



# Replace Obsolete Seasonal Housing with Multiplex Housing and Amenities Environmental Assessment

October 2023





**US Department of the Interior  
National Park Service  
Mammoth Cave National Park**

**Replace Obsolete Seasonal Housing with Multiplex Housing and Amenities  
Environmental Assessment**

October 2023

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Mammoth Cave National Park (the park), operated by the National Park Service (NPS), comprises 52,830 acres in Edmonson, Hart, and Barren Counties in the Commonwealth of Kentucky. The Park is located approximately 100 miles northeast of Nashville, Tennessee and approximately 100 miles south of Louisville, Kentucky. The Park is best known for preserving Mammoth Cave, currently the longest known cave system in the world, with more than 420 miles of surveyed cave passages.

The current lodging for seasonal employees located in the Maintenance portion of the Park's Operations Area is old, outdated, unsafe, does not meet accessibility standards, has extensive structural issues, and requires substantial maintenance work and costs annually. Further, seasonal employees are overcrowded at peak occupancy during the summer season. Seasonal employees are critical to maintain sufficient and quality service to the large number of park visitors. The park proposes to replace existing seasonal housing with new housing and amenities that meet NPS requirements, proposed to be located in the Administrative and Housing portion of the Operations Area.

This environmental assessment (EA) evaluates two alternatives: a no-action alternative and the proposed action. The no-action alternative would continue the current use and management of the project area and use of the existing seasonal housing until it is ultimately condemned and demolished. The proposed action would include construction of two new two-story housing units, with parking, storage facilities, an indoor gathering space, utilities, and a pavilion for gathering and recreation. This would provide seasonal employees with high quality housing within the Administration and Housing portion of the Operations Area and away from the Maintenance Area.

**How to Comment:**

We invite you to comment on this EA during the 30-day public review period. The preferred method of providing comments is through the NPS's Planning, Environment, and Public Comment (PEPC) website for Mammoth Cave National Park at: <https://parkplanning.nps.gov/MACASeasonalHousing/>

You may also submit written comments to:

Superintendent  
Mammoth Cave National Park  
Attn: Replace Deteriorating Seasonal Housing Units - Access EA  
P.O. Box 7, Mammoth Cave, KY 42259-0007

Only written comments will be accepted. Please submit your comments within 30 days of the posting of the notice of availability on the PEPC website. Your entire comment will become part of the public record so, if you wish to remain anonymous, please clearly state this request within your correspondence; however, NPS cannot guarantee that personal information, such as email address, phone number, etc., will be withheld.

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# CONTENTS

List of Figures .....	iv
Chapter 1: Purpose and Need.....	1
Introduction .....	1
National Environmental Policy Act (NEPA).....	2
Purpose .....	5
Issues and Impact Topics.....	8
Chapter 2: Alternatives .....	15
No Action Alternative .....	16
Proposed Action/Park Preferred Alternative .....	19
Best Management Practices (BMPs) for the Action Alternative .....	19
Alternatives Considered but Dismissed.....	20
Chapter 3: Affected Environment and Environmental Consequences.....	21
General Methodology for Analyzing Impacts .....	21
Cultural, Historical, and Archaeological Resources .....	21
Chapter 4: Coordination and Consultation.....	28
List of Persons, Agencies, and Organizations Involved .....	28
Agency and Tribal Consultation.....	28
Public Review.....	29
Preparers and Consultants .....	30
Bibliography .....	31
Appendix A: Agency and Tribal Consultation Section 106 Correspondence	
A1: SHPO Consultation	
A2: THPO Consultation	
A3: ACHP Consultation	
Appendix B: USFWS Consultation Correspondence	
Appendix C: Wetland Technical Report	

## LIST OF FIGURES

- Figure 1. Project vicinity, with Operations Area identified to the east of the Visitor Center.
- Figure 2. Operations Area in relation to Visitor Center.
- Figure 3. Proposed project area and existing seasonal housing within Operations Area.
- Figure 4. NPS Prototype #7 for seasonal housing unit replacement project.
- Figure 5. Spatial layout of proposed seasonal housing, loop road, and parking.
- Figure 6. Area of Potential Effect for proposed project and adjacent cultural landscapes.
- Figure 7. Maintenance portion of Operations Area: Proximity of current seasonal housing to high traffic areas and other required functions.
- Figure 8. Character of existing seasonal housing area (No Action Alternative).
- Figure 9. Photo of Superintendent's House, April 2022.
- Figure 10. Representative photo of CCC Residential District Houses (building #031), April 2022.
- Figure 11. Representative photo of Mission 66 Residential District structures (building #039), April 2022.

# CHAPTER 1: PURPOSE AND NEED

## INTRODUCTION

The National Park Service (NPS) manages Mammoth Cave National Park (the park), which is home to Mammoth Cave, the longest known cave system in the world with over 420 miles of surveyed cave passages (Figure 1). The park is a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site, an International Dark Sky Park, as well as the core of an International Biosphere Reserve. The park welcomes more than 550,000 visitors annually and supports 100 full-time employees and 40 to 50 seasonal employees. Support of cave tours operations and other park programs requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to Mammoth Cave. The ability to provide short-term housing is essential as alternative housing options are not generally available in the area, given its remote location. Without seasonal employees, it would be impossible to meet visitor needs, support natural and cultural resource requirements, and to operate and maintain all of the park's assets and utilities. These seasonal employees, who are employed for no-longer than 6 months per year, need quality and sufficient temporary housing.

The NPS is developing a design solution to address deficient housing conditions for seasonal staff within the park. Three buildings currently used for seasonal housing, constructed in the early 1970s, are rapidly deteriorating beyond their useful life and have an inappropriate foundation design for the high-humidity climate and soil type of their location. Their condition creates a need for continual maintenance and issues related to safety and accessibility. The quality of life of seasonal workers is also affected by overcrowding due to lack of sufficient bedrooms and interruptions due to the current location within the Maintenance portion of the Operations Area.

This Environmental Assessment (EA) evaluates two alternatives: a no-action alternative and the proposed action. The proposed action consists of construction of two new multi-story living quarters along with amenities that include a supporting indoor gathering space, outdoor pavilion, and community gathering space. The preferred site location for this project is centrally located within the park, north of the current seasonal housing and east of the park visitor center (Figures 2 and 3). This location allows for the new structures to be constructed at the north end of the Administration and Housing Area away from current housing (to be removed) and the Maintenance operations center. The demolition of the existing substandard seasonal housing was evaluated in a previous Categorical Exclusion (dated October 30, 2020).

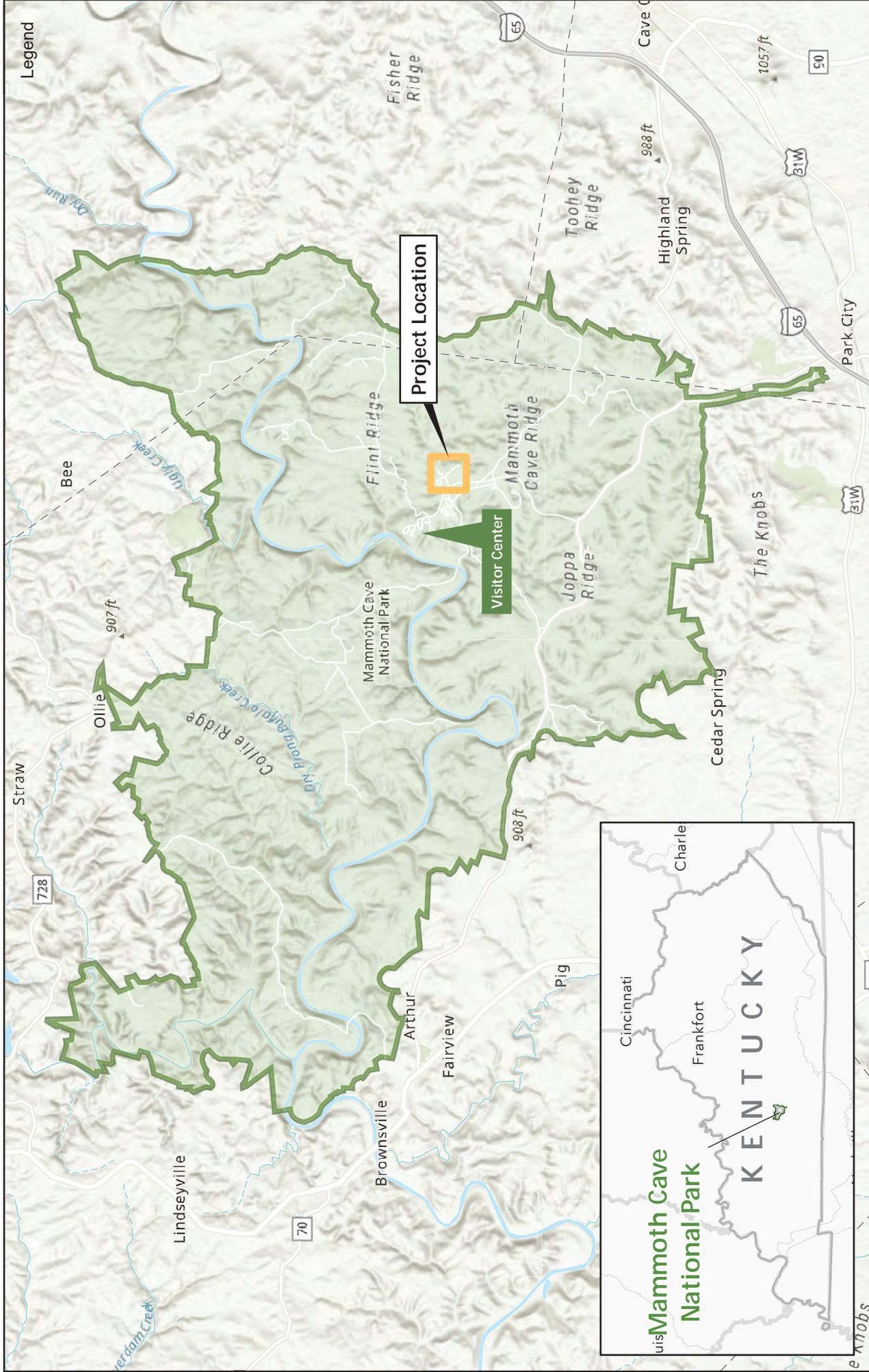
The proposed project area has been a primarily residential and housing district since the Civilian Conservation Corps (CCC) era of 1937 to 1942. The CCC district was originally designed such that housing for park personnel was near the cave and Visitor Center but obscured from view to park visitors by vegetation. The historically residential buildings in this area include CCC-era houses which are listed on the National Register of Historic Places (NRHP), the NRHP-listed park Superintendent's office, small ranch houses constructed in the late 1950s (Mission 66 residential district), and associated small scale features (Figure 3). Except for the CCC-era houses, most of these residential buildings have been repurposed to park administrative offices.

## **NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)**

This EA is prepared pursuant to NEPA (1969, as amended), its implementing regulations at 40 CFR 1500-1508, Department of Interior NEPA regulations at 43 CFR Part 46, NPS Director's Order #12 (2011) and the NPS *NEPA Handbook* (2015). The EA serves two purposes:

- It provides the framework for the NPS to evaluate the environmental consequences of the proposed action and make an informed decision.
- It provides information to help interested and affected public and decision-makers understand the context of the proposed action.

Review of the NPS regulations regarding categorical exclusions at 43 CFR Part 46.205 and the NPS *NEPA Handbook* (2015) shows that no categorical exclusion exists for the proposed action analyzed in this EA.



Seasonal Housing Unit Replacement  
 Environmental Assessment/Analysis of Effects

FIGURE 1: Project vicinity, with Operations Area identified to the east of the Visitor Center.



Seasonal Housing Unit Replacement  
Environmental Assessment/Assessment of Effects

FIGURE 2: Operations Area in relation to Visitor Center"

## **PURPOSE**

The purpose of this project is to provide high quality housing for seasonal employees within the Administrative and Housing area of the park that meets standards for accessibility and expectations for safety and comfort, which will support the hiring and retention of qualified seasonal personnel.

## **NEED**

Onsite seasonal housing is necessary to provide living quarters for seasonal employees, who are critical to support park operations and the resources therein. The park is located in a relatively rural area in south central Kentucky, and the nearest urban areas are small and lack potential rental properties that could serve as temporary seasonal housing outside of the park. Current seasonal housing quarters buildings #097, 098, and 099 were built in the early 1970s with four-apartments in each. Each apartment can be configured as a one- or two-bedroom unit, creating a maximum of six bedrooms per 2,100-SF building, along with a combination utility/laundry/storage room. Under typical configuration, the three buildings combined have 18 total bedrooms, with 24 beds. Even with the existing accommodations, seasonal employees frequently have to double up or even triple up in bedrooms and/or sleep on couches during the busier summer periods at the park. Seasonal employees may have substantially different schedules from one another and requiring “double bunking” which can be disruptive.

The existing housing buildings are located to the east of the Visitor Center area in the Maintenance Area of the park’s Operations Area, surrounded by uses such as warehouses, vehicle maintenance, a woodshop, a maintenance and heavy machinery storage yard, and the cave tour bus parking lot (Figures 2 and 3). The tempo of such support operations has substantially increased since the seasonal housing was constructed, and the operations often conflict with the quality of life of the seasonal employees living on the site due to noise and conflicting work schedules. The remainder of the available staff housing is located in the northern portion of the Operations Area in the Administrative and Housing Area.

The condition of the existing seasonal housing quarters is not consistent with NPS policy for seasonal housing as described in Section 6.1 of Director’s Order #36: *NPS Housing Management*. The existing buildings are rapidly deteriorating, incurring very high maintenance costs. When these buildings were constructed, high levels of humidity and seasonal perching of water on the surface were not taken into account in the design. Consequently, significant structural deterioration has occurred, such as rotted structural members, that has been addressed by maintenance over the years. However, without correcting the underlying structural problems - which will require dismantling significant portions of the buildings and reconstructing the support structure - deterioration will only continue, requiring high maintenance costs, until the units are condemned, which is only a few years away. High humidity levels also contribute to the growth of mold within the structures, which is highly unhealthy, making it necessary to issue annual service contracts to address the on-going problem. Further, the only method of fire protection in these buildings is smoke detectors. Finally, the existing concrete entryway steps do not comply with standards of accessibility per the Architectural Barriers Act (ABA).



Proposed project area  
 Operations Area Cultural Landscapes  
 National Registry District  
 District boundary - not listed

Seasonal Housing Unit Replacement  
 Environmental Assessment/Assessment of Effects

SCALE IN FEET

FIGURE 3: Proposed project area and existing seasonal housing within Operations Area."

Sources: NPS Park Data, ESRI Base Data



Figure 4. NPS Prototype #7 for seasonal housing unit replacement project.

## PROPOSED PROJECT OVERVIEW

Replacing the three outdated and deteriorating seasonal housing buildings (#097, 098, and 099) with two new multi-story buildings providing private bedrooms/baths for 24 seasonal employees would address concerns with NPS policy issues, fire safety, accessibility, structural safety and stability, and mold exposure.

The two proposed replacement units are based on NPS prototype #7, which is a two-story building with 12 bedrooms/baths for a total of 24 beds, solar panels on the roof of each building, an indoor gathering space, outdoor pavilion/gathering space, personal storage, and sufficient employee parking (Figures 4 and 5). The two-story building configuration, with 12 bedrooms/baths each, is equal to and more efficient than, the current level of seasonal housing and does not constitute an increase in bed count. All new lighting would be consistent and in compliance with maintaining the park's International Dark Sky certification.

These healthier, safer, and more pleasant amenities should create an increased return rate for current seasonal employees and attract new qualified employees needed by the park for maintaining its quality operations and service to visitors.

## PROJECT AREA

As shown in Figure 3, the proposed project would be located within the northern portion of the Operations Area, within the loop roads accessing the existing historical housing and Superintendent's Office, and separated from the Maintenance portion of the Operations Area where the current seasonal housing is located. The proposed project area consists of a parking lot, the existing renovated CCC-

historical housing cottages, the Superintendent's Office, Mission 66 era ranch houses constructed in the late 1950s (one of which is scheduled for demolition), and park administrative offices.

The proposed project area north of the Administrative and Housing Area parking lot extends into a natural grassy area and second-growth oak-hickory forest (Figure 3). The area is served by a new sewer system and an existing electrical line.

## ISSUES AND IMPACT TOPICS

### Issues

Along with the purpose and need for the proposed action, park personnel identified topics that guided the development of alternatives and contributed to the selection of impact topics, as identified in the next section.

**The project area includes a cultural landscape.** The project area is located within the Administrative and Housing Area, which includes the NRHP-Listed Superintendent's House, the NRHP-Listed CCC-Era Residential Historic District, Mission 66-era residential structures, and associated small scale features (i.e., culverts). Implementing the proposed action would introduce new structures following the removal of the unused wooden raptor aviary, while improving the existing parking lot. The proposed project site itself is currently grassed, extending into a second-growth forest.

### Impact Topics Analyzed in this Environmental Assessment

Impact topics are resources within the project area that could be affected, either beneficially or adversely, by the range of alternatives presented in this EA. Impact topics considered in this document were identified based on the issues identified by park personnel, site conditions, federal laws, regulations, Executive Orders (E.O.), *NPS Management Policies* (NPS, 2006), Director's Orders, and staff knowledge of the park's resources.

This section provides an overview of the impact topics associated with the proposed action that were retained for analysis in this EA.

**Cultural Landscapes.** NEPA, the National Historic Preservation Act (NHPA), the NPS Organic Act, *NPS Management Policies* (NPS, 2006), Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS, 2011), and Director's Order #28: *Cultural Resource Management Guidelines* (NPS, 1998) require the consideration of impacts on any cultural resource that might be affected by a proposed federal action. The park is listed as a UNESCO World Heritage site and features a documented cultural landscape. The area of potential effect (APE) for the proposed project is presented in Figure 6. It consists of both the direct APE that is inclusive to the area of potential ground disturbance to the north of the current residential area, and the visual or indirect APE that includes the CCC-era cottages listed on the NRHP, the Superintendent's House, also listed on the NRHP, and the Mission 66-era ranch houses eligible for listing on the NRHP, and eligible small scale features (i.e., culverts; see summary of affected environment in Chapter 3). Therefore, the impact topic of cultural landscapes is retained for detailed analysis.

## Impact Topics Dismissed from Further Analysis

The following presents an overview of impact topics associated with the proposed action that were considered and ultimately dismissed from further analysis in this EA. An impact topic was initially considered and dismissed from further analysis if it was determined that the resource is not present in the project area or because any potential impacts would be less than minor (*de minimis*), typically temporary, and/or localized in the project area.

**Air Quality.** Both new buildings would be located within the same area, creating energy efficiencies, and would have solar panels and/or electricity for primary energy sources incorporated into the design. Emissions created during construction activities would be temporary. Therefore, this project should have fewer emissions than the existing seasonal housing and all emissions are considered by park personnel to be *de minimis*. Therefore, this issue is not analyzed further.

**Archeological Resources.** Some ground disturbance would be required for the proposed action, therefore potential archeological resources were considered within the direct APE (Figure 6). A 2002 archaeological survey covered much of the area to the south of the proposed location (Loughlin, 2002). For the 2002 survey, a 25-acre parcel used for park housing was systematically investigated. No sites were identified, and no further work was recommended. A review of the records with the Kentucky Heritage Council State Historic Preservation Office (KYSHPO) and from Mammoth Cave did not identify any other previously recorded sites within the proposed footprint.

Upon a review of the previous surveys, it was determined the far northern edge of the proposed housing area may not have been subjected to prior shovel testing to identify potential archeological resources. As this area was within the direct APE (Figure 6), MACA staff conducted a survey to clear the area (Jakaitis, 2022). A crew of five conducted the work in September 2021. A total of 11 shovel tests were attempted and excavated. Four tests contained cultural materials, all of which were determined to be recent in nature. It is likely the material is the result of dumping or clearing the area and is not determined to be in primary deposits.

Based on the results of this survey, the park has determined that there are no archeological features within the direct APE. Given there were no previously recorded or newly identified archaeological sites that were identified within the direct APE of the proposed project, no further work was recommended for archaeological studies within the proposed project APE. The KYSHPO was engaged in formal Section 106 consultation, and concurred with the park's findings that there are no known archeological sites located within the direct APE, and that no further work is recommended (letter dated June 6, 2023; Appendix A).

Therefore, the impact topic of archeological resources was considered but dismissed from further analysis. Further, Section 106 procedures will be implemented if any unknown significant archeological resources are uncovered during ground-disturbing activities. If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery shall be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 2008

Programmatic Agreement Among the NPS, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

**Federally Listed Species and Critical Habitat.** In compliance with Section 7 of the Endangered Species Act, informal consultation was initiated with the Kentucky Ecological Field Office of the U.S. Fish and Wildlife Service (USFWS) in June 2022 (Appendix B). Potential effects to 17 listed species were considered for this project. These species include two Federally endangered bats (gray bat and Indiana bat), one Federally threatened bat (northern long-eared bat), 11 Federally endangered species of freshwater mussels, one Federally threatened crustacean (Kentucky cave shrimp), and one Federally endangered fish (diamond darter) with unoccupied critical habitat.

The focus of this informal consultation involves the three species of bat, because the aquatic species are all related to cave and river habitats that would not be adversely impacted by the proposed project (i.e., mussels in the Green River, the Kentucky cave shrimp in the caves; and diamond darter fish). The park made the determination that the project is not likely to adversely affect the Kentucky cave shrimp because of primary and secondary stormwater treatment and protection created by the overlying sandstone layer. The project would have “no effect” on any of the mussel species or the darter because of the distance of the project area from aquatic habitat for these species.

An estimated 10 to 20 trees that could provide marginal roosting habitat for bats would be removed in order to construct the new seasonal housing. However, all trees would be removed only between November 15 and March 31 to avoid directly affecting bat roosting activity. With this mitigation, the park determined that the proposed work is “not likely to adversely affect” any of the listed bat species. In their letter dated July 7, 2022, the USFWS Kentucky Ecological Services Field Office concurred that the proposed action “May affect, but is not likely to adversely affect” the Indiana bat, the gray bat, the northern long-eared bat, and the Kentucky cave shrimp; and that the requirements of Section 7 of the Endangered Species Act have been fulfilled as they relate to federally listed species (Appendix B). Therefore, this issue is not analyzed further.

**Lightscaapes/Dark Skies.** As a certified International Dark Sky Park, the park will ensure that all new light fixtures and bulbs are compliant with dark sky friendly lighting standards. Therefore, this issue will not be analyzed further.

**Human Health and Safety.** Replacing the existing obsolete seasonal housing that has poor sleeping arrangements along with mold and accessibility issues with new housing is the identified need for action, with the proposed action addressing these issues. All construction contractors must follow health and safety standards per their contract. Therefore, this issue will not be analyzed further.

**Socioeconomic Issues** (land use, local economic conditions, minority and low-income populations, Environmental Justice (E.O. 12898)). This project proposes replacement of existing substandard housing for 24 seasonal employees, does not impact local populations, local economic conditions, or land use in nearby communities. The number of seasonal employees would not change. Having a sufficient number of qualified seasonal employees for park operations contributes to the local economies of adjacent small towns through the purchasing power of these employees. No disproportionate adverse impacts are

foreseen to any minority or low-income populations or Indian tribes. Therefore, these issues will not be analyzed further.

**Soundscape.** This project does not increase the number of people in the Operations Area during the period of seasonal employment from the existing number of seasonal employees. The Operations Area where the seasonal employees are currently housed and the proposed area for new seasonal housing is not adjacent to the Visitor Center area or any visitor areas or trails, so no visitors would be impacted. Construction would be temporary and would not adversely impact visitors to the park. Therefore, this issue will not be analyzed further.

**Visitor Use and Experience.** This project does not increase the number of seasonal employees in the area during the period of seasonal employment from the existing number of seasonal employees. The entire Operations Area where the seasonal employees are currently housed and the proposed area for new seasonal housing is not adjacent to the Visitor Center area or any visitor areas or trails, so no visitors would be impacted. Park visitors are not authorized to enter the Operations Area for any reason. Therefore, this issue will not be analyzed further.

**Floodplains.** No floodplains are located on the hilltop area surrounding the proposed project area or within the park Operations Area. Therefore, this issue will not be analyzed further.

**Wetlands.** An NPS and U.S. Army Corps of Engineers (USACE) standard wetlands delineation was performed by a qualified team of wetland professionals in April 2022 in accordance with Executive Order (E.O.) 11990, Protection of Wetlands, relevant compliance with Section 404 of the Clean Water Act, and Director's Order #77-1: *Wetland Protection* (NPS, 2002). All localized swales and ephemeral features in the proposed project area (Figure 5) were investigated for presence of hydrology indicators, hydric soils and hydrophytic vegetation. No jurisdictional wetland areas or other Waters of the United States were observed. Therefore, the proposed action would result in no permanent disturbance of wetlands and this issue will not be analyzed further. The Wetland Technical Report can be found in Appendix C.

**Wilderness Areas and Wilderness Study Areas.** No wilderness areas or wilderness study areas are located within the Operations Area. Therefore, this issue will not be analyzed further.

**Climate.** This proposed project would not affect the climate, nor would the climate or climate change affect this proposed project. The design incorporates protections for the seasonal employees from adverse weather conditions; heat pumps/propane for heating/cooling and the solar panels would actually reduce carbon dioxide emissions, reducing contributions to climate change to *de minimis* levels. Therefore, this issue will not be analyzed further.

**Rare Plants.** The Operations Area has been highly disturbed for many years and continues to be disturbed by authorized uses. No rare plants were observed during previous NEPA processes or during a recent review by trained park staff, and none were observed or expected in the proposed project area. Therefore, this issue will not be analyzed further.

**Management of Invasive and Non-native Species and Protection from Soil Erosion.**

Minimal clearing of existing native vegetation is expected for the proposed site. All disturbed areas would be planted with a mixture of native plants or, for mowed lawn areas, with a mixture of grass species, selected from a list approved by park personnel. Standard erosion and sediment mitigation measures would be in place to mitigate potential adverse impacts related to construction activities. Therefore, these issues will not be analyzed further.

**Water Quality and Stormwater Runoff.** As most surface waters flow underground into the karst system and ultimately into the cave formations and ecosystems, impacts of the water quality of the stormwater runoff from the proposed project area would be managed using a primary and secondary surface stormwater treatment system constructed underground adjacent to the parking area to remove particulates, oil, and other contaminants in stormwater. This type of system is used elsewhere in the park as standard operating procedure for decontamination of stormwater and has proven to be effective in preventing untreated stormwater from entering the cave systems from surface contaminants. Surface stormwater would be managed to flow away from the buildings with seepage into the soils and vegetation, which would naturally filter the water and avoid surface water accumulation. Any impact to groundwater, cave water, and surface water is expected to be minimal based on the use of the stormwater treatment system and surface stormwater management built into the project design. Therefore, this issue will not be analyzed further.

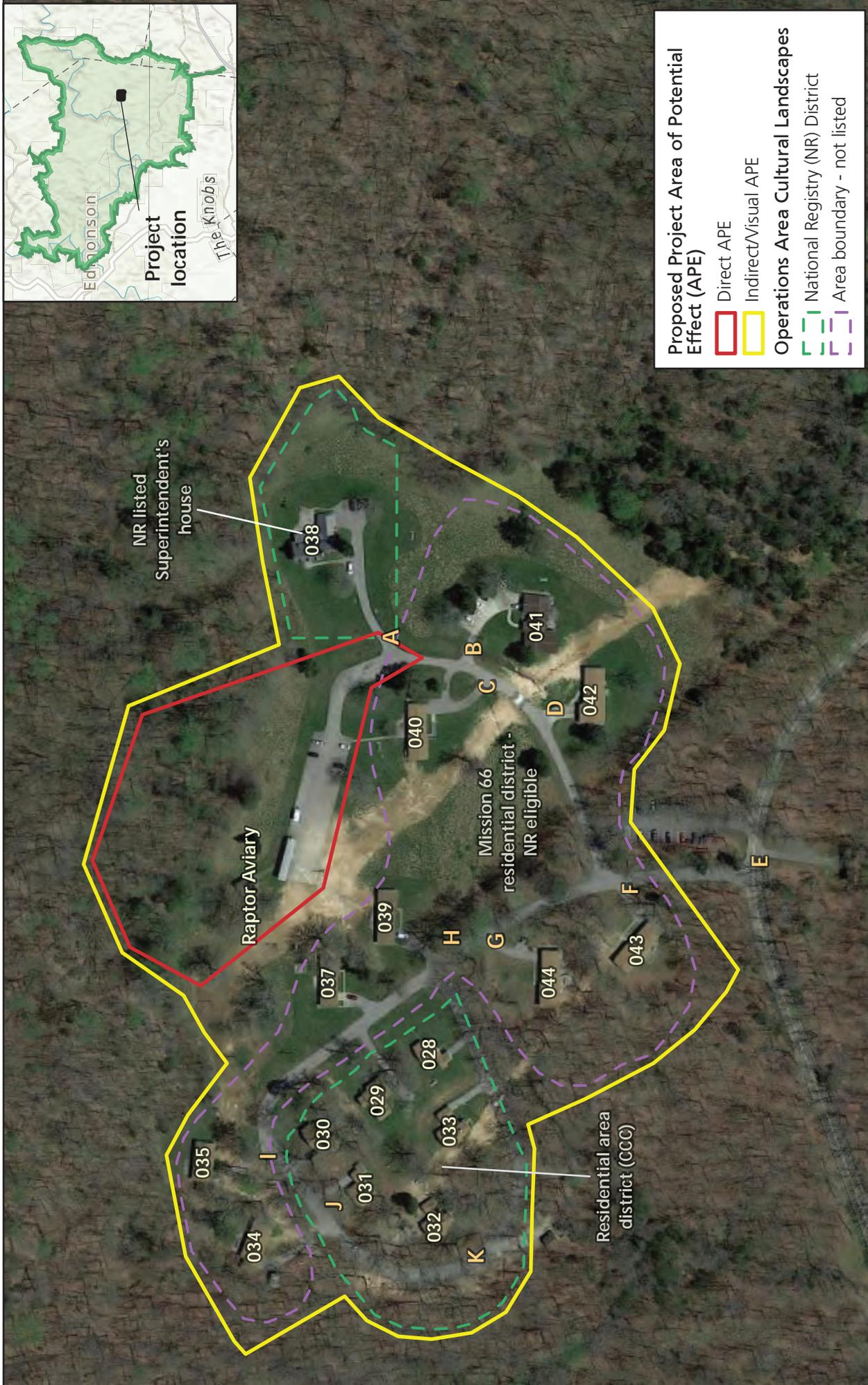
**Visual Effects/Viewsheds.** This site is not directly visible to any park visitors. Evaluation of visual effects related to NHPA historic structures in the area is evaluated in Chapter 3. Therefore, this issue will not be analyzed further.

**Paleontological Resources.** There are no known resources related to previous geological eras in this area; therefore, this issue will not be analyzed further.



Seasonal Housing Unit Replacement  
 Environmental Assessment/Assessment of Effects

FIGURE 5: Spatial layout of proposed seasonal housing, loop road, and parking'



**Proposed Project Area of Potential Effect (APE)**

- Direct APE
- Indirect/Visual APE

**Operations Area Cultural Landscapes**

- National Registry (NR) District
- Area boundary - not listed

0 200  
 SCALE IN FEET  
Sources: NPS Park Data, ESRI Base Data

**FIGURE 6: Area of Potential Effect for proposed project and adjacent cultural landscapes.**  
 Numbers designate building locations, letters designate culvert locations as shown in Table 1.

Seasonal Housing Unit Replacement  
 Assessment/Assessment of Effects

## CHAPTER 2: ALTERNATIVES

This chapter describes actions that would take place under the existing situation and conditions for seasonal housing, and for the proposed project area for new seasonal housing, both located within the Operations Area, but in different sections. The Council on Environmental Quality (CEQ) regulations for implementation of the NEPA process call for the alternatives considered in a document to include a no action alternative. The description and evaluation of this alternative provides a baseline to which the action alternative can be compared.

This EA evaluates two alternatives: the no-action alternative and the proposed action to build the multiplex housing structures and amenities proposed to replace the obsolete existing seasonal housing. The elements of these alternatives are described in the following sections. Impacts associated with the alternatives are described in “Chapter 3: Affected Environment and Environmental Consequences.”

The park developed the Proposed Action/Preferred Alternative in accordance with Director’s Orders #36 *NPS Housing Management* (2009) and #90 *Value Analysis* (2020, as amended). A Value Analysis (VA) was conducted by an outside contractor in collaboration with park personnel (DJ&A, 2022) to inform the planning and design concepts selected. As stated in Director’s Order #36, “The VA process provides a structured approach to verify that function needs are met and that all viable alternatives are considered.” The VA considers life-cycle costs, statutory and regulatory requirements, and impacts to the human environment and natural and cultural resources using a structured decision-making approach.

The VA process identified three areas within the Operations Area for siting replacement seasonal housing: two undeveloped sites in the Administrative and Housing portion and the existing highly developed seasonal housing site in the Maintenance portion. All three sites had access and available utilities. The VA compared multiple concept designs and layouts with regards to the considerations listed above. The existing seasonal housing location was not selected as the preferred alternative due primarily to its location within the Maintenance portion of the Operations area and the need for temporary housing during demolition and construction. An undeveloped area south of the Superintendent’s House and behind the Mission 66-era ranch houses currently used as offices was not selected due the necessity to alter the circulation and approach to the Superintendent’s House and its impact to the cultural landscape, and to the presence of seasonally wet soils within that location.

The existing seasonal housing location in the Maintenance portion of the Operations Area is evaluated in this EA as the No Action Alternative, while the Proposed Action/Preferred Alternative located north of the Administrative and Housing parking area was evaluated as developed using the VA process (Figure 3). The participants in the VA process identified the location of the preferred alternative because it provided a sufficiently large footprint for buildings, parking, and amenities, had minimal soil/surface water constraints, was within the existing Administrative and Housing area, and has an existing parking area that can be readily expanded. Additionally, the somewhat isolated site provides the opportunity for the new buildings to blend with the existing administrative site landscapes, building character and typologies, while using the existing topography to create unique housing elements.

## **NO ACTION ALTERNATIVE**

Under the No Action Alternative, seasonal employees would continue to be housed in the three existing buildings #097, 098, and 099 until they are condemned and demolished. At that time there would be no permanent housing for seasonal employees within the park. Temporary or other means of housing could be considered in accordance with Director's Order #36 *NPS Housing Management* (2009).

The existing housing structures are located in the southern portion of the Operations Area, which is primarily utilized for maintenance and support activities (Figure 7). The area is flat and already highly disturbed from use by seasonal housing, surrounding maintenance activities, and the bus parking lot. Vehicle parking for seasonal employees, with 12 stalls, is located in front of the three buildings, with parking for bicycles on the northwestern end of the parking lot. The area between the three buildings is a common green space and is the current outdoor gathering space with a community garden, volleyball area, and picnic tables, etc. Water, sewer, electricity, telephone, and fiber optic cable are available, and hot water is provided by solar panels on the roofs. This site has access to a stormwater treatment system.

The activities and buildings to the south of the existing seasonal housing include the Training Center, multiple buildings making up the Maintenance Area, which was designated as an NRHP listed Historic District in 1991, and the fueling station (Figure 7). Across the two-lane paved road is the staging and parking area for cave tour buses and the administrative and storage buildings for structural firefighting. The storage "bone yard" is located at the southern end of the road. There is no vegetation or other buffering system between the housing and other nearby activities.

The character of the area is shown in Figure 8. These buildings are in extreme need of constant maintenance and would not be habitable without this ongoing maintenance. The level of maintenance and associated costs only increases with time. The substructures of the buildings are so rotten that in a few years the park will not be able to perform any future maintenance to keep the buildings habitable. The existing quarters for seasonal employees are the only housing structures in this portion of the Operations Area (Figure 3). The level of maintenance and support activities, including use of buses and heavy equipment during the day, has grown substantially since the quarters were constructed.

Behind the buildings to the west, is a forested area of no particular ecological value. There are no known cultural resources on the site due to its highly disturbed character outside of the designated maintenance historical district.



Seasonal Housing Unit Replacement  
 Environmental Assessment/Assessment of Effects  
 Proximity of current seasonal housing to high traffic areas  
 and other required functions.

