Attachment H

CUMULATIVE ENVIRONMENTAL ASSESSMENT

Barrelhead Solar, LLC

Wayne County, Kentucky

COPPERHEAD
ENVIRONMENTAL CONSULTING

Cumulative Environmental Assessment for Proposed Barrelhead Solar, LLC Project Wayne County, Kentucky

Prepared for:

Barrelhead Solar, LLC
Birch Creek Development, LLC

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August 2025

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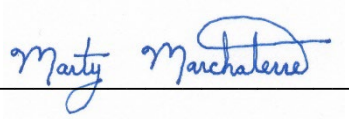

Marty Marchaterre
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ACRONYMS AND ABBREVIATIONS

Applicant	Barrelhead Solar, LLC
KAR	Kentucky Administrative Code
KDOW	Kentucky Department of Water
KGS	Kentucky Geological Survey
KPDES	Kentucky Pollution Discharge Elimination System
KRS	Kentucky Revised Statutes
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NOx	Nitrous Oxides
PM	Particulate Matter
PPE	Personal Protective Equipment
PV	Photovoltaic
SO_2	Sulfur Dioxide
SPCC	Spill Prevention Control and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
USGS	United States Geological Survey
VOC	Volatile Organic Compounds

INTRODUCTION

KRS 224.10-280 provides that no person shall commence to construct a facility to be used for the generation of electricity unless that person submits a cumulative environmental assessment (CEA) to the Kentucky Energy and Environment Cabinet with the permit application.[1] The Barrelhead Solar Project (Barrelhead Solar or Project) is a proposed 54 megawatt (MWac) solar facility sited on approximately 307 of private acres that will generate electricity through the use of photovoltaic (PV) solar panels (Figure 1). It will include a utility interconnection substation and switchyard, inverter boxes, transformers, and underground electrical conveyance lines.

The Project is located on KY 1009 and Massingale Road in Wayne County, southwest of the city of Monticello. The proposed Project Area is currently used as agricultural fields and pasture with some wooded areas throughout.

CEA REQUIREMENTS

Upon researching the statute and accompanying regulations, Barrelhead Solar, LLC (the Applicant) is unaware of any rules that have been promulgated regarding CEAs. To comply with KRS 224.10-280, the CEA assessment will evaluate Project impacts to four areas:

1) Air Pollutants
2) Water Pollutants
3) Wastes
4) Water Withdrawal

[1] KRS 224.10-280 Cumulative environmental assessment and fee required before construction of facility for generating electricity -- Conditions imposed by cabinet -- Administrative regulations.

