tricolored Bat, and Indiana Bat were found to have potential to occur within the Project Area.
- A riverine wetland is located in the center of the Project Area.
- Based on the fact that there are sites in the vicinity and upgradient of the Project Area on environmental databases searched, a potential environmental concern includes the possibility that soil and/or groundwater impacts exist in the Project Area.
- Railroad tracks exist in the Project Area. The presence of railroad tracks is a potential environmental concern and could contribute to soil and/or groundwater impacts exist in the Project Area.

ES.2 Risks and Potential Project Impacts

- If a Nationwide Permit is needed from United States Army Corps of Engineers (USACE)is necessary, the permit reviewer will consult with the in-house biologist and determine if consultation with USFWS is needed.
- A Nationwide Permit may be required for the wetland present in the Project Area. The need for the permit will be determined by the results of the wetland delineation study.
- If a Nationwide Permit is needed from the USACE is necessary, the permit reviewer will consult with the in-house archaeologist and determine if a more in-depth survey is needed to comply with Section 106.
- Soil and/or groundwater impacts may be present in the Project Area. This could potentially impact construction schedule and costs should impacts be encountered. Subsurface samples can be collected and analyzed for environmental parameters during planned geotechnical studies.

1.0 Introduction

As part of the Phase 1 Development Tasks for the KYMEA Energy Center I project located on A C Slaton Road in Hopkins County, Kentucky (Project Area), KYMEA has requested Stanley Consultants conduct an initial desktop review of potential environmental critical issues. The assessment of environmental resources presented in this CIA is part of Phase 1 activities intended to inform the Project Area planning and design process, as well as to determine whether the next steps are viable and needed for more detailed assessments to be conducted in Phase 2. This document presents a summary of findings of the critical issues assessed within the potential footprint of disturbance (Vicinity Map; Figure 1 and Project Area; Figure 2).

2.0 Project Description

The Client is proposing to develop a natural gas generating facility and four reciprocating internal combustion engine (RICE) generators within the Project Area. The proposed natural gas electric generating facility will have a capacity of approximately 75 net megawatts (MW). The electric generating unit will be comprised of four Wartsila 18V50SG RICE generators. Each RICE generator will have nominal capacity of 18.8 MW. The Project will be designed for both continuous and peaking service with the capability of multiple quick starts and stops per day. Site development is expected to begin in June 2025 with a proposed in-service date for the Project of June 2027. The Project is expected to have an operating life of not less than 30 years.

3.0 Project Area

3.1 Location

The Project Area is located in Hopkins County, Kentucky 42431, approximately 2.82 miles southwest of Madisonville, Kentucky (Project Area; Figure 2). For the CIA, the Project Area totals approximately 37.4 acres (Figure 2). Elevations within the Project Area range from 398 to 425 feet above mean sea level (Figure 2).

3.2 Land Use

Historical aerial photographs from the Environmental Data Resources (EDR) Report indicate that the Project Area was developed for agricultural purposes since at least 1950. AC Slaton and Bean Cemetery Road are present in 1950 as undeveloped dirt roads. The CSX Railroad running through the center of the Project Area is also present in 1950. By 1952 structures are present in the northeast corner of the Project Area along the northern boundary. In 1983, the riverine running through the center of the Project Area is seen in its current day position. From 1950 to 1983, the riverine was gradually moved eastward as the Project Area was modified throughout the years. By 1998 the wastewater treatment plant west of the Project Area was constructed. By 2008 the structures along the northern boundary of the Project Area were removed. From 2012 to current day, the Project Area became reforested along the riverine and railroad. Currently, the surrounding area appears to be a combination of agricultural fields, forested areas, and residential housing. The 1907 topographic map shows one structure present along the western border of the Project Area. The 1954 topographic map shows one structure present along the northern border of the Project Area. The 1954 topographic map also shows the railroad that currently runs through the Center of the Project Area. The 1962 topographic map shows the intermittent stream located in the center of the Project Area.

3.3 Water Resources

The Federal Emergency Management Agency (FEMA) maps indicate there are no regulated floodplains or floodways in the Project Area. There is one mapped National Wetland Inventory (NWI) feature within the Project Area. Therefore, water resources are located within the Project Area boundary (Figure 4; Appendix C).

3.4 Physical Features

Ecoregions are areas of similar type, quality, and environmental resources and were identified to aid in the research and monitoring of ecosystems and their components (Bryce et al., 1996). A hierarchical system denoted by roman numerals indicates different levels of ecological regions (Bryce et al., 1996). Level I divides the North American Continent 15 regions, Level II divides the continent in 51 regions, and Level III divides the continent in 98 regions (Bryce et al., 1996). Level IV are more detailed ecoregions used for state level applications and level V are the most detailed ecoregion and is used for local level applications (Bryce et al., 1996).

The Project Area is in the Eastern Temperate Forests (Level I), Southeastern USA Plains (Level II), Interior River Valleys and Hills (Level III), Green River – Southern Wabash Lowlands (Level IV) (Woods et al., n.d). The topography in the Green River – Southern Wabash Lowlands ecoregion is characterized by Broad and nearly level bottomlands and low hills (Woods et al., n.d). Bedrock within the Project Area consists Quaternary alluvium, loess, and lacustrine sediment. Pennsylvanian shale, siltstone, sandstone, and coal beds; the Sturgis Formation and the Carbondale Formation are widespread (Woods et al., n.d). Soils within the Project Area consist of Hosmer silt loam, 2 to 6 percent slopes and Hosmer silt loam, 6 to 12 percent slopes, eroded. Both soils are moderately well drained, have no frequency of flooding or ponding, and are not considered hydric soils (NCRS, 2023).

3.5 Vegetation Community

The biotic communities mapped within the Wellington McPherson Lowland Ecoregion consist of vegetation communities defined by level of moisture. On uplands, oak forests often dominated by white oak with post oak, southern red oak, cherrybark oak, and shingle oak. On mesic sites, forests are dominated by beech, yellow-poplar, sugar maple, and northern red oak (Woods et al., n.d). On bottomlands, bottomland oak forests with overcup oak, pin oak, silver maple, pecan, slippery elm, sweetgum, and red maple (Woods et al., n.d.). In wettest areas that are often flooded, bald cypress is present (Woods et al., n.d). The dominate biotic community in the Project Area are the forests are dominated by beech, yellow-poplar, sugar maple, and northern red oak.

4.0 Resource Analysis Methods

The desktop analysis was conducted by gathering data from a variety of sources including: the NWI wetlands mapping; FEMA floodplain mapping; U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IpaC; Appendix A) and other publicly available documents on species reviews and rulings; USFWS critical habitat mapper; U.S. Department of Agriculture's (USDA) National Resources Conservation Service (NRCS) soil mapping; U.S. Geological Survey StreamStats; Environmental Protection Agency's (EPA) waters mapping; and aerial photography.

Special status species analyzed in this report include species listed by the USFWS under the Endangered Species Act (ESA) that have been identified by the USFWS Kentucky Ecological Service Field Office through the IpaC online query (Appendix A). Based on the special status species lists generated from the above sources, a screening analysis was performed to evaluate the potential for special status species or designated or proposed critical habitat to occur within the Project Area.

A desktop analysis of the potential for hazardous materials and petroleum impacts to soil and/or groundwater within the Project Area was assessed using various databases. A summary report of the records request is provided in Appendix B.

5.0 Resource Analysis Results

5.1 Special Status Species

This first screening was to determine species that have potential habitat or records within or near to the Project Area. Results from the IpaC query (Appendix A) identified a total of 13 special status species for assessment (Table 1, Special Status Species Screening Analysis). Five special status species, the Whooping Crane, Monarch Butterfly, Northern Long-eared Bat, Tricolored Bat, and Indiana Bat were found to have potential to occur within the Project Area.

There is no designated or proposed critical habitat within the Project Area (Critical Habitat Mapper, Appendix C). It is not anticipated that ESA permitting would be required for this Project.

5.1.1 Best management practices for the Whooping Crane

- Avoid construction activities between September 1 and October 31, as the Whooping Crane migrates through the Project Area during this time.
- Avoid construction activities between March 25 and May 1, as the Whooping Crane migrates through the Project Area during this time.

5.1.2 Best management practices for the Northern Long-eared and Tricolored Bat

- Avoid activities resulting in the disruption or disturbance of Northern Long-eared Bat (NLEB) and/or Tricolor Bat (TCB) in their hibernacula during hibernation (USFW, 2024).
- Avoid activities resulting in the physical or other alteration of NLEB and/or TCB hibernacula entrance(s) or internal environments (e.g., adverse alterations to airflow, microclimate, and hydrology) at any time of year (USFW, 2024).
- Avoid removing suitable roost trees within 0.25-mile of a known NLEB and/or TCB hibernaculum entrance(s) during spring staging and fall swarming and when flightless young are present (i.e., pup season) (unless a presence/absence survey has been completed indicating NLEB and/or TCB is not present in the summer). When feasible, avoid removing suitable roost trees within 0.25-mile of known hibernacula (regardless of the season) (USFW, 2024).
- Avoid removing known roost trees and suitable roost trees within 0.25-mile of a known NLEB and/or TCB maternity roost during the pup season. When feasible, avoid removing known roost trees (regardless of the season) (USFW, 2024).
- Avoid removing suitable roost trees within 1.5-miles of a NLEB and/or TCB capture/acoustic record location during the pup season (USFW, 2024).
- If the project is located within an area where NLEB and/or TCB may be present (see official species list from Step 1), avoid removing suitable roost trees during the pup season (unless a presence/absence survey has been completed indicating probable absence) (USFW, 2024).
- Offset any remaining impacts of incidental take that were not avoided. For example, offsetting measures could include (but are not limited to) restoring or protecting known habitat for the affected species, locating and protecting new colonies, and treating NLEB and/or TCB for white-nose syndrome (WNS) if treatments are available (USFW, 2024).

- Within the portion of the NLEB and TCB range where bats remain active year-round and continue to roost in trees during the winter, and where mean winter temperatures fall below 40 degrees Fahrenheit (F) between December 15 and February 15 the following measures should be incorporated in addition to the MCMs listed above:
  - Avoid removing known and suitable roost trees within 0.25-mile of a known NLEB and/or TCB roost between December 15 and February 15.
  - Avoid removing suitable roost trees within 1.5-miles of a NLEB and/or TCB capture/acoustic location between December 15 and February 15.
  - If the project is located within an area where NLEB and/or TCB may be present (see official species list from Step 1), avoid removing suitable roost trees between December 15 and February 15 (unless a presence/absence survey has been completed indicating probable absence) (USFW, 2024).

5.1.3 Best management practices for the Indiana Bat

- The project will avoid removal of suitable Indiana bat forested habitat (USFWS, 2023).
- The project has demonstrated that Indiana bats are not likely to use forested habitat that will be removed (e.g., approved habitat model, presence/absence survey, emergence count) (USFWS, 2023).
- The project will avoid removal of suitable Indiana bat maternity roost trees (primary and secondary) and avoid removal of Indiana bat forested habitat that would create a gap greater than 1,000 feet, isolating the remaining habitat (USFWS, 2023).
- The project will avoid removal of suitable Indiana bat primary roost trees, will remove all suitable Indiana bat forested habitat during the unoccupied timeframe, and will avoid creating a gap greater than 1,000 feet in the forested canopy (USFWS, 2023).