0 360  
 Feet  
 Sources: NPS Park Data, Google Earth



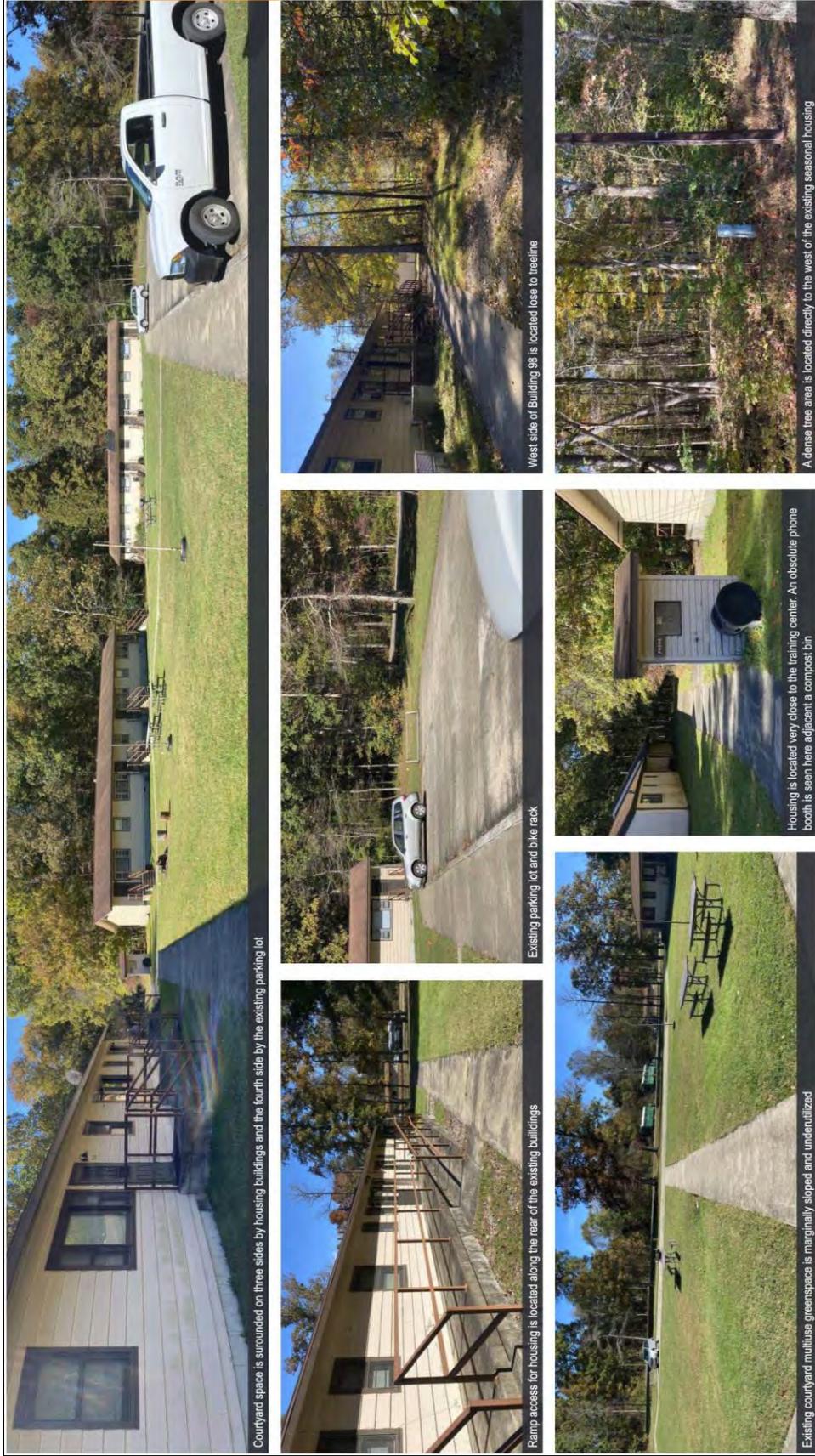


Figure 8. Character of existing seasonal housing area (No Action Alternative).

## **PROPOSED ACTION/PARK PREFERRED ALTERNATIVE**

The proposed action project area is located in the Administrative and Housing Area in the northern end of the Operations Area, and includes the current parking lot, a grassy area adjacent to a forested area to the north of the existing parking lot, with a gently sloping topography to the north. The site has access to sewer, water, telephone, fiber optic cable, and electrical utilities. The Administrative and Housing Area surrounding the proposed site is not affected by the maintenance activities that surround the existing seasonal quarters (Figure 3).

The site is located within view of the Superintendent's House and the Mission 66-era ranch-style housing structures. The Superintendent's House and Mission 66-era structures have their own parking areas. An old wooden raptor enclosure located within the proposed project area is no longer used and is planned for demolition in May 2023. The site is mostly screened from the recently upgraded CCC-era residences (Figure 8). Access to the entire area, including the site, is from one of two internal park roadways, depending on final site configuration (Figure 3).

The proposed action includes construction of quarters consisting of two buildings, each two stories, with 12 bedroom/baths in each building for a total of 24 bedroom/baths, designed by the NPS as prototype #7 (Figure 4). Amenities would include private protected storage, an outdoor pavilion, an indoor gathering space, an electric vehicle charging station, and solar panels on the roofs of the buildings.

Site development would include grading, utility connections, landscaping, and tree removal, while leaving sufficient tree buffers for the new buildings to be adequately screened from view of other buildings. Primary and secondary stormwater treatment would be constructed under the parking area, similar to treatment systems installed in other portions of the park. The treatment system would ensure that all water that seeps underground to the karst topography and cave area located 200 feet below the site is high quality and does not adversely affect the cave ecology and endemic species. Primary treatment first separates oil and grit from the stormwater, and secondary treatment traps suspended particulates and dissolved constituents (such as metals and oils) using filters filled with cartridges containing zeolite-perlite-activated carbon granules.

The conceptual layout of the preferred alternative would include the two housing buildings situated at roughly 90 degrees from each other, nested into the woodland area, an outdoor patio, an indoor gathering space, and a two-way loop driveway with 28 parking spaces in front of the housing and an additional 30 spaces that can be readily used by park personnel working in the administrative buildings across from the proposed site (Figure 5). The proposed loop driveway also facilitates access for emergency vehicles while providing sufficient space for ADA-compliant parking near the buildings. Trees would be retained as much as possible and disturbed areas would be replanted and landscaped.

## **BEST MANAGEMENT PRACTICES (BMPs) FOR THE ACTION ALTERNATIVE**

To minimize environmental impacts related to the action alternative, the NPS would implement BMPs whenever feasible. Exact BMPs to be implemented would depend on the final design and approval of plans by relevant agencies and would be determined during future design and construction phases. The following is a list of actions that could take place:

- Instruct all contractor employees on the sensitivity of the general environment and monitor their activities by NPS staff in order to mitigate and minimize potential impacts on natural and cultural resources during construction. Corridors for construction vehicle movement would be established and defined on the ground. Staging of construction equipment would be restricted to the road corridor, parking lots, and other identified previously disturbed areas to avoid impacts on natural and cultural resources.
- Clearly state all protection measures in the construction specifications and instruct workers to avoid conducting activities beyond the fenced construction zone.
- Fence all areas in order to keep related disturbances within an NPS-defined and minimal impact area required for construction.
- Implement standard noise abatement measures during construction. Standard noise abatement measures could include the following elements: a schedule that minimizes impacts on adjacent noise-sensitive uses, the use of the best available noise control techniques wherever feasible, the use of hydraulically or electrically powered impact tools when feasible, and location of temporary noise sources as far from sensitive uses as possible.
- Minimize soil erosion by limiting the time that soil is left exposed and by applying other erosion control measures, such as erosion matting and silt fencing in construction areas to reduce erosion, surface scouring, and discharge to water bodies. Erosion matting meeting park specifications and made of natural materials will be used to prevent runoff and avoid entrainment of wildlife.
- Implement measures to prevent invasive plants from returning to sites where they have been removed, such as ensuring that construction-related equipment arrives at the site free of mud or seed-bearing materials and certifying that all seeds and straw material are weed-free.
- Rehabilitate areas that are disturbed, either during construction or areas that were previously disturbed, with NPS-approved vegetation, as per NPS standards and consistent with the cultural landscape report.
- Immediately implement NHPA Section 106 procedures if any unknown significant archeological resources are uncovered during ground-disturbing activities. If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery shall be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 2008 Programmatic Agreement Among the NPS (US Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.
- Tree removal would not take place during the bat roosting season from April 1–November 15. If it is determined that a tree needs to be removed during the roosting season, the park’s Science and Resources Management Division will be consulted prior to taking action.

## **ALTERNATIVES CONSIDERED BUT DISMISSED**

The VA process described above was utilized to develop and select the Proposed Action/Preferred Alternative. The VA process compared viable options using a structured approach that eliminated two other locations from further consideration and analysis. Therefore, no other alternatives were considered in this EA.

## **CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

This chapter describes the current environmental conditions in and surrounding the project area as they relate to each impact topic retained for analysis, as outlined in Chapter 1. These conditions serve as a baseline for understanding the resources that could be impacted by implementing the project. This chapter then analyzes the beneficial and adverse impacts that would result from implementing the proposed action.

### **GENERAL METHODOLOGY FOR ANALYZING IMPACTS**

In accordance with the CEQ regulations for implementation of NEPA, direct, indirect, and cumulative impacts are described under each impact topic (40 CFR 1502.16 and 40 CFR 1508.1). Where appropriate, mitigating measures for adverse impacts are also described and incorporated into the evaluation of impacts. The specific methods used to assess impacts for each resource may vary; therefore, these methodologies are described under each impact topic.

Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.

Cumulative impacts are defined as “the effects on the environment which results from the incremental effects of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.1).

Cumulative impacts were determined by combining the impacts of the alternative being analyzed and other past, present, and reasonably foreseeable future actions that would also result in beneficial or adverse impacts.

### **CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES – SECTION 106 NATIONAL HISTORIC PRESERVATION ACT**

#### **Affected Environment**

The site of the proposed action is northwest of the Superintendent’s House, and in the vicinity of the Residential and Mission 66 districts within the Administrative and Housing Area of the park’s Operations Area (Figures 2 and 3). The project area is approximately 3.8 acres in size and contains an existing parking lot and maintained grassy area along the ridgetop and a second or third growth oak-hickory forest along the northern hillslope. The project site has a slightly sloping gradient, of around 2 to 6 percent along the ridge, with a steeper slope within the forested area to the north. There are no apparent surface water features on the site. Drainage is provided through small, localized swales and other ephemeral features with well drained soils and a limestone layer that may perch water during rains.

The APE for the proposed project (Figure 6) is defined by activities that would include constructing two new multi-story units, a supporting indoor gathering space, outdoor pavilion and community gathering space, and options for storage and parking (Figure 5). The direct APE is to the north of the current

residential area and is inclusive to the area of potential ground disturbance (Figure 6). The visual or indirect APE also includes the larger living quarter’s district, which is a mix of Mission 66-era and CCC-era residential houses, along with the CCC era Superintendent’s House (Figure 6). With regards to the built environment, there remains one temporary structure within the APE (aviary) that will be removed. In addition, 16 buildings that comprise the Administration and Housing component of the Operations Area cultural landscape are found within the indirect or visual APE (Figure 6). Six of these are contributing to the CCC-constructed Residential Area, which is on the NRHP. The Superintendent’s House is individually listed on the NRHP.

There are eight structures and 11 culverts which are part of a Mission 66 Residential District that is eligible for listing to the NRHP, under Criterion A (see Table 1 below). The Mission 66 district includes four buildings and six culverts that are individually eligible for listing to the NRHP under Criterion A and contributing to the eligible district. Three additional buildings and three additional culverts are non-contributing due to diminished integrity.

Table 1. Mammoth Cave Properties located within the park Operations Area near proposed Multiplex Units.

<b>Building Number / ID*</b>	<b>Association</b>	<b>Date of Origin</b>	<b>Alterations/notes</b>
28	CCC	1937	NRHP Listed
29	CCC	1937	NRHP Listed
30	CCC	1937	NRHP Listed
31	CCC	1937	NRHP Listed
32	CCC	1937	NRHP Listed
33	CCC	1937	NRHP Listed
34	Mission 66	1974	Eligible, contributing
35	Mission 66	1974	Demolished in 2023
37	Mission 66	1956	Eligible, contributing
38	Superintendent’s House	1941	NRHP Listed
39	Mission 66	1958	Eligible, contributing
40	Mission 66	1956	Ineligible, non-Contributing
41	Mission 66	1956	Ineligible, non-Contributing
42	Mission 66	1956	Ineligible, non-Contributing
43	Mission 66	1956	Eligible, contributing
44	Mission 66	1956	Eligible, contributing
Culverts ‘A’, ‘B’, & ‘F’	Mission 66	1956-1972	Eligible, contributing
Culverts ‘C’, ‘D’, & ‘H’	Mission 66	1956-1972	Ineligible, non-Contributing
Culverts ‘E’, ‘G’, & ‘I’	CCC	1937	Eligible, contributing
Culverts ‘J’ & ‘K’	CCC	Post-1937	Ineligible, non-Contributing

\*Building 36 previously razed.

Small-scale features in the APE include wood signs and culverts consisting of both stone and concrete headwalls with iron pipes that are associated with the CCC and Mission 66 era buildings. The signs have

been regularly replaced and rehabbed and are not original to the districts. The signs were determined to be non-contributing to the districts. The culverts identified as Culvert ‘A’, ‘B’, and ‘F’ are determined to be contributing to the CCC-constructed Residential Area District. The culverts identified as Culvert ‘E’, ‘G’, and ‘I’ are determined to be contributing to the Mission 66 Era Residential District (Table 1).

The Superintendent’s House was built for lodging for the park Superintendent and today houses the Superintendent’s Office and other administrative offices. The building is in the Colonial Revival style with 10 rooms, a sandstone foundation, two fireplaces, a gabled roof, a screened porch and a garage (Figure 9). It is the most elaborate of the CCC residential buildings, reflecting the prestige of the Superintendent’s position in the park. This house possesses exceptional significance within the narrowly defined period (1933-1942).



Figure 9. Photo of Superintendent’s House, April 2022.

The CCC Residential District consists of six contributing residential buildings and one contributing site, the Circle Road which encircles the six houses. These houses are good examples of National Park Service rustic architecture (Figure 10). The residences are one-story frame structures with rough-cut sandstone foundations, porch steps, walkways, and chimneys. The wood exterior walls have shiplap boarding on the lower portion and board and batten on the upper part. Each house has an asphalt shingled gable roof (formerly wood shingle roofs), a screened or enclosed porch, and simple decorative woodwork around the entrance. The two floorplans include: 1) a one bedroom floorplan, with four rooms and a bath, and 2) a two bedroom floorplan with five rooms, a bath, a basement, and garages which have since been converted to extra bedrooms and baths. The Circle Road has been black-topped from the original gravel. Despite the construction of some Mission 66 housing for employees around the Circle in the 1950s, the area has

retained its residential character, and integrity of location, setting, design, materials, workmanship, feeling, and association in the district area intact. The houses and the Circle Road were designated as the Residential Area District with the NRHP in 1991, as part of a larger property registration at the park.



Figure 10. Representative photo of CCC Residential District Houses (building #031), April 2022.

The Mission 66 Residential District consists of eight residential structures scattered throughout the residential area. The residences were built to address the immediate need for housing park employees, using standard ranch-style housing designs. The Mission 66 program was a change in philosophy regarding building design: the rustic style was abandoned for a modern minimalist design focusing on low profile, single story, and horizontal buildings with low-pitched roofs in muted colors (Figure 11). Each residence has its own driveway and carport, and each lot was designed for privacy and protection of open spaces. These may be eligible for NRHP inclusion if the houses were built between 1945 and 1972, are part of a unique planning that includes curvilinear streets and siting to provide for residential privacy and open spaces, possess physical integrity to the period of significance, and are a successful reflection of the principles of the Modern Movement or Park Service Modern Style. KYSHPO, in concurrence with the park, determined that five Mission 66 residential structures are individually eligible for listing on the NRHP and contributing to the eligible Mission 66 Residential District. Three buildings were determined to be non-contributing due to diminished integrity (see Table 1 and KYSHPO letter dated June 6, 2023, in Appendix A). A ninth building was demolished in 2023, and a tenth building was demolished in the early 2000s. The potential Mission 66 District reflects the original design which used standard building designs laid out in angles to the road to provide open space and privacy, inclusion of driveways, rear patios, and broad lawns in open areas and in wooded areas.



Figure 11. Representative photo of Mission 66 Residential District structures (building #039), April 2022.

## Methodology

Potential impacts to the cultural landscape were analyzed based on changes to character-defining features of the resources, which are the characteristics of a historic property that qualify the property for inclusion in the National Register in accordance with Director’s Order #28: *Cultural Resource Management Guidelines*, as well as the regulations of the Advisory Council on Historic Preservation implementing the provisions of NHPA. The conditions described in the affected environment above were compared to the alternatives as previously described to identify potential adverse impacts to the cultural landscape.

In accordance with Section 106 of the NHPA (1966), as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), the park initiated consultation with KYSHPO in a letter dated August 2, 2022. A determination of effect was provided to KYSHPO and their concurrence was received in a letter dated June 6, 2023 (Appendix A).

## Impacts of No Action Alternative

Under the No Action Alternative, the Superintendent’s House, CCC Residential Area District, and the Mission 66 Residential District would retain integrity in location, design, setting, materials, workmanship, feeling, and association. The No Action Alternative would allow existing circulation, viewsheds, and vegetation to be maintained as currently managed, and would not alter the integrity of any of these individual properties or districts.

## **Impacts of Proposed Action/NPS Preferred Alternative**

The proposed project would be sited outside the boundaries, as currently defined, of the Mammoth Cave Housing Area, for the Superintendent's House, the CCC Residential Area District, and the Mission 66 Residential District. During construction and staging, there would be temporary impacts to the viewshed, traffic circulation, and use. These would be minimized to the extent possible through careful planning during implementation of construction. The properties at the proposed site would retain integrity in location, design, setting, materials, workmanship, feeling, and association. The proposed project would not alter the integrity of any of these individual properties or districts.

It would, however, be visible to components of all three, and would have the potential to affect the landscape of the CCC Residential District, the Mission 66 Residential District, and the Superintendent's House. The Administration and Housing Area component landscape includes resources significant according to the integrity and character of the current setting as discussed below, and the overall composition of the component landscape reflects original design and the residential setting within surrounding woodland is maintained.

*Buildings and Structures.* The new buildings would reflect similar building materials and the integration of new buildings into the spatial organization set by the CCC design to reflect the historic character. The new buildings would not look out of place amongst the existing buildings.

*Circulation.* Circulation of traffic through the residential areas would remain unchanged. The north parking lot is a non-contributing element, and building to the north of the lot would not alter the historic circulation of either historic district nor of the Superintendent's House.

*Land Use.* Land use would remain unchanged. The area was built exclusively for residential purposes and the new housing would maintain the same function, regardless of some of the buildings being converted to office space, which did not alter the NRHP eligibility of the area or the Historic Districts.

*Natural Systems.* The existing residential area was laid out in response to the gently sloping topography, with the Superintendent's House on a high point, and the CCC residential housing on another high point. The roads follow the topography. That area has not been significantly graded and topography retains integrity, with no changes from the new housing.

*Spatial Organization.* The three components of the Residential Area would retain their original setting. They are enclosed by surrounding forest, creating a separation between housing and the rest of the park. The proposed housing would not alter the separation of residences and park visitors and operations.

*Small Scale Features.* In the housing area, culverts and recent signs make up small scale features that are part of the characteristics of the area. The stone and piped culverts are potentially contributing to the Mission 66 district. The new construction would not alter these features.

*Topography.* The terrain is defined by an overall slope from east to west, with the Superintendent's House on the highest point to provide a view of the area. The new housing would be placed to the

immediate north of the CCC housing and to some of the Mission 66 housing. It would not alter the topography and would not affect the topographical significance of the Superintendent's House.

*Vegetation.* The area was planned with mowed lawns and surrounding woodlands, which all potentially contribute to the historic districts and historic properties, and retain their integrity. The proposed housing would be placed along the northern edge of the woodlands and would not alter the existing vegetation around the CCC and Mission 66 houses or the Superintendent's House.

*Views.* Three views that contribute to the historic characteristics of the House area include the entry view of the Residential Area District, the view of the Mission 66 housing from Maintenance Road, and the view from the Superintendent's House over the Housing Area. These views have not significantly changed since the area was originally planned and constructed for housing, and retain their integrity. The proposed housing would not alter the entry view or the view from Maintenance Road. It would be visible from the Superintendent's House. However, the view of the new property from the Superintendent's House would be obstructed by the current wood line. The original view was altered by the construction of the Mission 66 housing as well as the north parking lot. The proposed housing would not alter the view over the CCC or Mission 66 housing from the Superintendent's House.

### **Cumulative Impacts**

As discussed above, there is no potential for further cumulative impacts to the archaeological or historic characteristics of the area by the proposed action.

### **Conclusion**

The proposed project would be sited adjacent to but outside the boundaries, as currently defined, of the Mammoth Cave Housing Area for the Superintendent's House, the CCC Residential Area District, and the Mission 66 Residential District. The compatible design features avoid adverse impacts to the integrity of these historic properties and the characteristics of the area and districts, while maintaining the integrity of the current setting, design, location, association, and feeling. Therefore, park personnel determined that the proposed action would have No Adverse Effect to the cultural landscape. The KYSHPO provided concurrence with the finding via the June 6, 2023 letter included in Appendix A.



## CHAPTER 4: COORDINATION AND CONSULTATION

### LIST OF PERSONS, AGENCIES, AND ORGANIZATIONS INVOLVED

NPS Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* requires the NPS to make "diligent" efforts to involve the interested and affected tribes and public in the NEPA process. This process helps to achieve the following: determine the important issues and eliminate those that are not determined relevant to decision-making; allocate assignments among the interdisciplinary team members and/or other participating agencies; identify related projects and associated documents; identify other permits, surveys, consultations, etc. required by other agencies; and create a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. This chapter documents the agencies and tribes consulted during the NEPA process and summarizes the public review process for this EA.

### AGENCY AND TRIBAL CONSULTATION

During the NEPA process, the NPS contacted the following agencies and Tribal Historic Preservation Offices (THPOs) for consultation. See Appendix A for copies of relevant pieces of correspondence between the NPS and these parties.

- Advisory Council on Historic Preservation (ACHP)
- Kentucky Heritage Council / State Historic Preservation Office (KYSHPO)
- Absentee-Shawnee Tribe of Indians of Oklahoma
- Alabama-Coushatta Tribe of Texas
- Alabama-Quassarte Tribal Town
- Cherokee Nation
- Chickasaw Nation
- Eastern Band of Cherokee Indians
- Eastern Shawnee Tribe of Oklahoma
- Muscogee (Creek) Nation
- Osage Nation
- Poarch Band of Creek Indians
- Shawnee Tribe
- Thlopthlocco Tribal Town
- United Keetoowah Band of Cherokee Indians in Oklahoma

The NPS initiated consultation under NHPA Section 106 with the relevant agencies and tribes in a letter dated June 9, 2022. This letter informed the agencies and tribes that the NEPA process would be used to comply with Section 106 requirements pursuant to 36 CFR 800.8. Consultation was completed with a letter of concurrence from the KYSHPO dated June 6, 2023. Notification was provided to the THPOs listed above, and a letter of concurrence dated September 26, 2022 was received from the Eastern Shawnee Tribe of Oklahoma. The Osage Nation THPO documented objections to the proposed project in a letter dated March 17, 2023, based on the fact that the location within Mammoth Cave National Park is part of a sacred landscape. NPS immediately requested a meeting with the Osage Nation THPO in order

to determine the nature of the effects. No new information was shared regarding the area or nature of affects at the meeting, and another meeting was requested by NPS at the park. The Osage Nation THPO did not respond to this meeting request. The park contacted ACHP to determine if formal consultation with ACHP would be necessary due to the objection by the Osage Nation. In August 2023, after the required 15-day review period by ACHP, ACHP chose not to consult on the project. Section 106 consultation for the proposed project was completed in August 2023 (Appendix A).

As required by Section 7 of the Endangered Species Act, the NPS consulted with the US Fish and Wildlife Service on the potential effects of the proposed action on federally listed species, with the Biological Assessment dated July 7, 2022.

## **PUBLIC REVIEW**

The EA will be provided for formal public and agency review for 30 days and an announcement of the review period will be distributed to a variety of interested individuals, agencies, and organizations. The EA is available on the NPS Planning, Environment, and Public comment website at <https://parkplanning.nps.gov/MACASeasonalHousing/> and hard copies are available at the park's headquarters.

## **PREPARERS AND CONSULTANTS**

### **Mammoth Cave National Park**

Jay Grass, Deputy Superintendent  
Ed Jakaitis, Cultural Resource Program Manager (Former)  
Will Jaynes, Operations Supervisor for Law Enforcement  
Steve Kovar, Chief, Facilities Management (Former)  
Shane Loescher, Supervisory Facility Operations Specialist  
Timothy Pinion, Program Leader, Science and Resources Management (Former)  
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Barclay Trimble, Superintendent  
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Heather Walker, Administrative Officer

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### **Environmental Planning Strategies, Inc.**

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Jennifer Grover, Cultural Resource Specialist  
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**APPENDIX A: AGENCY AND TRIBAL SECTION 106 CONSULTATION  
CORRESPONDENCE**

## **APPENDIX A1: SECTION 106 SHPO CONSULTATION**



# United States Department of the Interior

NATIONAL PARK SERVICE  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259



July 28, 2022

Mr. Craig Potts, State Historic Preservation Officer  
Kentucky Heritage Council  
410 High Street  
Frankfort, Kentucky 40601

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Mr. Potts:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

Prior to the Covid-19 pandemic, approximately 500,000 visitors a year toured Mammoth Cave. Support of cave tours operations, and other Park programs, requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to MACA. Without seasonal staff, interns, and volunteers, it would be impossible to meet the needs of the Park's visitors, support the Park's natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities. The ability to provide short-term housing is essential to the Park's ability to attract and retain seasonal employees. While long-term or permanent housing options are available, there is virtually no short-term housing available, in the local communities, for seasonal employees. To meet this housing need, the Park must provide housing for its seasonal employees.

The project will construct two new multi-story units in accordance with NPS Housing Prototype 7 (see attached rendering). These units will have 16 single and double occupancy apartments with a total of 24 beds for seasonal use. Additional housing amenities are proposed for the site including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking.

The area of potential effect (APE) for the proposed project is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center.

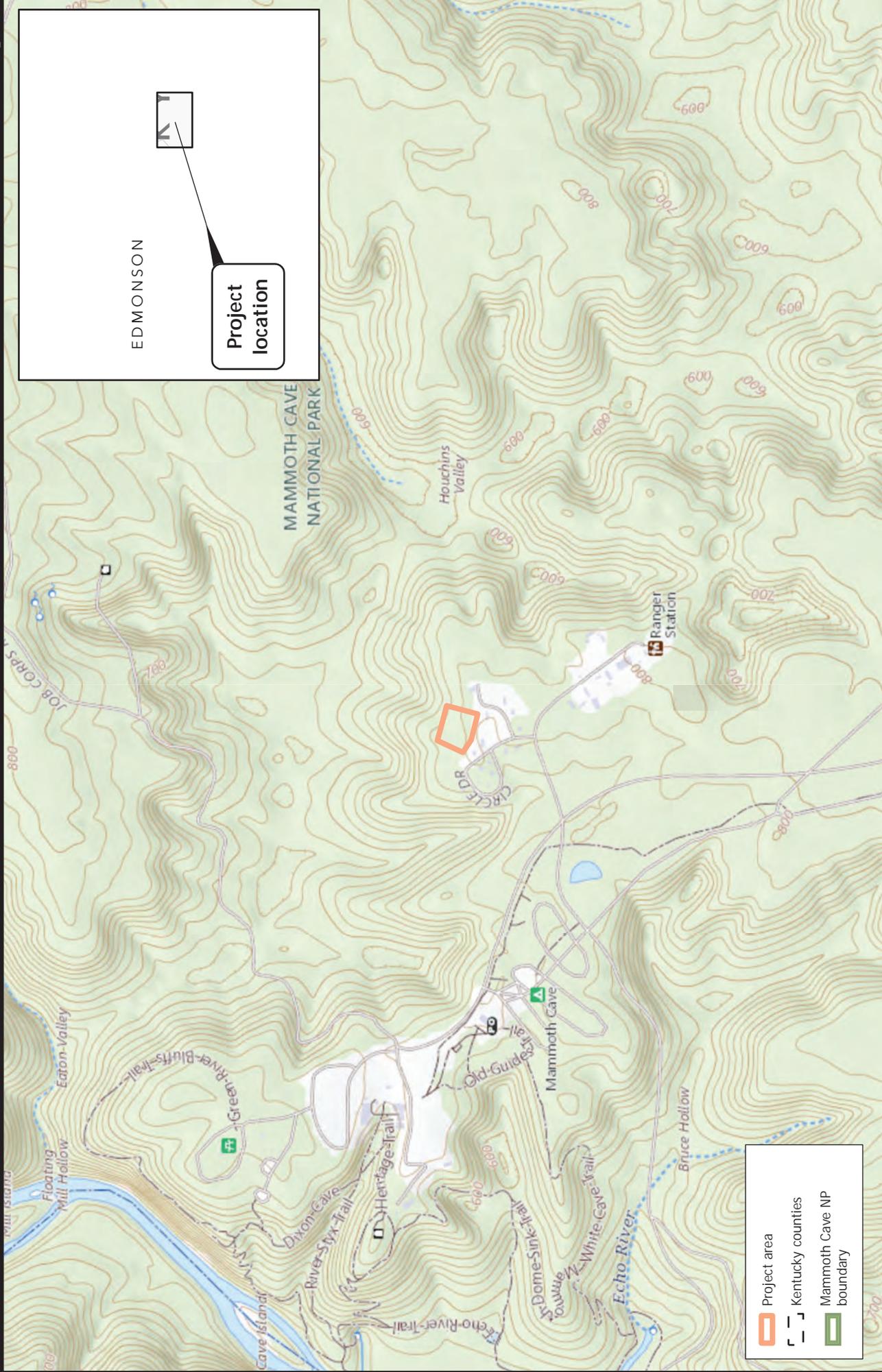
The purpose of this letter is to inform you of the proposed project and initiate communication with your office regarding our federal obligation under Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as notification of a proposed project and its initiation of consultation. The NPS is preparing an environmental assessment, in accordance with the National Environmental Policy Act (NEPA), to identify and evaluate potential impacts to park resources and to incorporate public comment. The NPS intends to use the NEPA process to comply with Section 106 of the NHPA. We would like to request any data or information you may have on cultural resources located within the APE. We look forward to continuing the NHPA Section 106 consultation process with you as we concurrently work through our NEPA process.

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,

A handwritten signature in cursive script that reads "Barclay C. Trimble".

Barclay C. Trimble  
Superintendent



- Project area
- Kentucky counties
- Mammoth Cave NP boundary

0 0.02 0.04 0.09 Miles

Sources: NPS Park Data, ESRI Base Data

Figure 2.

Seasonal Housing Unit Replacement  
Environmental Assessment/Analysis of Effects

Project Vicinity

**SHPO RESPONSE TO INITIATION AND REQUEST FOR ADDITIONAL  
INFORMATION**



**ANDY BESHEAR**  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET**  
**KENTUCKY HERITAGE COUNCIL**  
**THE STATE HISTORIC PRESERVATION OFFICE**

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**CRAIG A. POTTS**  
EXECUTIVE DIRECTOR &  
STATE HISTORIC  
PRESERVATION OFFICER

09/01/2022

Edward Jakaitis  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259

RE: NPS, MACA Section 106 Initiation Letter  
Proposed Replacement of Obsolete Housing Unit with Multiplex Unit at Mammoth  
Cave National Park in Edmonson County, Kentucky.

Dear Mr. Jakaitis:

Thank you for your submittal of an initiation letter for the above-referenced undertaking. We understand Mammoth Cave (MACA) is proposing to replace obsolete housing for seasonal employees at MACA. Our office initially reviewed the demolition of three obsolete units in October of 2020 and concurred with the Park's findings that Buildings 97, 98, and 99 were Ineligible for the NRHP, and the proposed undertaking would have a finding of NHPA. MACA now proposes to replace the three units with two two-story units totaling 24 beds per unit within the residential area at MACA. This will include a supporting gym structure, outdoor pavilion/community space, and options for storage and parking.

Based upon the information provided, our office requests the indirect APE include adjacent historic properties that may be indirectly affected by the proposed undertaking. As presented, the APE appears to only account for direct effects.

We look forward to further consultation regarding the identification of above and below-ground historic properties, as well as the potential effects of this undertaking. Please be sure to include OSA data when submitting this undertaking for further review. Should you have any questions, please contact Gabrielle Fernandez of my staff at [Gabrielle.Fernandez@ky.gov](mailto:Gabrielle.Fernandez@ky.gov).

Sincerely,

Craig Potts  
Executive Director and  
State Historic Preservation Officer

CP: gf, peh, KHC# 65952

**MACA RESPONSE TO SHPO REQUEST FOR MORE INFORMATION AND DOE  
PACKAGE**



# United States Department of the Interior

## NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259

(270) 758-2180



January 20, 2023

Craig Potts  
Executive Director and SHPO  
Kentucky Heritage Council  
Barstow House  
410 High Street  
Frankfort, KY 40601

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park (PEPC 86317; KHC 65952)

Dear Mr. Potts:

The National Park Service (NPS) wishes to continue Section 106 consultation on the subject undertaking. Following a request from your office, we have drafted a Cultural Resource Assessment report that describes the results of archeological investigations in the area of potential effect (APE) (Loughlin 2002, Jakaitis 2022). We have also added documentation of small scale features in the APE and described those resources with relation to the historical contexts of the Civilian Conservation Corps (CCC) and Mission 66 eras of development that were significant in this area. Finally, we have evaluated all the identified resources in order to determine those eligible for listing to the National Register of Historic Places (NRHP).

To review, the proposed project will construct two new multi-story units (Figure 1). Additional housing amenities are proposed for the site including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking. The preferred site location for this project is to the north of the current residential area (Figure 2). This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the three current housing units and operations center.

The APE is defined by activities that would include constructing the two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (Figure 3). Indirect effects may be possible as a result of this new development, and thus the surrounding CCC Residential District and the newly defined Mission 66 Era Housing District have also been included in the APE.

A review of the records with the Kentucky State Historic Preservation Office (SHPO) and from the Park did not identify any previously recorded sites within the APE.

The attached Cultural Resource Assessment Report provides details of the archeological investigations performed by NPS and the University of Kentucky (Jakaitis 2022, Loughlin 2002). Based on the results of this survey, the park has determined that there are no significant archeological features or materials within the APE. No further work is recommended for archaeological studies within the project area.

With regards to the built environment, there remains one temporary structure within the APE. Previous consultation with your office regarding the removal of this structure resulted in a concurrence with a finding of No Adverse Effect (Att. A; KHC# 56172). In addition, sixteen (16) buildings that comprise the Housing Area component of the Park Operations Cultural Landscape at Mammoth Cave National Park are found outside of the APE (Att. B; Table 2). Six of these are contributing to the CCC-constructed Residential Area which is on the NRHP. The Superintendent’s Residence is individually listed on the NRHP.

There are nine structures which are part of a Mission 66 Residential District that is determined eligible for listing to the NRHP, under criterion A. This district includes two (2) buildings that are determined individually eligible for listing to the NRHP under Criterion A, and contributing to the eligible district (Bldgs. 43 & 44). Four (4) additional buildings are determined to maintain sufficient integrity to contribute to the district (Bldgs. 34, 35, 37, and 39). Finally, three (3) buildings are determined as non-contributing due to diminished integrity (Bldgs. 40, 41 and 42).

Small-scale features include wood signs and culverts consisting of both stone and concrete headwalls with iron pipes that are associated with the CCC and Mission 66 buildings. The signs have been regularly replaced and rehabbed and are not original to the districts. The signs are determined non-contributing to the districts. The culverts identified as Culvert ‘A’, ‘B’, and ‘F’ are determined contributing to the CCC-constructed Residential Area District. The culverts identified as Culvert ‘E’, ‘G’, and ‘I’ are determined contributing to the Mission 66 Era Residential District.