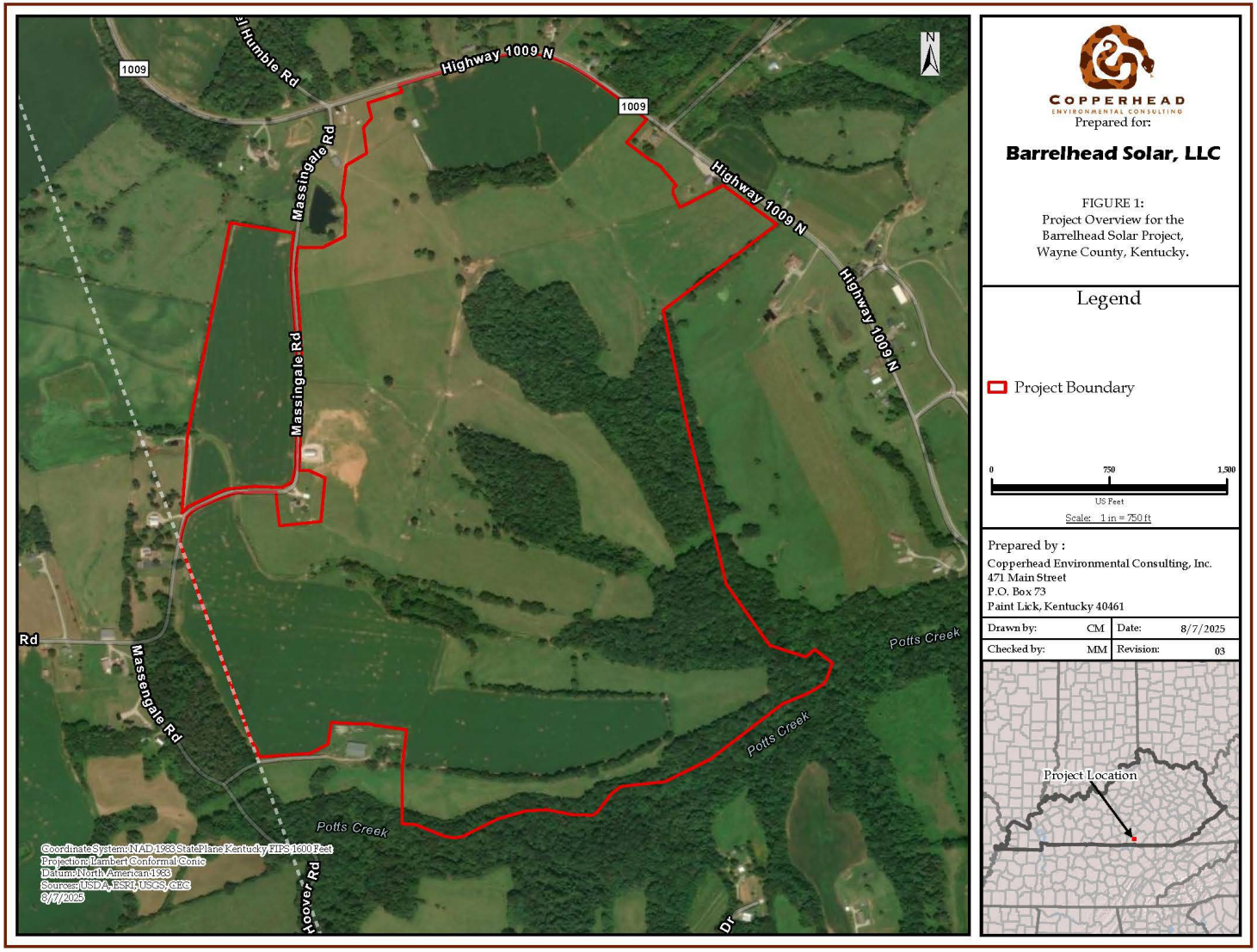

Figure 1. Project Location

AIR POLLUTANTS

The Clean Air Act regulates the emission of air pollutants and, through its implementing regulations, establishes National Ambient Air Quality Standards (NAAQS) for several "criteria" pollutants that are designed to protect the public health and welfare with an ample margin of safety. The criteria pollutants are ozone, particulate matter (PM), carbon monoxide (CO), nitrous oxides (NOx), sulfur dioxide (SO_2), and lead.

Geographic areas are designated as attainment, nonattainment, or unclassifiable for specific NAAQS. Areas with ambient concentrations of criteria pollutants exceeding the NAAQS are designated as nonattainment areas, and new emissions sources in or near these areas are subject to more stringent air permitting requirements. A maintenance area is a previously nonattainment area that has been redesignated as attainment but needs to maintain those standards through a specific plan.

Wayne County, as well as surrounding counties (Clinton, Russell, Pulaski, McCreary, and Picket (TN) Counties) are in attainment for all criteria pollutants (EPA 2025). Additionally, Wayne County is protected by Kentucky Air Quality Regulations found in Title 401, Chapters 50–68 of the Kentucky Administrative Regulations (KAR). No air quality permit is required for construction or operation activities.

The Project will generate transient air pollutant emissions during construction and operation activities. Air quality impacts will primarily result from the staging and operation of construction vehicles, equipment, supply deliveries, and worker personnel vehicles. The daily workforce for the Project during construction will vary depending on specific construction activities occurring on individual days. It is estimated that the workforce will comprise up to 150 to 200 workers onsite at any time during the 8- to 12-month construction period. Construction and operation equipment will include, but not be limited to, bulldozers, backhoes, forklifts, bobcats, generators, pile drivers, semi-trucks, and flatbed trucks. Weather conditions may also affect air pollutant emissions.

Combustion of gasoline and diesel fuels by internal combustion engines will generate local emissions of PM, NOx, CO, volatile organic compounds (VOCs), and SO_2. Emissions associated with these vehicles and equipment are expected to result in temporary, minor impacts to air quality due to the limited duration, number of vehicles, and hours of operation. For example, combustion emissions from a 200–horsepower diesel truck operating eight hours every day for three months will include less than one ton each of NOx, CO, and PM. Emissions of SO_2 will be negligible because of the ultralow sulfur diesel fuel available on the market. To reduce impacts to air quality, the Project will require contractors to implement best management practices (BMPs), including properly maintaining construction equipment.