5.1.4 Best management practices for the Monarch Butterfly

- Minimize disturbance during the period of the year when the habitat is in use by monarchs.
- To the extent practicable, monitor the habitat for the presence of eggs and larvae before undertaking project activities.
- When possible, implement prescribed burning on no more than 1/3 of the habitat, unless suitable monarch habitat exists nearby.
- Do not mow any area more than once every 4-5 years. Mow or hay no more than 1/3 of the habitat per year, and when possible, leave patches.
- Shallow-till no more than 1/2 of the habitat per year, if possible. Leave patches of untilled habitat for the entire year.

Table 5-1: Special Status Species Screening Analysis

Species and Status[1]	Habitat and Range	Potential to Occur	Potential Effects
Birds			
Whooping Crane (*Grus americana*) Experimental Population, Non-Essential	**Range:** Species occurs in Alabama, Arkansas, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, Wyoming (USFWS, n.d.a). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, and winters in coastal marshes in Texas at Aransas. In addition, there is a small captive-raised, non-migratory population in central Florida, and a small migratory population of individuals introduced beginning in 2001 that migrate between Wisconsin and Florida in an eastern migratory population (USFWS, n.d.a). **Habitat:** Occupies a variety of habitats including coastal marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marsh and sand or tidal flats, upland swales, wet meadows and rivers, pastures and agricultural fields (USFWS, n.d.a).	**Potential to Occur: Possible.** The Project Area is within the migration corridor for this species. Autumn migration normally begins in mid-September, with most birds arriving on the Texas wintering grounds between late October and mid-November. Spring migration departure dates are normally between March 25 and April 15, with the last birds usually leaving by May 1.	**May affect.** This species has potential to be present in the Project Area during the fall and spring migration. **Mitigation:** Avoid construction activities September through October and March through May.

Species and Status[1]	Habitat and Range	Potential to Occur	Potential Effects
Insects			
Monarch Butterfly (*Danaus plexippus*) Candidate	**Range**: Species occurs in Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming (USFWS, n.d.b). **Habitat**: Occupies a variety of habitats including grassland, tundra, coastal, mountain, urban, rural, and wetland habitats (USFWS, n.d.b).	**Potential to Occur: Possible.** The Project Area may contain milkweed and the necessary flowering plants needed to support this species.	**May affect.** **Mitigation:** Species may have some potential to be impacted by Project activities if suitable habitat (milkweed) is present. If the species' is observed prior to construction, avoidance measures may be recommended to avoid impacts.
Mammals			
Gray bat (*Myotis grisescens*) Endangered	**Range**: Species occurs in Alabama, Arkansas, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Mississippi, Missouri, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Virginia, and West Virginia. (USFWS, n.d.c). **Habitat**: Occupies caves or cave-like structures year-round. While gray bats prefer caves, summer colonies have been documented using dams, mines, quarries, concrete box culverts and the undersides of bridges. Summer caves must be warm or have restricted rooms that can trap the body heat of clustered bats. Winter hibernation sites are often deep vertical caves that trap large volumes of cold air; these caves are naturally very rare. (USFWS, n.d.c).	**Potential to Occur: None.** While the Project Area is within the known range of this species, does not have suitable habitat to support it	**No Effect.** **Species does not have any potential to occur and would not be impacted by the Project.** **No potential permitting, mitigation, or avoidance measures for this species are anticipated.**

Species and Status[1]	Habitat and Range	Potential to Occur	Potential Effects
Indiana Bat (*Myotis sodalist*) Endangered	**Range:** Species occurs in Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Mississippi, Missouri, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin (USFWS, n.d.d). **Habitat**: During winter, Indiana bats are restricted to suitable underground hibernacula. Most of these sites are caves but Indiana bats also hibernate in other cave-like locations, especially abandoned mines. In summer, most reproductive females occupy roost sites in forested areas under the exfoliating bark of dead or dying trees that retain large, thick slabs of peeling bark. Habitats in which maternity roosts and foraging occur include riparian zones, bottomland and floodplain habitats, wooded wetlands and upland communities. Indiana bats typically forage in semi-open to closed forested habitats with open understory, forest edges, and riparian areas (USFWS, n.d.d).	**Potential to Occur: Possible** The Project Area has suitable habitat and is within the known range of this species. Forest removal associated with projects can impact bat behavior by eliminating foraging areas and by rendering foraging areas unusable by severing connections between habitats. Modifying or degrading habitat to an extent that results in significant impairment of behavioral patterns could qualify as “take” under the ESA. The effects of forest habitat removal on the landscape should be evaluated for potential impacts to bat foraging and commuting behavior.	**May affect.** **Species may have some potential to be impacted by Project activities.** **Mitigation:** The first step is to perform a survey to determine if there is suitable habitat for this species within the Project Area. If suitable habitat is identified a survey to confirm the absence of the species in the Project Area may be required. If this species is located in the Project Area, and impacts cannot be avoided, proponents can pursue an Incidental Take Permit pursuant to section 10(a)(1)(B) of the ESA. USFWS recommends that project proponents incorporate the above Minimum Conservation Measures (MCMs) into the proposed action.

Species and Status[1]	Habitat and Range	Potential to Occur	Potential Effects
Northern Long-eared Bat (Myotis septentrionalis) Endangered	**Range:** Species occurs in Alabama, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming (USFWS, n.d.e). **Habitat**: Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. During the summer and portions of the fall and spring, northern long-eared bats may be found roosting singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags, or dead trees. The species has also been found, although less commonly, roosting in structures, such as barns and sheds. Northern long-eared bats use forested areas not only for roosting, but also for foraging and commuting between summer and winter habitat. (USFWS, n.d.e).	**Potential to Occur: Possible** The Project Area has suitable habitat and is within the known range of this species. Forest removal associated with projects can impact bat behavior by eliminating foraging areas and by rendering foraging areas unusable by severing connections between habitats. Modifying or degrading habitat to an extent that results in significant impairment of behavioral patterns could qualify as “take” under the ESA. The effects of forest habitat removal on the landscape should be evaluated for potential impacts to bat foraging and commuting behavior.	**May affect.** **Species may have some potential to be impacted by Project activities.** **Mitigation:** The first step is to perform a survey to determine if there is suitable habitat for this species within the Project Area. If suitable habitat is identified a survey to confirm the absence of the species in the Project Area may be required. If this species is located in the Project Area, and impacts cannot be avoided, proponents can pursue an Incidental Take Permit pursuant to section 10(a)(1)(B) of the ESA. USFWS recommends that project proponents incorporate the above Minimum Conservation Measures (MCMs) into the proposed action.

Species and Status[1]	Habitat and Range	Potential to Occur	Potential Effects
Tricolored Bat (*Perimyotis subflavus*) Proposed Endangered	**Range:** Species occurs in Alabama, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming (USFWS, n.d.f). **Habitat**: During the spring, summer and fall - collectively referred to as the non-hibernating seasons - tricolored bats primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. In the southern and northern portions of the range, tricolored bats will also roost in Spanish moss (Tillandsia usneoides) and Usnea trichodea lichen, respectively. In addition, tricolored bats have been observed roosting during summer among pine needles, within artificial roosts like barns, beneath porch roofs, bridges, concrete bunkers, and rarely within caves. During the winter, in caves and mines; although, in the southern United States, where caves are sparse, tricolored bats often roost in road-associated culverts and trees, and remain active and feed throughout winter (USFWS, n.d.f).	**Potential to Occur: Possible** The Project Area has suitable habitat and is within the known range of this species. Forest removal associated with projects can impact bat behavior by eliminating foraging areas and by rendering foraging areas unusable by severing connections between habitats. Modifying or degrading habitat to an extent that results in significant impairment of behavioral patterns could qualify as “take” under the ESA. The effects of forest habitat removal on the landscape should be evaluated for potential impacts to bat foraging and commuting behavior.	**May affect.** **Species may have some potential to be impacted by Project activities.** **Mitigation:** The first step is to perform a survey to determine if there is suitable habitat for this species within the Project Area. If suitable habitat is identified a survey to confirm the absence of the species in the Project Area may be required. If this species is located in the Project Area, and impacts cannot be avoided, proponents can pursue an Incidental Take Permit pursuant to section 10(a)(1)(B) of the ESA. USFWS recommends that project proponents incorporate the above Minimum Conservation Measures (MCMs) into the proposed action.
Clams			
Clubshell (*Pleurobema clava*) Endangered	**Range**: Species occurs in Illinois, Indiana, Kentucky, Michigan, Mississippi, New York, Ohio, Pennsylvania, Tennessee, West Virginia (USFWS, n.d.g). **Habitat**: The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries. (USFWS, n.d.g).	**Potential to Occur: None.** The Project Area is not within the known range of this species and does not have suitable habitat to support it.	**No Effect.** Species does not have any potential to occur and would not be impacted by the Project. **No potential permitting, mitigation, or avoidance measures for this species are anticipated.**

Species and Status[1]	Habitat and Range	Potential to Occur	Potential Effects
Fanshell (*Cyprogenia stegaria*) Endangered	**Range**: Species occurs in Alabama, Illinois, Indiana, Kentucky, Ohio, Tennessee, Virginia, West Virginia (USFWS, n.d.h). **Habitat**: The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries (USFWS, n.d.h).	**Potential to Occur: None.** The Project Area is not within the known range of this species and does not have suitable habitat to support it.	**No Effect.** Species does not have any potential to occur and would not be impacted by the Project. **No potential permitting, mitigation, or avoidance measures for this species are anticipated.**
Northern Riffleshell (*Epioblasma rangiana*) Endangered	**Range**: Species occurs in Illinois, Indiana, Kentucky, Michigan, New York, Ohio, Pennsylvania, West Virginia (USFWS, n.d.h). **Habitat**: The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries (USFWS, n.d.h).	**Potential to Occur: None.** The Project Area is not within the known range of this species and does not have suitable habitat to support it.	**No Effect.** Species does not have any potential to occur and would not be impacted by the Project. **No potential permitting, mitigation, or avoidance measures for this species are anticipated.**
Pink Mucket (pearlymussel) (*Pleurobema plenum)* Endangered	**Range**: Species occurs in Alabama, Indiana, Kentucky, Tennessee, Virginia (USFWS, n.d.h). **Habitat**: The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries (USFWS, n.d.h).	**Potential to Occur: None.** The Project Area is not within the known range of this species and does not have suitable habitat to support it.	**No Effect.** Species does not have any potential to occur and would not be impacted by the Project. **No potential permitting, mitigation, or avoidance measures for this species are anticipated.**

5.2 Floodplain

5.2.1 Findings

The FEMA Flood Map Service Center is a public source for flood hazard information produced in support of the National Flood Insurance Program. This mapping tool provides information on whether a project is being proposed within a floodplain/floodway. There are permitting implications if the project is within a 100-year floodplain or a designated floodway.

FEMA Flood Insurance Rate Map Panel #21107CO233D, dated May 16, 2008, was reviewed to determine if the Project Area is located within the 100-year floodplain. The Project Area is in Zone X, areas that have less than a 0.2% annual chance of flooding (Figure 4). Therefore, the Project Area is not located within a 100-year floodplain.

5.2.2 Permitting

A floodplain permit is not required as the Project Area is not in a regulatory floodplain (Figure 4).

5.3 Potential Waters of the U.S.

5.3.1 Findings

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the U.S. (WOTUS) and is administered by the U.S. Army Corps of Engineers (USACE) and the EPA. The Project Area was assessed for any potential wetlands or non-wetland WOTUS using NWI mapping and a review of aerial imagery.