Building Number / ID	Association	Date of Origin	Alterations/notes
28	CCC	1937	NRHP Listed
29	CCC	1937	NRHP Listed
30	CCC	1937	NRHP Listed
31	CCC	1937	NRHP Listed
32	CCC	1937	NRHP Listed
33	CCC	1937	NRHP Listed
34	Mission 66	1974	Contributing
35 *Bldg. 36 previously razed	Mission 66	1974	Contributing

37	Mission 66	1956	Contributing
38	Superintendent's Residence	1941	NRHP Listed
39	Mission 66	1958	Contributing
40	Mission 66	1956	Non-Contributing
41	Mission 66	1956	Non-Contributing
42	Mission 66	1956	Non-Contributing
43	Mission 66	1956	Eligible, contributing
44	Mission 66	1956	Eligible, contributing
Culverts 'A', 'B', & 'F'	Mission 66	1956-1972	Contributing
Culverts 'C', 'D', & 'H'	Mission 66	1956-1972	Non-Contributing
Culverts 'E', 'G', & 'I'	CCC	1937	Contributing
Culverts 'J' & 'K'	CCC	Post-1937	Non-Contributing

Table 2. Mammoth Cave Properties located within the Park Operations Area near proposed Multiplex Units.

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as results of the identification of archeological resources and the built environment, surrounding the proposed APE for the new seasonal housing at Mammoth Cave National Park. A full assessment of the effects of the proposed Multiplex Unit project is forthcoming.

Your response within 30-days from the date of receipt of this letter would be greatly appreciated. Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,

*Barclay C. Trimble*

Barclay C. Trimble  
Superintendent

#### Sources

1993 Hensley, Christine and Tom Sussenbach. Cultural Resource Assessment of Five Projects For Mammoth Cave National Park, Kentucky. Report Submitted by Program for Cultural Resource Assessment. Prepared for Mammoth Cave National Park, Mammoth Cave, KY.

2022 Jakaitis, Edward. Cultural Resource Assessment Report: Archeological Survey and Assessment of a Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit. Report Submitted by Division of Science and Resource Management. Prepared for Mammoth Cave National Park, Mammoth Cave, KY.

2002 Loughlin, Michael. A Phase I Archaeological Survey for Proposed Waterline Improvements at Mammoth Cave National Park, Mammoth Cave, Kentucky (NPS Order #H5530020099). Report Submitted by Program for Archaeological Research, University of Kentucky. Prepared for Mammoth Cave National Park, Mammoth Cave, KY.

2021 National Park Service Cultural Landscapes Inventory. 95% Draft. Park Operations Area. Mammoth Cave National Park.



Figure 1. Schematic design renderings of proposed Seasonal Housing Units at Mammoth Cave National Park, Kentucky.

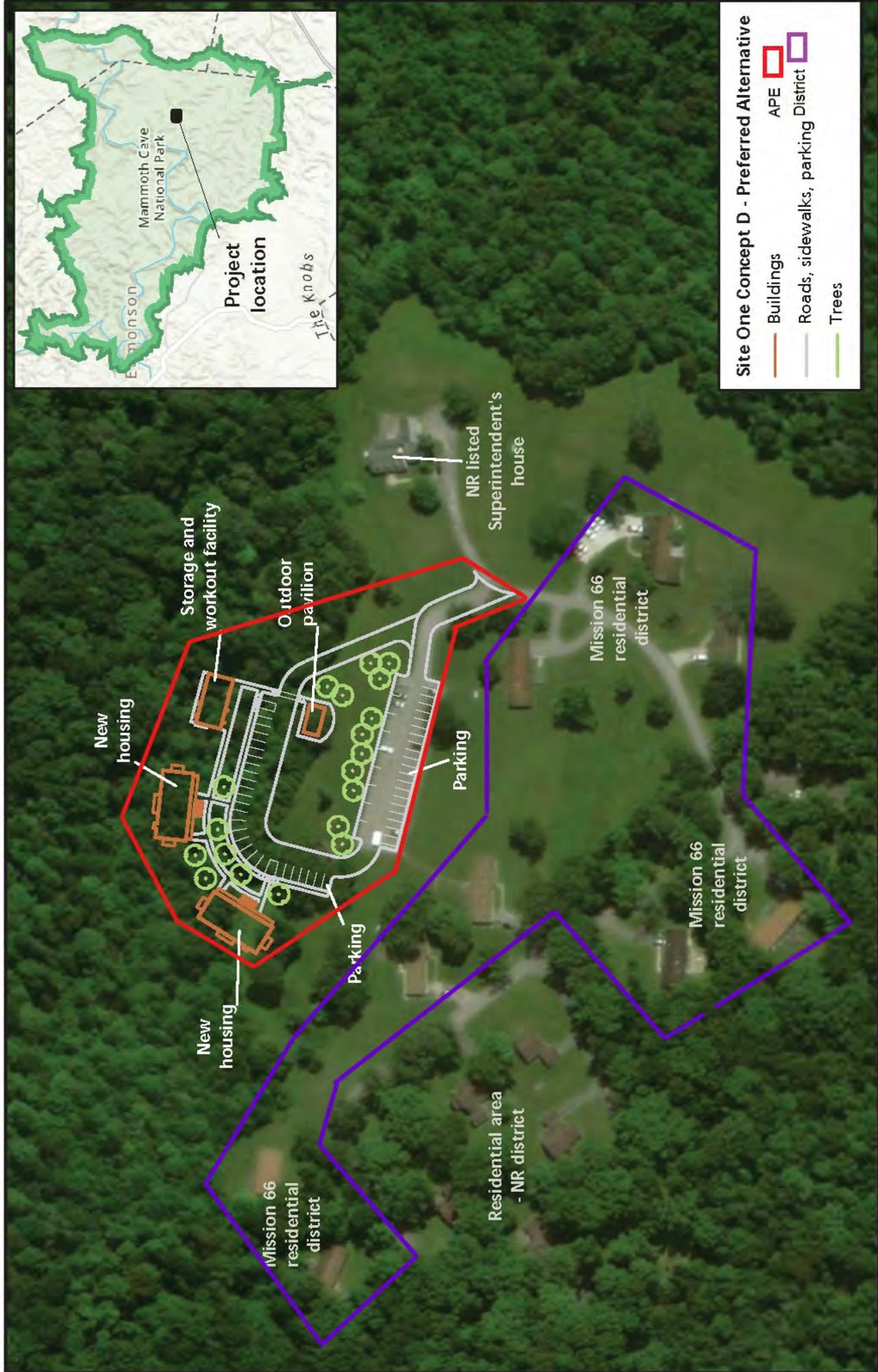


Figure 3. Seasonal Housing Unit Replacement Environmental Assessment/Assessment of Effects  
 Project Layout and Area of Potential Effect

0 300 Feet  
 Sources: NPS Park Data, ESRI Base Data

# ARCHAEOLOGICAL AND CULTURAL SURVEY REPORT

Cultural Resource Assessment Report:  
Archaeological Survey and Assessment of a  
Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit

Mammoth Cave National Park, Edmonson County, Kentucky

Mammoth Cave National Park Accession ID: MACA-1000

Prepared for:  
U.S. Department of the Interior  
National Park Service,  
Mammoth Cave National Park,  
P.O. Box 7  
Mammoth Cave, KY 42259

Prepared by:  
Edward Jakaitis  
Science and Resource Management Division,  
Mammoth Cave National Park, KY  
December 2022

**Table of Contents**

Introduction..... 1  
Project Description..... 1  
Environmental Setting ..... 1  
Background Archeological Overview..... 2  
Area of Potential Effect (APE) ..... 5  
Identification of Historic Properties..... 5  
    Previously Recorded Resources..... 5  
    Methodology ..... 5  
Assessment of Effects on Historic Properties ..... 6  
Conclusion ..... 6  
References..... 8

Appendix A: Proposed Seasonal Housing Rendering

Appendix B: Shovel Test Profile Notes

Appendix C: PEPC Form 86317

## **List of Tables**

Table 1. Survey shovel test soil profile descriptions and notes, September 8, 2021

Table 2. MACA historic buildings located within the APE of the proposed seasonal housing units.

## **List of Figures**

Figure 1. Proposed project area and existing seasonal housing within Operations Area

Figure 2. Physiographic map of Kentucky

Figure 3. USGS Topographic Map and project vicinity.

Figure 4. Area of Potential Effect for proposed project and adjacent cultural landscapes.

Figure 5. Previous and Current Soil Test Locations.

## **Introduction**

The following report has been completed as a cultural resource assessment for the development and installation of new seasonal housing at Mammoth Cave National Park, Kentucky (MACA). Section 106 of the National Historic Preservation Act of 1966, as amended, requires that undertakings determined to have a potential effect on historic properties complete a cultural resource assessment for their protection. This cultural resource assessment report is completed in fulfillment of the Section 106 Process, as described under the Code of Federal Regulations, 36 CFR 800, Part B.

## **Project Context**

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within MACA. South of this project area, there are three buildings currently used for seasonal housing that are rapidly deteriorating beyond their useful life and have an inappropriate foundation design for their location. Previous consultation with your office regarding the removal of these existing buildings resulted in a concurrence with a finding of No Historic Properties Affected (KHC# 59861, 60021). Support of cave tours operations and other Park programs requires a dedicated group of seasonal staff, interns and volunteers to augment the permanent personnel assigned to Mammoth Cave. The ability to provide short-term housing is essential to attract and retain seasonal employees. Without them, it would be impossible to meet visitor needs, support natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities.

## **Project Description**

The proposed project consists of construction of two new multi-story living quarters along with amenities that include a supporting gym structure, outdoor pavilion and community gathers space, and options for storage and parking (Appendix A). The preferred site location for this project is centrally located within the park, east of the Green River, and north of the current residential area, which is approximately one kilometer east of the MACA visitors center (Figure 1). This location allows for the new structures to be constructed at the north end of the administrative complex away from current housing (to be removed) and the operations center.

## **Environmental Setting**

The Park is located within the Pennyroyal (or Mississippian) Plateau physiographic region of Kentucky (Figure 2). MACA is near the southeastern edge of the Chester Upland, an elevated region capped by erosion-resistant sandstone rock (Hobbs et. al, 2017). The Green River meanders through the park from east to west, and the Nolin River cuts through the northwest corner of the park where it flows south to join the Green River. On the south side of the Green River, inside the park, the land descends into a series of northwest trending valleys (Woolsey, Doyle, and Houchins valleys) and ridges (Joppa, Mammoth Cave, and Flint ridges). To the

southeast, the park borders the Chester Escarpment, a line of relatively steep cliffs which marks the boundary between the Chester Upland and the Pennyroyal Plateau. The proposed project site lies just along a flat ridgetop, just south of the Eaton Valley (Figure 3).

## **Background Archeological Overview**

Prehistoric use of the landscape would have been variable over time (Pollack et al., 2008). The Paleoindian period (9,500-8,000 B.C.) is the earliest material culture observed in the archeological record of the region. Although earlier cultural groups were likely to have migrated across portions of the North American continent before 9,500 B.C., evidence for these migrations are very few and far between. The topography of the ridges and valleys of the late Pleistocene would have been similar to what we see today but covered with coniferous forests and grasslands that were more predisposed to a cooler, moist climate trend. Hemlocks and other vegetation only found in the northwest corner of the park on north facing slopes, would have been ubiquitous across the landscape and mixed with areas of open grasslands, wetlands, and other mosaic vegetation. Highly mobile small groups of people would travel through the area, utilizing versatile tool kits composed of a handful of lithic tools like fluted lanceolate blades, scrapers, and graters, as well as perishable bone and ivory tools.

The Archaic period (8,000 B.C. – 1,000 B.C.) is the longest period of documented prehistory, extending across Early, Middle, and Late subdivisions (Pollack et al., 2008). This period experienced an ecological change to flora and fauna that is more consistent with our current species. Human populations expanded across the region and densities increased, resulting in more localized groups and the diversification of technologies into regional variants. The Early Archaic (8,000 B.C. – 6,000 B.C.) was the time of most significant climatic change, resulting in the replacement of circum-glacial coniferous forests with mixed deciduous forests, and modern fauna replacing earlier Pleistocene fauna that would decline and disappear during the climatic shift. The Middle Archaic (6,000 B.C. – 3,000 B.C.) was a time of increased regionalization of cultures. Increased regional variation of projectile point styles appeared during this time. Groundstone tools and other specialized tool technologies appeared as well. These tools reflected a change towards more intensive processing and use of plant resources. The Hypsithermal interval reached its maximum at around 4,500 B.C. and the drier conditions reduced the forest lands and resulted in an influx of grassland environments. This impacted the settlement patterns and population distributions in the region. The relatively large number of late Middle Archaic tool types at some of the Green River midden sites suggests decreased mobility and longer occupations in resource rich areas. The Late Archaic (3,000 B.C. – 1,000 B.C.) continued to see increasing regional specialization and adaptation, with more diverse tool technologies to meet regional environmental conditions. The nearby Green River shell midden sites continued to be used and expanded in size (Crothers 1992). Increased social complexity was reflected by the grave goods manufactured from non-local raw materials, including marine shell and copper. These resources indicate special treatment of individuals who may have held higher status in these groups. Their status may have had a direct relation to the acquisition of these exotic materials. Late Archaic faunal assemblages typically were dominated by white-tailed deer from

upland areas and mussels from the river valleys. Hickory nuts were often the most prevalent flora collected. By the Late Archaic, the caves of the region were an established resource for exploration and likely for the recovery of mineral deposits.

The Woodland period (1,000 B.C. – A.D. 1,000) continued towards greater regional specialization and adaptation that began in the Archaic period (Pollack et al., 2008). Early Woodland (1,000 B.C. – 200 B.C.) subsistence practices remained generally consistent with the Late Archaic. Animal protein included deer, box turtle, small mammals, birds, fish, and mussels. Nuts such as those from hickory and walnut trees were prevalent and could be stored for year-round consumption. Most significantly, plant husbandry that began at the end of the Late Archaic was now intensified during the Early Woodland (Watson, Yarnell). Early Woodland sites show consistent use of plants identified as those in the Eastern Agriculture Complex. Species found on sites included sunflower, sumpweed, goosefoot, maygrass, giant ragweed, and erect knotweed. Ceramics began to develop with consistent use, however the utility of this technology may have been less advantageous in this region over others (Carstens and Watson, 1996). Other technological changes included the shift from grooved axes to ungrooved celts and chipped end scrapers to bone beamers. These new technologies remained in use until the historic period. Mammoth Cave and the other caves of the region become the scene of intensive exploration and mining of mineral deposits including, gypsum, Glauber salts, mirabilite and other sulfates. Direct evidence for the use of these minerals does not survive in the archeological record. However, cave exploration, mining, and the creation of art in the caves may have involved a ritualized coming of age event that relates to similar practices across various cultures worldwide (Crothers, 2012). Textiles found in Mammoth Cave and other caves in the park reveal a diverse array of uses for grasses, river cane, the yucca-like leaves of rattlesnake master, and dogbane. These treated fibers are woven, braided, or twined to form fabrics that can be made into cloth wraps, bags, slippers, mats, or baskets. These fibrous plants would come from both the ridgetop patches of prairie and from canebreaks that cover the lowlands and river terraces. The population continued to rise at this time, but settlements remained relatively dispersed and discrete. They would typically occupy the level margins of upland ridge tops, floodplains, rockshelters, and cave vestibules. Mortuary sites were frequently sited in areas removed from habitation sites. Cave vestibules and rockshelters have been known to contain burials that frequently date to this time. Earthen enclosures and burial mounds began to appear on the landscape at this time. However, their presence in the park is limited to only a few speculative sites, with inconclusive testing that neither proves nor denies the presence of these archeological features.

Middle Woodland (200 B.C. – A.D. 500) cultures continue to practice mound and earthen enclosure construction, tied to ideological practices that were a part of regionally distinct groups organized in semipermanent villages (Pollack et al., 2008). These constructions continue to expand in size and quantity over this time. Sites associated with the Crab Orchard culture are found to the west and northwest of the park. These sites again show an increase of nonlocal materials that were likely the result of broader interregional exchange networks.

Late Woodland (A.D. 500 – 1000) groups began to show more sedentary settlement patterns with greater insularity of sites within an area (Pollack et al., 2008). No longer do we see the proliferation of the highly stylized ceramics or nonlocal goods that were typical of interregional exchange in the Middle Woodland. Subsistence remained reliant on hunting and gathering, with gardening strategies taking a more prominent role as time passes. Native cultigens were supplemented with newly introduced tropical cultigens from the south, particularly maize (Smith, 1989).

Sites from the Late Prehistoric (A.D. 900 – 1750) period are concentrated outside the park area, with most activity concentrated to the major river valleys like the Ohio and Mississippi River valley (Pollack et al., 2008). Mississippian (A.D. 900 – 1450) culture included shell tempered ceramics and a greater reliance on cultigens. Intensive maize agriculture is found at regional ceremonial centers and surrounding sites, particularly with those that are within floodplain zones. These larger ceremonial centers are characterized by monumental architecture centered on open central plazas. Fort Ancient Culture (A.D. 1000 – 1750) developed along the Ohio River in what would be northeast Kentucky and southern Ohio. There was an increase in the reliance on maize and beans gardening, but material culture remained relatively consistent with the Late Woodland. Fort Ancient society is thought to have been more egalitarian than the hierarchical Mississippian groups.

The historic period began by the mid-eighteenth century, with a protohistoric period just preceding the period of French exploration into the interior of the continent along the Mississippi River. Early settlement of the Mammoth Cave area begins with the conclusion of the American Revolution and the admission of Kentucky as the fifteenth state of the union in 1792. The settlements of the region surrounding the park are established in this last decade of the eighteenth century. Early settlers identified the caves of the region as valued resources for the niter deposits that could be used for the production of saltpeter, a key component in gunpowder (Lyons, 2006). The saltpeter works of Mammoth Cave are among of the best examples of early nineteenth century mining technology for the extraction of these mineral deposits.

The cultural landscape of western Kentucky in the nineteenth century was characterized by small farmsteads and hamlet communities surrounding commercial centers that developed along major transportation corridors. The communities developed first following the rivers and major trails, then industrialized with the railroad expansion into the region. Rural community centers, typically organized under church congregations, would be the center of social and political life in these communities. Landowners and their farms were smaller in Kentucky, relative to the larger plantations of the deep south. Timber harvesting and livestock were also important economic drivers of the economy of early Kentucky. In the Mammoth Cave area, touring of the caves began promptly following the conclusion of the War of 1812 and the need to find a new livelihood for those who had worked in the niter mines and now found themselves without a steady demand for wartime supplies of gunpowder. Mammoth Cave and its original hotel, constructed as quarters for the mine supervisor and workers then converted to lodging, became the focal point of commercial activity in the area, with neighboring Glasgow and Bowling Green

providing regional commercial centers. In 1859, the Louisville and Nashville Railroad would reach Bell's Station and become known as Glasgow Junction. Glasgow Junction was renamed Park City in 1938, to avoid confusion with the town of Glasgow.

In the nineteenth century and the earlier decades of the twentieth century, the center of the Flint Ridge was characterized by open farm fields and orchards. These rural farm fields were divided by stretches of eastern hardwood forests that grew in the valleys and hollows between ridges and level valley floors along the Green River. The landscape began to change into the conditions we see today after the purchase and acquisition of farms leading up to the establishment of the Park.

### **Area of Potential Effect (APE)**

The area of potential effect (APE) for the proposed project (Figure 4) is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (Appendix A). The direct APE is to the north of the current residential area and is inclusive to the area of potential ground disturbance (Figure 4). This preferred location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center. The visual or indirect APE also includes the larger living quarter's district, which is a mix of Mission 66 and Civilian Conservation Corps (CCC) residential houses, along with the CCC era Superintendent's house (Figure 4).

### **Identification of Historic Properties**

#### ***Previously Recorded Resources***

A 2002 archaeological survey covered much of the area to the south of the proposed location (Loughlin, 2002). For the 2002 survey, a 25-acre parcel used for park housing was systematically investigated (Figure 5). Portions of this area had been previously investigated by Hensley and Sussenback (1993) but that survey did not cover the entire area. For the 2002 survey, a total of 166 shovel tests were excavated and all were negative. Many of the shovel tests exhibited signs of prior disturbances in the area by park housing development in the 1930s, 1940s, 1960s and 1970s. No sites were identified and no further work was recommended. A review of the records with the Kentucky SHPO and from Mammoth Cave did not identify any other previously recorded sites within the proposed footprint.

#### ***Methodology***

Upon a review of the previous surveys, it was determined the far northern edge of the housing area may not have been subjected to prior shovel testing. As this was within the direct APE of the new proposed housing area, MACA staff conducted a survey to include identification of this area. A crew of five conducted the work in September, 2021. A total of 11 shovel tests were attempted and excavated beginning near the Superintendents Residence and continued to the west the north margins of the open residential area, parallel to the tree line at 20-meter intervals.

(Figure 5). The area sloped to the north and shovel tests were kept along the top of the ridge. Tests were excavated to an average depth of 38.9 cm below the ground surface within the sterile stratum. Shovel test profile descriptions and corresponding findings are summarized in Table 1. A typical shovel test profile was a dusty red silty loam over a sterile red loam as indicated in the field notes provided in Appendix B.

Four tests contained cultural materials, all of which was determined to be recent in nature (Table 1). The tests with cultural material were located closest to the Superintendents Residence. Recovered materials included clear glass, metal strapping, modern broken bottles, and broken whiteware. Square stone cut blocks were observed on the ground surface near Tests 3 and 5. It is likely the material is the result of dumping or clearing the area and is not determined to be in primary deposits.

### **Assessment of Effects on Historic Properties**

Based on the results of this survey, the park has determined that there are no archeological features within the APE. Given that there were no previously recorded or newly identified archaeological sites identified, no further work is recommended within the APE.

With regards to the built environment, there remains one temporary structure within the APE (Raptor Aviary) (Figure 4). Previous consultation with your office regarding the removal of this structure resulted in a concurrence with a finding of No Adverse Effect (KHC# 56172). In addition, sixteen (16) buildings that comprise the Housing Area component of the Park Operations Cultural Landscape at Mammoth Cave National Park are found within the visual/indirect APE in which the proposed housing is to be constructed (Table 2). Six of these are contributing to the CCC Constructed Residential Area which is on the National Register. The Superintendent's Residence is individually listed on the National Register of Historic Places (NRHP). There are nine structures which are part of the Mission 66 District, three of which are not contributing to District's eligibility and the remainder are contributing and potentially eligible for NRHP inclusion. There are eleven culverts identified in the the two residential districts, and six of these culverts are determined to be contributing features. No direct impact to any of the NRHP-eligible properties or districts is planned. A full assessment of the potential impact of the proposed Multiplex Unit project to the built environment is forthcoming in KHC documentation forms.

A summary of the assessment of the proposed action effects on historic properties is provided in PEPC Form 86317 (Appendix C).

### **Conclusion**

The proposed undertaking would have *no adverse effect* on historic properties within the direct APE. Any unanticipated discoveries that should occur following consultation would be handled in consultation with the Kentucky Heritage Council (State Historic Preservation Officer) and associated Native American Tribes. Actions in order to treat or mitigate effects to a historic

property would not occur until those consulting parties were notified and given the opportunity to offer comments or recommendations.

## References

- Crothers, George. 2012. *Early Woodland Ritual Use of Caves in Eastern North America*. *American Antiquity*. 77:3.
- Carstens, Kenneth and Patty Jo Watson. 1996. *Of Caves and Shell Mounds*. Tuscaloosa, AL: The University of Alabama Press.
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- Lyons, Joy Medley. 2006. *Making Their Mark: The Signature of Slavery at Mammoth Cave*. Fort Washington, PA: Eastern National.
- Pollack, David (Ed.). 2008. *The Archaeology of Kentucky: An Update, Vol. 1 and 2*. Frankfort, KY: Kentucky Heritage Council.
- Smith, Bruce. 1989. *Origins of Agriculture in Eastern North America*. *Science New Series*, 246:4937, 1566-1571.

**KY SHPO SITE FORMS FOR DOE**

KENTUCKY HISTORIC PROPERTIES  
GROUP SURVEY FORM  
SURVEY FORM 2017-2

SHPO EVALUATION

COUNTY: Edmonson  
GROUP NUMBER: \_\_\_\_\_  
EVALUATION: G / Eligible Group

1. **NAME OF GROUP:**  
Mission 66 Era Residential District  
**How Determined:** 4 / Original or later significant uses of property

2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park, KY

**OWNER CONTACT (if known):**  
National Park Service

3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave      **Date:** 2019  
**Lat:** 37.183671      **Long:** -86.088154

4. **FIELD RECORDER/AFFILIATION:**  
Ed Jakaitis / NPS

5. **DATE RECORDED:** 8/15/2022

6. **SPONSOR/INITIATION:** \_\_\_\_\_  
**Sponsor Name:**

7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded

8. **REPORT/NR REFERENCE:** Park Operations Area Cultural Landscape Inventory 2021

9. **GROUP TYPE:**  
06 / Residential Neighborhood

10. **CURRENT PRIMARY FUNCTION:**  
04K: Govt/Public Other

11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** 1956-58; 1974

12. **MAJOR ADDITIONS/MODIFICATION (specify):**  
2 / 1950-1974 A / Front **Several garages extended and doors added; additions and renovations thereafter.**

13. **MODIFICATION ASSESSMENT:**  
3 / Major unsympathetic alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** W2 / Balloon frame  
**Subsequent/Secondary (if known):** P1 / Concrete Block  
**Other:**

15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** I/ Wood weatherboard  
**Current:** Y/ Vinyl siding

16. **DIMENSIONS:**  
**Height:** \_\_\_\_\_ **Acreage:** 6.8 acres

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular

18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**  
**Type:** J / Ranch  
**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**  
**Style:** 7R / Ranch  
**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**  
**Type:** 2 / Continuous  
**Material:** C / Concrete Block

21. **ROOFING**  
**Configuration:** A / Gable, side  
**Roof Covering:** 5 / Asphalt shingle 6 / Built-up roofing (tar)

22. **ARCHITECT/BUILDER (if known):** NPS EODC; Forster-Harris

23. **WINDOWS:**  Original  Replacement  
**Current Material:** V / Vinyl  
**Sash Operation:** D / Double or Single Hung  
**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** B / 6-10  
(If yes, complete #27 and #28 below)

25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26 cont'd)

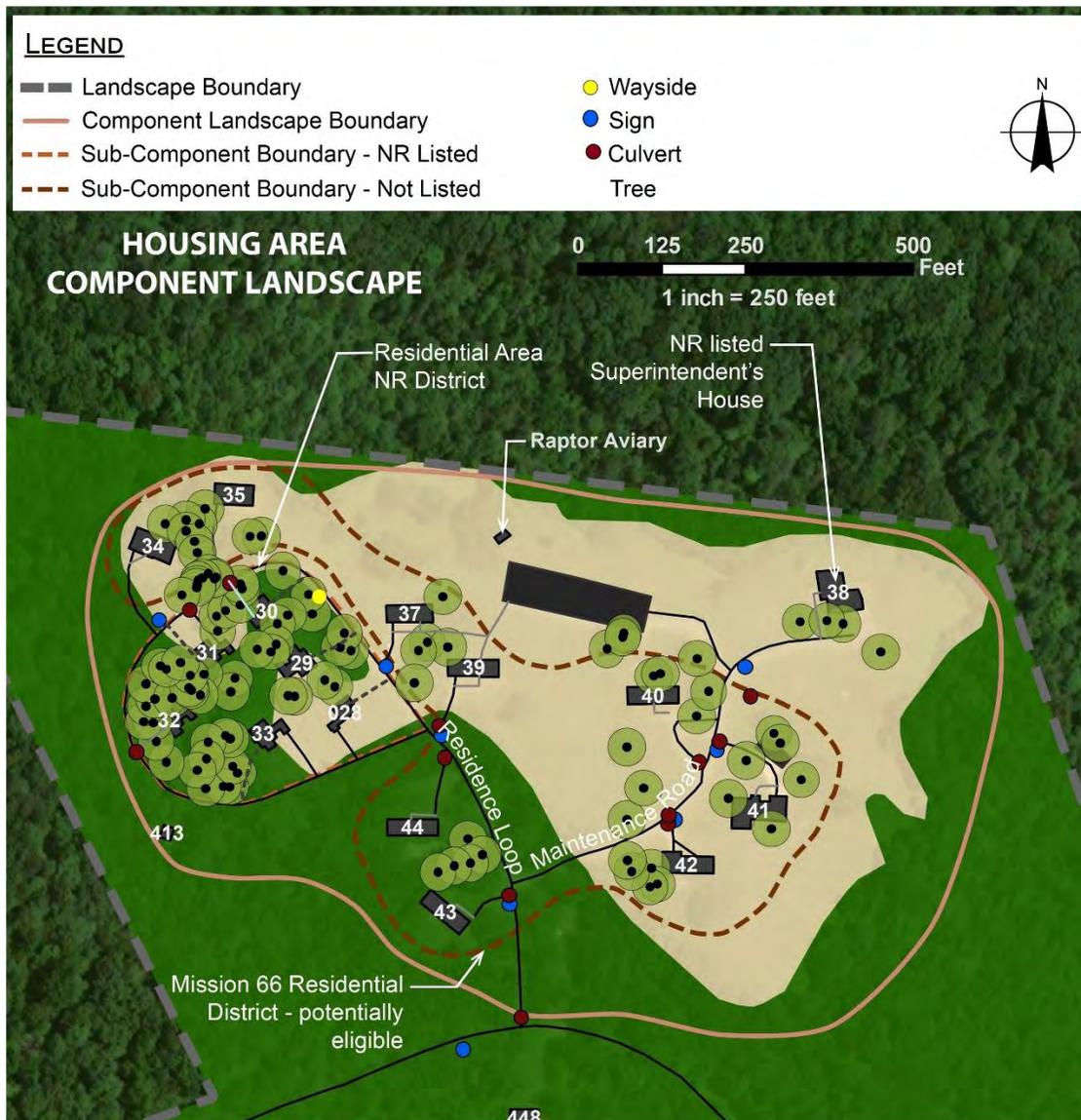


Figure 47 View from Superintendent's Residence (38) driveway over Mission 66 Residences (40-42) (QE, 2020).

**27. SUPPORT RESOURCES:**

SITE PLAN KEY	NAME OF RESOURCE	FUNCTION	CONSTRUCTION DATE	METHOD/MATERIAL
34	ED 217 Mission 66 Era Residence	01A: Single dwelling	2: 1950-1974	W2 / Balloon frame
35	ED 218 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
37	ED 219 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
39	ED 220 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
40	ED 221 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
41	ED 222 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
42	ED 223 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
43	ED 224 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame
44	ED 225 Mission 66 Era Residence	04K: Govt/Public Other	2: 1950-1974	W2 / Balloon frame

**28. SITE PLAN (Complete if #24 was answered or if you are using sub-numbers):**



MAP (Scan or attach copy of map showing exact location of resources):

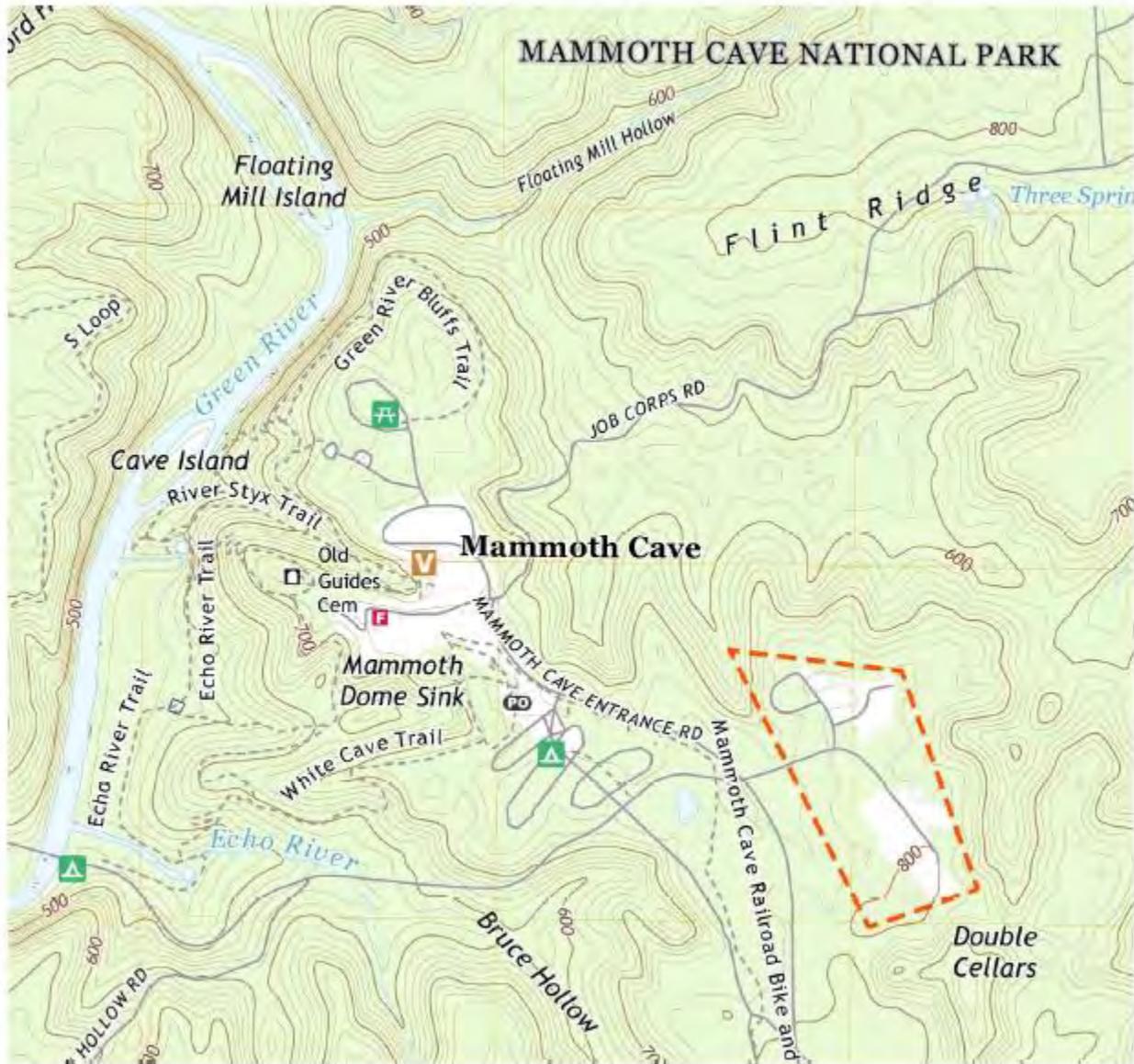


Figure 5: Relationship of the Park Operations Area to the Visitor Center Area of the park (USGS, 2019 Mammoth Cave Quadrangle). The orange polygon denotes the boundaries of the Park Operations Area.

**25. (continued) COMMENTS/HISTORICAL INFORMATION:**

Selected from the 2021 Park Operations Area Cultural Landscape Inventory

**Mission 66 Development at the Park Operations Area, 1950s and 1960s**

Following World War II there was a rapid increase in visitors to national parks, and by the 1950s very few improvements had been made to facilities. In February 1955, NPS Director Conrad Wirth conceived a ten-year capital program to revitalize the national parks. The program was named "Mission 66," with the end date of the program coinciding with the fiftieth anniversary of the establishment of the National Park Service. The Mission 66 program supported a change in

philosophy regarding how buildings were designed, abandoning the former rustic style park structures in favor of modern design that focused on horizontal massing, simple clean lines, and muted colors (Wiss, Janney, Elstner Associates, Inc, 2015). In 1955, Mammoth Cave released a prospectus that included recommendations for the Operations Area, including the construction of new employee residences and maintenance facilities (NPS, 1956).

**Mission 66 Residences.** New employee residences were constructed in the Operations Area in 1956. The buildings were staggered along the existing roadway and were designed in the modern style. A planting plan was developed that used predominantly native plants, added vegetation to the base of buildings, along the road, and between the homes. Periwinkle (*Vinca minor*) – a non-native – and coralberry (*Symphoricarpos orbiculatus*) was planted at the base of each building foundation. Other shrubs were planted at the corners of the buildings. The adjacent woods were thinned of underbrush, leaving the “desirable” trees. Trees were added throughout the complex including Eastern redbud (*Cercis canadensis*), flowering dogwood (*Cornus florida*), and red maple (*Acer rubrum*). An existing hedgerow was thinned.