Tree clearing or vegetative debris will either be burned onsite per Kentucky's Open Burning regulations (401 KAR 63:005) and applicable local regulations, or will be chipped, ground, and composted onsite or managed offsite at a permitted facility.

Construction activities will result in temporary fugitive air pollutant emissions (e.g., small particles suspended in the air or dust). Vehicles and construction equipment traveling over unpaved roads and the construction site will result in the emission of fugitive dust. Most fugitive emissions from vehicle traffic in unpaved areas will be deposited near the unpaved areas. To minimize fugitive dust impacts, the Project will require all contractors to keep construction equipment properly maintained and to use BMPs, such as covered loads and wet dust suppression (i.e., water trucks), if needed, which can reduce fugitive dust emissions by as much as 95 percent. Re-vegetation of disturbed areas in compliance with the Kentucky Division of Water (KDOW) Construction Storm Water Discharge General Permit will also help minimize the emission of fugitive dust. No air quality impacts from fugitive dust is anticipated.

Air quality impacts from construction activities will be temporary and will depend on both man-made factors (intensity of activity, control measures, etc.) and natural factors such as wind speed and direction, soil moisture, and other factors. However, even under unusually adverse conditions, emissions will have, at most, a minor transient impact on off-site air quality and will be well below the applicable NAAQS. Overall, the potential impacts to air quality from construction activities for the Project will be minor.

Once constructed, the solar panels will produce zero emissions during operation. Therefore, the Project is not expected to emit any of the following criteria pollutants: PM, CO, SO_2, NOx, VOCs, or lead. The Project is also not expected to emit Hazardous Air Pollutants (HAPs).

During operation, the Project will only generate air emissions from worker vehicles and equipment for maintenance activities, such as mowers, to control the growth of vegetation. Project operations are expected to require 2 to 3 workers on site intermittently. These workers will primarily drive in and out, Monday through Friday, during business hours. It is anticipated that employees will use mid- or full-sized trucks. The Project will be monitored off-site 24/7, and maintenance workers will be sent to the site if any changes in production or equipment errors are detected remotely. Inspections will include identifying any physical damage to panels, wiring, inverters, pad mount transformers, interconnection equipment, and security fencing that would need repairs or replacement.

Additionally, grounds maintenance will be performed through an integrated land management approach, to include biological (sheep for regenerative agriculture) and mechanical control of vegetation, with herbicide applications as appropriate to control regulated noxious weeds per local, state, and federal regulations. It is anticipated that using sheep grazing to control vegetation and/or trimming and mowing will likely be performed periodically, approximately 20-30 times per year, depending on growth rate, to maintain a maximum height of 10 inches to avoid shading the panels and comply with county regulations.

It is anticipated that there will also be benefits to air quality because, compared to fossil fuel sources that produce emissions, the solar panels produce zero emissions while generating electricity. This benefit to local and regional air quality will occur over the life of the Project.

WATER POLLUTANTS

Surface Water

The Project is located within the Lower Otter Creek (051301030502) subwatershed. No waterways in or adjacent to the Project are designated as Outstanding State Resource Waters (OSRW) or other Special Use Waters as defined by the Kentucky Division of Water (KDOW). Within the vicinity of the Project (approximately 1.5 miles) is Otter Creek, which is designated as an OSRW 0.75 miles upstream of Gap Creek to Carpenter Fork. This segment is also designated as an Exceptional Waterbody per 401 KAR 10:030. Because this resource is not adjacent to the Project, it is not anticipated that any stormwater discharges would likely reach this waterbody and therefore impact water quality.

Wetlands, ponds, and streams are present within the Project Area. During construction activities, stormwater erosion and sedimentation may affect onsite surface water features (i.e., streams and wetlands). The Project will utilize the existing landscape (e.g., slope, drainage, utilization of existing roads) where feasible and minimize or eliminate grading work to the extent possible. Typically, land that has been previously farmed for row crops will only require minimal grading, and posts can usually be installed onto these areas of the Project Area without additional earth disturbance. Any required grading activities will be performed with earthmoving equipment, and efforts will be made to match existing slopes.