According to the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region (Version 2.0) (USACE 2010), wetlands are defined as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”. Wetlands have three essential characteristics: 1) hydrophytic vegetation; 2) hydric soils; and 3) wetland hydrology. All three parameters must be met in order to be determined a wetland. Non-wetlands include uplands and lowland areas that are neither deep-water aquatic habitats, wetlands, nor other special aquatic sites. They are seldom or never inundated, or if frequently inundated, they have saturated soils for only brief periods during the growing season. If non-wetlands are vegetated, they normally support a prevalence of vegetation typically adapted for life only in aerobic soil conditions.

Based on aerial imagery and the desktop evaluation, the Project Area does exhibit wetland hydrology. According to the NWI Wetland Mapper, there is a riverine that runs through the center of the Project Area. Soils within the Project Area consist of Hosmer silt loam, 2 to 6 percent slopes and Hosmer silt loam, 6 to 12 percent slopes, eroded. Both soils are well drained, have no frequency of flooding or ponding, and are not considered hydric soils (NCRS, 2023). As discussed above in Section 3.5, The dominate biotic community in the Project Area is forests that are dominated by beech, yellow-poplar, sugar maple, and northern red oak. These vegetation types are not hydrophilic. While the soils and the vegetation types in

the Project Area are not indicative of wetlands, wetland hydrology exists. Therefore, the Project Area does contain wetlands.

5.3.2 Permitting

Permitting is anticipated as wetlands are present in the Project Area. The CSWPPP for the project should implement best management practices (BMPs) to ensure no discharge of fill or runoff into waterways or wetlands occurs during construction activities. With BMPs in place, Project Area activities are not anticipated to result in impacts to wetlands or potential waters of the U.S. over a tenth of an acre. Field verification in the form of a formal on-site wetland delineation may be necessary depending on potential permanent wetland impacts based on construction details.

If field investigations determine the presence of potentially jurisdictional WOTUS and the Project Area is unable to avoid impacts to those features, impacts to these resources would need to be permitted by the USACE. The NWP program is typically available for projects with less than a tenth to a half of an acre of impact. The exact nature of the impacts and acreage thresholds depend on the applicable NWP; to qualify for NWP 51 Land-Based Renewable Energy Generation Facilities, for example, impacts to a jurisdictional water must be less than 0.5 acres. A Nationwide permit (NWP) is typically approved within one to three months of permit submittal or may not require any consultation if impacts are less than 0.1 acres.

5.4 Stormwater

5.4.1 Findings

Under the existing General Permit for Stormwater Discharges KYR100000, construction activities that result in runoff adjacent or into any surface water in the state are regulated according to the area of land disturbed. This permit applies to stormwater discharges associated with construction activities disturbing individually one acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one acre or more of disturbance. Non-contiguous construction activities (i.e. activities separate by at least 0.25 miles) that disturb more than one acre or more shall be considered independent activities. The Kentucky Division of Water (DOW) has also made this permit available for stormwater discharges from any other construction activity, including those disturbing less than one acre, designated by DOW based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the Commonwealth.

In order to obtain coverage under this general permit, a NOI-SWCA shall be completed by operators seeking authorization for stormwater discharges and submitted to DOW. Applicants must file for coverage using the electronic web-based NOI submission system that will allow the applicant to complete and submit the NOI-SWCA form online. Applicants can access this system at the following web address: https://dep.gateway.ky.gov/eForms/default.aspx?FormID=48. The applicant shall complete and submit the NOI-SWCA a minimum of seven days before the proposed date for commencement of construction activities and shall receive authority to discharge upon the issuance of written notification by the DOW. DOW will provide this written notification electronically to the email provided on the NOI-SWCA. The primary requirement of the general permit is for the permittee to develop and implement SWPPP plan. When the soil disturbing activity is completed and final stabilization of the site is achieved, the permittee must notify DOW to terminate the authorization to discharge.

5.4.2 Permitting

Construction activities for this project will disturb at least one acre and are therefore regulated under the existing General Permit for Stormwater Discharges KYR100000. Under the general permit, a SWPPP must be prepared and implemented before construction activities begin. A Notice of Intent (NOI) must be submitted to DOW at least seven days before the start of the scheduled construction.

5.5 Archaeology and Cultural Resources

5.5.1 Findings

The National Historic Preservation Act of 1966 (NHPA) is the primary piece of legislation providing protection for our nation's historic resources. The Act and its later amendments establish the Federal government's policy on historic preservation and the national historic preservation program. Section 201 of the Act creates the Advisory Council on Historic Preservation as an independent Federal agency responsible for advising the President and Congress on matters relating to historic preservation.

Section 101 of the Act requires the Secretary of the Interior to establish a National Register of Historic Places composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. Section 101 also provides for each State governor to establish a State Historic Preservation Officer to coordinate preservation activities in that State.

Section 106 of the Act requires responsible Federal Agency Officials prior to the approval or expenditure of Federal funds on an undertaking or prior to the issuance of any license or permit, to take into account the effects of their undertakings on properties included in or eligible for inclusion in the National Register. The Federal Agency Official must afford the Advisory Council an opportunity to comment on these undertakings.

The Advisory Council's regulation 36 CFR Part 800 establishes the process by which Federal agencies must obtain Council comments. Section 110 of the act requires the heads of all Federal agencies to assume responsibility for the preservation of historic resources they own or control. This includes conducting surveys to identify and evaluate such properties, and to nominate eligible properties to the National Register.

A cultural resources desktop review was conducted to identify documented historic sites within or near the Project Area. According to the NRHP mapper, previously recorded historic districts, sites, buildings, structures, and objects deemed worthy of preservation are not located within the Project Area or the 0.5-mile records search area (Figure 5). However, the Project Area has not been previously surveyed for historical resources and therefore undocumented historical resources may exist.

5.5.2 Permitting

The Project may require a federal permit which is considered a federal undertaking. If a federal permit is necessary, the permit reviewer will consult with the in-house archaeologist and determine if a more in-depth survey is needed to comply with Section 106. The Section 106 process must be completed prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any license (36 CFR 800.1).

Local Infrastructure and Land Use

5.5.3 Findings

According to the National Pipeline Mapping System there are no pipelines running through the Project Area. According to the Kentucky Geological Survey (KGS) there are no oil or gas wells in the Project Area. There are no active gas lines located within the Project Area (Figure 3). According to EDR there are two wells in the northeast corner of the Project Area. The northern most well is an active water well with a total depth of 120 feet. The southern most well was installed by the USGS Kentucky Water Science Center with a total depth of 21 feet (Figure 4). A transmission line of an unknown voltage runs northeast southwest through the center of the Project Area. Transmission lines also run along the eastern and southern borders of the Project Area. A railroad owned by CSX Rail runs northeast southwest through the eastern half of the Project Area. Bean Cemetery Road runs along the eastern boundary and A C Slaton Road along the southern boundary of the Project Area.

5.6 Hazardous Materials

Environmental regulatory agency database information was collected for Stanley Consultants EDR), a firm that specializes in environment records review. The EDR Radius Map Report (EDR Report), included in Appendix B.The database searches federal, state, and tribal database records for sites within up to a 1-mile radius from the Property. The search distances for the standard environmental records and findings are included in the EDR Report: “Mapped Sites Summary”. A summary of all the government records searched and data tracking records are also listed in the EDR Report.

The following federal environmental databases were searched by EDR within the applicable search radii as shown in the EDR report to conform to ASTM E1527-21 standards:

- National Priorities List (NPL) sites
- Federal Delisted NPL list
- Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list
- Federal CERCLIS No Further Remediation Action Planned (NFRAP) site list
- Federal Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS) facilities
- Federal RCRA non-CORRACTS Transport Storage and Disposal (TSD) facility list
- Federal RCRA Generators list
- Federal Institutional Control/Engineering Control registries
- Federal Emergency response Notification System (ERNS) listings

Additional federal environmental databases not subject to ASTM criteria were searched and are shown in the EDR report included in Appendix B.

In accordance with ASTM E1527-13 standards, the following state and tribal environmental databases were searched by EDR within the applicable search radii as shown in the EDR report:

- Lists of hazardous waste sites identified for investigation or remediation:
- State and tribal-equivalent NPL Listings
- State and tribal-equivalent CERCLIS Listings
- Landfill and/or solid waste disposal site lists
- Leaking storage tank/leaking underground storage tank (LUST) lists
- Registered storage tank/underground storage tank (UST) lists
- Institutional control/engineering control registries
- Voluntary cleanup sites
- Brownfield sites

Properties identified as potential environmental concerns are listed below along with relevant information. Additional properties within the ASTM radius standards of the Project Area are listed in the Map Findings of the EDR Report in Appendix B.

Madisonville Westside WWTP, listed at 1715 AC Slaton Road, Madisonville, Kentucky 42431, is upgradient and located on the southern boundary of the Project Area. Madisonville Westside WWTP is listed on the Underground Storage Tank (UST) Finder Database, Underground Storage Tank (UST) Finder Releases Database, State Hazardous Waste Facilities List (SHWS), Recovered Government Archive Solid Waste Facilities List (RGA LF), Solid Waste Facilities/Landfill Sites (SWF/LF), Underground Storage Tank Database (UST), and National Pollutant Discharge Elimination System (NPDES). The UST Finder database is a web map application containing a comprehensive, state-sourced national map of UST's and leaking UST (LUST) data. The UST Finder Releases database is a national composite of leaking UST's. The SHWS list contains priority sites planned for cleanup using state funds (state equivalent of Superfund) and are identified along with sites where cleanup will be paid for by potentially responsible parties. The RGA LF database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. The NPDES is a listing of permitted wastewater facilities. The facility is on the UST finder list due to a 4,000-gallon UST containing diesel that was installed on May 1, 1978 and removed on April 11, 2003. This facility is on the UST finder release database as well, but according to EDR, there is no information on the release. The facility is on SHWS list due to a petroleum spill. Cleanup was completed and the case was closed on May 24, 2011. The facility is on the SWF/LF

database because it is a transfer station for solid waste. The code SW-RPBR indicates that the landfill is a landfarm for wastewater treatment plant sludges (biosolids). The last site inspection for the landfill was performed on October 27, 2014. The facility is in the NPDES system due to the Brown Road Sanitary Sewer Replacement, which is discussed below.

Brown Road Sanitary Sewer Replacement, listed at 1715 AC Slaton Road, Madisonville, Kentucky 42431, is upgradient and located on the southern boundary of the Project Area. Brown Rd Sanitary Sewer Replacement is listed on Facility Index System/Facility Registry System (FINDS) database and the Enforcement & Compliance History Information (ECHO) database. RCRAInfo is EPA's comprehensive information system that tracks many types of information about generators, transporters, treaters, storers, and disposers of hazardous waste. FINDS contains both facility information and 'pointers' to other sources that contain more detail. ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide. According to the EPA, this property is in the ECHO database because a Construction Stormwater Permit was issued on January 15, 2020, and was later terminated on September 26, 2022. No violations were identified.