**Buildings and Structures:** The Mission 66 Era Residences (34, 35, 37, 39, 40, 41, 42, 43, 44) were built according to two different models. Both feature horizontal siding, multi-pane windows, and screened-in porches that overlook breezeway-style carports over concrete pads attached to the left side of the house. Both models have side-end gable roof with a small bump out to accommodate two bedrooms at the front end of the house, with the roof overhang extended to cover the front stoop. The houses have concrete block foundations, asphalt tile roofs, and concrete rear patios. A ninth residence, building 36, was constructed but later removed. The model for houses 40-44 also has a split-level roof, with a different roof profile over the front bedrooms and stoop. All the buildings except 34 and 44 have been converted from residences into office space for various park needs. Since the original construction, the carports of 34, 37, 39, 41, 42, and 43 were converted into enclosed garages, while the carport of building 40 was converted into an extension of the interior offices. The garages and extension use the original concrete pads as foundations. While most of the buildings have horizontal clapboard siding on the entire exterior, 41 and 42 have stone siding from the ground up to 3 feet, and 42 has vinyl instead of wood siding. Buildings 34 and 35 have vertical wood siding. Building 41 has a large wood and recycled plastic deck in the back, instead of the original concrete patio. Despite the alterations noted, the buildings retain most of their original materials and workmanship. The potential Mission 66 residential district reflects the original design which used standard building designs laid out at angles to the road to provide open space and privacy between residences, inclusion of driveways, rear patios, and broad lawns in open areas. In wooded locations, the home sites are carved out of wooded areas to provide privacy and enclosure.

**Circulation:** Each building in the Housing Area Component Landscape has its own asphalt or concrete driveway, leading from the nearest road to the garage, breezeway, or small parking lot. The driveways are about 10 to 12 feet wide. The small lot at Building 40 can accommodate two or three vehicles, while the lot at the Building 41 can hold eight. The driveways have not changed significantly since their construction and maintain integrity. All the buildings in the Housing Area Component Landscape have paths leading from the nearest road or driveway to the front door. ... All [paths within the Mission 66 Era Residences] are in the original location and maintain integrity.

**Land Use:** Beginning in 1937, the Housing Area Component Landscape was almost exclusively used for residential purposes, which is reflected in the design of the buildings as bungalows and ranch houses. In recent years, many of the Mission 66 Buildings (35, 37, 39-43) and the Superintendent’s Residence were converted into office space. While this marked a change in the use of the buildings, it did not significantly impact the visual composition of the landscape. Due to this and the fact that the CCC Constructed Housing Units (28-33) maintain their use as residences, land use contributes to the historic character of the property and retains integrity.

Spatial Organization: A cluster of Mission 66 Era Buildings (34, 35, 37, 39-44) along Maintenance Road reflects modern landscape design principles. The single-story ranch-type residences are each set back from the road at an angle and surrounded by large mown yards consistent with modern suburban residential development.

Topography in the Housing Area Component Landscape is defined by an overall slope from east to west. The Superintendent's Residence sits on the highest point of the site, which then slopes down to a relatively level area where the Mission 66 era housing sits, with the Residential Area District on a knoll to the northwest. The Superintendent's Residence is purposefully sited on the highest point to provide a view over the park employee housing. The roads and building sites were graded to channel water away from developments and into drainage ditches during rain events. The drainage systems were part of the CCC and Mission 66 era developments and remain intact. The construction date of the Mission 66 era drainage system is not confirmed but based upon grading drawings it is assumed to have been completed around 1956 (See Figure 37). The positioning of development of the Superintendent's Residence and CCC Residential District on high points by the CCC was purposeful and remains intact.

Vegetation: The original plantings for the Mission 66 Era housing included specimen canopy trees, as well as understory trees and shrubs as ornamental plantings. The character of the plantings is maintained in the current plantings of ornamentals such as dogwood trees near the houses and specimen canopy trees across the landscape.

The original plans for both the CCC Era and Mission 66 Era housing assumed a groundcover of mown lawn. This is largely maintained throughout the area, except for a naturalized meadow in a low, wet area in the center of the site. This meadow is made up of native grass and low shrub species including broomsedge.

Views & vistas: The view of the Mission 66 Era buildings on Maintenance Road (40, 41, 42) shows the open, suburban-style planning of the era.

The Mission 66 Era Residential District is recommended eligible for listing to the NRHP, under Criterion A.

**27. (continued) ADDITIONAL IMAGES:**



*Figure 44 View up Maintenance Road of Mission 66 Residences (40-42) and the Superintendent's Residence (38) (QE, 2020).*

**Caption:**



*Figure 43 Dogwood tree planted outside Mission 66 Residence (41), typical of ornamental plantings in the Housing Area (QE, 2020).*

**Caption:**



*Figure 38: Stone culvert outside Mission 66 Residence (42), typical for stone culverts throughout Housing Area (QE, 2020).*



*Figure 36 Concrete path outside Mission 66 Residence (39), typical for all Mission 66 Residences (QE, 2020).*

1. **NAME OF RESOURCE:** Building 34 aka Mission 66  
Quarters  
**How Determined:** 7 / Accepted professional, scientific, or technical name
2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park Residential Area North of Circle Drive  
Edmonson County  
**OWNER CONTACT (if known):**  
NPS
3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.089852      **Long:** 37.184290
4. **FIELD RECORDER/AFFILIATION:**  
K. Alessi and M. Cleveland (NPS) Ed Jakaitis (NPS)
5. **DATE RECORDED:** 07/26/2022
6. **SPONSOR/INITIATION:** 5 / Other Survey  
**Sponsor Name:** NPS
7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded
8. **REPORT/NR REFERENCE:** N/A
9. **ORIGINAL PRIMARY FUNCTION:**  
01A: Single dwelling
10. **CURRENT PRIMARY FUNCTION:**  
01A: Single dwelling
11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** 1974
12. **MAJOR ADDITIONS/MODIFICATION (specify)::**  
0 / Undetermined    A / Front door put on carport
13. **MODIFICATION ASSESSMENT:**  
2 / Moderate alteration
14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** W2 / Balloon frame  
**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:** \_\_\_\_\_
15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** Z / Wood vertical board  
**Current:** \_\_\_\_\_

16. **DIMENSIONS:**  
**Height:** A / 1 story    **Acreage:** \_\_\_\_\_
17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular
18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**  
**Type:** J / Ranch  
**Other:** \_\_\_\_\_
19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**  
**Style:** 7R / Ranch  
**Other:** \_\_\_\_\_
20. **FOUNDATION WALLS:**  
**Type:** 2 / Continuous  
**Material:** R / Poured Concrete
21. **ROOFING**  
**Configuration:** A / Gable, side  
**Roof Covering:** 5 / Asphalt shingle
22. **ARCHITECT/BUILDER (if known):** Built by Great Onyx Job Corps
23. **WINDOWS:**  Original     Replacement  
**Current Material:** W / Wood  
**Sash Operation:** D / Double or Single Hung  
**Glazing Pattern:** M / Multi-Light \*see notes
24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)
25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)
26. **PHOTO** (Place Additional Photos below under 26 cont'd)

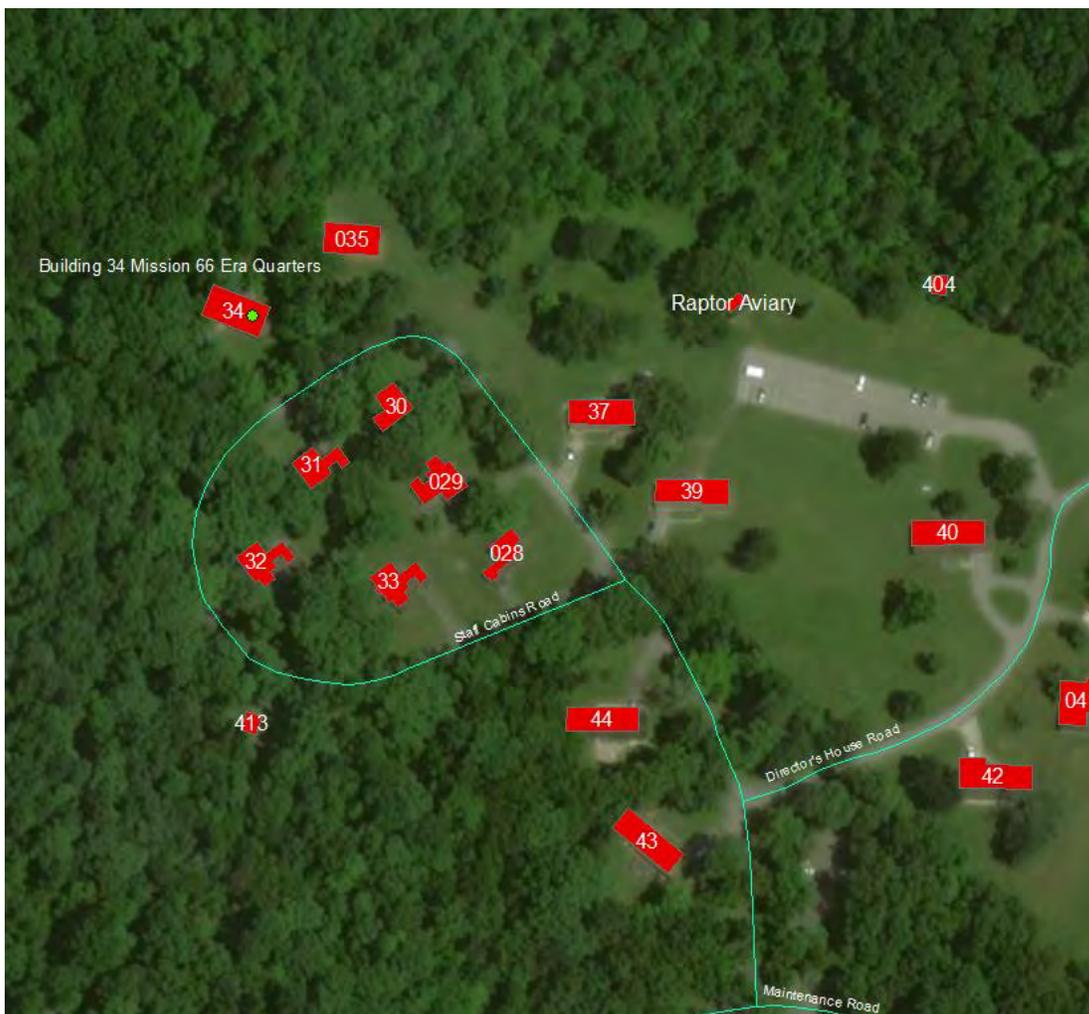


COUNTY: \_\_\_\_\_  
 RESOURCE NUMBER: \_\_\_\_\_

**27. SUPPORT RESOURCES:**

SITE PLAN KEY	NAME OF RESOURCE	FUNCTION	CONSTRUCTION DATE	METHOD/MATERIAL

**28. SITE PLAN (Complete if #24 was answered or if you are using sub-numbers):**



29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was constructed in 1974 by the Great Onyx Job Corps. The windows are notable because they are wood multi-light single hung but are covered by metal double hung window/screen combinations units. The carport was built as a separate extension and an access door at the side. This diverges from the original design of the 1958-59 buildings. The siding is vertical board, and there are ~4-inch drilled holes that have been plugged in the siding, extending all across the walls. Mold and moisture damage is so significant in the building, it is not livable and has remained unoccupied. The building has had HVAC with an external air conditioning unit installed. The building retains integrity of location, design, setting, materials, workmanship, feeling, and association. Building 34 is recommended as contributing to the Mission 66 Era Residential District, under Criterion A.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 217\_1, Building 34, garage extension at front, facing north



Caption: ED 217\_2, Building 34, north elevation, facing south



Caption: ED 217\_3, Building 34, garage extension at back



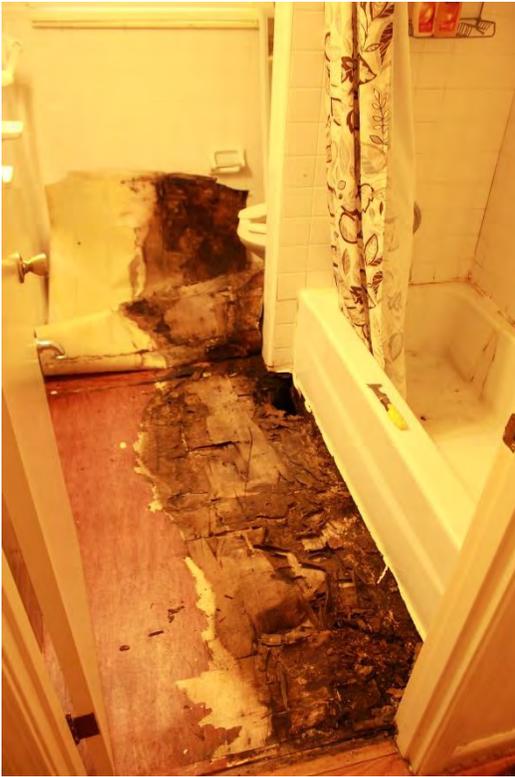
Caption: ED 217\_4, Building 34, oblique, south & east elevation, facing northwest



**Caption: ED 217\_5, Building 34, garage extension roof is pulling away from house and sagging**



**Caption: ED 217\_6, Building 34, siding has been perforated with ~4" holes and plugged across the walls of the entire building**



**Caption: ED 217\_7, Building 34, bathroom floor is close to complete deterioration and unsafe**



**Caption: ED 217\_8, Building 34, mold is present in nearly every room and in closets and storage areas**

1. **NAME OF RESOURCE:** Building 35 aka Mission 66  
Quarters aka Administration Annex  
**How Determined:** 7 / Accepted professional,  
scientific, or technical name

2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park Residential Area North  
of Circle Drive  
Edmonson County  
**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.089480      **Long:** 37.184508

4. **FIELD RECORDER/AFFILIATION:**  
K. Alessi and M. Cleveland (NPS) Ed Jakaitis (NPS)

5. **DATE RECORDED:** 7/26/2022

6. **SPONSOR/INITIATION:** 5 / Other Survey  
**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously  
Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**  
01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**  
99V: Vacant abandoned (site extant, but not in  
service)

11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** 1974

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**  
\_\_\_\_\_ Choose One

13. **MODIFICATION ASSESSMENT:**

14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** W2 / Balloon frame  
**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:** \_\_\_\_\_

15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** Z/ Wood vertical board  
**Current:** \_\_\_\_\_

16. **DIMENSIONS:**  
**Height:** A / 1 story    **Acreage:** \_\_\_\_\_

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or  
rectangular

18. **ARCHITECTURAL TYPE (choose from applicable  
list(s)):**  
**Type:** J / Ranch  
**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable  
list(s)):**  
**Style:** 7R / Ranch  
**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**  
**Type:** 2 / Continuous  
**Material:** R / Poured Concrete

21. **ROOFING**  
**Configuration:** A / Gable, side  
**Roof Covering:** 5 / Asphalt shingle

22. **ARCHITECT/BUILDER (if known):** Built by Great Onyx  
Job Corps

23. **WINDOWS:**  Original  Replacement  
**Current Material:** C / Composite wood sash, metal  
holding glass  
**Sash Operation:** A / Awning  
**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

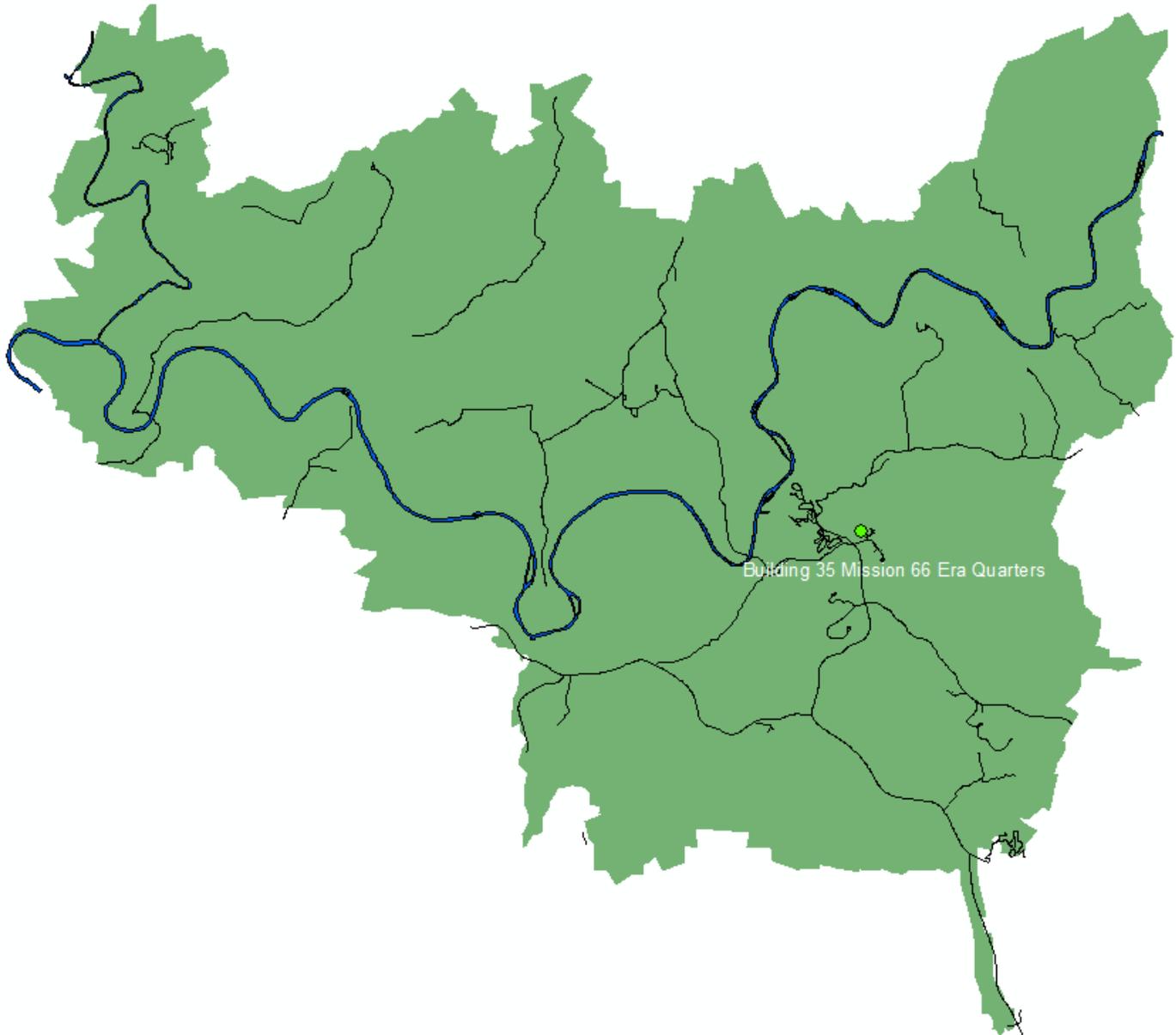
25. **COMMENTS/HISTORICAL INFORMATION (Complete  
on Continuation Sheet)**

26. **PHOTO (Place Additional Photos below under 26  
cont'd)**





29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was constructed in 1974 by the Great Onyx Job Corps. This building is no longer in use because of substantial mold growth hazardous to human health. The building as a whole is roughly 1925 sq. ft. Originally it was used as a residence, but recently served as the Administration Annex office. There has been a great deal of modifications, most notably walling in the original screened porch. Windows were aluminum frame, single hung, multilight. Asphalt shingles remain, with the fascia boards heavily deteriorated in some spots. Gutters were installed, but are now falling and damaged. There have also been HVAC updates, including an air conditioning unit. The building retains sufficient integrity of location, design, and setting. Diminished integrity is found for the materials, workmanship, feeling, and association. Building 35 is recommended as non-contributing to the Mission 66 Era Residential District.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 218\_1, Building 35, north elevation, facing south



Caption: ED 218\_1, Building 35, carport



**Caption: ED 218\_3, Building 35, oblique, south & west elevation, facing northeast**



**Caption: ED 218\_4, Building 35, oblique, south & east elevation, facing northwest**

1. **NAME OF RESOURCE:** Building 37 aka Interpretation and Fee Management

**How Determined:** 7 / Accepted professional, scientific, or technical name

2. **ADDRESS/LOCATION:**

Mammoth Cave National Park Residential Area.  
East of Circle Drive  
Edmonson County

**OWNER CONTACT (if known):**

NPS

3. **GEOGRAPHIC DATA:**

**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.088598      **Long:** 37.184017

4. **FIELD RECORDER/AFFILIATION:**

K. Alessi and M. Cleveland (SCA/ NPS) Ed Jakaitis (NPS)

5. **DATE RECORDED:** 7/26/2022

6. **SPONSOR/INITIATION:** 5 / Other Survey

**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**

01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**

02B: Professional office

11. **ORIGINAL CONSTRUCTION DATE:**

**Estimated:** 2 / 1950-1974

**Documented:** 1958-1959

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**

0 / Undetermined E / Other **Carpport boarded up in back, garage door in front.**

13. **MODIFICATION ASSESSMENT:**

2 / Moderate alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**

**Original/Primary (if known):** W2 / Balloon frame

**Subsequent/Secondary (if known):** \_\_\_\_\_

**Other:** \_\_\_\_\_

15. **EXTERIOR WALL CLADDING:**

**Original (if known):** Z/ Wood vertical board

**Current:** \_\_\_\_\_

16. **DIMENSIONS:**

**Height:** A / 1 story      **Acreage:** \_\_\_\_\_

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular

18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**

**Type:** J / Ranch

**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**

**Style:** 7R / Ranch

**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**

**Type:** 2 / Continuous

**Material:** R / Poured Concrete      **Concrete Block**  
**Stem Wall Brick veneer**

21. **ROOFING**

**Configuration:** A / Gable, side

**Roof Covering:** 5 / Asphalt shingle

22. **ARCHITECT/BUILDER (if known):** Architect: Forster-Harris (EODC), Builder: NPS

23. **WINDOWS:**  Original  Replacement

**Current Material:** V / Vinyl

**Sash Operation:** D / Double or Single Hung

**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26 cont'd)



COUNTY: \_\_\_\_\_  
 RESOURCE NUMBER: \_\_\_\_\_

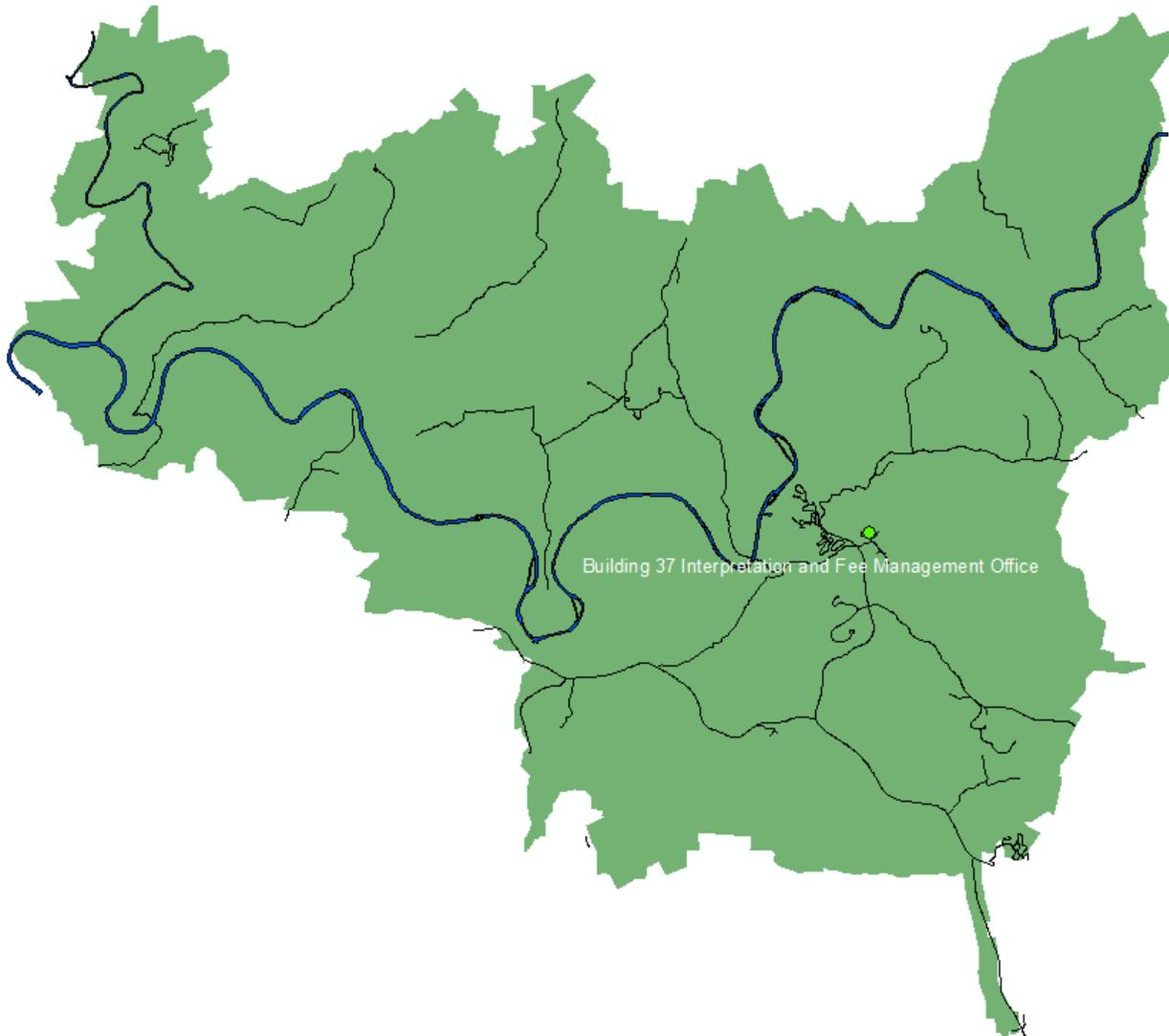
**27. SUPPORT RESOURCES:**

SITE PLAN KEY	NAME OF RESOURCE	FUNCTION	CONSTRUCTION DATE	METHOD/MATERIAL

**28. SITE PLAN (Complete if #24 was answered or if you are using sub-numbers):**



29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was built in 1958-1959. The building as a whole is about 1,925 sq. ft. There have been several modifications since then. The carport was boarded up in back and a garage door was placed in front. Vinyl windows were installed. The original wood siding was covered by vinyl siding. This is a problem, because now there is rotting wood underneath the vinyl. The rafters are no longer exposed. There is a poured concrete stem wall around the porch and carport and a brick veneer stem wall around the rest of the structure. A built-up roof has replaced the original asphalt shingles, with the fascia boards heavily deteriorated in some spots. No gutters were ever added. There have also been HVAC updates, including an air conditioning unit. The building retains sufficient integrity of location, design, setting, and association. Diminished integrity is found for the materials, workmanship, and feeling. Building 37 is recommended as contributing to the Mission 66 Era Residential District, under Criterion A.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 219\_1, Building 37, oblique, south & west elevation, facing northeast



Caption: ED 219\_2, Building 37, east elevation, facing west



**Caption: ED 219\_3, Building 37, front door and windows**



**Caption: ED 219\_4, Building 37, South elevation, facing north**



**Caption: ED 219\_5, Building 37, Doorway awning is deteriorated and sagging**



**Caption: ED 219\_4, Building 37, Soffits are collapsing in multiple places from the eaves and fascia is deteriorated**



Caption: ED 219\_7, Building 37, Central rafter beam is covered and ceiling dropped to house ductwork



Caption: ED 219\_8, Building 37, French door-style slider installed to replace original sliding patio door

1. **NAME OF RESOURCE:** Building 39 aka External Programs Office

**How Determined:** 7 / Accepted professional, scientific, or technical name

2. **ADDRESS/LOCATION:**

Mammoth Cave National Park Residential Area  
East of Circle Drive  
Edmonson County

**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**

**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.088255      **Long:** 37.183779

4. **FIELD RECORDER/AFFILIATION:**

K. Alessi and M. Cleveland (SCA/NPS) Ed Jakaitis (NPS)

5. **DATE RECORDED:** 7/26/2022

6. **SPONSOR/INITIATION:** 5 / Other Survey

**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**

01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**

02B: Professional office

11. **ORIGINAL CONSTRUCTION DATE:**

**Estimated:** 2 / 1950-1974

**Documented:** 1958-9

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**

0 / Undetermined E / Other **Carpport boarded up and converted to interior office space. There is now a set of double doors leading into this office space.**

13. **MODIFICATION ASSESSMENT:**

2 / Moderate alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**

**Original/Primary (if known):** W2 / Balloon frame

**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:** \_\_\_\_\_

15. **EXTERIOR WALL CLADDING:**

**Original (if known):** 1 / Wood weatherboard

**Current:** \_\_\_\_\_

16. **DIMENSIONS:**

**Height:** A / 1 story      **Acreage:** \_\_\_\_\_

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular

18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**

**Type:** J / Ranch

**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**

**Style:** 7R / Ranch

**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**

**Type:** 2 / Continuous

**Material:** R / Poured Concrete

21. **ROOFING**

**Configuration:** A / Gable, side

**Roof Covering:** 6 / Built-up roofing (tar)

22. **ARCHITECT/BUILDER (if known):** Forster-Harris (EODC), Builder: NPS

23. **WINDOWS:**  Original  Replacement

**Current Material:** M / Metal

**Sash Operation:** D / Double or Single Hung

**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None

(If yes, complete #27 and #28 below)

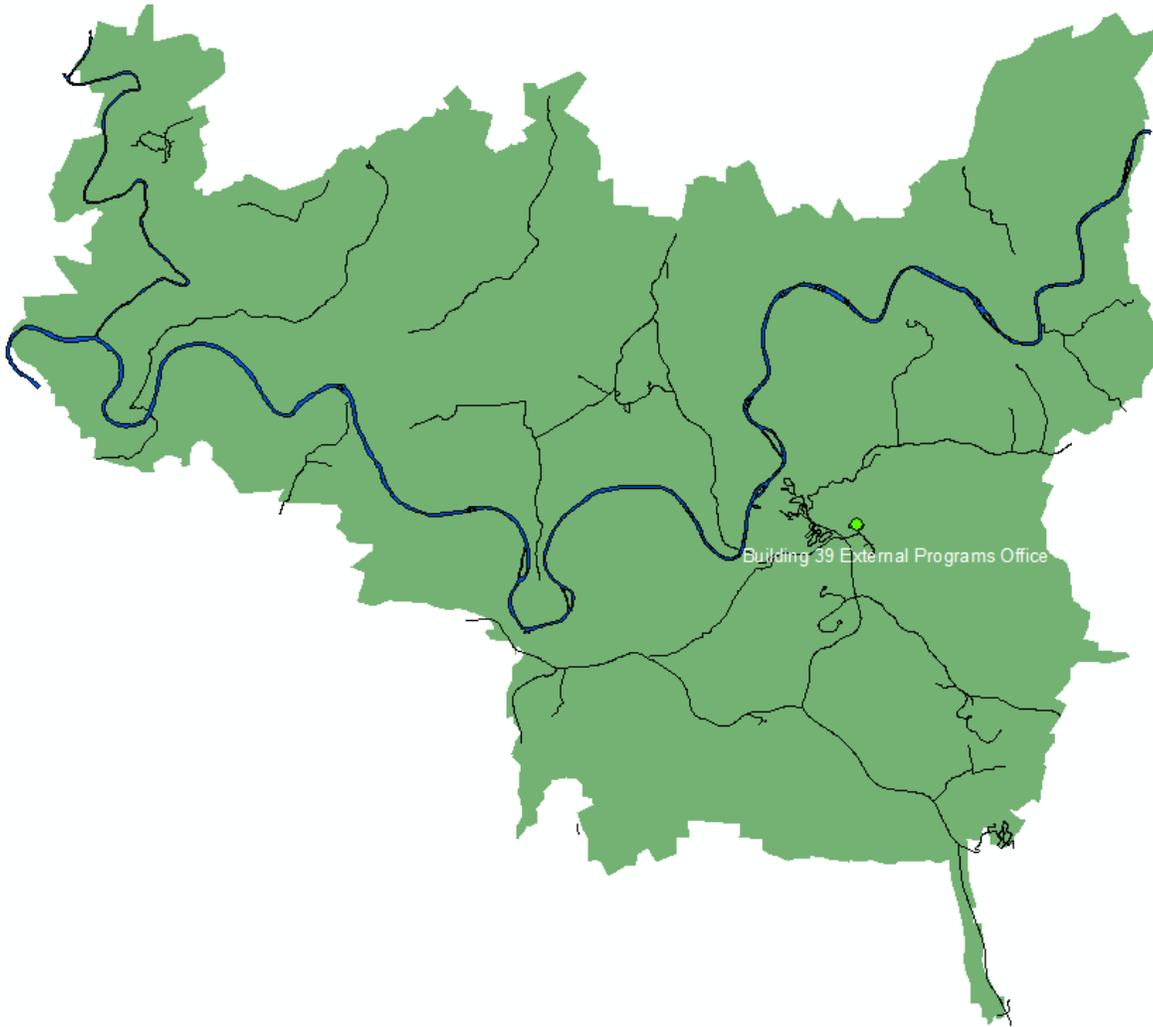
25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26 cont'd)





29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was constructed in 1958-1959. The building as a whole is roughly 1925 sq. ft. The building still has the original exposed rafters. There is a brick veneer stem wall at the foundation. Originally it was used as a residence, but now serves as offices for the External Programs Office. There has been a great deal of modifications, most notably walling in the original screened porch and putting person doors on the carport to create a walled in utility room. Windows were replaced with vinyl, single hung, multilight. There have also been HVAC updates, including an air conditioning unit. A built-up roof has replaced the original asphalt shingles, with the fascia boards heavily deteriorated in some spots. No gutters were ever added. Water damage has occurred and persisted after years of attempting repairs, including on fascia boards, interior ceilings and walls. The bathrooms have significant problems with leaky plumbing that has deteriorated floors and joists. The building retains sufficient integrity of location, design, setting, and association. Diminished integrity is found for the materials, workmanship, and feeling. Building 39 is recommended as contributing to the Mission 66 Era Residential District, under Criterion A.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 220\_1, Building 39, oblique, south & west elevation, facing northeast



Caption: Ed 220\_2, Building 39, north elevation, facing south



**Caption: ED 220\_3, Building 39, north & east elevation, facing southwest**



**Caption: ED 220\_4, Building 39, south elevation, facing north**



**Caption: ED 220\_5, Building 39, Built up roof, showing signs of failure and blocks holding down loose tar paper**



**Caption: ED 220\_6, Building 39, Fascia boards, showing severe deterioration due to no gutters in original design**



Caption: ED 220\_7, Building 39, Washed out gravel accumulating below eaves of built up roof



Caption: ED 220\_8, Building 39, Samples of water damage on the ceiling and walls, evident in over 12 locations in the building



Caption: ED 220\_9, Building 39, Water damage in the ceiling, repaired and continuing to fail



Caption: ED 220\_10, Building 39, Bathroom floors that are rotted and creating mold conditions

1. **NAME OF RESOURCE:** Building 40 aka Administration and Personnel

**How Determined:** 7 / Accepted professional, scientific, or technical name

2. **ADDRESS/LOCATION:**

Mammoth Cave National Park Residential Area  
North-West of Superintendent's House Road  
Edmonson County

**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**

**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.087344      **Long:** 37.183663

4. **FIELD RECORDER/AFFILIATION:**

K. Alessi and M. Cleveland (SCA/NPS) Ed Jakaitis (NPS)

5. **DATE RECORDED:** 07/26/2022

6. **SPONSOR/INITIATION:** 5 / Other Survey

**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**

01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**

02B: Professional office

11. **ORIGINAL CONSTRUCTION DATE:**

**Estimated:** 2 / 1950-1974

**Documented:** 1959

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**

0 / Undetermined E / Other **Carport Boarded up for interior office space, ramp added.**