The Applicant expects the Project to result in the discharge of stormwater during construction. The Applicant intends to comply with the KDOW's Construction Storm Water Discharge General Permit for those construction activities that disturb one acre or more. The Applicant will submit a Notice of Intent to KDOW at least seven days prior to the commencement of construction, and KDOW will review the notice of intent and provide notification of authorization to discharge. When construction is completed, the Applicant will provide a notice of termination upon completion.

To manage stormwater, the use of BMPs, including silt fences, on-site temporary sediment basins, sediment traps, and/or buffer zones (e.g., 25 feet) surrounding jurisdictional streams and wetlands will be implemented. A site-specific stormwater pollution prevention plan (SWPPP) will be prepared, and a copy will be kept on site. These stormwater BMPs will minimize sediment from entering Waters of the Commonwealth and sediment migration off site during construction, prior to achieving final vegetative stabilization.

Disturbed areas will be seeded after construction using a mixture of low-growing grass and herbaceous plant seed per the project planting plan. Erosion control measures will be inspected and maintained until vegetation in the disturbed areas has returned to the preconstruction conditions or the Project Area is stable. Water may be used for soil compaction and dust control during construction.

Following the establishment of vegetation on disturbed areas and to minimize potential for water impacts, most vegetation control will be performed biologically (i.e., sheep) with mechanically (i.e., mowing) as appropriate; however, limited amounts of herbicides will be used around posts or in areas that are not able to be grazed or mowed. Only EPA-registered and approved herbicides will be used in accordance with label directions designed in part to restrict applications near receiving waters and to prevent unacceptable aquatic impacts. All herbicides will be applied by Kentucky licensed and certified commercial pesticide applicators.

Approximately 20-25 acres of the Project Area will be used as construction assembly areas (also called staging or laydown areas) for worker assembly, vehicle parking, and material storage during construction. Some of these areas will be staged within the areas proposed for the PV arrays. The laydown areas will be on site for the duration of construction. Temporary construction trailers intended for material storage and office space will be parked on site. Following the completion of construction activities, trailers, unused materials, and construction debris will be removed from the Project Area.

Once construction is complete, the operations and maintenance of the solar facility will have little to no impacts on surface water, and BMPs will be used during any maintenance activities that have the potential to cause runoff of sediment and pollutants. Beneficial indirect impacts to surface water are anticipated due to reduced fertilizer and pesticide use compared with current agricultural use.

Groundwater

Groundwater is water located beneath the ground surface, within soils and subsurface formations known as hydrogeological units, or aquifers (USGS 1995). Aquifers have sufficient permeability to conduct groundwater and to allow economically significant quantities of water to be produced by man-made water wells and natural springs. Groundwater levels fluctuate with seasonal and cyclical climatic variations in precipitation and may be either higher or lower at other times.

No direct adverse impacts to groundwater are anticipated. The PV panels will have a relatively minor effect on groundwater infiltration and surface water runoff because the panels will not include a runoff collection system. Rainwater will drain off the panels to the adjacent vegetated ground.

Materials that could potentially contaminate groundwater will be stored on the Project Area during construction. The minimal use of petroleum fuels, lubricants, and hydraulic fluids during construction and by maintenance vehicles will result in the potential for small on-site spills. However, using a spill prevention, control, and countermeasure (SPCC) plan will reduce leaks and spills and minimize the potential for adverse impacts to groundwater.

During construction and operation, limited use of fertilizers and herbicides may be used on site. Fertilizer and herbicide use will be undertaken following the manufacturer's recommendations, EPA regulations, and KY State licensing to reduce the risk of groundwater contamination.

Additionally, beneficial indirect impacts to groundwater could result from the change in land use due to a reduction in fertilizer and herbicide use.

Portable chemical toilets will be provided on-site for construction workers during the Project development. Sewage will be pumped out by a licensed contractor, and the sewage waste will be disposed of at the Monticello Waste Water Treatment Plant or another regulated wastewater treatment plant. No adverse effects are anticipated from wastewater treatment and disposal.

The Kentucky Geological Survey (KGS) Oil and Gas Search Database identified one gas well on the Project Site (see Attachment K). KGS data includes Well Log and Completion Reports for the gas well. It identifies the well as a dry hole and the well abandoned and plugged (9/14/60) as required per Kentucky statute and regulation.