Madisonville STP Westside, listed at 1715 AC Slaton Road, Madisonville, Kentucky 42431, is upgradient and located on the southern boundary of the Project Area. Madisonville STP Westside is listed on Facility Index System/Facility Registry System (FINDS) database, Enforcement & Compliance History Information (ECHO) database, Per- and polyfluoroalkyl substances Enforcement & Compliance History Information (PFAS ECHO) database, and the biosolids program. PFAS ECHO is a dataset from various sources that show which industries may be handling PFAS. According to the EPA, this the facility was permitted as minor municipal discharger on January 1, 2016, and was reissued on January 1, 2021. The permit expires on December 31, 2025. The property was notified of violations under the CWA on October 8, 2019; May 20, 2020; September 17, 2020; February 22, 2021; June 2, 2021; September 16, 2021; March 28, 2022; and May 25, 2022. On July 18, 2022, the state of Kentucky opened a case against Madisonville STP Westside for violations under the CWA. The final order was issued on July 18, 2022, and the enforcement action closed on August 10, 2022. The facility was permitted as a major municipal discharger on October 13, 2023, and will expire on November 30, 2028.

Bean Cemetery Road Storm Debris CD&D Landfill, listed at Bean Cemetery Road, Madisonville, Kentucky 42431, is cross gradient and located 0.5 miles east of the Project Area. Bean Cemetery Road Landfill is listed on Solid Waste Facilities/Landfill Sites (SWF/LF) and Financial Assurance listing. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Financial Assurance contains information on owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities. According to EDR, this facility is on the SWF/LF listing because it is an active landfill that acted as emergency disposal for storm damages until it was converted to a CD&D landfill. The permit for the landfill expires on July 20, 2023, and the last site inspection was conducted on May 7, 2015.

Based on the fact that there are sites in the vicinity and upgradient of the Project Area on environmental databases searched, a potential environmental concern includes the possibility that soil and/or groundwater impacts exist in the Project Area. This could potentially impact the construction schedule and costs should impacts be encountered.

6.0 Discussion

6.1 Summary of Critical Issues

The critical issues reviewed and determined to have some potential to impact site development, project design, available developable area, timeline, and/or permitting needs includes the following:

- The development of a SWPPP, completion NOI, and obtainment of a General Permit for Stormwater Discharges KYR100000 is required before construction activities can occur.
- Five special status species, the Whooping Crane, Monarch Butterfly, Northern Long-eared Bat, Tricolored Bat, and Indiana Bat were found to have potential to occur within the Project Area.
- A riverine wetland is located in the center of the Project Area.
- Based on the fact that there are sites in the vicinity and upgradient of the Project Area on environmental databases searched, a potential environmental concern includes the possibility that soil and/or groundwater impacts exist in the Project Area.
- Railroad tracks exist in the Project Area. The presence of railroad tracks is a potential environmental concern and could contribute to soil and/or groundwater impacts exist in the Project Area.

6.2 Potential Impacts to the Project

- If a Nationwide Permit is needed from USACE is necessary, the permit reviewer will consult with the in-house biologist and determine if consultation with USFWS is needed.
- A Nationwide Permit may be required for the wetland present in the Project Area. The need for the permit will be determined by the results of the wetland delineation study.
- If a Nationwide Permit is needed from the USACE is necessary, the permit reviewer will consult with the in-house archaeologist and determine if a more in-depth survey is needed to comply with Section 106.
- Soil and/or groundwater impacts may be present in the Project Area. This could potentially impact construction schedule and costs should impacts be encountered. Subsurface samples can be collected and analyzed for environmental parameters during planned geotechnical studies.

7.0 References

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- Environmental Data Resources. The EDR Radius Map Report™ with GeoCheck®. Inquiry Number: 07685799.2r dated June 20, 2024.
- Environmental Data Resources. The EDR Certified Sanborn® Map Report. Inquiry Number: 7685799.3 dated June 20, 2024.
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Appendix A Information for Planning Consultation (IPaC) Report


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Kentucky Municipal Energy Agency (KYMEA)
Environmental Permitting Matrix
Madisonville, Kentucky

Drawing Number	Z001
Revision	Rev A
Date	6/28/2024

Jurisdiction	Agency	Permit or Plan	Regulatory Program	Regulatory Trigger	Preparer	Party Responsible for Filing Permit	Permit Timeline*	Permit Fees	Additional Comments, Requirements, Risks	Permit Required
Waters of the U.S.										
Federal	U.S. Army Corps of Engineers	Nationwide Permit	USACE Section 404	• Ground disturbing activities located in potential waters of the U.S. • Impacts may require formal notification to USACE or remain under NWP thresholds	SCI (if needed)	Owner/Operator (KYMEA)	Up to 6 months (permit prep + 90 day agency review).	Varies	Dependent on scope and location. Anyone planning to work in navigable waters of the United States, or discharge (dump, place, deposit) dredged or fill material in waters of the United States, including wetlands, must first obtain a permit. Review time depended on type of permit being applied for (Nationwide Permit, Regional Permit, Individual Permit). May involve coordination with SHPO and USFWS.	TBD - Most likely, depending on results of wetland delineation.
State	Kentucky Division of Water	General Permit for Floodplain Development KY FPGP	Water Resources	Development within a floodplain.	NA	Owner/Operator (KYMEA)	Unknown	Unknown	Not anticipated, project work will not take place within the Floodplain.	No
Stormwater / Wastewater										
State	Kentucky Division of Water	KPDES Individual Permit (Operating permit)	Water Quality	The discharge of industrial stormwater runoff and/or wastewater associated with industrial activity. The discharge of flows from an oil/water separator to surface waters will trigger individual permitting.	TBD	Owner/Operator (KYMEA)	1 month	None	• Operators of discharges which are composed entirely of storm water must complete Form F (KY Form 7032-F) in conjunction with Form 1 (KY Form 7032-1). • Operators of discharges of storm water which are combined with process wastewater must complete and submit Form F, Form 1, and Form C (KY Form 7032-C). • Operators of discharges of storm water which are combined with nonprocess wastewater must complete Form 1, Form F, and Form SC (KY Form 7032-SC. • Develop Stormwater Pollution Prevention Plan (SWPPP) to minimize pollution from soil erosion and other sources. •A Socioeconomic Demonstration and Alternatives Analysis (SDAA) will be required as part of the application.	TBD (pending final wastewater discharge location)
State	Kentucky Division of Water	KPDES KYR10000 - Stormwater Discharges Associated with Construction Activities	Stormwater	The construction general permit applies to construction projects that disturb one or more acres or is part of a larger common plan of development.	TBD	TBD be determined if Christman or KYMEA	<1 month - Submit an electronic Notice of Intent. A SWPPP must be in development at this time of and the SWPPP must be completed prior to the start of construction activities.	None	• Develop Construction Stormwater Pollution Prevention Plan (CSWPPP) to minimize pollution from soil erosion and other sources. • NOI and Proof of Publication required for inclusion in CSWPPP. • Submit online Notice of Intent (NOI). Link: https://sso.kog.ky.gov/ • Submit a Notice of Termination (NOT) once final stabilization has been met.	Yes
Local	City of Madisonville	City Sewer Use Permit - Industrial	Water Quality	If regulated discharges are collected and pumped via sanitary sewer to the City of Madisonville WWTP, a sewer use permit will be required.	TBD	Owner/Operator (KYMEA)	1 month	$50	• As described in City of Madisonville Sewer Ordinance (https://www.madisonvilleliving.com/_files/ugd/32ec9c_7844ab47966646969e1a97d168a424d1.pdf)	TBD (pending wastewater discharge location)
Special Status Species										
Federal	U.S. Fish and Wildlife Service, Section 7 of the Threatened & Endangered Species Act	Section 7 Consultation	Endangered Species Act	Included in Joint Application process and initiated by USACE if a 404/10 permit is issued. If no USACE permit is issued USFWS must be consulted if project has received other federal permits, federal funding, or is on federal land (this includes state lands that may be receiving federal funds).	TBD	Owner/Operator (KYMEA) and Lead Federal Agency	1 Month	Not Applicable	• **Permit Potential -** Unlikely if best management practices are implemented. Letter is recommended to address plans. If federal permitting is needed, consultation with USFW may be required. • **Risks** -Five special status species, the Whooping Crane, Monarch Butterfly, Northern Long-eared Bat, Tricolored Bat, and Indiana Bat were found to have potential to occur within the Project Area. Threatened or Endangered species found at project site must be reported and could limit project completion.	TBD, in conjunction with USACE and pre-construction notification process for Nationwide (wetland) Permit.
Cultural and Archaeological Resources										
Federal	Section 106 of National Historic Preservation Act	Section 106 Consultation	National Historic Preservation Act	• Construction activities with a federal nexus (such as activities requiring a federal permit)	TBD	Owner/Operator (KYMEA) and Lead Federal Agency	Unknown	Not Applicable	Need for cultural / archaeological clearances will be determined by USACE as part of their permit processing.	TBD, in conjunction with USACE and pre-construction notification process for Nationwide (wetland) Permit.
State	Kentucky Office of State Archaeology, Kentucky Heritage Council	Kentucky Antiquities Act Permit	Kentucky Antiquities Act	• Construction activities with a state nexus (such as activities requiring a state permit) may require survey • Activities with the potential to disturb cultural resources with unmarked human remains	TBD	Lead State Agency and Owner/Operator	Unknown	Not Applicable	Need for cultural / archaeological clearances will be determined by USACE as part of their permit processing.	TBD, in conjunction with USACE and pre-construction notification process for Nationwide (wetland) Permit.
Air and Aviation										
State	Kentucky Division of Air Quality Permit Support Section 300 Sower Boulevard Frankfort, KY 40601	Federally Enforceable State Origin Permit (FESOP)	Air Quality	For sources that have the potential to emit 100 ton/yr or greater of a criteria pollutant, 10 ton/yr or greater of any HAP, or 25 ton/yr or greater of any combination of HAP's; the permittee can accept federally enforceable limits in the FESOP that limits the potential to emit to the same criteria specified for a minor source.	SCI (if needed)	Owner/Operator (KYMEA)	• 30-45 days permit application • 60 days (completeness check) • 60 days (draft issuance) • 30 days (public comment) • 60 days (final permit issuance) • Total = 255 days	$0 application fee. Annual actual emission releases of up to 25 tons per year cost a flat fee of $150. Sources that emit 25 tons or greater per year receive a fee on a per ton basis.	• No construction, installation or establishment of a new stationary source may commence unless the owner or operator has filed an application for and received a draft permit. • All air permit applications involve multiple forms from the DEP7007 series. Both the DEP7007AI and DEP7007N forms are required for all permit applications. Other DEP7007 series forms are required based on the facility's processes. This facility may also require forms DEP7007EE, DEP7007V, DEP7007GG.	TBD - confirming. See below.
State	Kentucky Division of Air Quality Permit Support Section 300 Sower Boulevard Frankfort, KY 40601	Major/Title V Permit	Air Quality	Title V permits are required for the largest sources in Kentucky. Title V sources: • Emit more than 100 ton/yr of any criteria air pollutant. • Emit more than 10 ton/yr of any single HAP or more than 25 ton/yr of all HAPs combined.	SCI (if needed)	Owner/Operator (KYMEA)	• 30-60 days permit application • 60 days (completeness check) • 60 days (draft issuance) • 30 days (public comment) • 45 days (EPA comment period) • 60 days (final permit issuance) • Total = 315 days	$0 application fee. Annual actual emission releases of up to 25 tons per year cost a flat fee of $150. Sources that emit 25 tons or greater per year receive a fee on a per ton basis.	• No construction, installation or establishment of a new stationary source may commence unless the owner or operator has filed an application for and received a draft permit. • All air permit applications involve multiple forms from the DEP7007 series. Both the DEP7007AI and DEP7007N forms are required for all permit applications. Other DEP7007 series forms are required based on the facility's processes. This facility may also require forms DEP7007EE, DEP7007V, DEP7007GG. • **Air Modeling** - is not expected to be required as part of an permitting application, per KDAQ.	TBD. Still confirming. Initial calculations - potential-to-emit (PTE) calculations suggest this facility will be major for Title V under current design.