13. **MODIFICATION ASSESSMENT:**

2 / Moderate alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**

**Original/Primary (if known):** W2 / Balloon frame

**Subsequent/Secondary (if known):** \_\_\_\_\_

**Other:** \_\_\_\_\_

15. **EXTERIOR WALL CLADDING:**

**Original (if known):** I / Wood weatherboard

**Current:** \_\_\_\_\_

16. **DIMENSIONS:**

**Height:** A / 1 story **Acreage:** \_\_\_\_\_

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular

18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**

**Type:** J / Ranch

**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**

**Style:** 7R / Ranch

**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**

**Type:** 2 / Continuous

**Material:** R / Poured Concrete

21. **ROOFING**

**Configuration:** A / Gable, side

**Roof Covering:** 5 / Asphalt shingle

22. **ARCHITECT/BUILDER (if known):** Forster-Harris (EODC), Builder: NPS

23. **WINDOWS:**  Original  Replacement

**Current Material:** C / Composite

**Sash Operation:** D / Double or Single Hung

**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

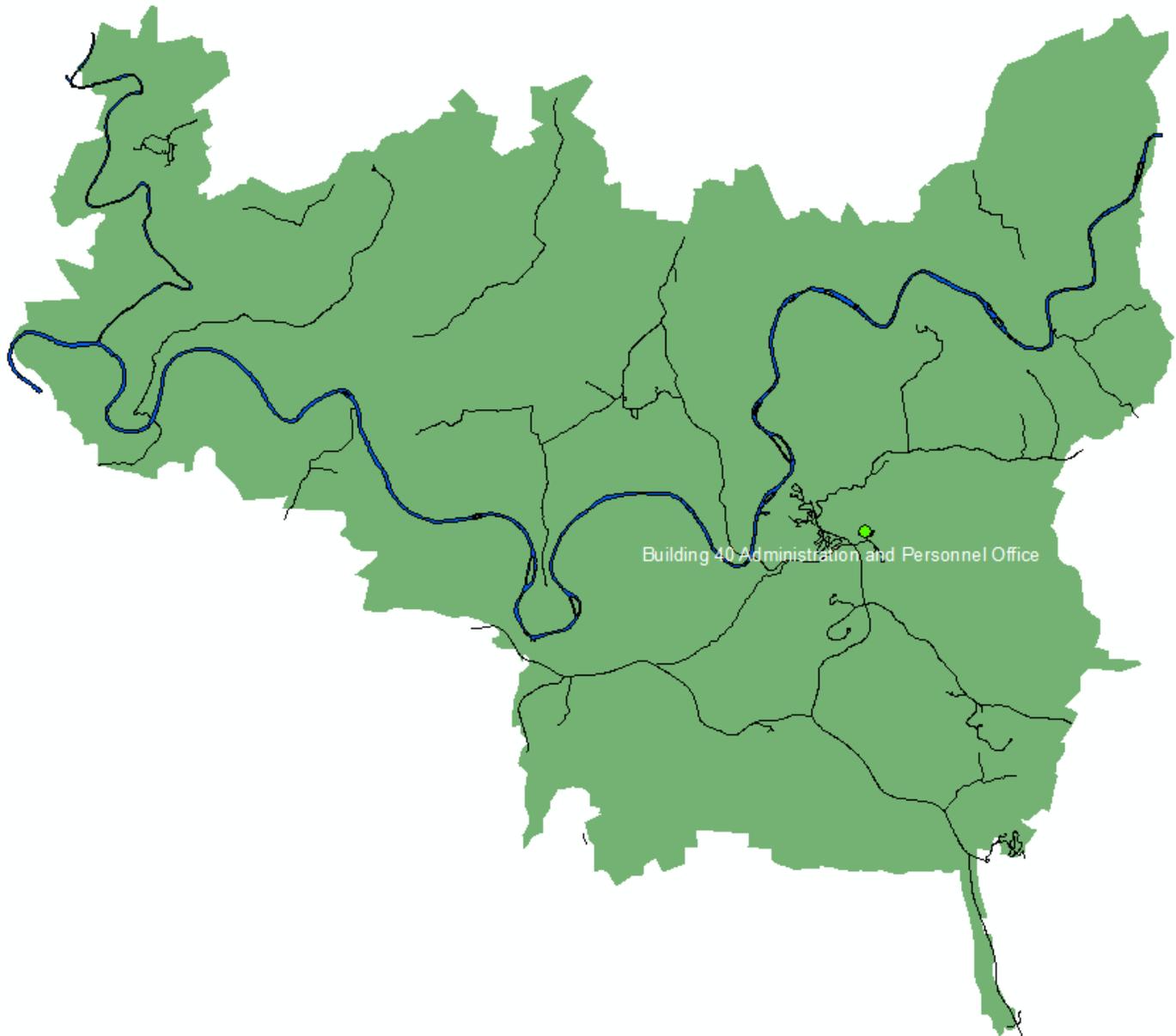
25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26 cont'd)





29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was built in 1959. The building is about 1925 sq. ft. The carport has been walled in and converted to office space. A ramp was added leading to the front door. There are exposed rafters along the eaves, which are original. Due to walls being removed, the interior central rafter beam is sinking in the ceiling, causing structural compromise. The siding is beveled pressure treated wood. There is a poured concrete stem wall. There are no gutters on the building. Condensation and poor drainage in this area has led to a buildup of moisture and mold in the crawl space and into the building, requiring constant operation of a commercial grade dehumidifier. There have also been HVAC updates, including an air conditioning unit. The building retains sufficient integrity of location and setting. Diminished integrity is found for the materials, workmanship, feeling, and association. Building 40 is recommended as non-contributing to the Mission 66 Era Residential District.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 221\_1, Building 40, south elevation, facing north



Caption: ED 221\_2, Building 40, west elevation, facing east



**Caption: ED 221\_3, Building 40, north elevation, facing south**



**Caption: ED 221\_4, Building 40, oblique, south and east elevation, facing northwest**



Caption: ED 221\_5, Building 40, Walled in carport showing front (left) and back (right)



Caption: ED 221\_6, Building 40, Interior space where carport and screened porch once occupied



Caption: ED 221\_7, Building 40, Interior ceiling showing sagging central support resulting from removed walls



Caption: ED 221\_8, Building 40, Interior showing dehumidifier running perpetually in the building



Caption: ED 221\_9, Building 40, Collage of images from the crawl space, showing mold and moisture damage throughout

1. **NAME OF RESOURCE:** Building 41 aka Ranger Station,  
Law Enforcement Offices

**How Determined:** 7 / Accepted professional,  
scientific, or technical name

2. **ADDRESS/LOCATION:**

Mammoth Cave National Park Residential Area  
East of Superintendent's House Road  
Edmonson County

**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**

**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.086791      **Long:** 37.183185

4. **FIELD RECORDER/AFFILIATION:**

K. Alessi and M. Cleveland (SCA/NPS)

5. **DATE RECORDED:** 10/22/2020

6. **SPONSOR/INITIATION:** 5 / Other Survey

**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously  
Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**

01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**

02B: Professional office

11. **ORIGINAL CONSTRUCTION DATE:**

**Estimated:** 2 / 1950-1974

**Documented:** 1959

12. **MAJOR ADDITIONS/MODIFICATION (specify):**

0 / Undetermined E / Other **Major renovation and  
additions: see rehab. Document.**

13. **MODIFICATION ASSESSMENT:**

3 / Major unsympathetic alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**

**Original/Primary (if known):** W2 / Balloon frame

**Subsequent/Secondary (if known):** \_\_\_\_\_

**Other:**

15. **EXTERIOR WALL CLADDING:**

**Original (if known):** Y / Vinyl siding

**Current:** B / Stone veneer

16. **DIMENSIONS:**

**Height:** A / 1 story      **Acreage:**

17. **ARCHITECTURAL FORM/SHAPE:** B /

Asymmetrical/Irregular (many corners)

18. **ARCHITECTURAL TYPE (choose from applicable  
list(s)):**

**Type:** \_\_\_\_\_

**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable  
list(s)):**

**Style:** \_\_\_\_\_

**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**

**Type:** 2 / Continuous

**Material:** R / Poured Concrete

21. **ROOFING**

**Configuration:** D / Cross gable

**Roof Covering:** 5 / Asphalt shingle

22. **ARCHITECT/BUILDER (if known):** Original Architect:  
Forster-Harris (EODC), Rehab. Architect: Vicki Chekan

23. **WINDOWS:**  Original  Replacement \*see  
notes

**Current Material:** V / Vinyl

**Sash Operation:** D / Double or Single Hung

**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

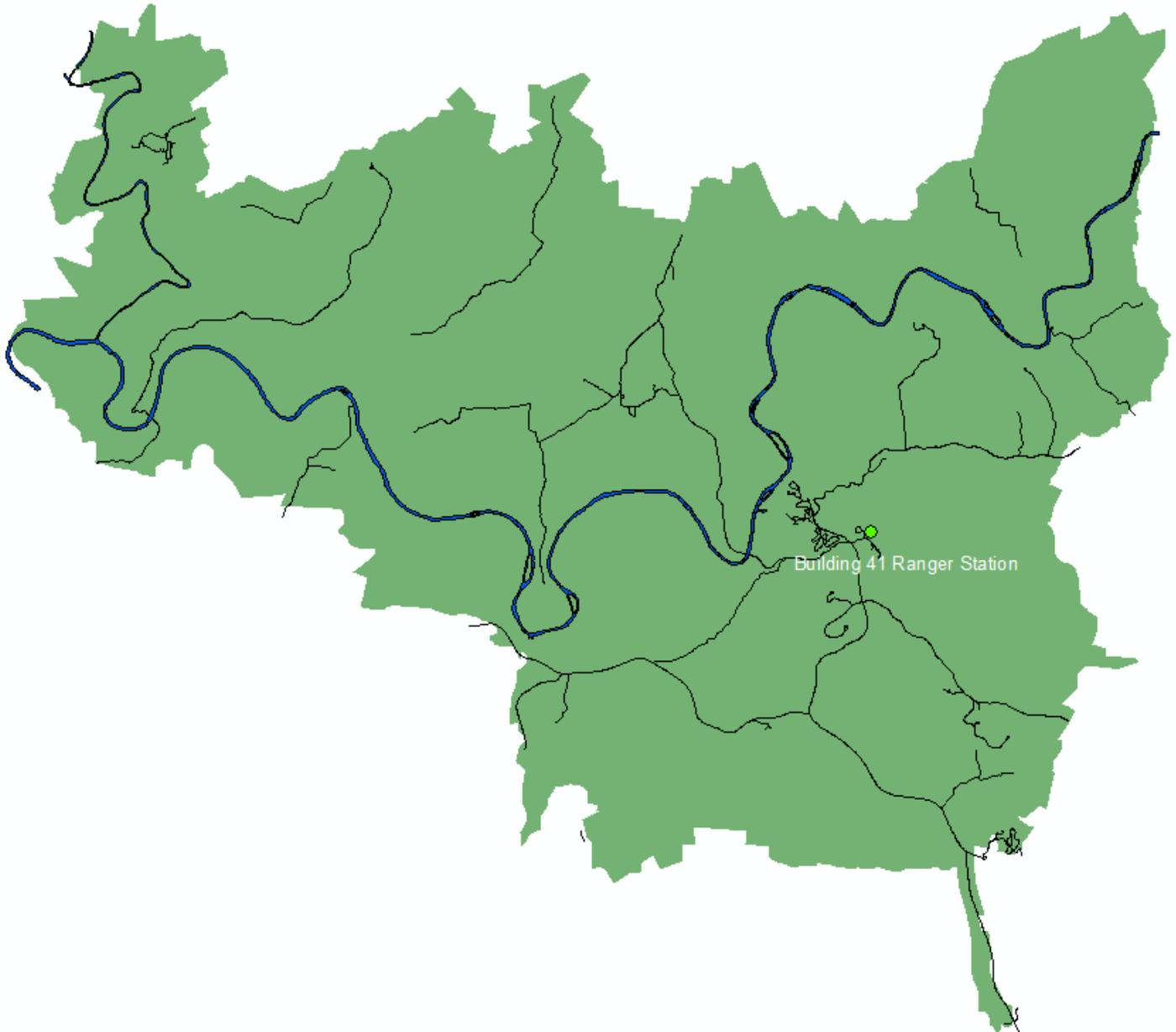
25. **COMMENTS/HISTORICAL INFORMATION** (Complete  
on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26  
cont'd)





29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was constructed in 1959 and has since been modified. The carport was walled up and converted into a conference room. An addition was added on the south elevation of the building. There is a front porch that has been constructed with a short mortared block wall. There are a mixture of window styles, including: vinyl double hung multi-light, metal double hung multi-light, and one octagonal wood fixed single-light window. Asphalt shingles continue to be used on the roof. There have also been HVAC updates, including an air conditioning unit and a commercial dehumidifier. The crawl space shows significant standing water accumulation and mold developed throughout the space. There is water damage in several ceiling locations and doors and other architectural features like the eaves are deteriorated due to moisture and rot. The building retains sufficient integrity of location and setting. Diminished integrity is found for the materials, workmanship, feeling, and association. Building 41 is recommended as non-contributing to the Mission 66 Era Residential District.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 222\_1, Building 41, east elevation, facing west



Caption: ED 222\_2, Building 41, south elevation, facing north



Caption: ED 222\_3, Building 41, North elevation, facing south



Caption: ED 222\_4, Building 41, West elevation, facing east



Caption: ED 222\_5, Building 41, Roof line above addition, showing uneven and wavy surface with shingles coming loose.



Caption: ED 222\_6, Building 41, South addition



Caption: ED 222\_7, Building 41, patio with wall



Caption: ED 222\_8, Building 41, Crawl space showing standing water and mold on surfaces

1. **NAME OF RESOURCE:** Building 42 aka Environmental Education Offices  
**How Determined:** 7 / Accepted professional, scientific, or technical name

2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park East of Superintendent's Office Road  
Edmonson County  
**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.087097      **Long:** 37.182991

4. **FIELD RECORDER/AFFILIATION:**  
K. Alessi and M. Cleveland (NPS)

5. **DATE RECORDED:** 10/22/2020

6. **SPONSOR/INITIATION:** 5 / Other Survey  
**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**  
01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**  
02B: Professional office

11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** 1959

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**  
0 / Undetermined    A / Front Carport walled up for garage, gutters added

13. **MODIFICATION ASSESSMENT:**  
2 / Moderate alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** W2 / Balloon frame  
**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:**

15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** Y / Vinyl siding  
**Current:** B / Stone veneer

16. **DIMENSIONS:**  
**Height:** A / 1 story    **Acreage:**

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular

18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**  
**Type:** J / Ranch  
**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**  
**Style:** 7R / Ranch  
**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**  
**Type:** 2 / Continuous  
**Material:** R / Poured Concrete

21. **ROOFING**  
**Configuration:** D / Cross gable  
**Roof Covering:** 5 / Asphalt shingle

22. **ARCHITECT/BUILDER (if known):** National Park Service Division of Design and Construction Eastern Office

23. **WINDOWS:**  Original  Replacement  
**Current Material:** C / Composite  
**Sash Operation:** C / Casement  
**Glazing Pattern:** M / Multi-Light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26 cont'd)





29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was constructed in 1959. After original use as a residence, it has been maintained as an office and the layout of the building has been dramatically altered, with the enclosed garage addition and classroom altering the interior. Other modifications, including the addition of gutters and a newer garage door. The front façade and west elevation also has a veneer of stone on the lower 3 feet of the wall, which is not original. Vinyl siding has been installed, replacing the original wood and windows are single hung vinyl replacements. The building retains integrity of location, setting, and association. Integrity of design, materials, original workmanship, and feeling has diminished. Building 42 is recommended as non-contributing to the Mission 66 Era Residential District.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 223\_1, Building 42, north elevation, facing south



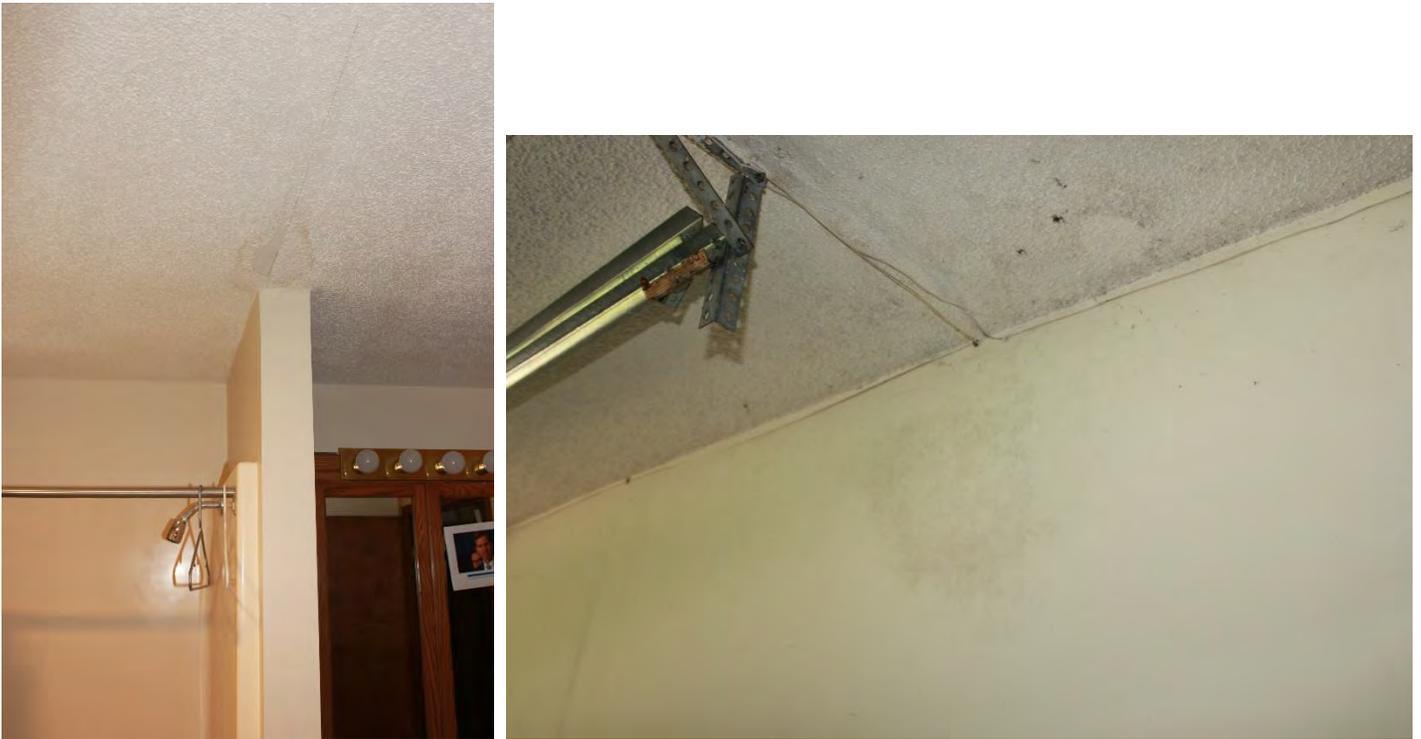
Caption: Ed 223\_2, Building 42, West elevation, facing southeast



Caption: ED 223\_3, Building 42, East elevation, facing west



Caption: Ed 223\_4, Building 42, south elevation, facing north



**Caption: Ed 223\_5, Building 42, Water damage and cracking in the ceiling and wall**



**Caption: Ed 223\_6, Building 42, Roof line sagging, showing signs of severe deterioration from moisture**

1. **NAME OF RESOURCE:** Building 43 aka Cumberland  
Piedmont Network Offices  
**How Determined:** 7 / Accepted professional,  
scientific, or technical name

2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park Residence Area  
West of Staff Cabins Road  
**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave **Date:** 1983  
**Lat:** **Long:**

4. **FIELD RECORDER/AFFILIATION:**  
K. Alessi and M. Cleveland (SCA/NPS) Ed Jakaitis (NPS)

5. **DATE RECORDED:** 7/26/2022

6. **SPONSOR/INITIATION:** 5 / Other Survey  
**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously  
Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**  
01A: Single dwelling

10. **CURRENT PRIMARY FUNCTION:**  
02B: Professional office

11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** Designed 1958

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**  
0 / Undetermined E / Other HVAC, screened porch  
walled in, garage doors on carport, new vinyl single  
hung multi-light windows, gutter system, new storm  
doors on front and back, lights and security camera.

13. **MODIFICATION ASSESSMENT:**  
2 / Moderate alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** W2 / Balloon frame  
**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:**

15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** 1 / Wood weatherboard  
**Current:** \_\_\_\_\_

16. **DIMENSIONS:**  
**Height:** A / 1 story **Foundation Crawl Acreage:**

17. **ARCHITECTURAL FORM/SHAPE:** A / Square or  
rectangular

18. **ARCHITECTURAL TYPE (choose from applicable  
list(s)):**  
**Type:** J / Ranch  
**Other:**

19. **ARCHITECTURAL STYLE (choose from applicable  
list(s)):**  
**Style:** 7R / Ranch  
**Other:**

20. **FOUNDATION WALLS:**  
**Type:** 2 / Continuous  
**Material:** R / Poured Concrete concrete block stem  
wall

21. **ROOFING**  
**Configuration:** A / Gable, side  
**Roof Covering:** 5 / Asphalt shingle

22. **ARCHITECT/BUILDER (if known):** NPS Eastern Office  
of Design and Construction Forster and Harris

23. **WINDOWS:**  Original  Replacement  
**Current Material:** M / Metal W/ Wood  
**Sash Operation:** A / Awning F/ Fixed  
**Glazing Pattern:** M / Multi-Light M/ Multi-light

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

25. **COMMENTS/HISTORICAL INFORMATION** (Complete  
on Continuation Sheet)

26. **PHOTO** (Place Additional Photos below under 26  
cont'd)



COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_

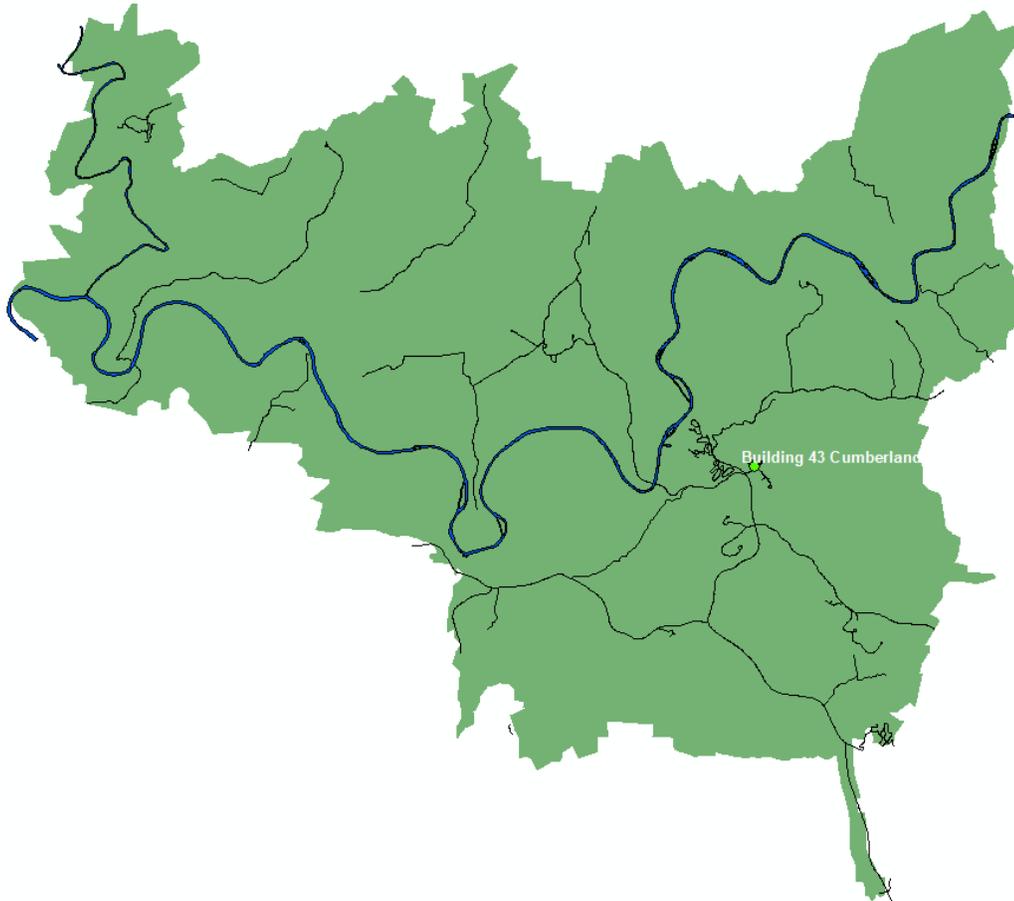
**27. SUPPORT RESOURCES:**

SITE PLAN KEY	NAME OF RESOURCE	FUNCTION	CONSTRUCTION DATE	METHOD/MATERIAL

**28. SITE PLAN (Complete if #24 was answered or if you are using sub-numbers):**



29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was designed in 1958 by the NPS Eastern Office of Design and Construction. Originally it was used as a residence, but now serves as offices for the Cumberland Piedmont Network. There has been a great deal of modifications, most notably walling in the original screened porch and putting garage doors on both sides of the carport. Gutters were also added. Four windows were replaced with vinyl, single hung, multilight. There have also been HVAC updates, including an air conditioning unit. We do not have the dates for any of these modifications. In 2022, significant alterations were made to the interior materials, removing drywall down to the studs and refinishing the floors, removing kitchen cabinetry and fixtures, and replacing doors. The building retains sufficient integrity of location, design, setting, materials, feeling, and association. Examples of historical workmanship has been compromised, due to inconsistent contemporary renovation techniques compared with earlier construction efforts. Building 42 is recommended as eligible for the NRHP and contributing to the Mission 66 Era Residential District, under Criterion A.

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_

27. (continued) ADDITIONAL IMAGES:



Caption: ED 224\_1, Building 43, oblique, north & east elevation, facing south



Caption: ED 224\_2, Building 43, east elevation, facing west

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_



Caption: ED 224\_3, Building 43, oblique, south and west elevation, facing north



Caption: ED 224\_4, Building 43, oblique south and east elevation, facing north

1. **NAME OF RESOURCE:** Building 44 aka VIP House  
**How Determined:** 7 / Accepted professional, scientific, or technical name
2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park Residence Area  
West of Staff Cabins Road  
**OWNER CONTACT (if known):**  
NPS
3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.088483      **Long:** 37.183112
4. **FIELD RECORDER/AFFILIATION:**  
K. Alessi and M. Cleveland (SCA/NPS), Ed Jakaitis (NPS)
5. **DATE RECORDED:** 7/26/2022
6. **SPONSOR/INITIATION:** 5 / Other Survey  
**Sponsor Name:** NPS
7. **PREVIOUSLY RECORDED:** 0 / Not Previously Recorded
8. **REPORT/NR REFERENCE:** N/A
9. **ORIGINAL PRIMARY FUNCTION:**  
01A: Single dwelling
10. **CURRENT PRIMARY FUNCTION:**  
02B: Professional office
11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** Designed 1958
12. **MAJOR ADDITIONS/MODIFICATION (specify)::**  
0 / Undetermined E / Other HVAC, electrical updates, propane tank moved further away from house, screened porch walled in
13. **MODIFICATION ASSESSMENT:**  
2 / Moderate alteration
14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** W2 / Balloon frame  
**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:** \_\_\_\_\_
15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** 1 / Wood weatherboard  
**Current:** \_\_\_\_\_

16. **DIMENSIONS:**  
**Height:** A / 1 story **Foundation Crawl** **Acreage:** \_\_\_\_\_
17. **ARCHITECTURAL FORM/SHAPE:** A / Square or rectangular
18. **ARCHITECTURAL TYPE (choose from applicable list(s)):**  
**Type:** J / Ranch  
**Other:** \_\_\_\_\_
19. **ARCHITECTURAL STYLE (choose from applicable list(s)):**  
**Style:** 7R / Ranch  
**Other:** \_\_\_\_\_
20. **FOUNDATION WALLS:**  
**Type:** 2 / Continuous  
**Material:** R / Poured Concrete **concrete block stem wall**
21. **ROOFING**  
**Configuration:** A / Gable, side  
**Roof Covering:** 5 / Asphalt shingle
22. **ARCHITECT/BUILDER (if known):** NPS Eastern Office of Design and Construction Forster and Harris
23. **WINDOWS:**  Original  Replacement  
**Current Material:** M / Metal W / Wood  
**Sash Operation:** A / Awning A/Awning  
**Glazing Pattern:** M / Multi-Light M / Multi-light
24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)
25. **COMMENTS/HISTORICAL INFORMATION** (Complete on Continuation Sheet)
26. **PHOTO** (Place Additional Photos below under 26 cont'd)



COUNTY: \_\_\_\_\_  
 RESOURCE NUMBER: \_\_\_\_\_

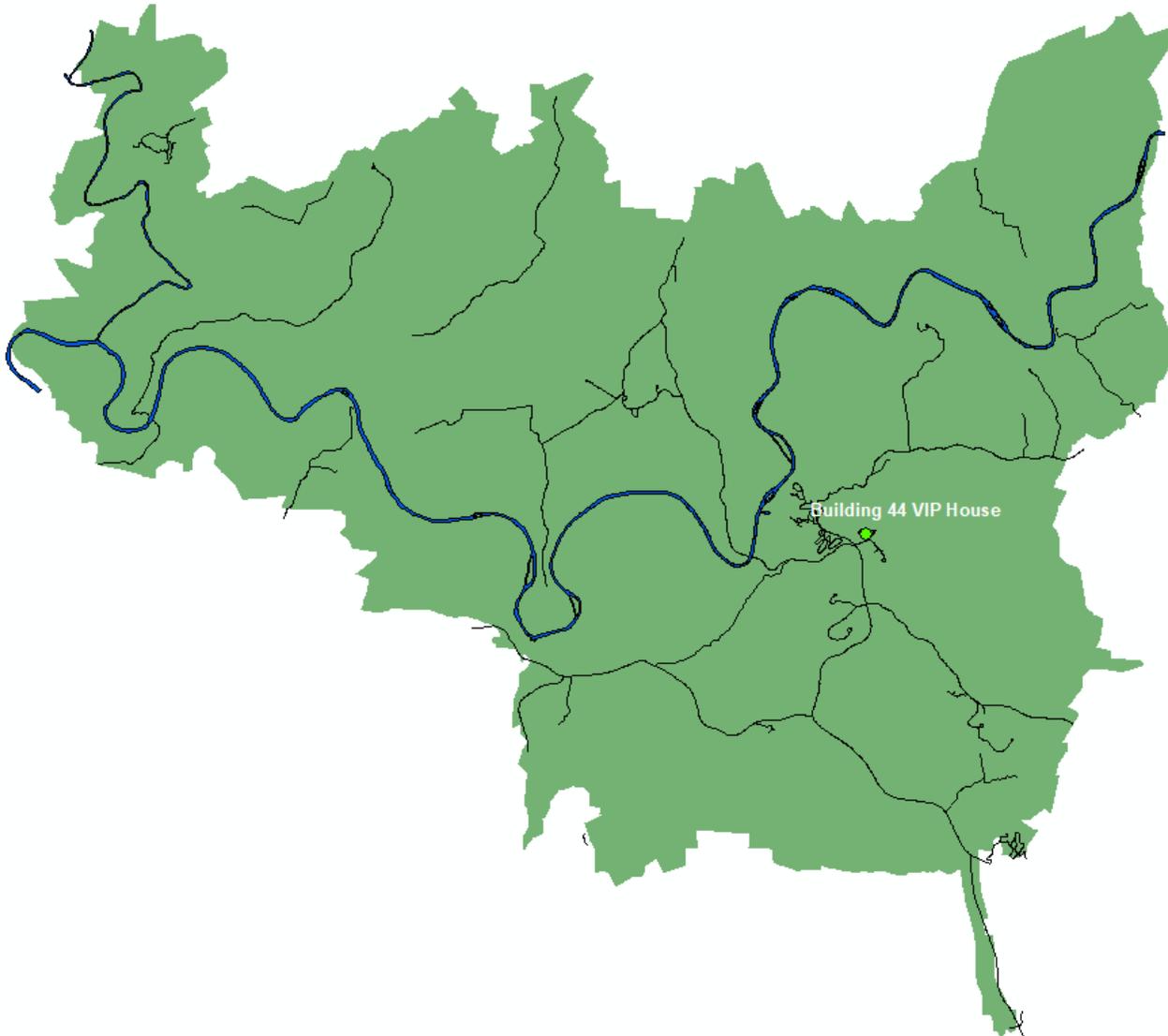
**27. SUPPORT RESOURCES:**

SITE PLAN KEY	NAME OF RESOURCE	FUNCTION	CONSTRUCTION DATE	METHOD/MATERIAL

**28. SITE PLAN (Complete if #24 was answered or if you are using sub-numbers):**



29. MAP (Scan or attach copy of map showing exact location of resources):



25. (continued) COMMENTS/HISTORICAL INFORMATION:

This building was designed in 1958 by the NPS Eastern Office of Design and Construction. This is a one story 3-bedroom ranch design. The building was originally a park staff residence, then providing housing for the Volunteers in Parks (VIP) program, and now is an office for the Cumberland Piedmont Network (CUPN). There have been some modifications, most notably walling in the original screened porch, which we do not have a date for completion. The open carport is still in original condition and a 2022 repainting has been recently completed on the exterior. An air conditioning unit was added, and recently updated in 2022. Windows are an aluminum frame, with multiple varieties of double hung/ two sash, single pane picture windows, and three vertical panes of awning-style windows. There are no gutters on the building. The building retains integrity of location, design, setting, materials, workmanship, feeling, and association. Building 44 is recommended as eligible for listing to the NRHP and contributing to the Mission 66 Era Residential District, under Criterion A.

27. (continued) ADDITIONAL IMAGES:



Caption: ED 225\_1, Building 44, south elevation, facing north



Caption: Ed 225\_2, Building 44, carport, facing south

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_

**28. (continued) ADDITIONAL IMAGES:**



**Caption: Ed 225\_3, Building 43, front door and windows, facing south**



**Caption: Ed 225\_4, Building 44, facade, facing south**

KENTUCKY HISTORIC PROPERTIES  
SURVEY FORM 2017-1

SHPO EVALUATION

COUNTY: Edmonson  
RESOURCE NUMBER: ED  
EVALUATION: I / NR District Non-Contrib.  
CONDITION: G / Good - In good state of repair

1. **NAME OF RESOURCE:** Small-scale Features of Park  
Housing Area  
**How Determined:** 9 / Other

2. **ADDRESS/LOCATION:**  
Mammoth Cave National Park Residential Area North  
of Circle Drive  
Edmonson County  
**OWNER CONTACT (if known):**  
NPS

3. **GEOGRAPHIC DATA:**  
**Quad:** Mammoth Cave      **Date:** 1983  
**Lat:** -86.087392      **Long:** 37.183399

4. **FIELD RECORDER/AFFILIATION:**  
Ed Jakaitis (NPS)

5. **DATE RECORDED:** 09/28/2022

6. **SPONSOR/INITIATION:** 5 / Other Survey  
**Sponsor Name:** NPS

7. **PREVIOUSLY RECORDED:** 0 / Not Previously  
Recorded

8. **REPORT/NR REFERENCE:** N/A

9. **ORIGINAL PRIMARY FUNCTION:**  
O1I: Non-farm residential structure/object  
(swimming pool, fish pond, etc.)

10. **CURRENT PRIMARY FUNCTION:**  
O1I: Non-farm residential structure/object  
(swimming pool, fish pond, etc.)