No direct adverse impacts are anticipated as a result of Project development due to the use of BMPs and the SPCC plan; there will be minor beneficial indirect impacts to groundwater due to the reduction in fertilizer and herbicide use as land use changes from agriculture to solar energy generation.

WASTE

Waste will be generated during Project construction and operation and will be handled and disposed of in accordance with local, state, and federal regulations. Construction activities will generate solid waste consisting of construction debris and general trash, including wooden crates, pallets, flattened cardboard module boxes, plastic packaging, and excess electrical wiring. To the extent feasible and practicable, construction waste will be recycled, and material that cannot be recycled will be disposed of off-site at a permitted facility to be determined by the designated contractor(s). No waste will be disposed of on the Project Area. Designated construction contractor and subcontractor personnel will be responsible for daily inspection, cleanup, and proper labeling, storage, and disposal of all refuse and debris produced. Disposal containers such as dumpsters or roll-off containers will be obtained from a proper waste disposal contractor and will be located in the on-site staging area or other areas, as appropriate. Records of the amounts generated will be maintained by the Applicant.

During Project construction, materials will be stored on site in storage tanks, vessels, or other appropriate containers specifically designed for the characteristics of these materials. The storage facilities will include secondary containment in case of tank or vessel failure. Construction-related materials stored on site will primarily be liquids such as used oil, diesel fuel, gasoline, hydraulic fluid, and other lubricants associated with construction equipment. Safety Data Sheets for all applicable materials present on site will be made readily available to on-site personnel.

Construction activities will involve the use of machinery (e.g., backhoes, generators, pile drivers, and flatbed trucks) fueled by petroleum products. Fueling of construction-related equipment and vehicles will occur in designated areas. Other mobile equipment will return to the on-site laydown areas for refueling. Construction contractors will be responsible for preventing spills by

implementing the SPCC, including proper storage and handling procedures. The SPCC will include special procedures to minimize the potential for fuel spills, and spill control kits will be carried on all refueling vehicles for activities such as refueling, vehicle or equipment maintenance, waste removal, and tank clean-out.

Small quantities (less than 55 gallons, 500 pounds or 200 cubic feet) of janitorial supplies, paint, degreasers, herbicides, pesticides, air conditioning fluids (chlorofluorocarbons [CFCs]), gasoline, hydraulic fluid, propane, and welding rods typical of those purchased from retail outlets may also be stored and used at the facility. Due to the small quantities involved, the controlled environment, and implementation of proper cleanup procedures, significant environmental impacts caused by a potential spill are not anticipated.

Facility personnel will be supplied with appropriate personal protective equipment (PPE) and will be properly trained in the use of PPE as well as the handling, use, and cleanup of hazardous materials used at the facility and the procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials will be stored on site.

Waste generation during operation will be minimal and will mainly result from the maintenance and/or replacement of worn or broken equipment and defective or broken electrical materials. All wastes will be managed by a licensed waste management company(ies) and disposed of per applicable federal and state requirements to minimize health and safety effects.

Based on a review of potential waste generation activities, no adverse effects from general waste management are anticipated.

WATER WITHDRAWAL

A water supply well was identified on the Project Area. Aquifers beneath the Project have sufficient permeability to conduct groundwater and to allow economically significant quantities of water to be produced by man-made water wells. Water needed for construction and operation will be brought in, obtained from nearby existing wells, or provided by developing a new water supply well.

Construction-related water use will support site preparation (including dust control) and grading activities. During earthwork for the grading of access roads, foundations, equipment pads, and other components, the primary use of water will be for compaction and dust control. Smaller quantities will be required for the preparation of the equipment pads, equipment washing, and other minor uses. BMPs outlined in the SWPPP will be followed for using water to clean equipment and appropriately disposing of this wastewater. The expected water volume needed for construction activities is not expected to adversely affect local or regional water resources.

The internal access roads will not be heavily traveled during normal operation, and consequently, water use for dust control is not expected. Equipment washing and any potential dust control discharges will be handled following BMPs described in the SWPPP for water-only cleaning.

The operation of solar facilities is not water-intensive. Precipitation in the region is typically adequate to remove dust and other debris from the PV panels while maintaining energy production; therefore, manual panel washing with water or any other substance is likely not part of regular maintenance. Additionally, rain will contribute to ongoing vegetation management. Some water may be needed for vegetation management, including during the installation of vegetative screening and during prolonged times of drought.

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RESUME