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Kentucky Municipal Energy Agency (KYMEA)
Environmental Permitting Matrix
Madisonville, Kentucky

Drawing Number Z001
Revision Rev A
Date 6/28/2024

Jurisdiction	Agency	Permit or Plan	Regulatory Program	Regulatory Trigger	Preparer	Party Responsible for Filing Permit	Permit Timeline*	Permit Fees	Additional Comments, Requirements, Risks	Permit Required
Federal	Federal Aviation Administration (FAA)	FAA Notice	CFR Title 14 Part 77.9, FAA Co-location Policy	The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, runway, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.	NA	Owner/Operator (KYMEA)	If required to submit notice, must do so 45 days before start of construction.	None	The FAA's Notice Criteria Tool can be used to determine applicability. At this time it is suggested that facility will not exceed Notice Criteria.	No
Facility Operations										
Federal	EPA	Spill Prevention, Control, and Countermeasure (SPCC) Plan	Water Quality	Facilities that store more than 1,320 U.S. gallons in total of all aboveground containers (only count containers with 55 gallons or greater storage capacity) or more than 42,000 gallons in completely buried containers.	Owner/Operator (KYMEA)	Owner/Operator (KYMEA)	N/A	N/A	Does not need to be submitted to a regulatory agency.	Yes, assuming more than 1,320 gallons of oil will be stored on site.

Footnotes:
* Permit timeline is variable and based on agency workload and permit application prep.

Revision 1/08/2025

Environmental Review for KYMEA Energy Center I - Substation

Introduction

This report is intended to address the information requirements as listed in the "ENVIRONMENTAL" subsection of the Civil Specifications as detailed in Appendix H to the Large Generator Interconnection Agreement (LGIA).

Project Description

Location

The Project is comprised of two sites designated as the Plant Site and the Substation Site. The Plant Site is approximately 12 acres and the Substation is approximately 9.5 acres and lies between the Madisonville Waste Water Treatment Plant and the CSX railroad. A 69 kV generator lead line will connect the Plant to the Substation Site (switching station). In addition, the Project will include a new high pressure gas line running from the Texas Gas high pressure network near Osborne Lane to the Plant Site. This Environmental Review was prepared for the Substation Site (see Figure 1 – Site Location Map)

Figure 1: Site Location Map

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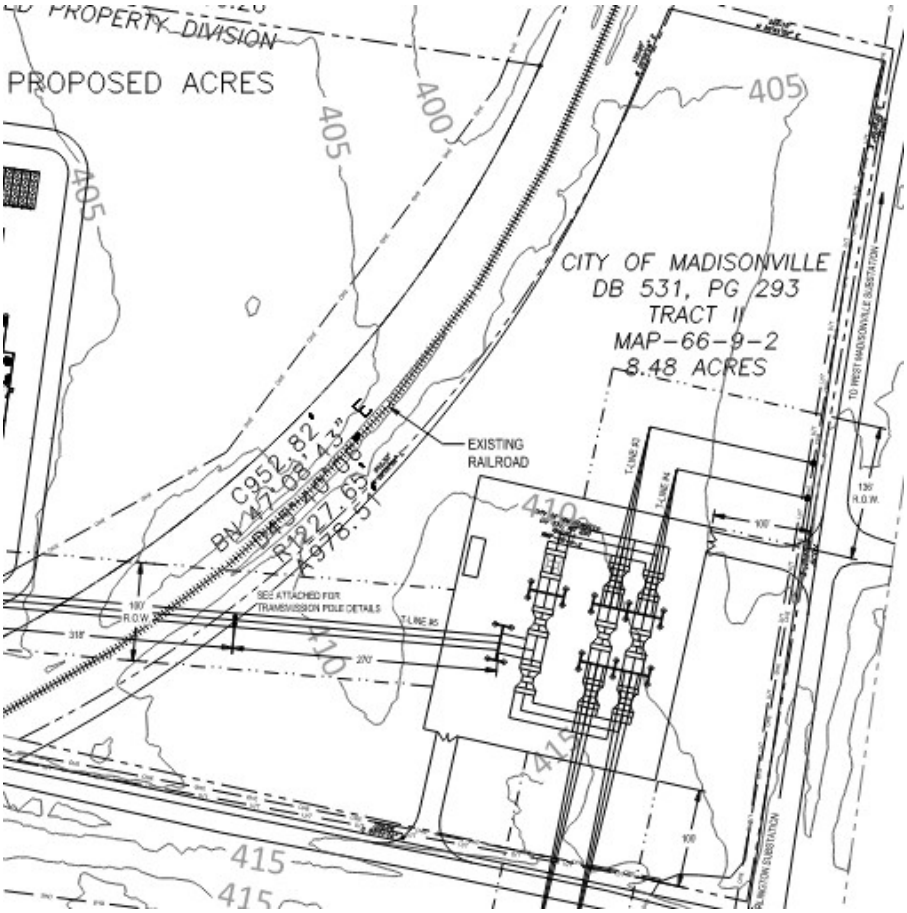
The preliminary Substation Site layout is shown in Figure 2.

Figure 2: Substation Layout



Anticipated Environmental Impacts

Physical site evaluation

A full geotechnical report for the adjacent Power Plant Site was completed by SME in December 2024. A separate investigation for the Substation Site has not been performed. However, it is anticipated that the Plant Site subsurface conditions are largely similar if not identical to those in the Substation Site. In addition to the SME report, the information in this section was gathered from available sources, including USDA web soil survey, USGS topographical data, and a geotechnical report which was prepared for the adjacent Madisonville Wastewater Treatment Plant (ATEC Associates, 1993)

Surface and bedrock geology

The surface geology consists of silt loam soils, with a thickness varying between 6 to 9 feet. The soils typically have a composition of lean to silty clays with some silt, with 9 to 30 percent moisture.

Bedrock within the Project Area consists of Quaternary alluvium, loess, and lacustrine sediment, Pennsylvanian shale, siltstone, sandstone, and coal beds. The topmost bedrock is generally weathered

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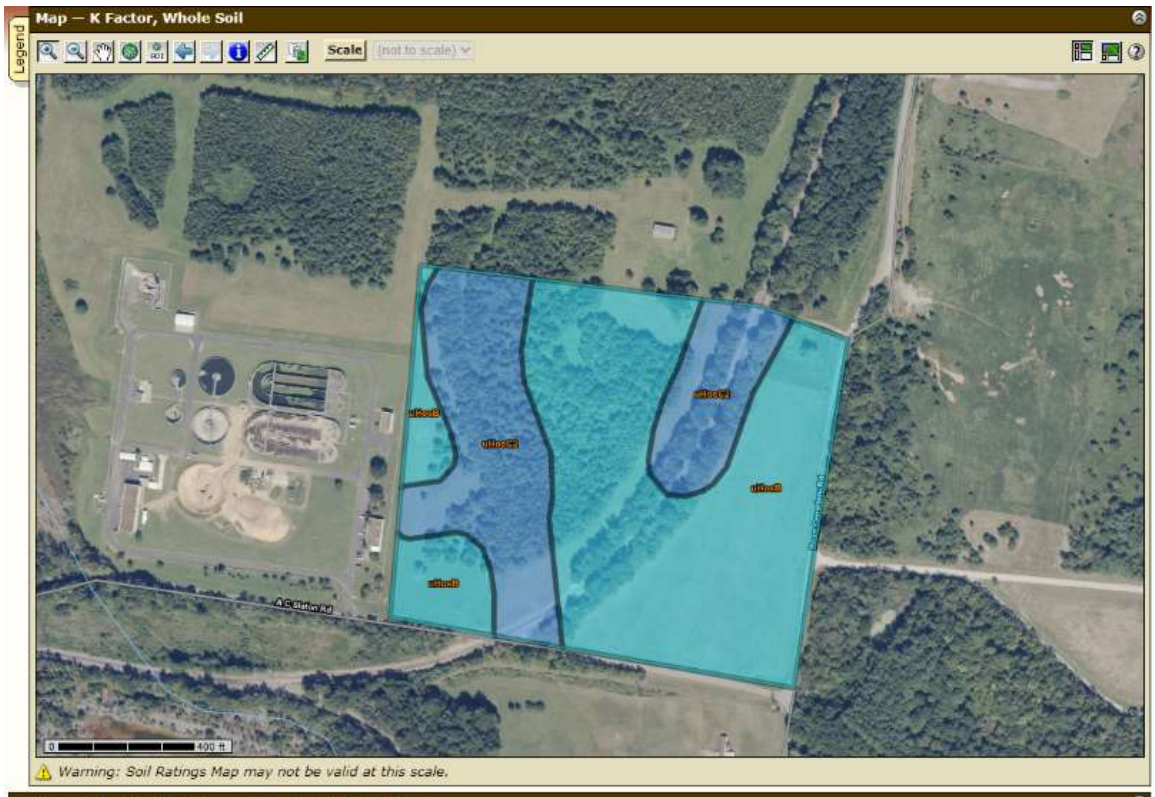
sandstone. The underlying formations are the Sturgis formation and Carbondale formation with intermittent coal beds.

Slope stability and erosion potential

Surface elevation ranges from 402 feet to 416 feet with an average elevation of about 410 feet and an average slope of 2.1%. Due to this slope, there is a low likelihood of significant erosion. However, the silt loam soil which is predominant across the site is susceptible to erosion, with soil K values ranging from 0.37 to 0.43. (Figure 3) For this reason, sedimentation best management Practices should be followed during construction to minimize the potential for erosion to occur while the vegetative cover is disturbed.

Figure 3: Soil Erodibility



Tables — K Factor, Whole Soil — Summary By Map Unit

Summary by Map Unit — Hopkins County, Kentucky (KY107)

Summary by Map Unit — Hopkins County, Kentucky (KY107)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
uHosB	Hosmer silt loam, 2 to 6 percent slopes	.37	19.9	66.1%
uHosC2	Hosmer silt loam, 6 to 12 percent slopes, eroded	.43	10.2	33.9%
Totals for Area of Interest			**30.1**	**100.0%**

Permafrost

Permafrost is not present at the project site.