11. **ORIGINAL CONSTRUCTION DATE:**  
**Estimated:** 2 / 1950-1974  
**Documented:** 1958

12. **MAJOR ADDITIONS/MODIFICATION (specify)::**  
0 / Undetermined    Choose One    N/A

13. **MODIFICATION ASSESSMENT:**  
3 / Major unsympathetic alteration

14. **CONSTRUCTION METHOD AND MATERIAL:**  
**Original/Primary (if known):** XX / Other (specify)  
**Subsequent/Secondary (if known):** \_\_\_\_\_  
**Other:** \_\_\_\_\_

15. **EXTERIOR WALL CLADDING:**  
**Original (if known):** \_\_\_\_\_  
**Current:** \_\_\_\_\_

16. **DIMENSIONS:**  
**Height:** \_\_\_\_\_ **Acreage:** .1 acre

17. **ARCHITECTURAL FORM/SHAPE:** \_\_\_\_\_

18. **ARCHITECTURAL TYPE (choose from applicable  
list(s)):**  
**Type:** Choose One  
**Other:** \_\_\_\_\_

19. **ARCHITECTURAL STYLE (choose from applicable  
list(s)):**  
**Style:** \_\_\_\_\_  
**Other:** \_\_\_\_\_

20. **FOUNDATION WALLS:**  
**Type:** \_\_\_\_\_  
**Material:** Choose One

21. **ROOFING**  
**Configuration:** Choose One  
**Roof Covering:** Choose One

22. **ARCHITECT/BUILDER (if known):** Unknown

23. **WINDOWS:**  Original  Replacement  
**Current Material:** W / Wood  
**Sash Operation:** D / Double or Single Hung  
**Glazing Pattern:** M / Multi-Light \*see notes

24. **NUMBER OF SUPPORT RESOURCES:** 0 / None  
(If yes, complete #27 and #28 below)

25. **COMMENTS/HISTORICAL INFORMATION (Complete  
on Continuation Sheet)**

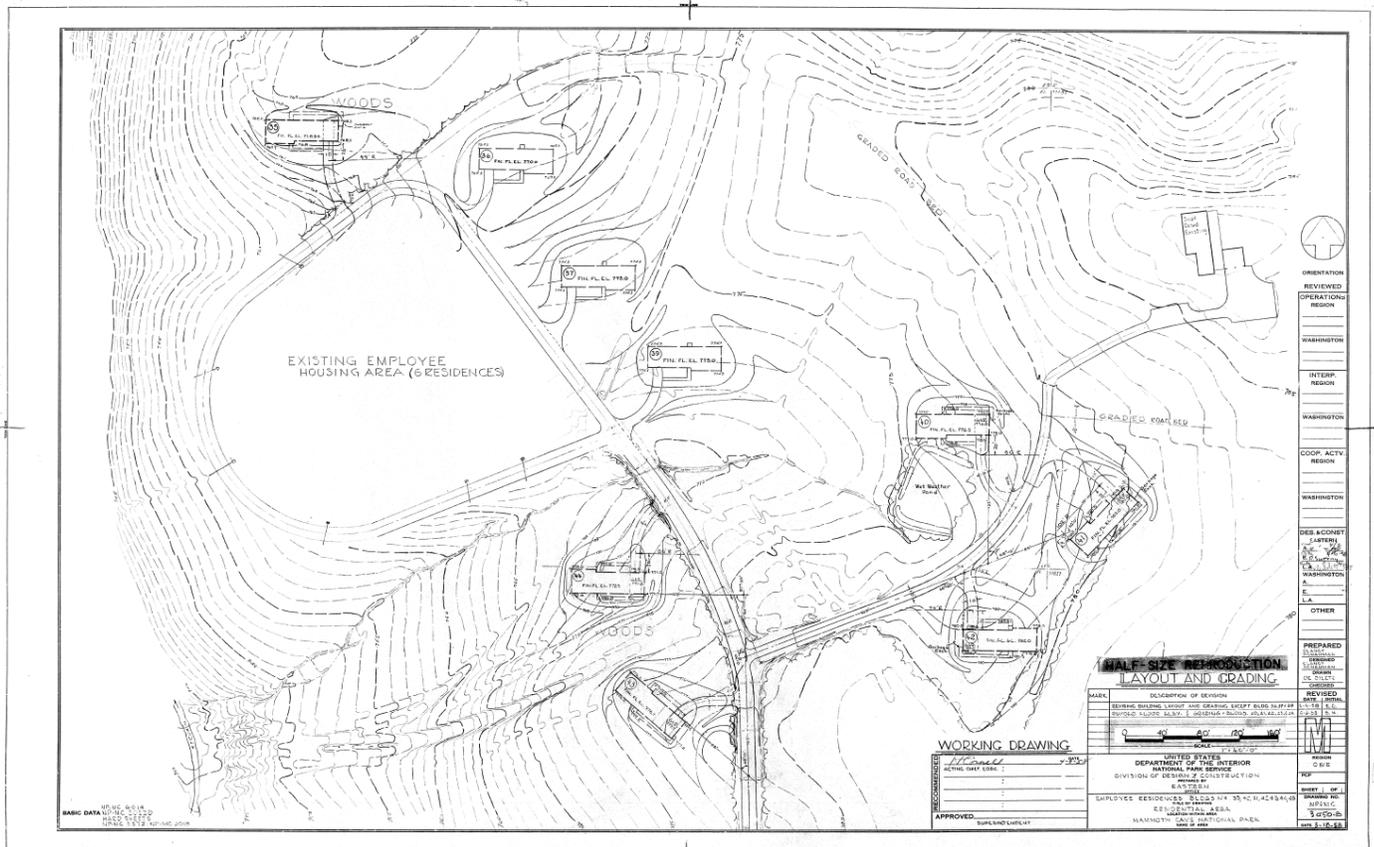
26. **PHOTO (Place Additional Photos below under 26  
cont'd)**



**27. SUPPORT RESOURCES:**

SITE PLAN KEY	NAME OF RESOURCE	FUNCTION	CONSTRUCTION DATE	METHOD/MATERIAL
A	Culvert	16H: Culvert	2: 1950-1974	S2 / Stone, mortar
B	Culvert	16H: Culvert	2: 1950-1974	S2 / Stone, mortar
C	Culvert	16H: Culvert	2: 1950-1974	P0 / Poured Concrete
D	Culvert	16H: Culvert	2: 1950-1974	P0 / Poured Concrete
E	Culvert	16H: Culvert	2: 1950-1974	S2 / Stone, mortar
F	Culvert	16H: Culvert	2: 1950-1974	S2 / Stone, mortar
G	Culvert	16H: Culvert	3: 1925-1949	S2 / Stone, mortar
H	Culvert	16H: Culvert	2: 1950-1974	P0 / Poured Concrete
I	Culvert	16H: Culvert	3: 1925-1949	S2 / Stone, mortar
J	Culvert grate	16H: Culvert	1: 1975-2000	M1 / Metal
K	Culvert	16H: Culvert	A: 2001-Present	WW / Other

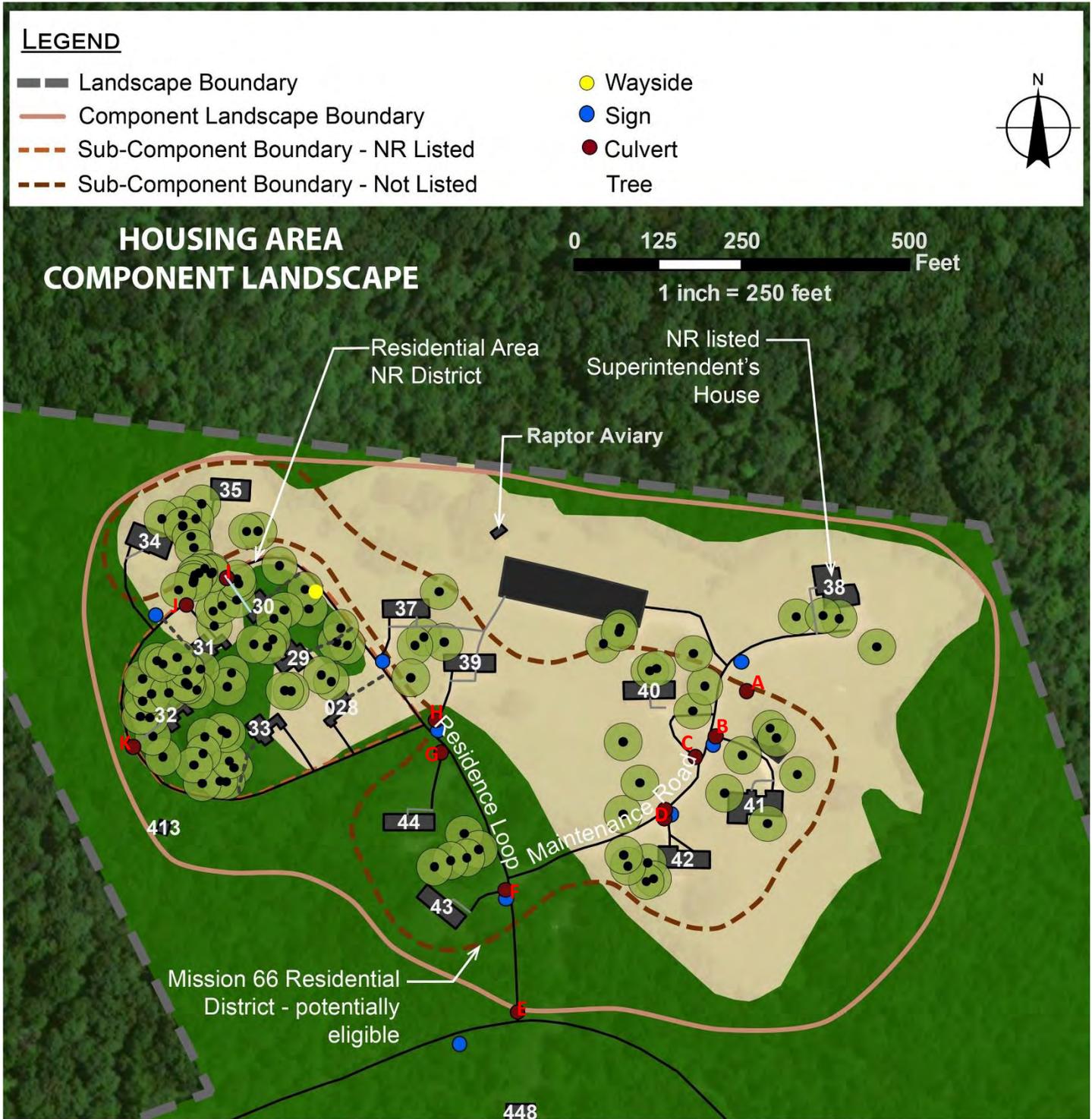
**28. SITE PLAN (Complete if #24 was answered or if you are using sub-numbers):**



Layout and Grading Plan of Mission 66 Housing. (1958)

\*See attached copy for full size image

MAP (Scan or attach copy of map showing exact location of resources):



**25. (continued) COMMENTS/HISTORICAL INFORMATION:**

Eight wood signs act as building identifiers for most of the Mission 66 era Residential District buildings and the Superintendent's Residence. These signs are about 3 feet tall, with etched and painted wording. A similar sign acts as a directional sign at the junction where Maintenance Road splits towards the CCC Residential Area District and the

Superintendent's Residence. An approximately 3-foot-tall wayside is located near Loop Road in between CCC Residential Units 29 and 30, facing towards Building 30, and provides information on the history of the Residential Area District, including the 2018 update, under the title "Built to Last". All signs appear to be relatively recent additions and are therefore not contributing to the district or the Superintendent's Residence.

There are eleven (11) culverts identified in the housing area. Culverts A, B, C, D, F, and H are associated with the Mission 66 era Residential District. Culverts A, B, and F are constructed with stone and concrete headwalls and metal pipes and appear to be in functional condition. The head walls show signs of damage, with loose rocks and broken mortar. These stones appear to be cut sandstone and have more condition issues than the limestone found in many of the earlier CCC culverts. Culverts C and D, consist of patched concrete and stone headwalls and metal pipes, and remain in functional condition. Culverts C and D have been rehabilitated with substantial amounts of concrete that cover much of the stone and limit the apparent workmanship of the original stone headwalls. Culvert H is a concrete headwall and pipe culvert that is beginning to close up and needs cleared of sediment. Culvert H is not identified in the Grading Plan from 1958 and appears to be a replacement. Based on these observations we recommend that culverts A, B, and F, with their relatively complete stone headwalls, are contributing to the district. We recommend that culverts C, D, and H, due to a loss of integrity and a lack of design and material consistency with the original culverts, are not contributing to the district.

Culverts E, G, I, J, and K are associate with the CCC Residential Area District. Culverts E, G, and I have been constructed with limestone headwalls and metal pipes and appear to remain functional, with some need for clearing of the pipe outlets. Damage to the headwalls is visible on E and G, but I is mostly buried and needs clearing. Culvert J is a metal grate leading into an unseen drain and no outlet could be identified, though it may lead to culvert K. The grate of culvert J rusted, but otherwise functional and was cleared of debris. Culvert K is located on the outside of the Circle Drive and is composed of a composite pipe that extend out of the embankment for the road. The road itself has been patched and is obviously the result of the composite pipe being installed in the recent past (estimating within the last 5 years). Based on these observations, we recommend that Culverts E, G, and I, with their complete stone headwalls, are contributing to the district. We recommend that culverts J and K, due to inconsistent materials and age with the district, are not contributing to the district.

**27. (continued) ADDITIONAL IMAGES:**



Caption: ED xx\_1, Building 43 sign, facing west



Caption: ED xx\_2, stone culverts A & B, facing north

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_



**Caption: ED xx\_3, concrete wall of culvert C, facing north**



**Caption: ED xx\_4, concrete wall of culvert D, facing west**

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_



Caption: ED xx\_5, stone wall of culvert E, facing south



Caption: ED xx\_6, concrete wall of culvert F, facing north



Caption: ED xx\_7, concrete and stone wall of culvert G, facing east



Caption: ED xx\_8, concrete wall of culvert H, facing north

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_



**Caption: ED xx\_9, stone wall of culvert I, facing north**



**Caption: ED xx\_10, metal grate of culvert J, facing south**

COUNTY: \_\_\_\_\_  
RESOURCE NUMBER: \_\_\_\_\_

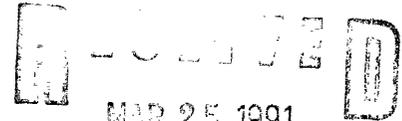


Caption: ED xx\_11, composite culvert k, facing east



Caption: ED xx\_11, CCC Residential Area District wayside, facing south

United States Department of the Interior  
National Park Service



MAR 25 1991

NATIONAL REGISTER

National Register of Historic Places  
Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Residential Area District  
other names/site number Buildings 28 to 33

2. Location

street & number Mammoth Cave National Park (MACA)  not for publication NA  
city, town Mammoth Cave  vicinity NA  
state Kentucky code KY county Edmonson code 061 zip code 42259

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	Contributing	Noncontributing
<input type="checkbox"/> public-local	<input checked="" type="checkbox"/> district	<u>6</u>	<u>      </u> buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	<u>1</u>	<u>      </u> sites
<input checked="" type="checkbox"/> public-Federal	<input type="checkbox"/> structure	<u>      </u>	<u>      </u> structures
	<input type="checkbox"/> object	<u>7</u>	<u>0</u> Total

Name of related multiple property listing: Historic Resources of Mammoth Cave Nat'l Park Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this  nomination  request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property  meets  does not meet the National Register criteria.  See continuation sheet.  
Signature of certifying official [Signature] Date 3/20/91  
State or Federal agency and bureau National Park Service

In my opinion, the property  meets  does not meet the National Register criteria.  See continuation sheet.  
Signature of commenting or other official [Signature] Date Jan. 8, 1991  
State Historic Preservation Officer, Kentucky Heritage Council  
State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:  
 entered in the National Register. Patrick Andrus 5/8/91  
 See continuation sheet.  
 determined eligible for the National Register.  See continuation sheet.  
 determined not eligible for the National Register.  
 removed from the National Register.  
 other, (explain:)  
Signature of the Keeper [Signature] Date of Action

**6. Function or Use**

Historic Functions (enter categories from instructions)

Domestic:institutional housing

Current Functions (enter categories from instructions)

Vacant/not in use

other:office space

**7. Description**

Architectural Classification

(enter categories from instructions)

other:NPS rustic

Materials (enter categories from instructions)

foundation sandstone

walls weatherboard

roof asphalt shingle

other

Describe present and historic physical appearance.

United States Department of the Interior  
National Park ServiceNational Register of Historic Places  
Continuation SheetHistoric Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky  
Residential Area DistrictSection number 7 Page 1

## 7. Description of present and historic physical appearance.

The Residential Area District is located approximately 3/4 mile southeast of Mammoth Cave National Park Headquarters. The district consists of six contributing buildings, residences #28-#33, and one contributing site, the "Circle" road which encircles the six houses.

The six houses in the Residential Area District were built by the Civilian Conservation Corps in 1937 during the development of Mammoth Cave National Park and are good examples of National Park Service rustic architecture. The residences are one story frame structures with rough-cut sandstone foundations, porch steps, walkways, and chimneys. The wood exterior walls have shiplap boarding on the lower portion of the building and board and batten on the upper part. Each house has an asphalt shingled, gable roof, a screened or enclosed porch, and some simple decorative woodwork around the entrances.

The houses in the district represent two basic floor plans. The buildings of the one bedroom plan (Quarters #28, #30, #31) were constructed with four rooms and one bath. The rooms connecting the main houses to their garages, with four large windows in each, are called glassed porches. The front entrances of these houses are enclosed with screened porches (see figure 1). The buildings of the two bedroom plan (Quarters #29, #32, #33) were constructed with five rooms, one bath and a basement. The front entrances are unenclosed and the screened porches are attached to the sides of the houses. The garages of all of the two bedroom plan houses have been converted to extra bedrooms and baths (see figure 2).

The houses are basically structurally sound, but are in fair condition due to the lack of regular maintenance in the last decade. All of the CCC-constructed residences have sustained some alteration. The original wood shingle roofs were replaced with asphalt shingle roofs within the last twenty years. Though the garages of all of the two bedroom plan houses have been made into extra rooms for the houses, the alterations have been made in a similar style and with the same type of materials and the basic floor plans of these buildings are unaltered. In the spring of 1989, the park began using several of these houses for office space. These changes in plan and use do not affect the historic character of the buildings.

**United States Department of the Interior  
National Park Service**

**National Register of Historic Places  
Continuation Sheet**

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky

Section number 7 Page 2 Residential Area District

---

The Circle road, originally gravel, has been black topped, although the course it follows is unchanged. Though a number of "Mission 66" houses for employees were constructed around the outside of the Circle in the 1950s, the area has retained its residential character. Integrity of location, setting, design, materials, workmanship, feeling, and association in the district are intact.

**8. Statement of Significance**

Certifying official has considered the significance of this property in relation to other properties:

nationally     statewide     locally

Applicable National Register Criteria     A     B     C     D

Criteria Considerations (Exceptions)     A     B     C     D     E     F     G    N/A

Areas of Significance (enter categories from instructions)

Entertainment/recreation

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Period of Significance

1937-1942

\_\_\_\_\_  
\_\_\_\_\_

Significant Dates

1937

\_\_\_\_\_  
\_\_\_\_\_

Cultural Affiliation

N/A

\_\_\_\_\_  
\_\_\_\_\_

Significant Person

N/A

\_\_\_\_\_

Architect/Builder

Civilian Conservation Corps

\_\_\_\_\_  
\_\_\_\_\_

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

See continuation sheet

**9. Major Bibliographical References**

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # \_\_\_\_\_
- recorded by Historic American Engineering Record # \_\_\_\_\_

See continuation sheet

Primary location of additional data:

- State historic preservation office
- Other State agency
- Federal agency
- Local government
- University
- Other

Specify repository: \_\_\_\_\_

**10. Geographical Data**

Acreage of property \_\_\_\_\_

UTM References

A     
Zone Easting Northing

C

B     
Zone Easting Northing

D

See continuation sheet

Verbal Boundary Description

See continuation sheet

Boundary Justification

See continuation sheet

**11. Form Prepared By**

name/title Kelly A. Lally date June 1989  
organization Kentucky Heritage Council telephone 919-828-9123  
street & number 701 D Daniels St. city or town Raleigh state NC zip code 27605

**United States Department of the Interior  
National Park Service**

**National Register of Historic Places  
Continuation Sheet**

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky

Section number 8 Page 1 Residential Area District

---

8. Statement of significance, criteria justification, criteria considerations, and areas and periods of significance.

The Residential Area District is historically significant in the area of Entertainment/recreation and represents the property type "Civilian Conservation Corps Buildings and Structures" (for property type information, see Section III of the Historic Resource Study, pages D-20 to D-21). The period of significance, 1937 to 1942, falls within the years that the CCC was constructing buildings and structures during the development of Mammoth Cave National Park, i.e., 1933 to 1942.

When the Civilian Conservation Corps was created in 1933 by the Roosevelt administration, the Mammoth Cave properties were in transition from private and state ownership to national park status. The CCC was charged with the responsibility of developing a recreational wilderness area out of what had been primarily agricultural land for decades. In addition to razing structures, planting trees, and building roads and park facilities, the CCC also constructed buildings and structures to meet the operational needs of a National Park, such as employee housing, maintenance facilities, ranger stations, and an entire plumbing system.

The Residential Area was constructed by the CCC in 1937 to house a community of National Park Service employees who wished to live, as well as work, within the boundaries of Mammoth Cave National Park. Though the residences are no longer used for employee housing, they remain in the residential area and are important reminders of the work of the CCC in developing Mammoth Cave National Park.

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky

Section number   9   Page   1   Residential Area District

---

9. Major Bibliographical References

Blakey, George. Hard Times and the New Deal in Kentucky, 1929-1939. Lexington: University Press of Kentucky, 1986.

Lally, Kelly A. "A History of the Civilian Conservation Corps at Mammoth Cave National Park." Unpublished paper, Mammoth Cave National Park Library, Mammoth Cave, Kentucky, 1987.

Salmond, John A. The Civilian Conservation Corps, 1933-1942: A New Deal Case Study. Durham, NC: Duke University Press, 1967.

**United States Department of the Interior  
National Park Service**

**National Register of Historic Places  
Continuation Sheet**

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky  
Residential Area District

Section number 10 Page 1

---

10. Geographical Data

Acreage of property: approximately 2 acres

UTM References

A 16 4115420 580840

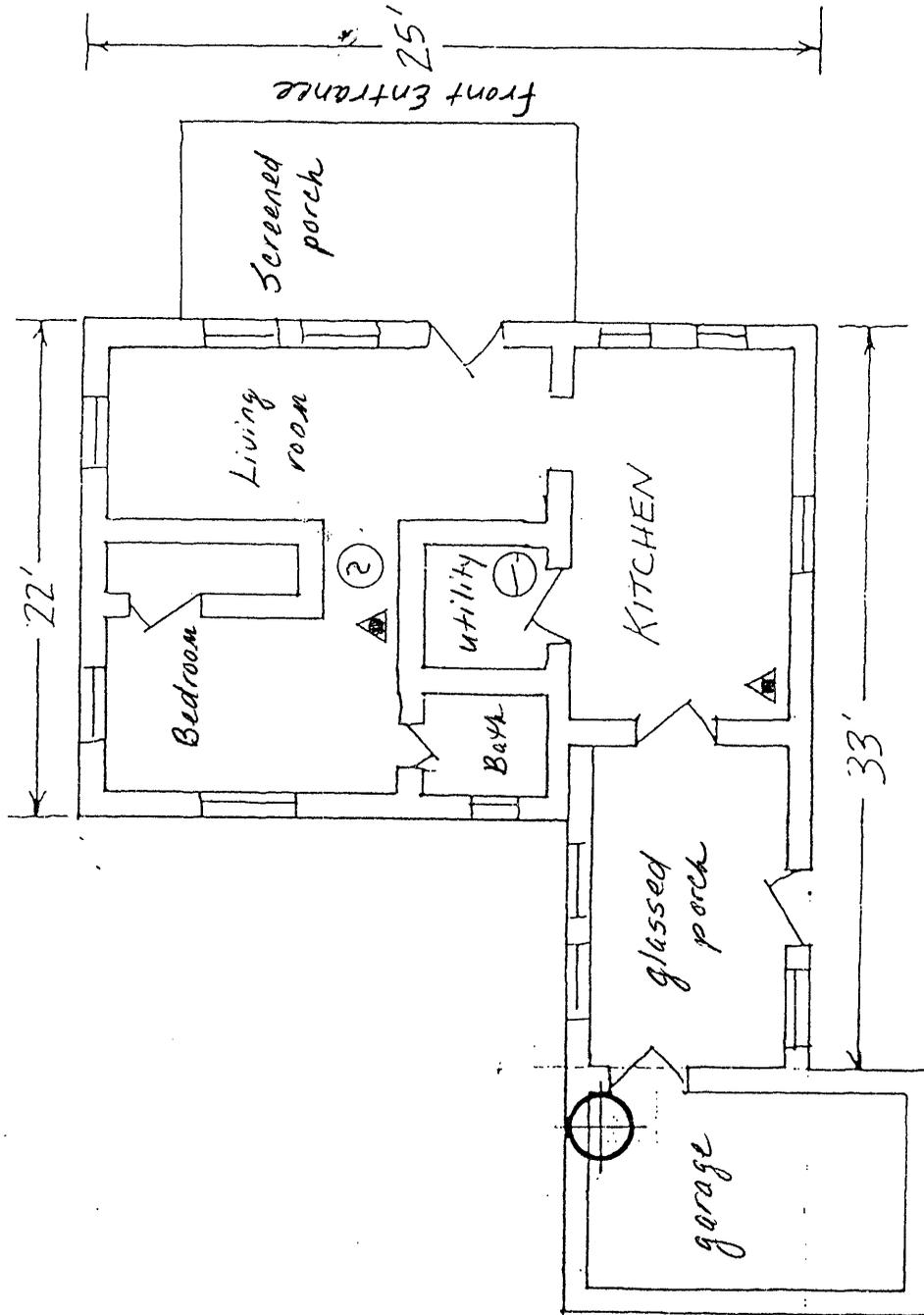
Verbal Boundary Description

The boundary follows the exterior of the "Circle" road 1150', beginning and ending at a point 85' from the southeast corner of Quarters #28.

Boundary Justification

The boundary includes all residential cottages constructed by the CCC in the residential area and the "Circle" road and excludes the more recently constructed "Mission 66" houses in the area.

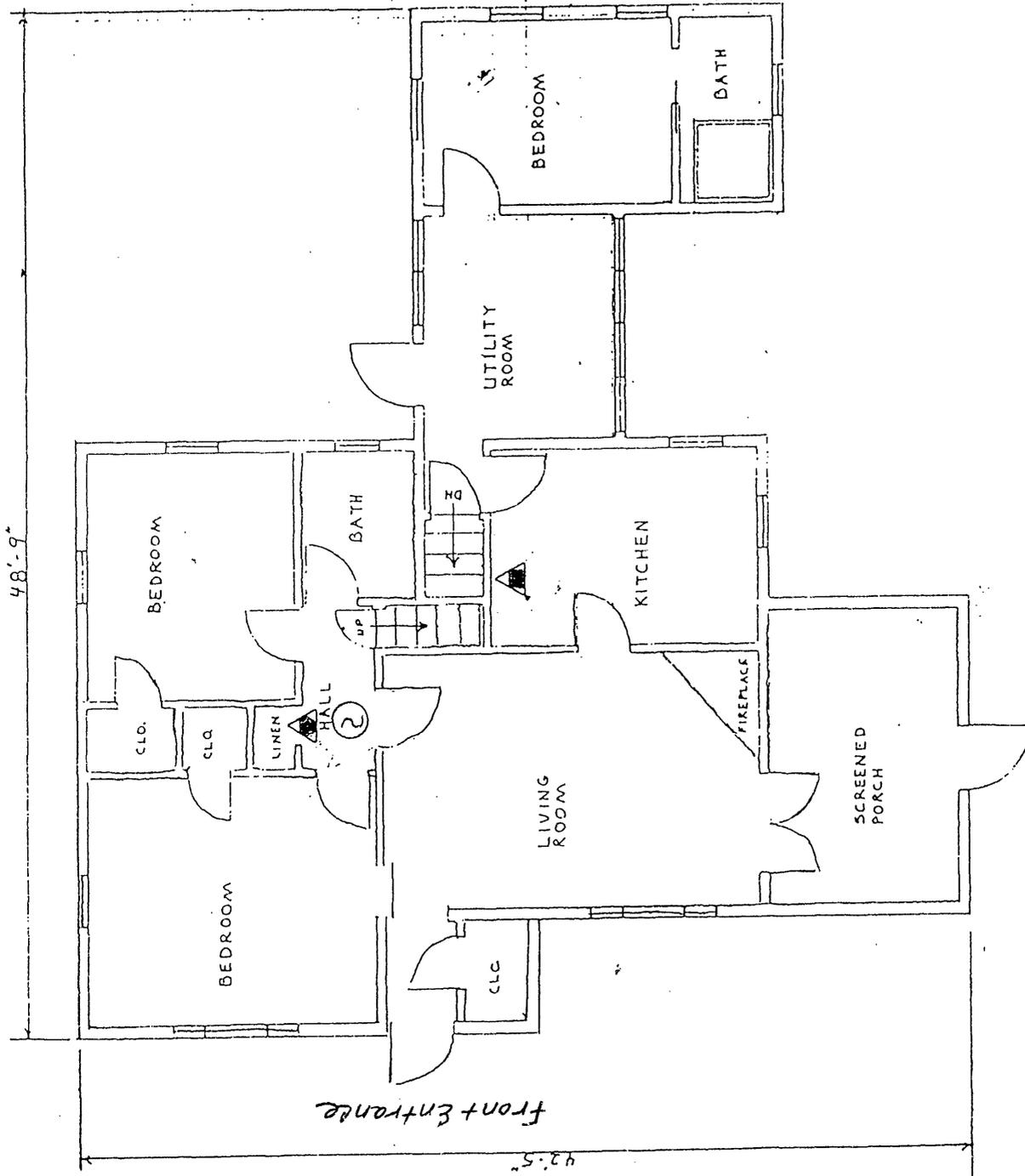
Figure 1  
1 Bedroom  
plan



LEGEND	
	ELECTRICAL MAIN
	WATER MAIN
	SMOKE ALARM
	ALARM PANEL
	EMERGENCY DAMPS
	FIRE HYDRANT
	CO <sub>2</sub> FIRE EXTINGUISHER
	DRY CHEMICAL EXTINGUISHER
	WATER BASE EXTINGUISHER
	HOSE STATION STANDPIPE

	BLDG NAME: QUARTERS	LOCATION: RESIDENTIAL AREA	SCALE: 1/8" = 1'-0"	<h1 style="font-size: 2em;">28</h1>
	MATERIALS: WOOD	HAZARDS:		
NORTH	GPM REQUIRED IF -- 25% 30 , 50% 60 , 75% 90 , 100% 110 INVOLVED	DATE 2/87 BY SA		BLDG NO

Figure 2  
2 Bedroom  
plan  
with converted  
garage



LEGEND

-  ELECTRICAL MAIN
-  WATER MAIN
-  SMOKE ALARM
-  ALARM PANEL
-  EMERGENCY LAMPS
-  FIRE HYDRANT
-  CO2 FIRE EXTINGUISHER
-  DRY CHEMICAL EXTINGUISHER
-  WATER BASE EXTINGUISHER
-  HOSE STATION STANDPIPE

SCALE: 1/8" = 1'-0"

BLDG NAME: QUARTERS

LOCATION: RESIDENTIAL AREA

HAZARDS:

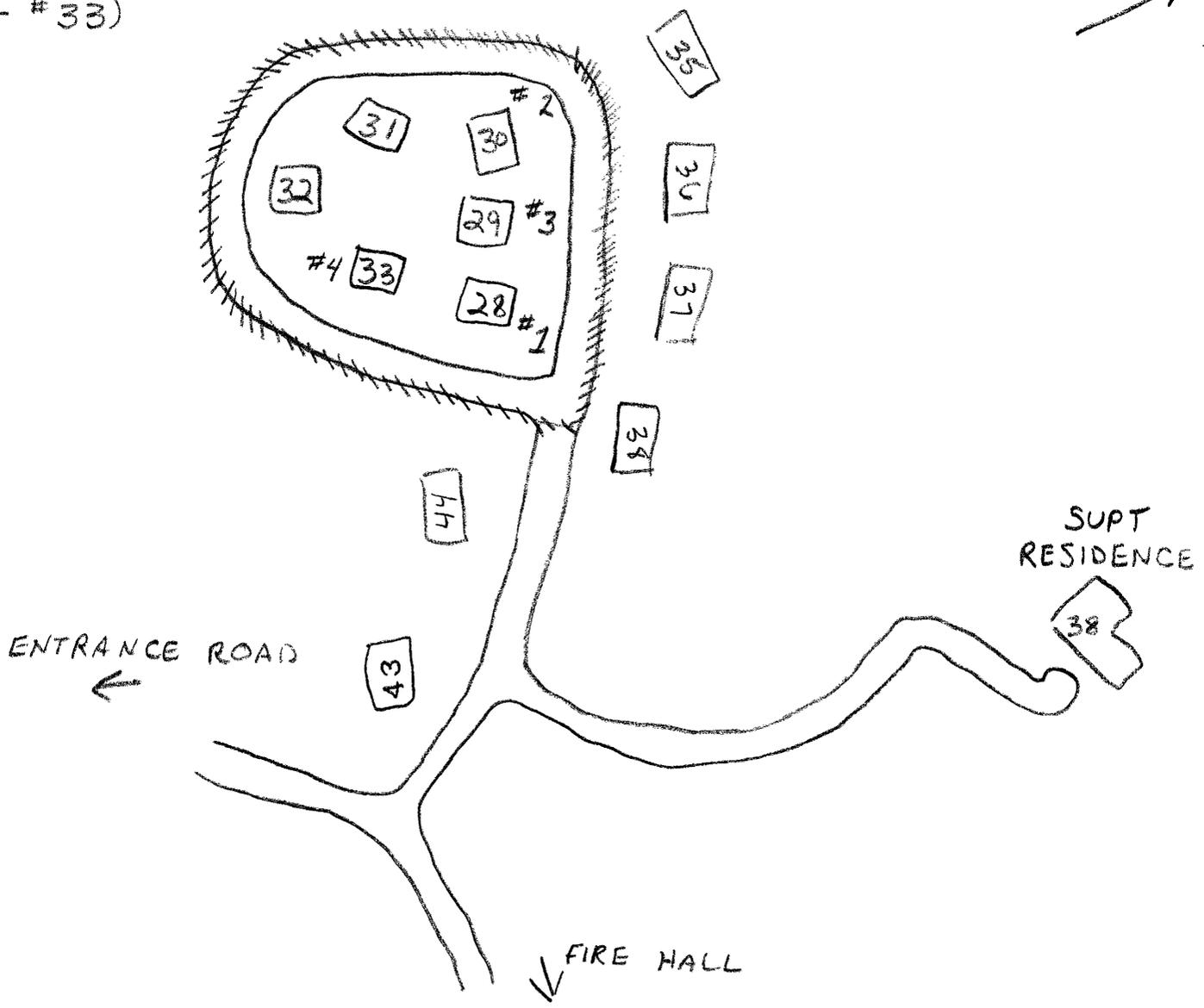
MATERIALS: Wood

GPM REQUIRED IF -- 25% 30 , 50% 60 , 75% 90 , 100% 120 INVOLVED DATE 1/87 BY 

NORTH 

BLDG NO

RESIDENTIAL AREA  
DISTRICT  
(#28 - #33)



# INDEX TO QUARTER NUMBERS

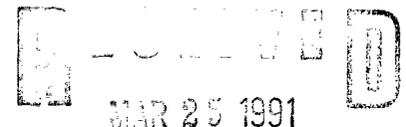
## LEGEND

----- = BOUNDARY

SCALE:  
Approx.  
1 INCH = 115 FEET  
4 photos

495

United States Department of the Interior  
National Park Service



National Register of Historic Places  
Registration Form

NATIONAL  
REGISTER

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Superintendent's House  
other names/site number 38

2. Location

street & number Mammoth Cave National Park (MACA)  not for publication NA  
city, town Mammoth Cave  vicinity NA  
state Kentucky code KY county Edmonson code 061 zip code 42259

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
<input type="checkbox"/> private	<input checked="" type="checkbox"/> building(s)	Contributing	Noncontributing
<input type="checkbox"/> public-local	<input type="checkbox"/> district	<u>1</u>	<u>      </u> buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	<u>      </u>	<u>      </u> sites
<input checked="" type="checkbox"/> public-Federal	<input type="checkbox"/> structure	<u>      </u>	<u>      </u> structures
	<input type="checkbox"/> object	<u>1</u>	<u>0</u> objects
			<u>0</u> Total

Name of related multiple property listing: Historic Resources of Mammoth Cave Nat'l Park  
Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this  nomination  request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property  meets  does not meet the National Register criteria.  See continuation sheet.  
Signature of certifying official [Signature] Date 3/20/91  
State or Federal agency and bureau National Park Service

In my opinion, the property  meets  does not meet the National Register criteria.  See continuation sheet.  
Signature of commenting or other official [Signature] Date Jan. 8, 1991  
State Historic Preservation Officer, Kentucky Heritage Council  
State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:  
 entered in the National Register. [Signature] 5/8/91  
 See continuation sheet.  
 determined eligible for the National Register.  See continuation sheet.  
 determined not eligible for the National Register.  
 removed from the National Register.  
 other, (explain:)  
Signature of the Keeper Date of Action

**6. Function or Use**

Historic Functions (enter categories from instructions)

Domestic: single dwelling

Current Functions (enter categories from instructions)

Domestic: single dwelling

**7. Description**

Architectural Classification  
(enter categories from instructions)

Colonial Revival

Materials (enter categories from instructions)

foundation sandstone

walls sandstone, wood

roof slate

other \_\_\_\_\_

Describe present and historic physical appearance.