Existing soil types

Soil classification activities were performed in the 1993 geotechnical investigation for the adjacent WWTP. This investigation indicated that the soil in this area was brown, tan, gray, and reddish brown very soft to hard silty clay with a trace of fine to medium sand to depths varying from 7.5 to 15.4ft

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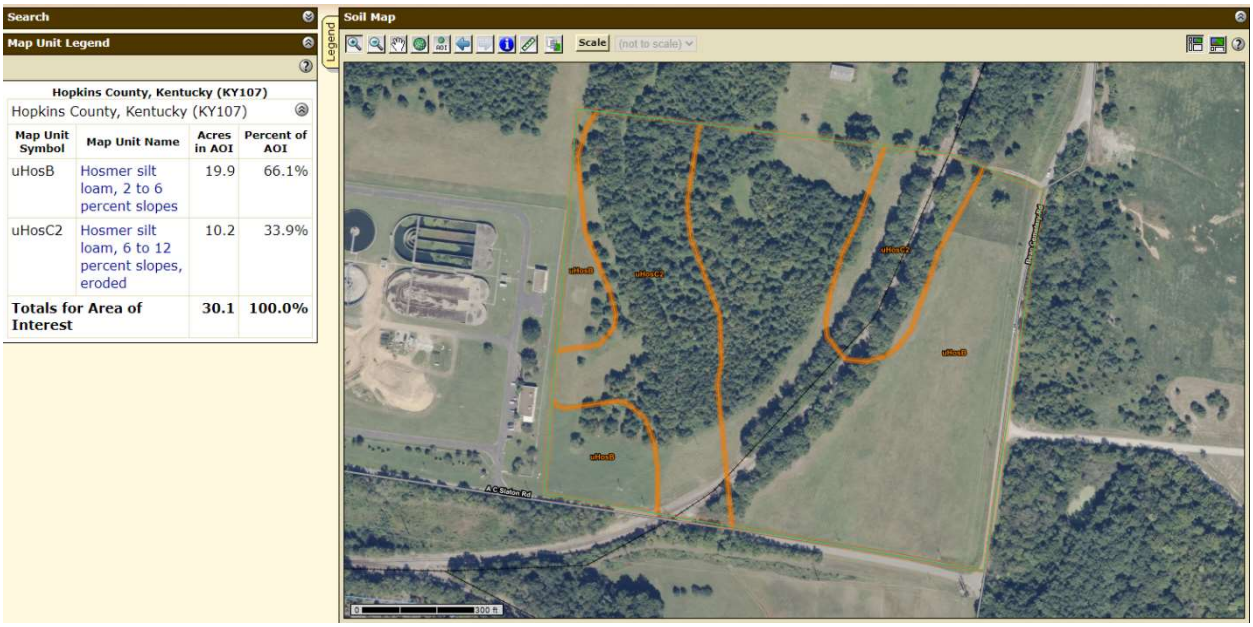
below the surface. Beneath this was gray, brown and black hard highly weathered shale with intermittent brown sandstone seams to auger refusal at depths varying from 9.5 to 23.8ft below the surface. Additionally, hydrometer tests were conducted. The results categorized as low plasticity silty clay or clayey silt with sand contents varying from 7 to 32 percent.

The information from the 1993 report is supported by the site data for the project area provided by the Web Soil Survey. (Figure 4)

Figure 4: Site Soil Types



Water quantity (surface and groundwater), including hydrologic regime data and water withdraws.

The project area consists of roughly 7.6 acres. The current vegetative cover within the proposed boundaries of the substation site will be replaced by impervious and semi-pervious surface types, such as gravel driveways and equipment yards, electrical equipment and foundations, and small structures. This increase in impervious area will result in an increase in site stormwater runoff. The exact footprint of the proposed substation is still under development, and so precise stormwater calculations are not available at the time of this report.

For illustration, a 3-acre substation development would result in the generation of over 40,000 cubic feet of runoff for a 10-year, 24-hour storm event.

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Table 1. Example Stormwater Runoff

		Existing	Proposed
Pervious area	(ac)	7.6	4.6
Impervious area	(ac)	0	3
net runoff coefficient		0.15	0.446
Design storm (10-yr, 24hr)	(in)	5.04	5.04
Net stormwater runoff	(cf)	20,857	62,021

A detailed stormwater analysis will be performed as part of the stormwater permitting for the facility, following completion of detailed design. A retention basin will be included in final design, if indicated by local and state code and regulations.

Water resources

The proposed development will have minimal water requirements. The site design has not been finalized, but examples of water use on site would include yard hydrants for miscellaneous use. Potable water supply will come from City of Madisonville water mains which are assumed to run along AC Slaton Road, servicing the City of Madisonville WWTP.

Flood levels, zones and relevant information.

The FEMA Flood Map Service Center is a public source for flood hazard information produced in support of the National Flood Insurance Program. This mapping tool provides information on whether a project is being proposed within a floodplain/floodway. There are permitting implications if the project is within a 100-year floodplain or a designated floodway. FEMA Flood Insurance Rate Map Panel #21107CO233D, dated May 16, 2008, was reviewed to determine if the Project Area is located within the 100-year floodplain. (Figure 5) The Project Area is in Zone X, areas that have less than a 0.2% annual chance of flooding. Therefore, the Project Area is not located within a 100-year floodplain.

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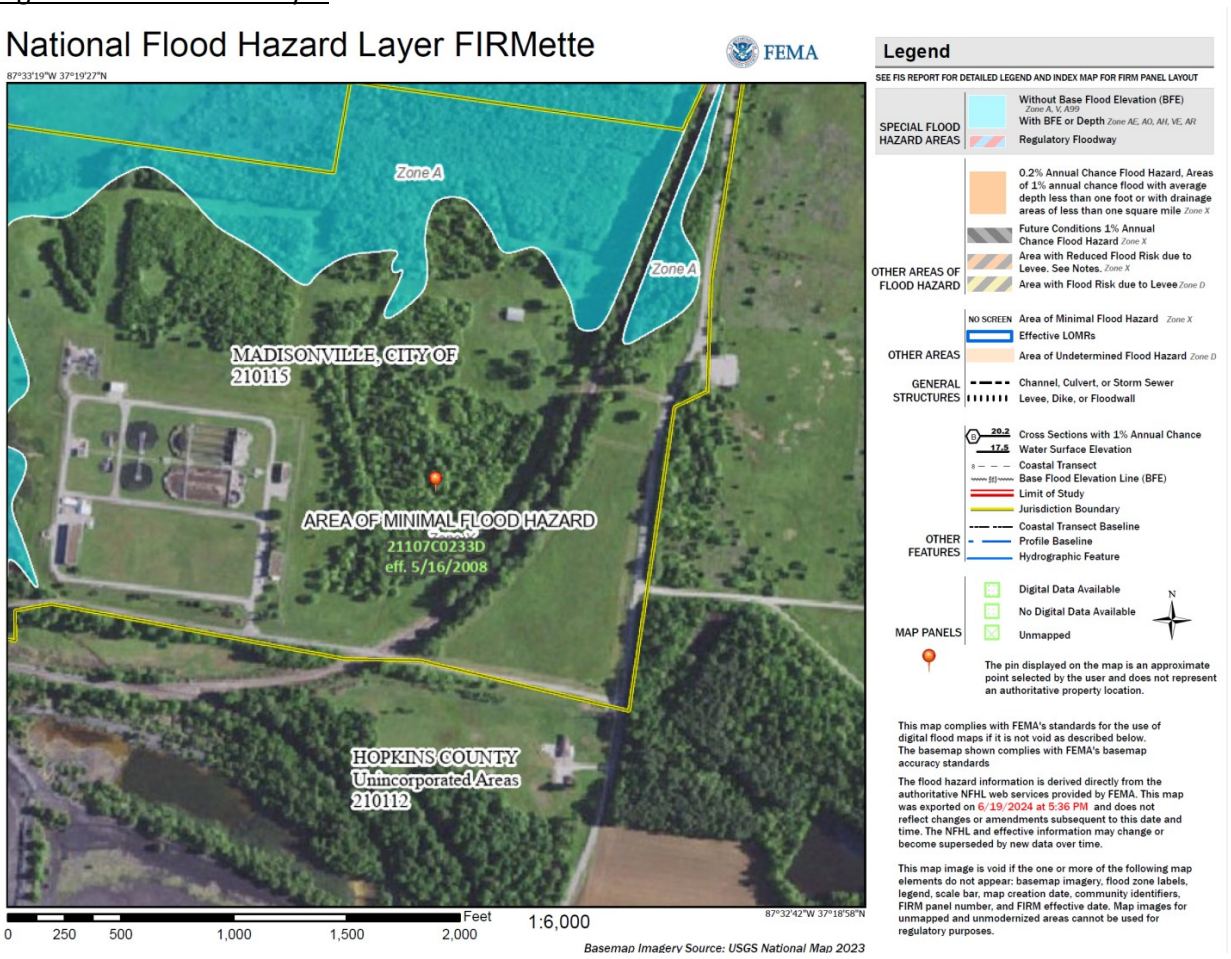
Figure 5: FEMA Flood Layer



Site vegetation

The biotic communities mapped within the Wellington McPherson Lowland Ecoregion consist of vegetation communities defined by level of moisture. On uplands, oak forests often dominated by white oak with post oak, southern red oak, cherrybark oak, and shingle oak. On mesic sites, forests are dominated by beech, yellow-poplar, sugar maple, and northern red oak (Woods et al., n.d). On bottomlands, bottomland oak forests with overcup oak, pin oak, silver maple, pecan, slippery elm, sweetgum, and red maple (Woods et al., n.d.). In wettest areas that are often flooded, bald cypress is present (Woods et al., n.d). The dominate biotic community in the Project Area are the forests are dominated by beech, yellow poplar, sugar maple, and northern red oak.

There are no documented wetlands within the Substation Site project area, according to USFWS National Wetlands Inventory (NWI) mapping. The NWI findings were confirmed in a follow-up wetlands delineation for both Sites performed by Wetland Services, Inc. in July 2024.

Rare and endangered plants

Special status species analyzed in this report include species listed by the USFWS under the Endangered Species Act (ESA) that have been identified by the USFWS Kentucky Ecological Service Field Office through the IpaC online query (Appendix A). Based on the special status species lists generated from the

above sources, a screening analysis was performed to evaluate the potential for special status species or designated or proposed critical habitat to occur within the Project Area. Results from the IpaC query did not identify special status plant species.

The KY Rare Plant Database provided by the Office of Kentucky Nature Preserves was also used to evaluate special status plant species in Hopkins County, Kentucky. The rare plant database identified the Eastern Blue-Star (Endangered), Water Hickory (Threatened), Water-purslane (Special Concern), Water Locust (Special Concern), Tall Bush-clover (Special Concern), American Frog's-bit (Threatened), Bush's Muhly, and Buffalo Clover have been observed in Hopkins County and Have potential to occur within the Project Area.

Revegetation potential

According to state and local regulations, temporary seeding and/or mulching is necessary for bare areas that have not been worked on for 14 or more consecutive days. Temporary seeding uses rapidly growing grass to stabilize areas that have not reached final grade. Temporary seeding reduces runoff and dust while also protecting the surface of the soil and promoting infiltration. Plant species must be selected on the basis of quick germination, growth, and time of year to be seeded. Temporary seeding protects the soil and prepares it for permanent seeding.

Permanent seeding is the establishment of permanent, perennial vegetative cover—usually grass—on disturbed areas. Permanent seeding must be applied to disturbed areas within 14 days of reaching final grade if no temporary cover is applied. Permanent seeding is intended to provide permanent site stabilization in preparation for completion of the project. The Kentucky Transportation Cabinet offers two types of seed mix, Mixture No. I and Mixture No. III, for permanent seeding.

Wildlife Resources

Wildlife populations and capabilities

The area of the project site is a mixture of forested and pasture lands, with a good availability of surface waters, partially as a result of historic mining activities. As a result, it is expected that there is a healthy population of typical western Kentucky species in or near the site. Mammals such as White-tailed Deer, Eastern Gray Squirrel, Eastern Cottontail, Virginia Opossum, and Common Raccoons are expected to be the most common of the larger mammals found. The area of the proposed substation has been utilized as pastureland or hay fields for several decades. As such, the capacity of the project site for wildlife is somewhat limited, providing mainly foraging for local wildlife. The addition of the substation will have negligible effect on local wildlife populations, as there is abundant habitat and foraging nearby that can be utilized instead of the project site.

Sensitive species, periods, and habitat

Out of the five critical species identified in the CIA report, three are relevant to the site. The Whooping Crane population is unlikely to utilize the Project Area due to lack of wetlands and bodies of water. Additionally, due to a lack of flowering plants, Monarch Butterfly migration is unlikely to heavily utilize the Project Area. However, concern must be given to the three bat populations of the Northern Long-Eared Bat (NLEB), Tricolored Bat (TCB), and the Indiana Bat.

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Concerning the NLEB and TCB, there does not seem to be the habitat for hibernacula nearby. If there were, removal or disturbance should be avoided. Three major management strategies are suggested, with more detail in the CIA report. (1) Avoid removing suitable roost trees within 0.25-miles of known maternity roosts, with extra care during critical periods such as spring staging, fall swarming, and pup season. (2) Avoid removing suitable roost trees within 1.5-miles of NLEB and TCB capture/acoustic record locations during the pup season and between December 15th to February 15th. (3) Finally, implement mitigation measures like restoring or protecting old habitats, locating new colonies, and treating bats for white-nose syndrome if possible.

Concerning the Indiana Bat, three major management strategies are suggested. (1) Avoid removal of suitable forested habitat and demonstrate through appropriate means that the Indiana Bats are unlikely to use this habitat. (2) Avoid creating gaps greater than 1,000 feet in the forested canopy, especially isolating or damaging primary or maternity roost trees. (3) Implement mitigation measures like restoring or protecting old roost trees and locating new colonies.

Hunting, hiking, and trapping activities

The project site may have had some historic use for hunting, hiking, or trapping but would have been limited due to the area being in agricultural production as well as being private property. The conversion of a portion of the parcel to a substation will have negligible effect on local hunting, hiking, and trapping, as there are numerous other areas which are both more productive, as well as publicly accessible.

Wildlife management activities

No official wildlife management activities have taken place at the project site. The nearest land which may have this activity are the Harris-Dickerson Wildlife Management Area (WMA) is located approximately 6 miles east of the site. This WMA is 1837 acres of flat bottomland hardwood forests to the north, reclaimed strip mines and lakes to the south, and bounded to the east by the Pond River. Harris-Dickerson WMA is owned by KY Department of Fish and Wildlife Resources and is regulated on a state and county level. The proposed substation will not have any impact on wildlife management activities within the parcel.

Other Site Significance

Historical

The project area is listed in the Ky Mine Mapping Information System as having been located within a former surface coal mine (Figure 6) – the West Kentucky Coal Company Pleasant View Mine. According to available reports, the site would have been active from approximately 1949 to 1965.

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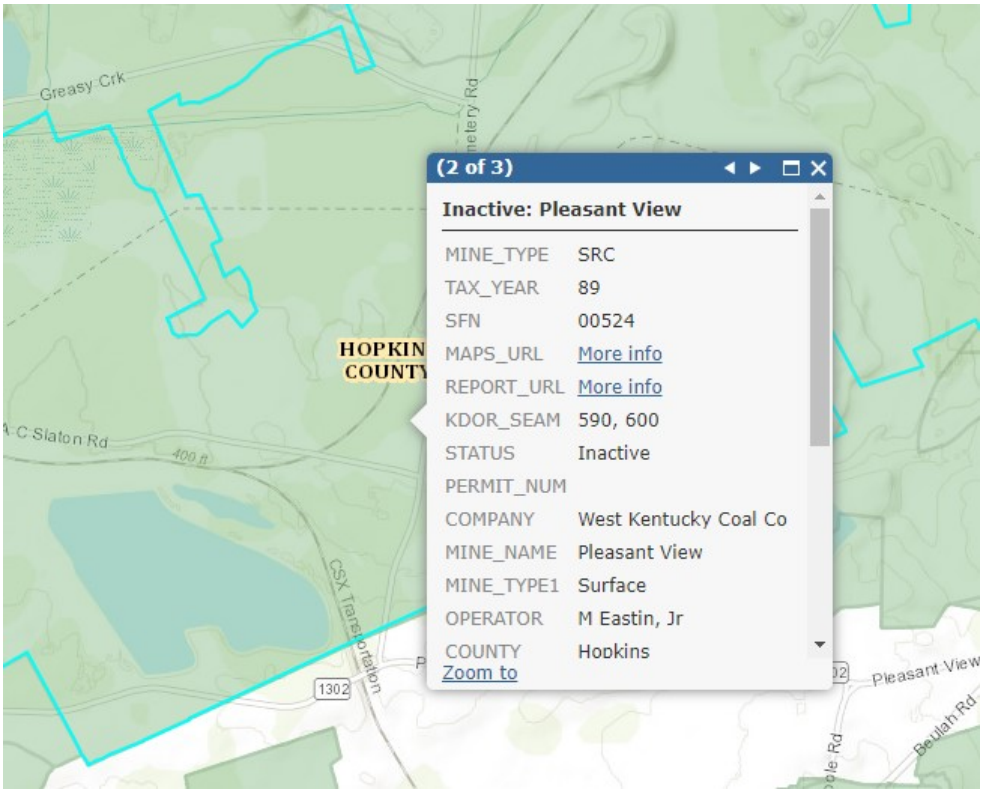
Figure 6. Site Coal Mine Status



However, a review of historical aerial imagery indicates that this portion of the Pleasant View Mine was not actively mined, and was in continuous agricultural use through this timeframe.

Architectural

A cultural resources desktop review was conducted to identify notable historic sites nearby. Utilizing the National Archaeological Database (NADB) and the National Register of Historic Places (NRHP), there were no previously historic districts, sites, buildings, structures, and objects deemed worthy of preservation within a 0.5-mile search area of the Project Area. The

Archaeological

The project area has been disturbed by agricultural use for many decades. The Project Area has not been previously surveyed for historical resources and therefore undocumented historical resources may exist. While no known camps or burial sites are known for the site, it is possible that the project site may have been used for foraging or residence by different Native American tribes throughout history. Hopkins County is noted for having been home to the Quapaw, Osage, Cherokee, Shawnee, and Yuchi peoples. Should any significant archaeological traces be encountered during construction, the Kentucky Archaeological Survey will be contacted for additional guidance.

Paleontological

The paleontological record was examined during a desktop review utilizing the Bureau of Land Management's Potential Fossil Yield Classification (PFYC) Rapid Assessment Tool and Paleobiology Database (PBDB) Navigator. Neither tool showed any significant paleontological record or activity near the subject property. It is entirely possible that fossils may exist in some of the subsurface strata at the

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site, but the extent of the proposed substation does not include excavations deep enough to have the potential to reach those layers.

Scenic

The project site does not lay within any officially designated scenic areas, routes, or rivers. The proposed substation development will not cause significant degradation to the scenic value of the surrounding areas.

Environmental Hazards

Known and potential hazards

The Kentucky Association of Mitigation Managers (KAMM) has identified 13 hazards in Kentucky including: dam failure, drought, earthquakes, extreme temperatures, floods, forest fires, hail, karst sinkholes, landslides, mine/land subsidence, severe storms, severe winter storms, and tornados. These risks are shown in Figures 7-9. According to the 2023 USGS National Hazard layer on ArcGIS, the Project area has a high risk for earthquakes. The bedrock in the Project Area consists of Quaternary alluvium, loess, and lacustrine sediment, Pennsylvanian shale, siltstone, sandstone, and coal beds. These rock types are not soluble carbonate rocks and therefore present little risk for sinkholes. Kentucky Geologic Map Service there is little risk for landslides in the Project Area. There are no known subsurface mines or shafts within the Project Area, therefore there is little subsidence risk associated with mining. The Project Area is located in western KY making it more susceptible to extreme weather events than the eastern portion of the state.