**United States Department of the Interior  
National Park Service**

**National Register of Historic Places  
Continuation Sheet**

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky

Section number 7 Page 1 Superintendent's House

---

7. Description of present and historic physical appearance.

The Superintendent's House, located in the park's residential area, faces west. The nominated property includes 1 contributing building, the house itself.

Constructed in 1941, this two story Colonial Revival building has ten rooms (including 2 basement rooms and 3 baths). The main portion of the house has rough-cut sandstone foundation, chimneys (located on each end of the main sandstone structure), first story walls, exterior window sills, and exterior steps. The medium pitched, gabled roof is made of slate shingles. The upper gable ends of the main structure are wood weatherboard. The slightly recessed front door area is panelled; the door is flanked by sidelight windows of four vertical panes. There is a screened porch with a shed roof on the rear of the main portion of the building.

The two story frame service wing has weatherboard siding and a slightly overhanging second story. A frame garage is attached to the rear of the service wing.

All of the windows on the building are double-hung sash-- either six-over-nine panes or six-over-six panes. The five windows on the front and rear of the stone part of the house are shuttered; five front and two rear second-story windows are gable roof dormers.

The interior has hardwood floors, plaster walls and ceilings, and sandstone fireplaces.

The building is unaltered and in excellent condition. Integrity of location, setting, design, materials, workmanship, feeling, and association are intact.

**8. Statement of Significance**

Certifying official has considered the significance of this property in relation to other properties:

nationally     statewide     locally

Applicable National Register Criteria     A     B     C     D

Criteria Considerations (Exceptions)     A     B     C     D     E     F     G

Areas of Significance (enter categories from instructions)

Entertainment/recreation  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Period of Significance

1941-1942  
\_\_\_\_\_  
\_\_\_\_\_

Significant Dates

1941  
\_\_\_\_\_  
\_\_\_\_\_

Cultural Affiliation

N/A  
\_\_\_\_\_  
\_\_\_\_\_

Significant Person

N/A  
\_\_\_\_\_

Architect/Builder

Civilian Conservation Corps  
\_\_\_\_\_  
\_\_\_\_\_

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.



United States Department of the Interior  
National Park ServiceNational Register of Historic Places  
Continuation SheetHistoric Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky  
Superintendent's HouseSection number 8 Page 1

8. Statement of significance, criteria justification, criteria considerations, and areas and periods of significance.

The Superintendent's House is historically significant in the area of Entertainment/recreation and represents the property type "Civilian Conservation Corps Buildings and Structures" (for property type information, see Section III of the Historic Resource Study, pages D-20 to D-21). The period of significance, 1941-1942, falls within the years that the men of the CCC were constructing buildings and structures during the development of Mammoth Cave National Park, i.e., 1933-1942.

When the Civilian Conservation Corps was created in 1933 by the Roosevelt administration, the Mammoth Cave properties were in transition from private and state ownership to national park status. The CCC was charged with the responsibility of developing a recreational wilderness area out of what had been primarily agricultural land for decades. In addition to razing structures, planting trees, and building roads and park facilities, the CCC also constructed buildings and structures to meet the operational needs of a national park, such as employee housing, maintenance facilities, ranger stations, and an entire plumbing system.

The Superintendent's House is one of eight residential structures built by the CCC for inhabitation by park employees, one of seven in the park's residential area. The dwelling was built specifically to house the park's Superintendent and still serves that purpose. Though the house shares some common characteristics with the park's other CCC-constructed buildings, namely a combination of frame and masonry construction and decorative woodwork, it is the most elaborate of the CCC residential buildings in terms of size and style, reflecting the prestige of the Superintendent's position in the park. The park's residential area was constructed to house a community of park rangers and other employees who wished to reside within the boundaries of the park. Due to the building's outstanding design qualities in comparison to other CCC-built structures in the Park, the Superintendent's house possesses exceptional significance within the narrowly defined period, 1933-1942. Soon the building will be fifty years old and will no longer require justification under the exceptional criterion.

United States Department of the Interior  
National Park Service

National Register of Historic Places  
Continuation Sheet

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky  
Superintendent's House

Section number   9   Page   1  

---

9. Major Bibliographical References

Blakey, George. Hard Times and the New Deal in Kentucky, 1929-1939. Lexington: University Press of Kentucky, 1986.

Lally, Kelly A. "A History of the Civilian Conservation Corps at Mammoth Cave National Park." Unpublished paper, Mammoth Cave National Park Library, Mammoth Cave, Kentucky, 1987.

Salmond, John A. The Civilian Conservation Corps, 1933-1942: A New Deal Case Study. Durham, NC: Duke University Press, 1967.

**United States Department of the Interior  
National Park Service**

**National Register of Historic Places  
Continuation Sheet**

Historic Resources of Mammoth Cave National Park, MPS  
Edmonson, Hart, and Barren Counties, Kentucky  
Superintendent's House

Section number 10 Page 1

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10. Geographical Data

Acreage of property: approximately 2 acres

UTM References

A 16 4115480 581100

Verbal Boundary Description

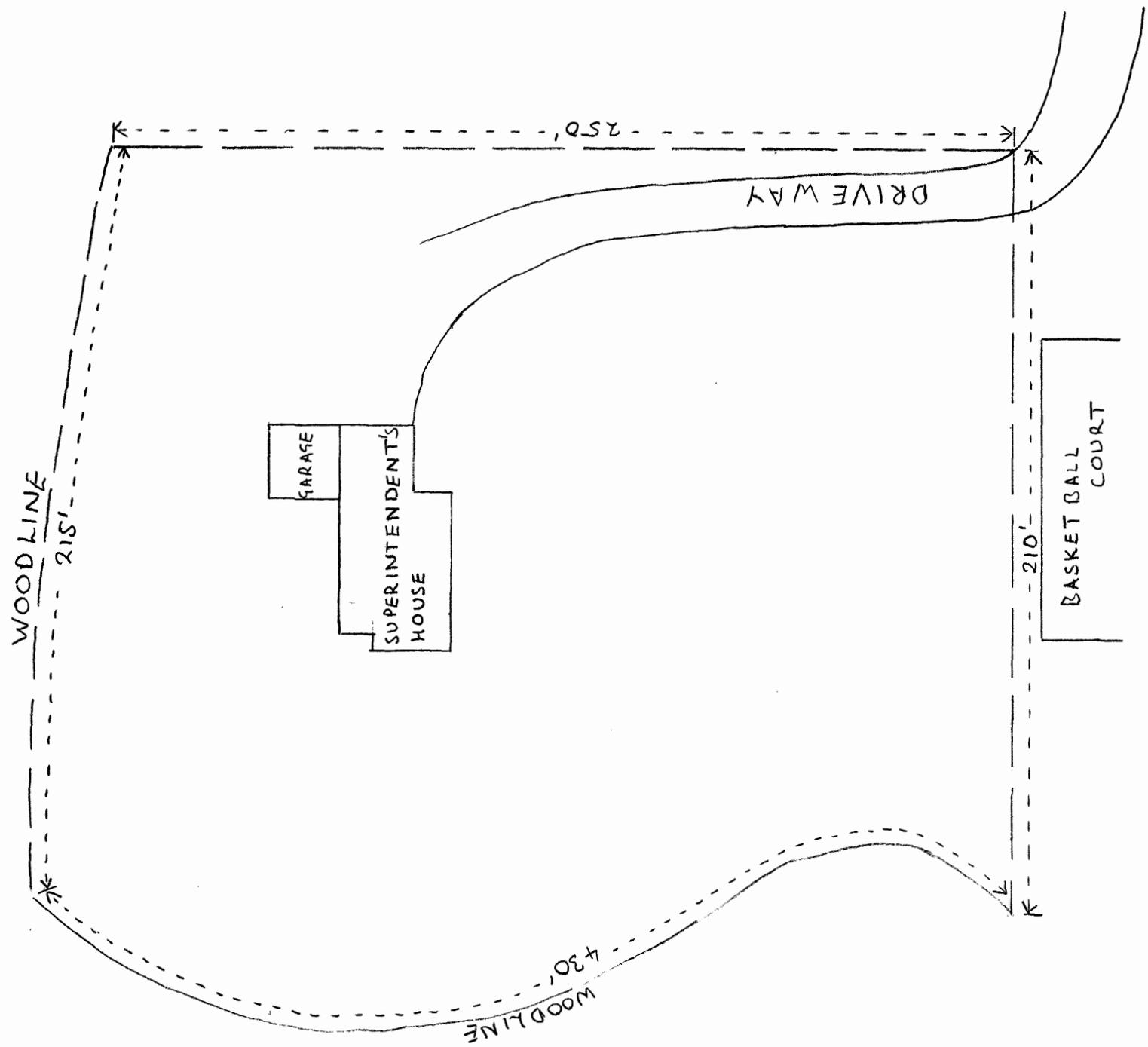
Beginning at a point on the south side of the drive leading to the house, proceed north 210'. Then proceed in a easterly direction 430' along the somewhat curving woodline on the north side of the property. Then proceed south 215' along the woodline on the east side of the property. Then proceed 250' to the point of origin.

Boundary Justification

The boundary includes the property historically associated with the Superintendent's residence and excludes the non-historic basketball court on the western edge of the property.

SUPERINTENDENT'S  
HOUSE  
(38)  
2 photos

SCALE: APPROX.  
1 INCH = 40 FEET



**EMAIL CORRESPONDENCE BETWEEN SHPO AND MACA ON DOE AND SITE  
FORMS**

**Fw: [EXTERNAL] 66204 MACA new park housing questions**

Jakaitis, Edward J <edward\_jakaitis@nps.gov>

Thu 12/15/2022 9:27 AM

To: Judy, Barbara A <Barbara\_Judy@nps.gov>

Hi Barbara,

Please see this forwarded email. This is the informal response we have from the SHPO at this time. I am waiting for a draft report follow-up from the contractor, in order to finalize our response to this email. Once I get that we will send an updated identification package that should give SHPO above ground and archeology to formally comment on.

I can loop you in to these responses when the time comes.

Thanks,

Ed

--

Edward Jakaitis  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



---

**From:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>

**Sent:** Thursday, October 13, 2022 12:29 PM

**To:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>

**Cc:** Hutchins, Patricia (Heritage Council) <patricia.hutchins@ky.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>; Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>

**Subject:** Re: [EXTERNAL] 66204 MACA new park housing questions

Hi Ed -

Thanks for you and the team taking the time to meet with us today about our questions. Since I had quite a few, here is the summary of questions/comments for above ground:

- We agree that Building 34/ED-217 is Eligible as a contributing resource to the district. We'll capture this and the below points of agreement in our eventual letter.
- We agree that Buildings 40/ED-221, 41/ED-222, and 42/ED-223 have undergone substantial additions/alterations and are Ineligible/non-contributing to the proposed district.

- We agree that Building 43/ED-224 and 44/ED-225 are individually Eligible for the NRHP and also Eligible as contributing resources to the district. Please be sure to update the descriptions in the forms so that dual eligibility recommendations are clear for both resources.
- For the small scale features, we understand the culverts are a mixture of pipe culverts and pipe culverts with decorative stone features/headwalls. As discussed, if you could make that a bit more clear in the form that they aren't true stone features or CCC era resources that'd be helpful. Additional imagery of these features so the differences are clear would also be great.

You'll also want to reach out to Candi for a KHC number for the small scale features. As mentioned, please be sure to assign the small scale features sub numbers within the form/when you reach out to Candi so those can all be captured within the GIS and survey form.

- As mentioned, our office is a bit confused about Buildings 35/ED-218, 37/ED-219, and 39/ED-220. Between the survey forms, there is inconsistency as to eligibility recommendations when certain exterior modifications have occurred. I saw this with garages and enclosed porches. For instance, Building 43/ED-224 has a garage door added and is Eligible, and Building 37/ED-219 has the same but is Ineligible. Particularly for Buildings 35 and 37, the exterior modifications or somewhat deteriorating conditions do not stand out so much as to make the resources Ineligible for the NRHP, in our opinion.

For archaeology, we've have looked over the PA sent during the meeting and from what we understand the construction of new housing would fall under the standard review process. I've attached our specifications for fieldwork and reports. We think the easiest thing all the way around (for you, us, and OSA) would be to follow the guidelines for abbreviated reports (starting on page 41). When you send the 2002 report, if you can also send the response letter from our office accepting that report, that would be very helpful. Please let us know if you have any questions.

Thanks again for your help with our questions, and we look forward to working on this more with you.

Have a good rest of your week,

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council



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---

**From:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Sent:** Thursday, October 6, 2022 2:12 PM  
**To:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>  
**Cc:** Hutchins, Patricia (Heritage Council) <patricia.hutchins@ky.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>; Jennifer Grover <jgrover@nutterinc.com>; Lane Rivenbark <livenbark@nutterinc.com>; Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>  
**Subject:** Re: [EXTERNAL] 66204 MACA new park housing questions

Hi Ed -

Do you have time to discuss this project with Patti, Nicole and myself next week? We're all free next Thursday at 11 if you have a solid hour free for questions/comments. Let us know if that would work for you.

Thanks,

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council

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**From:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>  
**Sent:** Wednesday, September 28, 2022 4:53 PM  
**To:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Cc:** Hutchins, Patricia (Heritage Council) <patricia.hutchins@ky.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>; Jennifer Grover <jgrover@nutterinc.com>; Lane Rivenbark <livenbark@nutterinc.com>  
**Subject:** Re: [EXTERNAL] 66204 MACA new park housing questions

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Hi Gabreille,  
Thanks for reaching out and pulling together our string of passing messages. Please see my input on your thoughts and questions below, written in blue.

Feel free to write or call if you need any more information.

Thanks,  
Ed

--

Edward Jakaitis  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



---

**From:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Sent:** Friday, September 23, 2022 12:57 PM  
**To:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>  
**Cc:** Hutchins, Patricia (Heritage Council) <patricia.hutchins@ky.gov>  
**Subject:** [EXTERNAL] 66204 MACA new park housing questions

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Hi Ed -

I just had a couple quick follow up questions regarding the New Housing project. Apologies for the delay. We're still working on BG review and may have a couple follow up questions for archaeology early next week, but I wanted to send you these now.

The identification letter and the APE/initiation letter have somewhat oddly overlapped on our end. I was going to ask if it works for you to have us combine it, but noticed that in your letter, so we're both on the same page there and we will put that revised APE discussion at the beginning of our identification letter, that way things all line up in order. --- I agree, please include the discussion of the APE as we described it in the Sept. 13, 2022 letter. Thank you!

Based on your letter and the survey forms, I wanted to check and see if our office had previously commented on the Mission 66 residential district presented in the group form? From what I gathered before Jenn left, the impression I got was that we agreed there was a district, but nothing formal had occurred. So I am assuming that the group form for the district, as well as the nine individual forms for the resources, have not had any previous eligibility concurrence? --- I do not believe there has been a previous concurrence on eligibility for the group.

Also, can you specify which of the temporary resources that we commented on in early 2020 is still within the current APE? I may have missed that, but can't seem to see it if it was mentioned/shown. If you could let me know which it is, and if it will be demo'd or moved as part of the undertaking, I will note that in our letter. --- The area has a movable structure in the north-central parking lot. It is a double wide trailer that was used as a mussel laboratory. It will be disposed of within the year. Also, there is an aviary built by an Eagle Scout in 2010 that is located at the northwest corner of the north-central parking lot. These have been reviewed for removal and had concurrence for no adverse effect (attached letter).

Last clarity question. Based on the group form for the district, I see a culvert is noted and others are mentioned. If this culvert and others, applicable, exist within the project area and are of historic age, we'll want to capture those recommendations in survey form(s) as well. --- I can include a culvert feature form to cover the resources in question. Please see the attached form (with updated M66 District form as well) and if you could address this in the letter as an addition that was provided on 9/28/2022 via email correspondence, could we integrate it into the package?

And last one, more of a comment that I noticed as part of this review than a question, but at some point you and I might want to discuss updating the Residential District data. It looks like it was done in 1988 and a weird mixture of super old KHC/NPS data, so it doesn't meet the modern survey specs and wasn't completely mapped/ given KHC numbers. Not a to-do item for this undertaking, but if you have extra time, it wouldn't hurt to get it updated/fully mapped. 😊 --- I appreciate this goal, and I agree we should find an opportunity to get it completed. We did consult on this group for the recent rehabilitation work, with my assistance in the latter half (MOA) of the process. It would be good to get new forms with new existing conditions/changes noted on the structures.

Any input you can provide is much appreciated.

Have a good weekend,

Gabrielle Fernandez  
Historic Preservation Coordinator

Kentucky Heritage Council



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## SHPO DOE AND AOE RESPONSE



**ANDY BESHEAR**  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET**  
**KENTUCKY HERITAGE COUNCIL**  
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**LINDY CASEBIER**  
SECRETARY

**JACQUELINE COLEMAN**  
LT. GOVERNOR

410 HIGH STREET  
FRANKFORT, KENTUCKY 40601  
(502) 564-7005  
[www.heritage.ky.gov](http://www.heritage.ky.gov)

**CRAIG A. POTTS**  
EXECUTIVE DIRECTOR &  
STATE HISTORIC PRESERVATION OFFICER

February 21, 2023

Edward Jakaitis  
Cultural Resources Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259

RE: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Dear Mr. Jakaitis:

Thank you for your submittal of a revised determination of effect, cultural assessment, associated survey forms, and other documents for the above-referenced undertaking. We understand Mammoth Cave (MACA) is proposing to replace obsolete housing for seasonal employees at MACA. In order to replace three units that were demolished in 2020, MACA proposes to construct two, two-story housing units totaling 24 beds per unit within the residential area at the park. This will include a supporting gym structure, outdoor pavilion/community space, and options for storage and parking.

According to the submitted materials, no previously recorded archaeological sites are located within the proposed area of potential effect (APE). We understand MACA archaeologists conducted a cultural resources assessment of the proposed area and based on their investigation they recommend no further work. We do not request an archaeological survey of this project area.

27 above-ground resources were identified within the project APE. This includes the NRHP-Listed Colonial Revival Superintendents House (EDM-38), as well as the NRHP-Listed CCC-Era Residential Historic District, which includes Buildings 28-33. In addition to these previously recorded resources, 20 newly identified resources were identified as part of this undertaking.

These resources consist of three main groups: Mission 66-era residential structures, Mission 66-era culverts, and CCC-era culverts. Of the Mission 66-era residential resources, ED-218/Building 34, ED-221/Building 40, ED-222/Building 41, and ED-223/Building 44, are all recommended Ineligible for the NRHP and non-contributing to the district. ED-217/Building 34, ED-219/Building 37, ED-220/Building 39, ED-224/Building 43, and ED-225/Building 44, are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District. This district



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RE: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

(Group ED-011) is primarily comprised of late 1950s-early 1970s residential structures and corresponding infrastructure, and is recommended Eligible for the NRHP under Criterion A. Our office concurs with these recommendations.

A secondary component of the Mission 66-Era Historic District, as well as the adjacent CCC-Era NRHP-Listed district, are small scale features, including culverts. Of the Mission 66-era culverts (Group ED-014), Culverts C/ED-249, D/ED-250, and H/ED-254 are recommended Ineligible for the NRHP and non-contributing to the district. Culverts, A/ED-247, B/ED-248, and F/ED-252 are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District. Our office concurs with these recommendations.

Of the CCC-era culverts (Group ED-015), Culverts J/ED-256 and K/ED-257 are recommended Ineligible for the NRHP and non-contributing to the CCC-era Residential Historic District. Culverts E/ED-251, G/ED-253, and I/ED-255 are recommended Eligible as Contributing resources to the NRHP-Eligible district. Our office concurs with these recommendations.

Based on the information provided, the proposed new housing units will utilize an existing parking area before expanding away from the existing resources, which will necessitate slight tree clearing. However, we understand the setting impacts will be limited to one cardinal direction, and post-tree clearing, the area will remain enclosed by trees. We also note that the project will include shrub replanting, areas of grass, and an outdoor community space, which is similar to the existing designed landscaping and built environment in this area.

Though the undertaking will be adjacent to both districts, the compatible design of the undertaking follows the Secretary of the Interior's Standards, avoiding any adverse impacts to the integrity of these historic properties, notably maintain integrity of setting, design, location, association, and feeling. As such, we do not believe the proposed undertaking will introduce any adverse impacts to these resources. Therefore, our office concurs with the finding of **No Adverse Effect**.

We look forward to receipt of KHC survey forms for the newly identified culverts and Groups ED-014 and ED-015, when available. Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at Gabrielle.Fernandez@ky.gov or Patricia.Hutchins@ky.gov.

Sincerely,



Craig A. Potts,  
Executive Director and  
State Historic Preservation Officer

KHC # 230176 prev. 65952  
CP: gf, peh



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**MACA AND SHPO COMMUNICATION ABOUT ERRORS IN SITE NUMBERS FOR  
DOE AND ELIGIBILITY**

**Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY**

Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>

Tue 6/27/2023 10:51 AM

To: Jakaitis, Edward J <edward\_jakaitis@nps.gov>; Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>

Cc: Pinion, Timothy <Timothy\_Pinion@nps.gov>

 1 attachments (235 KB)

231360 MACA New Housing Unit Survey Forms Edmonson.pdf (S).pdf;

Thanks Ed! I talked with Karen and we wouldn't need individual forms for each culvert. I wrote you an updated letter for the receipt of the remaining forms/no additional items required.

Have a good week,

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council

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**From:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>

**Sent:** Wednesday, June 7, 2023 5:32 PM

**To:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>; Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>

**Cc:** Pinion, Timothy <Timothy\_Pinion@nps.gov>

**Subject:** Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Hi Gabrielle,

I apologize, I sent you an earlier version of the forms we completed. There are a few more tweaks to the maps that will make these forms more useful.

Best,

Ed

--

Edward Jakaitis (*he/him*)  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



---

**From:** Jakaitis, Edward J <[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)>  
**Sent:** Wednesday, June 7, 2023 2:29 PM  
**To:** Fernandez, Gabrielle (Heritage Council) <[gabrielle.fernandez@ky.gov](mailto:gabrielle.fernandez@ky.gov)>; Kautzman, Rheanna M <[rheanna\\_kautzman@nps.gov](mailto:rheanna_kautzman@nps.gov)>  
**Cc:** Pinion, Timothy <[Timothy\\_Pinion@nps.gov](mailto:Timothy_Pinion@nps.gov)>  
**Subject:** Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Hi Gabrielle,

Thanks for getting us this response, it is a big step for this project. I have attached the ED14 and ED15 group forms. If individual culverts ever need to be addressed with any changes or work, we would make individual forms at that time. Currently, our workload will not permit this level of identification for something that will not be worked on with this project. We can complete more in-depth documentation when needed.

Thank you,  
Ed

--

Edward Jakaitis (*he/him*)  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



---

**From:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Sent:** Wednesday, June 7, 2023 12:04 PM  
**To:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>; Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>  
**Cc:** Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Thanks Ed! Everything's worked into the letter, and here is the signed letter back for you. I think the one thing we are still waiting on is the rest of the forms, but those should be the easy thing now 😊

Have a good rest of your week,

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council



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**From:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>  
**Sent:** Monday, June 5, 2023 2:49 PM  
**To:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>; Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>  
**Cc:** Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Hi Gabrielle,

Thank you for taking the time to sort through this large project. It will be very helpful to all of us to have this first look at DOEs for the Mission 66 resources. They should likely come into play in future consultations (not connected to this project), and this is laying important groundwork. I agree with the responses you have laid out, and I would ask for one more clarification in your letter. I believe we noted that signs were identified but were determined non-contributing to the eligibility of the cultural landscape, because they were non-permanent/replaceable features that have changed in design over time. I would appreciate if you could acknowledge in the letter that we addressed this in the

documentation and (if your office concurs) we would like a statement of concurrence with this determination.

We look forward to your response and let me know if I can help with anything else.

Best,  
Ed

--

Edward Jakaitis (*he/him*)  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



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**From:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Sent:** Monday, June 5, 2023 10:40 AM  
**To:** Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>  
**Cc:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Ok. I swear sometimes these projects are a pain in the butt to track. It gets more complicated when you have districts and eligible/ineligible resources, a DOE and forms to double check that all need to accurately go into a letter with building numbers and whatnot.

That being said, I figured it out (again). Looks like Building 35 was noted as Contributing in the DOE, but Non-Contributing in the survey form. It looks like that was the only one off in the DOE. If the NPS is recommending Building 35 as non-contributing, this is what I have below. If you can confirm that is accurate as to what you guys propose for the Eligibility, I will wrap the letter up. I just want to make sure everything is accurate before I do that, given the complexities on this one 😊

27 above-ground resources were identified within the project APE. This includes the NRHP-Listed Colonial Revival Superintendents House (EDM-38), as well as the NRHP-Listed CCC-Era Residential Historic District, which includes Buildings 28-33. In addition to these previously recorded resources, 20 newly identified resources were identified as part of this undertaking. These resources consist of three main groups: Mission 66-era residential structures, Mission 66-era culverts, and CCC-era culverts.

Of the Mission 66-era residential resources, ED-218/Building 35, ED-221/Building 40, ED-222/Building 41, and ED-223/Building 42, are all recommended Ineligible for the NRHP and non-contributing to the district. ED-217/Building 34, ED-219/Building 37,

ED-220/Building 39, ED-224/Building 43, and ED-225/Building 44, are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District. This district (Group ED-011) is primarily comprised of late 1950s-early 1970s residential structures and corresponding infrastructure, and is recommended Eligible for the NRHP under Criterion A. Our office concurs with these recommendations.

A secondary component of the Mission 66-Era Historic District, as well as the adjacent CCC-Era NRHP-Listed district, are small scale features, including culverts. Of the Mission 66-era culverts (Group ED-014), Culverts C/ED-249, D/ED-250, and H/ED-254 are recommended Ineligible for the NRHP and non-contributing to the district. Culverts, A/ED-247, B/ED-248, and F/ED-252 are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District. Our office concurs with these recommendations.

Of the CCC-era culverts (Group ED-015), Culverts J/ED-256 and K/ED-257 are recommended Ineligible for the NRHP and non-contributing to the CCC-era Residential Historic District. Culverts E/ED-251, G/ED-253, and I/ED-255 are recommended Eligible as Contributing resources to the NRHP-Eligible district. Our office concurs with these recommendations.

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council



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**From:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Sent:** Friday, June 2, 2023 3:54 PM  
**To:** Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>  
**Cc:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** Re: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Hi Rheanna -

Its been crazy busy on our end, but I will work on getting it to you on Monday.

Have a good weekend!

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council



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**From:** Kautzman, Rheanna M <rheanna\_kautzman@nps.gov>  
**Sent:** Friday, June 2, 2023 10:09 AM  
**To:** Fernandez, Gabrielle (Heritage Council) <gabrielle.fernandez@ky.gov>  
**Cc:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** RE: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Good Morning Gabrielle,

I just wanted to check up on the concurrence letter update for the Mission 66 buildings. Let me or Ed know if you need any additional information on this.

Thank you for your time on reviewing this, it is appreciated.

Rheanna Kautzman  
Environmental Protection Specialist  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2138  
[rheanna\\_kautzman@nps.gov](mailto:rheanna_kautzman@nps.gov)



---

**From:** Kautzman, Rheanna M  
**Sent:** Monday, May 15, 2023 2:34 PM  
**To:** Fernandez, Gabrielle (Heritage Council) <[gabrielle.fernandez@ky.gov](mailto:gabrielle.fernandez@ky.gov)>  
**Cc:** Jakaitis, Edward J <[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)>; Pinion, Timothy <[Timothy\\_Pinion@nps.gov](mailto:Timothy_Pinion@nps.gov)>  
**Subject:** RE: [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Good Afternoon Gabrielle,

I conferred with Ed, who helped put the forms together, and we think corrected the letter should read:

“These resources consist of three main groups: Mission 66-era residential structures, Mission 66-era culverts, and CCC-era culverts. Of the Mission 66-era residential resources, ED-218/**Building 35**, ED-221/Building 40, ED-222/Building 41, and ED-223/**Building 42**, are all recommended Ineligible for the NRHP and non-contributing to the district. ED-217/**Building 34**, ED-219/Building 37, ED-220/Building 39, ED-224/Building 43, and ED-225/**Building 44**, are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District.”

Your revised list moved ED-218/Building 35 from ineligible to eligible and we believe it should still be ineligible. Please let us know if you concur with that or have any questions.

We appreciate your time and effort on this, we know you and your colleagues have a lot on your plates.

Rheanna Kautzman  
Environmental Protection Specialist  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2138  
[rheanna\\_kautzman@nps.gov](mailto:rheanna_kautzman@nps.gov)



---

**From:** Fernandez, Gabrielle (Heritage Council) <[gabrielle.fernandez@ky.gov](mailto:gabrielle.fernandez@ky.gov)>  
**Sent:** Monday, May 1, 2023 9:45 AM  
**To:** Kautzman, Rheanna M <[rheanna\\_kautzman@nps.gov](mailto:rheanna_kautzman@nps.gov)>  
**Cc:** Jakaitis, Edward J <[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)>; Pinion, Timothy <[Timothy\\_Pinion@nps.gov](mailto:Timothy_Pinion@nps.gov)>  
**Subject:** [EXTERNAL] Re: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

Hi Rheanna -

I did some digging to see how I got confused. It looks like there was a discrepancy between the DOE and the survey forms (in terms of eligibility) submitted. I should be able to go into those and make a tweak, but I just want to confirm this is correct, based on the DOE that was sent over, before I do that and I update your letter:

Of the Mission 66-era residential resources, ED-221/Building 40, ED-222/Building 41, and ED-223/Building 42, are all recommended Ineligible for the NRHP and non-contributing to the district. ED-217/Building 34, ED-218/Building 35, ED-219/Building 37, ED-220/Building 39, ED-224/Building 43, and ED-225/Building 44, are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District.

If that's correct, I will just tweak that portion of the letter applicable survey forms and get the updated letter off for signature. Just want to make sure I'm not missing anything before I do that. The other resources appear to match up between the DOE and survey forms, but if not, let me know.

Thanks,

Gabrielle Fernandez  
Historic Preservation Coordinator  
Kentucky Heritage Council



**Important Note about Section 106 Submissions:**

In order for your Section 106 submission to be accepted, distributed, and reviewed all documents must be sent via email to our dedicated address: [khc.section106@ky.gov](mailto:khc.section106@ky.gov).

For additional information on how and what to submit for Section 106 review, please visit our webpage: <https://heritage.ky.gov/compliance/Pages/overview.aspx>

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**From:** Kautzman, Rheanna M <[rheanna\\_kautzman@nps.gov](mailto:rheanna_kautzman@nps.gov)>

**Sent:** Wednesday, April 26, 2023 9:31 AM

**To:** Fernandez, Gabrielle (Heritage Council) <[gabrielle.fernandez@ky.gov](mailto:gabrielle.fernandez@ky.gov)>; Hutchins, Patricia (Heritage Council) <[patricia.hutchins@ky.gov](mailto:patricia.hutchins@ky.gov)>

**Cc:** Jakaitis, Edward J <[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)>; Pinion, Timothy <[Timothy\\_Pinion@nps.gov](mailto:Timothy_Pinion@nps.gov)>

**Subject:** RE: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

**\*\*CAUTION\*\* PDF attachments may contain links to malicious sites. Please contact the COT Service Desk [ServiceCorrespondence@ky.gov](mailto:ServiceCorrespondence@ky.gov) for any assistance.**

Good Morning,

We have noticed a small typo in the February 21, 2023 letter from your office Re: MACA, PEPC 86317 – Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY; KHC # 230176 prev. 65952 (attached), that we wish to get correct to avoid any future confusion on your office's concurrence.

In paragraph 4 on page 1 it reads:

“These resources consist of three main groups: Mission 66-era residential structures, Mission 66-era culverts, and CCC-era culverts. Of the Mission 66-era residential resources, ED-218/**Building 34**, ED-221/Building 40, ED-222/Building 41, and ED-223/**Building 44**, are all recommended Ineligible for the NRHP and non-contributing to the district. ED-217/**Building 34**, ED-219/Building 37, ED-220/Building 39, ED-224/Building 43, and ED-225/**Building 44**, are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District.”

The statement has duplicate listings of MACA Building 34 and Building 44 references, which does not reflect the documentation.

Based on the Site Forms that were submitted to your office, the first two highlighted listings above should read ED-218/Building 35 and ED-223/Building 42, recommended as Ineligible for the NRHP.

The last two highlighted listings, ED-217/Building 34 and ED-225/Building 44, are correct in the letter, based on our documentation.

If you agree with these corrections, please send a letter that acknowledges the correction and we will retain it with the project files and resource information. Or, send an updated copy of the original letter and we will remove the original copy from our records.

Thank you,

Rheanna Kautzman  
Environmental Protection Specialist  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2138  
[rheanna\\_kautzman@nps.gov](mailto:rheanna_kautzman@nps.gov)



**CORRECTED SHPO LETTER ON DOE AND AOE**



**ANDY BESHEAR**  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET**  
**KENTUCKY HERITAGE COUNCIL**  
**THE STATE HISTORIC PRESERVATION OFFICE**

**LINDY CASEBIER**  
SECRETARY

**JACQUELINE COLEMAN**  
LT. GOVERNOR

410 HIGH STREET  
FRANKFORT, KENTUCKY 40601  
(502) 564-7005  
[www.heritage.ky.gov](http://www.heritage.ky.gov)

**CRAIG A. POTTS**  
EXECUTIVE DIRECTOR &  
STATE HISTORIC PRESERVATION OFFICER

June 6, 2023

Barclay Trimble  
Superintendent  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, Kentucky 42259

RE: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with  
Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

Dear Mr. Trimble:

Thank you for your submittal of a revised determination of effect, cultural assessment, associated survey forms, and other documents for the above-referenced undertaking. Due to discrepancies between the above-ground eligibility recommendations within the DOE and survey forms, our office is issuing an updated letter for this project that accurately captures the eligibility recommendations for this undertaking.

We understand Mammoth Cave (MACA) is proposing to replace obsolete housing for seasonal employees at MACA. In order to replace three units that were demolished in 2020, MACA proposes to construct two, two-story housing units totaling 24 beds per unit within the residential area at the park. This will include a supporting gym structure, outdoor pavilion/community space, and options for storage and parking.

According to the submitted materials, no previously recorded archaeological sites are located within the proposed area of potential effect (APE). We understand MACA archaeologists conducted a cultural resources assessment of the proposed area and based on their investigation they recommend no further work. We do not request an archaeological survey of this project area.

27 above-ground resources were identified within the project APE. This includes the NRHP-Listed Colonial Revival Superintendents House (EDM-38), as well as the NRHP-Listed CCC-Era Residential Historic District, which includes Buildings 28-33. In addition to these previously recorded resources, 20 newly identified resources were identified as part of this undertaking. These resources consist of three main groups: Mission 66-era residential structures, Mission 66-era culverts, and CCC-era culverts.

Of the Mission 66-era residential resources, ED-218/Building 35, ED-221/Building 40, ED-222/Building 41, and ED-223/Building 42, are all recommended Ineligible for the NRHP and non-contributing to the district. ED-217/Building 34, ED-219/Building 37, ED-220/Building 39, ED-224/Building 43, and ED-225/Building 44, are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District. This district (Group ED-011) is



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2 RE: MACA, PEPC 86317 - Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park, Edmonson County, KY

primarily comprised of late 1950s-early 1970s residential structures and corresponding infrastructure, and is recommended Eligible for the NRHP under Criterion A. Our office concurs with these recommendations.