Figure 7: Seismic Hazard

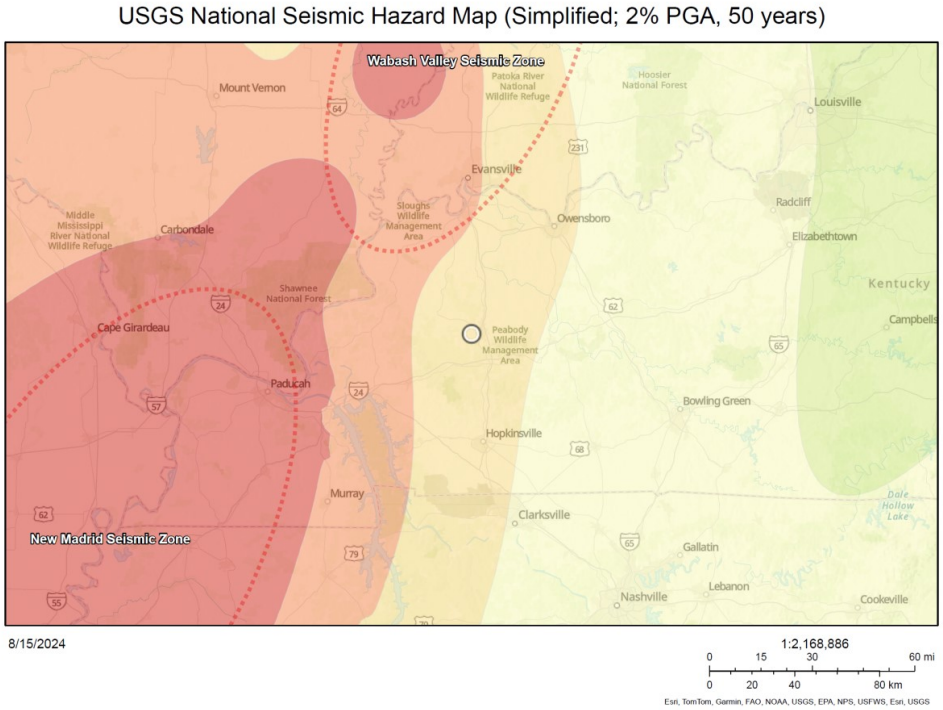

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Figure 8: Landslide Hazard

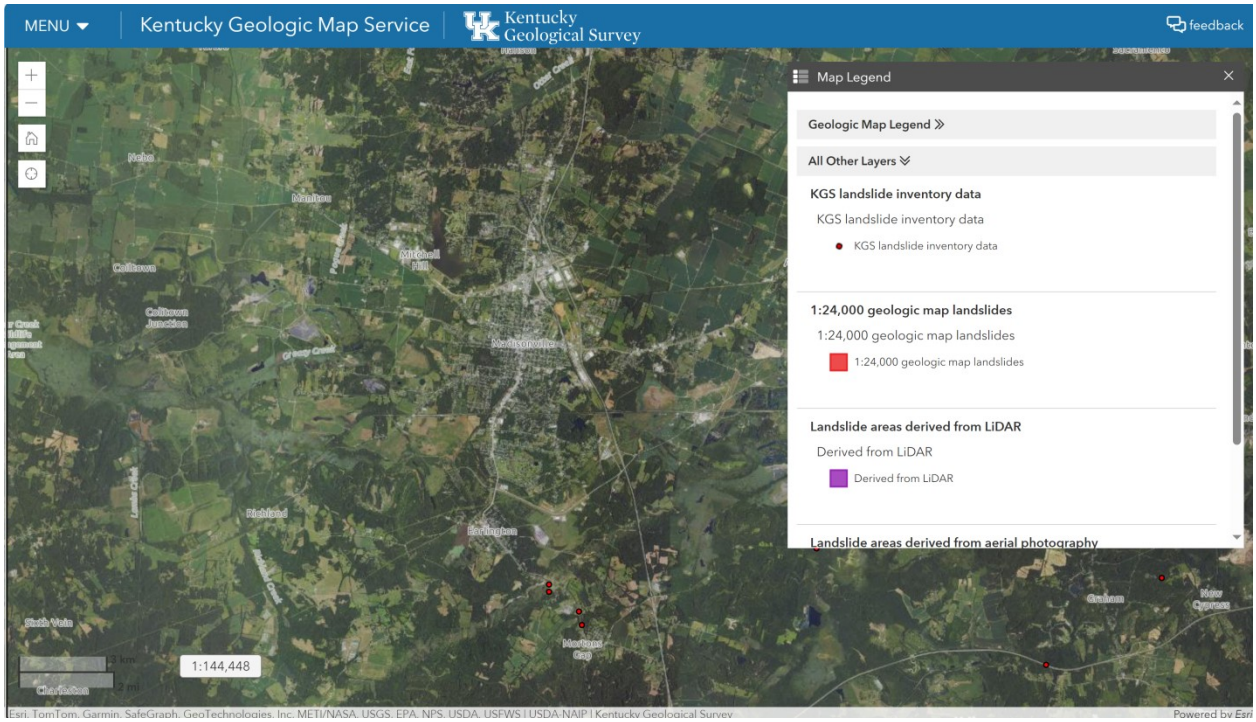
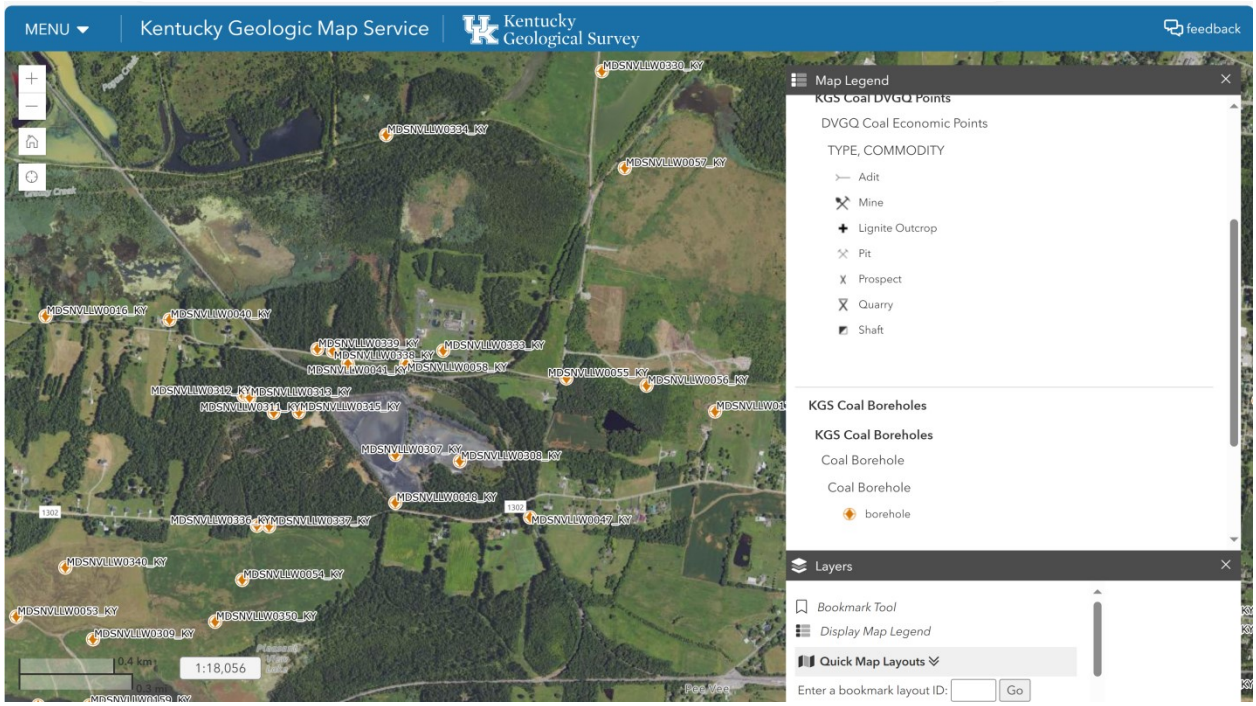


Figure 9: Subsidence Hazard



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Toxic or hazardous materials on site

Environmental regulatory agency database information was collected during preliminary site evaluation for the project parcel. The EDR Radius Map Report (EDR Report) included searches federal, state, and tribal database records for sites within up to a 1-mile radius from the Property. A summary of all the government records searched and data tracking records are also listed in the EDR Report.

The following federal environmental databases were searched by EDR within the applicable search radii as shown in the EDR report to conform to ASTM E1527-21 standards:

• National Priorities List (NPL) sites

• Federal Delisted NPL list

• Federal Comprehensive Environmental Response, Compensation and Liability Information System

(CERCLIS) list

• Federal CERCLIS No Further Remediation Action Planned (NFRAP) site list

• Federal Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS)

facilities

• Federal RCRA non-CORRACTS Transport Storage and Disposal (TSD) facility list

• Federal RCRA Generators list

• Federal Institutional Control/Engineering Control registries

• Federal Emergency response Notification System (ERNS) listings

In accordance with ASTM E1527-13 standards, the following state and tribal environmental databases were searched by EDR within the applicable search radii as shown in the EDR report:

• Lists of hazardous waste sites identified for investigation or remediation:

• State and tribal-equivalent NPL Listings

• State and tribal-equivalent CERCLIS Listings

• Landfill and/or solid waste disposal site lists

• Leaking storage tank/leaking underground storage tank (LUST) lists

• Registered storage tank/underground storage tank (UST) lists

• Institutional control/engineering control registries

• Voluntary cleanup sites

• Brownfield sites

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Properties identified as potential environmental concerns are listed below along with relevant information.

1. Madisonville Westside WWTP, listed at 1715 AC Slaton Road, Madisonville, Kentucky 42431, is upgradient and located on the southern boundary of the Project Area. Madisonville Westside WWTP is listed on the Underground Storage Tank (UST) Finder Database, Underground Storage Tank (UST) Finder Releases Database, State Hazardous Waste Facilities List (SHWS), Recovered Government Archive Solid Waste Facilities List (RGA LF), Solid Waste Facilities/Landfill Sites (SWF/LF), Underground Storage Tank Database (UST), and National Pollutant Discharge Elimination System (NPDES). The UST Finder database is a web map application containing a comprehensive, state-sourced national map of UST's and leaking UST (LUST) data. The UST Finder Releases database is a national composite of leaking UST's. The SHWS list contains priority sites planned for cleanup using state funds (state equivalent of Superfund) and are identified along with sites where cleanup will be paid for by potentially responsible parties. The RGA LF database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. The NPDES is a listing of permitted wastewater facilities. The facility is on the UST finder list due to a 4,000-gallon UST containing diesel that was installed on May 1, 1978 and removed on April 11, 2003. This facility is on the UST finder release database as well, but according to EDR, there is no information on the release. The facility is on SHWS list due to a petroleum spill. Cleanup was completed and the case was closed on May 24, 2011. The facility is on the SWF/LF database because it is a transfer station for solid waste. The code SW-RPBR indicates that the landfill is a landfarm for wastewater treatment plant sludges (biosolids). The last listed site inspection for the landfill was performed on October 27, 2014.
2. Bean Cemetery Road Storm Debris CD&D Landfill, listed at Bean Cemetery Road, Madisonville, Kentucky 42431, is cross gradient and located 0.5 miles east of the Project Area. Bean Cemetery Road Landfill is listed on Solid Waste Facilities/Landfill Sites (SWF/LF) and Financial Assurance listing. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Financial Assurance contains information on owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities. According to EDR, this facility is on the SWF/LF listing because it is an active landfill that acted as emergency disposal for storm damages until it was converted to a CD&D landfill. The permit for the landfill expires on July 20, 2023, and the last site inspection was conducted on May 7, 2015.

Based on the fact that there are listed sites in the vicinity and upgradient of the Project Area on environmental databases searched, a potential environmental concern includes the possibility that soil and/or groundwater impacts exist in the Project Area. This could potentially impact the construction schedule and costs should impacts be encountered. While the probably if significant impacts is low, additional investigation and/or sampling would be needed to verify conditions at the site.

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Public and recreational lands

The project parcel has remained in private ownership for many decades. The nearest public lands is the Harris-Dickerson Wildlife Management Area (WMA) is located approximately 6 miles east of the site. The proposed substation project will have no impacts on public or recreational lands.

Noise potential hazards and design consideration; special sounds wall requirements.

Power transformers are generally the primary source of continuous audible tones from substation sites. The proposed Substation Site will function as a switching station, with no transformers. Therefore, there is little potential for objectionable noise levels from the project, and no formal noise study was conducted. Additionally, no dedicated noise mitigation measures are planned for the project.

Underground objects that may affect grounding or any other below grade work and excavations.

The history of the subject property suggests that the presence of buried foundations is unlikely. There is the potential for utilities to exist within or along the perimeter of the property. Topographic survey data indicates underground telephone lines along AC Slaton Rd and Bean Cemetery Rd. Historical aerial photographs indicate potential for trenched utilities along the perimeter and crossing from east to west, to the north of the proposed site. and it is recommended a utility locate be performed prior to any construction.

Visual impacts

The proposed site is border to the south by one residence. The construction of the substation may be considered visually objectionable to this residence, or to persons passing by on AC Slaton or Bean Cemetery Roads.

While the project site is not within the vicinity of any locations of notable visual beauty, it would be recommended to provide some type of visual screen (bushes / trees) if this issue becomes a significant concern. This type of vegetative screen does also provide a basic level of security enhancement by concealing the location of electrical equipment.

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:

Electronic Application of Kentucky Municipal Energy Agency for a Certificate of Construction for an Approximately 75-Megawatt Merchant Electric Generating KYMEA Energy Center I and Transmission Line in Madisonville, Kentucky, Pursuant to KRS 278.700 and 807 KAR 5:110	)))))	Case No. 2024-00290

CERTIFICATION

This is to certify that I have supervised the preparation of the KYMEA's responses to the Siting Board Staff's Second Request for Information and that the responses on which I am identified as a sponsoring witness are true and accurate to the best of my knowledge, information, and belief after reasonable inquiry.

1/9/2025
Date

Doug Buresh
Doug Buresh

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

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Date

01/08/2025

Josh Coburn

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:

Electronic Application of Kentucky Municipal Energy Agency for a Certificate of Construction for an Approximately 75-Megawatt Merchant Electric Generating KYMEA Energy Center I and Transmission Line in Madisonville, Kentucky, Pursuant to KRS 278.700 and 807 KAR 5:110	)))))	Case No. 2024-00290

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1/10/2025
Date

Paul Coomes

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:

Electronic Application of Kentucky Municipal Energy Agency for a Certificate of Construction for an Approximately 75-Megawatt Merchant Electric Generating KYMEA Energy Center I and Transmission Line in Madisonville, Kentucky, Pursuant to KRS 278.700 and 807 KAR 5:110	)))))	Case No. 2024-00290

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1/8/25
Date

Richard Kirkland

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

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Jan 9 2025
Date

Dave Parzych