A secondary component of the Mission 66-Era Historic District, as well as the adjacent CCC-Era NRHP-Listed district, are small scale features, including culverts and signage. The signage is non-historic and not recommended contributing to the district. Our office concurs with this recommendation.

Of the Mission 66-era culverts (Group ED-014), Culverts C/ED-249, D/ED-250, and H/ED-254 are recommended Ineligible for the NRHP and non-contributing to the district. Culverts, A/ED-247, B/ED-248, and F/ED-252 are all recommended Eligible as Contributing resources to the proposed Mission 66-Era Residential Historic District. Our office concurs with these recommendations. And of the CCC-era culverts (Group ED-015), Culverts J/ED-256 and K/ED-257 are recommended Ineligible for the NRHP and non-contributing to the CCC-era Residential Historic District. Culverts E/ED-251, G/ED-253, and I/ED-255 are recommended Eligible as Contributing resources to the NRHP-Eligible district. Our office concurs with these recommendations.

Based on the information provided, the proposed new housing units will utilize an existing parking area before expanding away from the existing resources, which will necessitate slight tree clearing. However, we understand the setting impacts will be limited to one cardinal direction, and post-tree clearing, the area will remain enclosed by trees.

We also note that the project will include shrub replanting, areas of grass, and an outdoor community space, which is similar to the existing designed landscaping and built environment in this area. Though the undertaking will be adjacent to both districts, the compatible design of the undertaking follows the Secretary of the Interior's Standards, avoiding any adverse impacts to the integrity of these historic properties, notably maintain integrity of setting, design, location, association, and feeling. As such, we do not believe the proposed undertaking will introduce any adverse impacts to these resources. Therefore, our office concurs with the finding of **No Adverse Effect**.

We look forward to receipt of KHC survey forms for the newly identified culverts and Groups ED-014 and ED-015, when available. Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at [Gabrielle.Fernandez@ky.gov](mailto:Gabrielle.Fernandez@ky.gov) or [Patricia.Hutchins@ky.gov](mailto:Patricia.Hutchins@ky.gov).

Sincerely,



Craig A. Potts,  
Executive Director and  
State Historic Preservation Officer

CP: gf, peh,  
KHC # 231189 prev. 230176, 65952



An Equal Opportunity Employer M/F/D

**SHPO ACKNOWLEDGMENT OF COMPLETION OF SEC. 106 CONSULTATION**



**ANDY BESHEAR**  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET**  
**KENTUCKY HERITAGE COUNCIL**  
**THE STATE HISTORIC PRESERVATION OFFICE**

**LINDY CASEBIER**  
SECRETARY

**JACQUELINE COLEMAN**  
LT. GOVERNOR

410 HIGH STREET  
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(502) 564-7005

**CRAIG A. POTTS**  
EXECUTIVE DIRECTOR &  
STATE HISTORIC PRESERVATION OFFICER

[www.heritage.ky.gov](http://www.heritage.ky.gov)

June 22, 2023

Barclay Trimble  
Superintendent  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, Kentucky 42259

RE: MACA, PEPC 86317 – Receipt of Survey Forms  
Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit  
Mammoth Cave National Park, Edmonson County, KY

Dear Mr. Trimble:

Thank you for your submittal of two group survey forms for the above-referenced undertaking. Receipt of these forms fulfills our office's request in our June 2023 letter. No additional forms are required.

Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at [Gabrielle.Fernandez@ky.gov](mailto:Gabrielle.Fernandez@ky.gov) or [Patricia.Hutchins@ky.gov](mailto:Patricia.Hutchins@ky.gov).

Sincerely,

Craig A. Potts,  
Executive Director and  
State Historic Preservation Officer

CP: gf,  
KHC # 231360 prev. 231189, 230176, 65952



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## **APPENDIX A2: SECTION 106 THPO CONSULTATION**



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Chief Benjamin Barnes  
Shawnee Tribe  
29 South Highway 69 A  
Miami, OK 74354

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Chief Barnes:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

Prior to the Covid-19 pandemic, approximately 500,000 visitors a year toured Mammoth Cave. Support of cave tours operations, and other Park programs, requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to MACA. Without seasonal staff, interns, and volunteers, it would be impossible to meet the needs of the Park's visitors, support the Park's natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities. The ability to provide short-term housing is essential to the Park's ability to attract and retain seasonal employees. While long-term or permanent housing options are available, there is virtually no short-term housing available, in the local communities, for seasonal employees. To meet this housing need, the Park must provide housing for its seasonal employees.

The project will construct two new multi-story units in accordance with NPS Housing Prototype 7 (see attached rendering). These units will have 16 single and double occupancy apartments with a total of 24 beds for seasonal use. Additional housing amenities are proposed for the site

including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking.

The area of potential effect (APE) for the proposed project is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center.

The purpose of this letter is to inform you of the proposed project and initiate communication with your office regarding our federal obligation under Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as notification of a proposed project and its initiation of consultation. The NPS is preparing an environmental assessment, in accordance with the National Environmental Policy Act (NEPA), to identify and evaluate potential impacts to park resources and to incorporate public comment. The NPS intends to use the NEPA process to comply with Section 106 of the NHPA. We would like to request any data or information you may have on cultural resources located within the APE. We look forward to continuing the NHPA Section 106 consultation process with you as we concurrently work through our NEPA process.

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Ms. Tonya Tipton, THPO (email)



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Chairwoman Stephanie Bryan  
Poarch Band of Creek Indians  
5811 Jack Springs Road  
Atmore, AL 36502

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Chairwoman Bryan:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

Prior to the Covid-19 pandemic, approximately 500,000 visitors a year toured Mammoth Cave. Support of cave tours operations, and other Park programs, requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to MACA. Without seasonal staff, interns, and volunteers, it would be impossible to meet the needs of the Park's visitors, support the Park's natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities. The ability to provide short-term housing is essential to the Park's ability to attract and retain seasonal employees. While long-term or permanent housing options are available, there is virtually no short-term housing available, in the local communities, for seasonal employees. To meet this housing need, the Park must provide housing for its seasonal employees.

The project will construct two new multi-story units in accordance with NPS Housing Prototype 7 (see attached rendering). These units will have 16 single and double occupancy apartments with a total of 24 beds for seasonal use. Additional housing amenities are proposed for the site

including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking.

The area of potential effect (APE) for the proposed project is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center.

The purpose of this letter is to inform you of the proposed project and initiate communication with your office regarding our federal obligation under Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as notification of a proposed project and its initiation of consultation. The NPS is preparing an environmental assessment, in accordance with the National Environmental Policy Act (NEPA), to identify and evaluate potential impacts to park resources and to incorporate public comment. The NPS intends to use the NEPA process to comply with Section 106 of the NHPA. We would like to request any data or information you may have on cultural resources located within the APE. We look forward to continuing the NHPA Section 106 consultation process with you as we concurrently work through our NEPA process.

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Mr. Larry Haikey, THPO (email)



# United States Department of the Interior

NATIONAL PARK SERVICE  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259



July 28, 2022

Chief Joe Bunch  
United Keetoowah Band of Cherokee Indians in Oklahoma  
P. O. Box 746  
Tahlequah, OK 74465

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Chief Bunch:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

Prior to the Covid-19 pandemic, approximately 500,000 visitors a year toured Mammoth Cave. Support of cave tours operations, and other Park programs, requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to MACA. Without seasonal staff, interns, and volunteers, it would be impossible to meet the needs of the Park's visitors, support the Park's natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities. The ability to provide short-term housing is essential to the Park's ability to attract and retain seasonal employees. While long-term or permanent housing options are available, there is virtually no short-term housing available, in the local communities, for seasonal employees. To meet this housing need, the Park must provide housing for its seasonal employees.

The project will construct two new multi-story units in accordance with NPS Housing Prototype 7 (see attached rendering). These units will have 16 single and double occupancy apartments with a total of 24 beds for seasonal use. Additional housing amenities are proposed for the site

including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking.

The area of potential effect (APE) for the proposed project is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center.

The purpose of this letter is to inform you of the proposed project and initiate communication with your office regarding our federal obligation under Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as notification of a proposed project and its initiation of consultation. The NPS is preparing an environmental assessment, in accordance with the National Environmental Policy Act (NEPA), to identify and evaluate potential impacts to park resources and to incorporate public comment. The NPS intends to use the NEPA process to comply with Section 106 of the NHPA. We would like to request any data or information you may have on cultural resources located within the APE. We look forward to continuing the NHPA Section 106 consultation process with you as we concurrently work through our NEPA process.

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Ms. Whitney Warrior HP Director (email)  
Mr. Acee Watt, Section 106 Coordinator (email)



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Principle Chief David Hill  
Muscogee Creek Nation  
P. O. Box 580  
Okmulgee, OK 74447

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Principle Chief Hill:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

Prior to the Covid-19 pandemic, approximately 500,000 visitors a year toured Mammoth Cave. Support of cave tours operations, and other Park programs, requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to MACA. Without seasonal staff, interns, and volunteers, it would be impossible to meet the needs of the Park's visitors, support the Park's natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities. The ability to provide short-term housing is essential to the Park's ability to attract and retain seasonal employees. While long-term or permanent housing options are available, there is virtually no short-term housing available, in the local communities, for seasonal employees. To meet this housing need, the Park must provide housing for its seasonal employees.

The project will construct two new multi-story units in accordance with NPS Housing Prototype 7 (see attached rendering). These units will have 16 single and double occupancy apartments with a total of 24 beds for seasonal use. Additional housing amenities are proposed for the site

including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking.

The area of potential effect (APE) for the proposed project is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center.

The purpose of this letter is to inform you of the proposed project and initiate communication with your office regarding our federal obligation under Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as notification of a proposed project and its initiation of consultation. The NPS is preparing an environmental assessment, in accordance with the National Environmental Policy Act (NEPA), to identify and evaluate potential impacts to park resources and to incorporate public comment. The NPS intends to use the NEPA process to comply with Section 106 of the NHPA. We would like to request any data or information you may have on cultural resources located within the APE. We look forward to continuing the NHPA Section 106 consultation process with you as we concurrently work through our NEPA process.

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,



Barclay C. Trimble  
Superintendent

CC:

- Ms. Turner Hunt, THPO (email)
- Ms. RaeLynn Butler, Historic and Cultural Preservation Department, Manager (email)
- Mr. Emman Spain, NAGPRA Officer (email)



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Principle Chief Chuck Hoskin Jr.  
Cherokee Nation  
P.O. Box 948  
Tahlequah, OK 74465

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Principle Chief Hoskin:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

Prior to the Covid-19 pandemic, approximately 500,000 visitors a year toured Mammoth Cave. Support of cave tours operations, and other Park programs, requires a dedicated group of seasonal staff, interns, and volunteers to augment the permanent personnel assigned to MACA. Without seasonal staff, interns, and volunteers, it would be impossible to meet the needs of the Park's visitors, support the Park's natural and cultural resource requirements, and to operate and maintain all of the Park's assets and utilities. The ability to provide short-term housing is essential to the Park's ability to attract and retain seasonal employees. While long-term or permanent housing options are available, there is virtually no short-term housing available, in the local communities, for seasonal employees. To meet this housing need, the Park must provide housing for its seasonal employees.

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Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Chief Chuck Hoskin, THPO (email)  
Ms. Elizabeth Toombs, THPO (email)



# United States Department of the Interior

NATIONAL PARK SERVICE  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259



July 28, 2022

Governor John Johnson  
Absentee Shawnee Tribe  
2025 S. Gordon Cooper Dr.  
Shawnee, OK 74801

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Governor Johnson:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Ms. Devon Frazier, THPO (email)



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Mekko Ryan Morrow  
Thlopthlocco Tribal Town  
P.O. Box 188  
Okemah, OK 74859

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Mekko Morrow:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Mr. David Frank, THPO (email)



# United States Department of the Interior

## NATIONAL PARK SERVICE

Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259



July 28, 2022

Mr. Craig Potts, State Historic Preservation Officer  
Kentucky Heritage Council  
410 High Street  
Frankfort, Kentucky 40601

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Mr. Potts:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent



# United States Department of the Interior

NATIONAL PARK SERVICE  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259



July 28, 2022

Principle Chief Richard Sneed  
Eastern Band of Cherokee Indians  
Qualla Boundary P.O. Box 455  
Cherokee, NC 28719

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Principle Chief Sneed:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Mr. Russell Townsend, THPO (email)  
Mr. Stephen Yerka, Section 106 (email)  
Mr. Brian Burgess, Boundary 106 (email)  
Ms. Miranda Panther, NAGPRA Officer



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Principle Chief Geoffrey Standing Bear  
The Osage Nation  
P.O. Box 779  
Pawhuska, OK 74056

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Principle Chief Standing  
Bear:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Dr. Andrea Hunter, THPO (email)  
Sarah O'Donnell, NAGPRA Coordinator (email)



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Chairman Rick Sylestine  
Alabama-Coushatta Tribe of Texas  
571 State Park Road 56  
Livingston, TX 77351

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Chairman Sylestine:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Mr. Bryant Celestine, Historic Preservation Officer (email)



# United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park

P.O. Box 7

Mammoth Cave, KY 42259



July 28, 2022

Chief Glenna Wallace  
Eastern Shawnee Tribe of Oklahoma  
P.O. Box 350  
Seneca, MO 64865

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Chief Wallace:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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Sincerely,



Barclay C. Trimble  
Superintendent

CC:

Mr. Paul Barton, THPO (email)  
Mr. Brett Barnes, Language Director (email)



# United States Department of the Interior

NATIONAL PARK SERVICE  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259



July 28, 2022

Chief Wilson Yargee  
Alabama-Quassarte Tribal Town  
P.O. Box 187  
Wetumka, OK 74883-0187

RE: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park

Dear Chief Yargee:

The National Park Service (NPS) is developing a design solution to address deficient housing conditions within Mammoth Cave National Park (MACA). The three existing buildings are rapidly deteriorating, beyond their useful life, and have inappropriate foundation design for their location. The units do not meet Architectural Barriers Act (ABA) accessibility, lack automatic fire support, and do not comply with NPS quarters policy. The NPS evaluated these units and determined them to not be eligible for the National Register of Historic Places. In a September 30, 2020 letter, the proposed removal of the buildings was assessed as having no effect on historic properties, to which the Kentucky State Historic Preservation Office (SHPO) concurred in an October 27, 2020 letter.

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The project will construct two new multi-story units in accordance with NPS Housing Prototype 7 (see attached rendering). These units will have 16 single and double occupancy apartments with a total of 24 beds for seasonal use. Additional housing amenities are proposed for the site

including: a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking.

The area of potential effect (APE) for the proposed project is defined by activities that would include constructing two new multi-story units, a supporting gym structure, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center.

The purpose of this letter is to inform you of the proposed project and initiate communication with your office regarding our federal obligation under Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA of 1966, as amended (54 USC 300101, et seq.) and its implementing regulation 36 CFR 800.3(a), please accept this letter as notification of a proposed project and its initiation of consultation. The NPS is preparing an environmental assessment, in accordance with the National Environmental Policy Act (NEPA), to identify and evaluate potential impacts to park resources and to incorporate public comment. The NPS intends to use the NEPA process to comply with Section 106 of the NHPA. We would like to request any data or information you may have on cultural resources located within the APE. We look forward to continuing the NHPA Section 106 consultation process with you as we concurrently work through our NEPA process.

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

Sincerely,



Barclay C. Trimble  
Superintendent

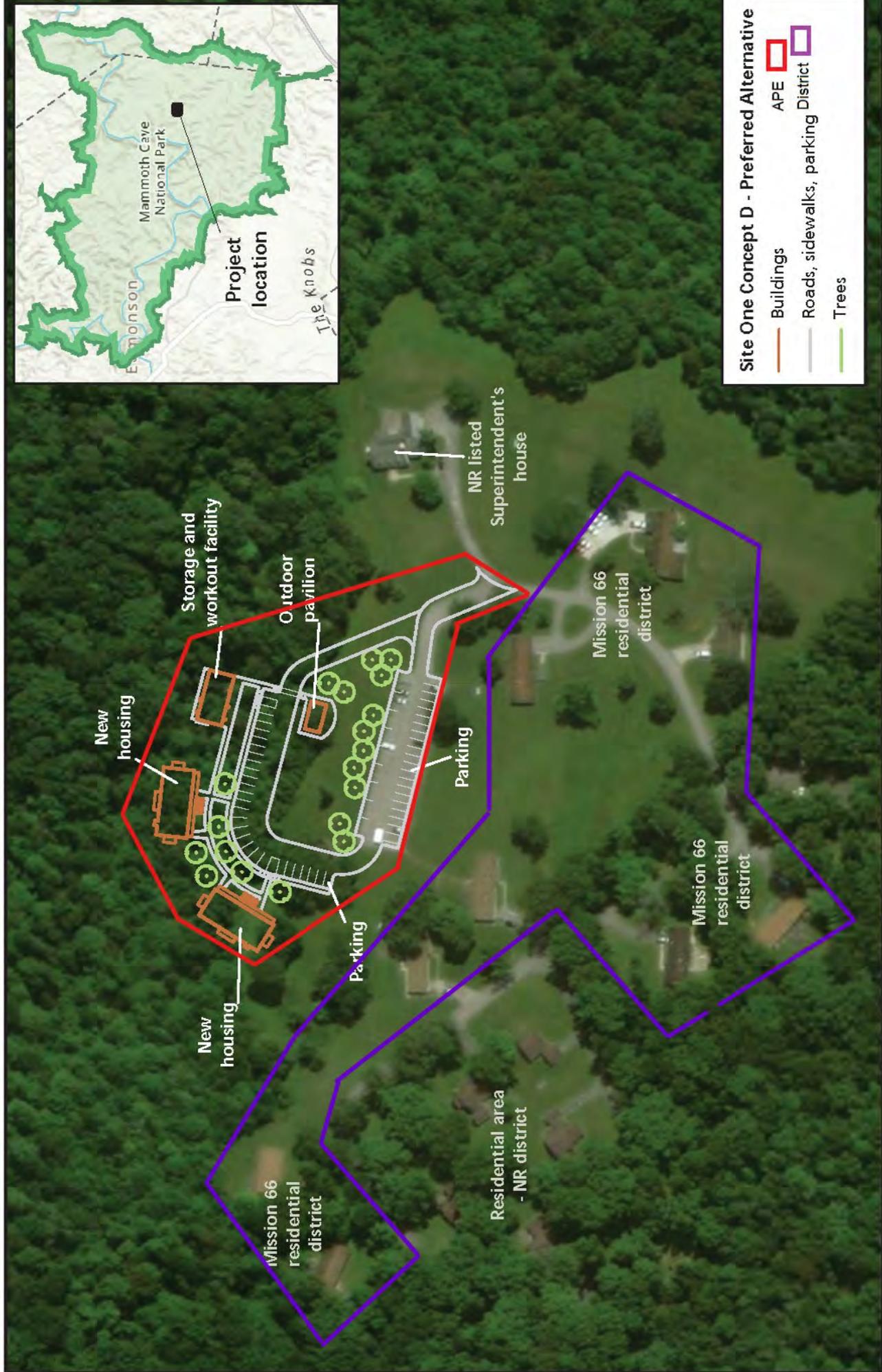


Figure 3. Seasonal Housing Unit Replacement Environmental Assessment/Assessment of Effects  
 Project Layout and Area of Potential Effect

## **THPO RESPONSES TO SEC. 106 CONSULTATION INITIATION**



**EASTERN SHAWNEE  
CULTURAL PRESERVATION DEPARTMENT**

70500 East 128 Road, Wyandotte, OK 74370

September 26, 2022

USDI National Park Service, Mammoth Cave National Park

USDI National Park Service

PO Box 7

Mammoth Cave, Kentucky 42259

**RE: *Replace Obsolete Housing Units with Multiplex Unit at Mammoth Cave National Park, Edmonson County, Kentucky***

Dear Mr. Jakaitis,

The Eastern Shawnee Tribe has received your letter regarding the above referenced project(s) within Edmonson County, Kentucky. The Eastern Shawnee Tribe is committed to protecting sites important to Tribal Heritage, Culture and Religion. Furthermore, the Tribe is particularly concerned with historical sites that may contain but not limited to the burial(s) of human remains and associated funerary objects.

As described in your correspondence, and upon research of our database(s) and files, we find our people occupied these areas historically and/or prehistorically. However, the project proposes **NO Adverse Effect** or endangerment to known sites of interest to the Eastern Shawnee Tribe. Please continue project as planned. However, should this project inadvertently discover an archeological site or object(s) we request that you immediately contact the Eastern Shawnee Tribe, as well as the appropriate state agencies (within 24 hours). We also ask that all ground disturbing activity stop until the Tribe and State agencies are consulted. Please note that any future changes to this project will require additional consultation.

In accordance with the NHPA of 1966 (16 U.S.C. § 470-470w-6), federally funded, licensed, or permitted undertakings that are subject to the Section 106 review process must determine effects to significant historic properties. As clarified in Section 101(d)(6)(A-B), historic properties may have religious and/or cultural significance to Indian Tribes. Section 106 of NHPA requires Federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800) as does the National Environmental Policy Act of 1969 (43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a)). This letter evidences NHPA and NEPA historic properties compliance pertaining to consultation with this Tribe regarding the referenced proposed projects.

Thank you, for contacting the Eastern Shawnee Tribe, we appreciate your cooperation. Should you have any further questions or comments please contact our Office.

Sincerely,

Paul Barton, Tribal Historic Preservation Officer (THPO)  
Eastern Shawnee Tribe of Oklahoma

(918) 666-5151 Ext:1833  
THPO@estoo.net



## Osage Nation Historic Preservation Office

WA[A]E KOSY KY]EA

Date: March 17, 2023

File: 2223-2928KY-10

Mammoth Cave National Park  
Edward Jakaitis  
P. O. Box 7  
Mammoth Cave, KY  
Email: [Edward\\_jakaitis@nps.gov](mailto:Edward_jakaitis@nps.gov)

**RE: DOI, NPS, Mammoth Cave National Park, Proposed Project to Replacement Obsolete Housing Unit with Multiplex Unit, Edmonson County, Kentucky**

***SENT VIA EMAIL***

Mr. Jakaitis,

The Osage Nation Historic Preservation Office has evaluated your submission regarding the proposed DOI, NPS, Mammoth Cave National Park, Proposed Project to Replacement Obsolete Housing Unit with Multiplex Unit, Edmonson County, Kentucky. While the footprint of the proposed project will be in the same footprint of the housing that existed there previously and therefore will not disturb any historic properties, **the ONHPO still has objections to the proposed project based on the fact that this location within Mammoth Cave National Park is part of a sacred landscape.** Following 36 CFR § 800.5 (c)(2)(ii)(A) this is a site of “traditional religious and cultural importance” and the above named undertaking would constitute an adverse effect. As such, we cannot endorse the continued use of this sacred place for housing.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

Should you have any questions or need any additional information, please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

Andrea A. Hunter, Ph.D.  
Director, Tribal Historic Preservation Officer

Eden Hemming, MA  
Archaeologist

**MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY  
COORDINATION AND COLLABORATION FOR THE PROTECTION OF  
INDIGENOUS SACRED SITES**

**Among the  
the U.S. Department of the Interior,  
U.S. Department of Agriculture,  
U.S. Department of Transportation,  
U.S. Department of Energy,  
U.S. Environmental Protection Agency,  
White House Council on Environmental Quality,  
Advisory Council on Historic Preservation, and  
Tennessee Valley Authority**

**I. Purpose and Principles**

The signatory agencies (Participating Agencies) enter into this Memorandum of Understanding (MOU) to affirm their commitment to improve the protection of, and access to, Indigenous sacred sites through enhanced and improved interdepartmental coordination, collaboration, and action. The Participating Agencies intend to demonstrate their commitment through the early consideration of the protection and access to Indigenous sacred sites in agency decision-making and regulatory processes.

**Background**

Indian Tribes, the Native Hawaiian Community, and Indigenous peoples have creation narratives that are tied to places in every region of the United States and beyond. The connection to place is essential to the spiritual practice and existence of Indian Tribes, the Native Hawaiian Community, and Indigenous peoples. Indian Tribes, the Native Hawaiian Community, and Indigenous peoples share an essential truth of the interconnectedness to nature and all life. Desecration of sacred places and the relocation of many Indian Tribes, the Native Hawaiian Community, and Indigenous peoples from their original homelands has had traumatic impacts on those people collectively at the time, and has enduring negative impacts on the social, cultural, spiritual, mental, and physical wellbeing of Indian Tribes, the Native Hawaiian Community, and Indigenous peoples today.

Federal land management agencies are entrusted with a great diversity of landscapes, reserved areas, and sites, including many culturally important sites held sacred by Indian Tribes<sup>1</sup> and Native Hawaiian organizations.<sup>2</sup> Federal agencies, including those that approve

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<sup>1</sup> "Indian Tribe" means an Indian or Alaska Native Tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe pursuant to Public Law No. 103-454, 108 Stat. 4791, and "Indian" refers to a member of such an Indian Tribe, E.O. 13007.

<sup>2</sup> "Native Hawaiian organization" means any organization which (A) serves and represents the interests of Native Hawaiians, (B) has as a primary and stated purpose the provision of services to Native Hawaiians and

or fund projects, are responsible for assessing and considering the potential impacts of their decisions on sacred sites and historic properties of traditional cultural and religious importance.

While the physical and administrative contexts in which Federal agencies encounter sacred sites vary greatly, similarities do exist. The Participating Agencies recognize that consistency in policies and processes should be developed and applied, as long as they remain adaptable to local situations. Moreover, agencies should take a forward-thinking approach and not only seek to avoid adverse actions, but collaborate with Indian Tribes and Native Hawaiian organizations to ensure good stewardship of their lands and allow their rightful access and use to certain public lands through Tribal-agency and co-management agreements, where possible.

Consistent with the relevant authorities listed below, “sacred site” means any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian Tribe or Native Hawaiian organization, or Indian or Native Hawaiian individual determined to be an appropriately authoritative representative of an Indian or Native Hawaiian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian or Native Hawaiian religion; provided that the Tribe, Native Hawaiian organization or appropriately authoritative representative of an Indian or Native Hawaiian religion has informed the agency of the existence of such a site. The Participating Agencies acknowledge the critical role of Tribes and Native Hawaiian organizations in defining the term “sacred sites,” and Participating Agencies will seek consultation and engagement with Tribes and Native Hawaiian organizations to deepen the Participating Agencies’ understanding of the term “sacred sites.”

The Participating Agencies acknowledge that sites sacred to Indian tribes and the Native Hawaiian Community often occur within a larger landform or are connected through physical features or ceremonies to other sites or a larger sacred landscape. Agencies should consider these broader areas and connections to better understand the context and significance of sacred sites. Sacred sites may include, but are not limited, to geological features, bodies of water, archaeological sites, burial locations, traditional cultural properties, plant communities and stone and earth structures and may be present on tribal, public, and private lands.

Such sacred sites may also be eligible for the National Register of Historic Places as historic properties of religious and cultural significance to Indian Tribes and Native Hawaiian organizations.

The Parties also recognize that the United States has affirmed the United Nations Declaration

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(C) has expertise in Native Hawaiian Affairs, and shall include the Office of Hawaiian Affairs and Hui Malama I Na Kupuna O Hawai'i Nei. Native American Graves Protection and Repatriation Act of 1990, Public Law 101-601; 25 U.S.C. §§ 3001-3013; 104 Stat. 3048-3058. Please note that Hui Malama I Na Kupuna O Hawai'i has dissolved; however, the U.S. Department of the Interior maintains its list of Native Hawaiian organizations at [www.doi.gov/hawaiian](http://www.doi.gov/hawaiian).

on the Rights of Indigenous Peoples (UN DRIP). While not legally binding, the UN DRIP affirms the responsibility of the Parties to recognize, respect, and consider Tribal interpretations of their own treaty and reserved rights.

### **Authorities Relevant to the Protection and Preservation of Sacred Sites**

Participating Agencies will review, at a minimum, the following authorities and their implementing regulations to determine whether additional inter-agency measures may be warranted to better protect sacred sites.

- Executive Order 13007: Indian Sacred Sites
- National Historic Preservation Act
- National Environmental Policy Act
- Native American Graves Protection and Repatriation Act
- Archaeological Resources Protection Act
- American Indian Religious Freedom Act
- Religious Freedom Restoration Act
- Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

## **II. Participating Agency Agreement**

The Participating Agencies commit to work together and consult with Indian Tribes and Native Hawaiian organizations and collaborate with Tribal and Native Hawaiian organization leaders and spiritual leaders, as appropriate, in developing and implementing actions to improve the protection of and access to Tribal and Native Hawaiian sacred sites, including but not limited to:

1. Establish a working group with members from each of the Participating Agencies to enhance interagency collaboration and coordination and address significant issues as they arise. The working group intends to:
  - a. Meet monthly;
  - b. Work collaboratively to implement the provisions of this MOU;
  - c. Develop mechanisms to exchange/share subject matter expertise among Federal agencies;
  - d. Establish a sub-group of agency attorneys to facilitate interagency coordination on cross-cutting legal issues relating to sacred sites and provide other legal support to the working group;
  - e. Submit a combined initial report to the Executive Director of the White House Council on Native American Affairs within 180 days of the execution of this MOU. This report will identify the existing practices the Participating Agencies have taken to implement the original version of this MOU, signed in

2012 and an analysis of which areas should be revisited for further action to implement the MOU and conduct a legislative review and recommendations for improved sacred site protection.

- f. Submit an annual combined report to the Executive Director of the White House Council on Native American Affairs within one year of signing this MOU. This annual report will highlight significant issues raised by representatives of Indian Tribes and Native Hawaiian organizations, Tribal organizations and spiritual leaders, as appropriate, and agency officials regarding the protection of sacred sites. The report will also highlight existing and planned practices and procedures developed by the Participating Agencies of the working group.
2. Continue and enhance the Participating Agencies' efforts to integrate consideration of sacred sites early into the decision-making, regulatory, and consultation processes to ensure that agency actions acknowledge and honor the importance of sacred sites and are consistent with statutory and regulatory requirements for their protection while providing access to the sites by Indian Tribes and their citizens and Native Hawaiians organizations and the Native Hawaiians they serve. During Participating Agencies' consultations on projects or actions that may have an effect on a Tribe, discussion with the Tribe on whether the Tribe's sacred sites and cultural resources would be affected shall be conducted.
  3. Develop and enhance best practices, procedures, and guidance for the management, treatment, and protection of sacred sites, identify impediments to Federal-level protection of sacred sites, and act to address and remedy the impediments.
  4. Participating Agencies will also acknowledge and incorporate the use of Traditional Ecological Knowledge (TEK), as appropriate, in best practices procedures and guidance for the management, treatment, and protection of sacred sites.
  5. Develop and enhance public outreach that focuses on the importance of maintaining the integrity of sacred sites and the need for public stewardship to protect and preserve the integrity of such sites; and develop and enhance outreach to non-Federal partners to provide information about (a) the political and legal relationship between the United States and Indian Tribes and Native Hawaiian organizations; (b) Federal agency requirements to consult with Indian Tribes and Native Hawaiian organizations; and, (c) the importance of maintaining the integrity of sacred sites;
  6. Develop and enhance best practices and policies for (a) the collaborative stewardship of sacred sites with Indian Tribes and Native Hawaiians organizations including exploring, identifying options, and executing Tribal-agency and co-management agreements with Indian Tribes and Native Hawaiian organizations; and (b) setting benchmarks and goals for implementing these agreements with Indian Tribes and Native Hawaiian organizations;

7. Develop and enhance best practices and policies for meaningful consultation with Indian Tribes and Native Hawaiian organizations that give clear guidance on the duties and responsibilities of Federal agencies to address and incorporate traditional Indigenous knowledge and views when assessing the impact of Federal actions on sacred sites;
8. Develop and enhance best practices and policies for building Tribal and Native Hawaiian organization capacity to meaningfully engage in consultation with Federal agencies, carry out the identification, evaluation, and protection of sacred sites, and use contracting mechanisms to provide Tribal and Native Hawaiian expertise to Federal agencies;
9. Develop or update existing Participating Agencies' webpages to provide information on Federal agency sacred sites responsibilities and agency contact information, as well as information and guidance related to sacred sites;
10. Develop and enhance best practices and policies, in collaboration with Indian Tribes and Native Hawaiian organizations, for maintaining the confidentiality of sensitive information about sacred sites.
11. Evaluate the existing training program developed under the 2012 MOU for adequacy to train staff on (a) the legal protections regarding the accommodation of, access to, and protection of sacred sites; and (b) consulting with Indian Tribes and Native Hawaiian organizations and/or collaborating with Tribal and Native Hawaiian organization leaders and spiritual leaders to address consideration of sacred sites and make such training available to all appropriate agency staff. If necessary, Participating Agencies will develop additional training.
12. Within 120 days of the execution of this MOU, the White House Council on Native American Affairs shall organize a listening session(s) with Tribes, Native Hawaiian organizations, and the Participating Agencies on the MOU and its implementation. Each Participating Agency further commits to engaging in Tribal consultations on the implementation of the MOU for their own agency. Participating Agencies agree to develop and implement mutually agreed upon additional actions and amend this MOU, as deemed appropriate, following Tribal consultations.

#### **IV. Non-Funding Obligor Document**

Participating Agencies will handle their own activities and use their own resources in pursuing these objectives. Each Participating Agency will carry out its separate activities in a coordinated and mutually beneficial manner. Participating Agencies may evaluate the budgetary impacts of the MOU and consider budgetary requests, as appropriate, to support MOU activities.

Nothing in this MOU shall obligate any Participating Agency to obligate or transfer funds.

Specific work projects or activities that involve the transfer of funds, services, or property among the various Participating Agencies will require execution of separate agreements and will be contingent upon the availability of appropriated funds. Any such activities must be independently authorized by appropriate statutory authority. This MOU does not provide such authority. Negotiation, execution, and administration of each such agreement must comply with all applicable statutes and regulations. To the extent permitted by law, each Participating Agency will request funding to address the issues and practices the Participating Agency finds necessary to protect sacred sites.

#### **V. Limitations**

This MOU is a voluntary agreement that expresses the good-faith intentions of the Participating Agencies, is not intended to be legally binding, does not create any contractual or fiscal obligations, does not unlawfully extend Federal authority, and is not enforceable by any party. It does not create any right or benefit, substantive or procedural, enforceable by law or equity, by any party, against the Participating Agencies, their officers or employees, or any other person. This MOU does not direct or apply to any person outside of the Participating Agencies.

#### **VI. Administrative Provisions**

1. This MOU takes effect upon the signature of at least two Participating Agencies. The Participating Agencies shall review this MOU annually to determine whether it should be amended. This MOU may be extended or amended upon written consent from any Participating Agency and the subsequent written concurrence of the others.
2. Any Participating Agency can opt out of this MOU by providing a 60-day written notice to the other signatories.
3. Other Federal agencies may participate in this MOU at any time while the MOU is in effect. Participation will be evidenced by an agency official signature on the MOU.

#### **VII. Signatures of the Participating Agencies of the MOU on Indian Sacred Sites**

See attachments.



Deb Haaland  
Secretary  
U.S. Department of the Interior

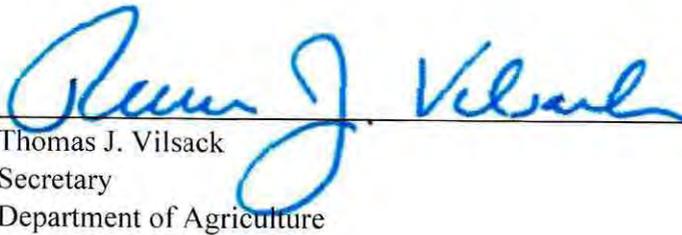
NOV 09 2021

Date

MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY COORDINATION AND  
COLLABORATION FOR THE PROTECTION OF TRIBAL TREATY AND RESERVED RIGHTS

**MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY  
COORDINATION AND COLLABORATION FOR THE PROTECTION OF INDIGENOUS  
SACRED SITES**

November 2021



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Thomas J. Vilsack  
Secretary  
Department of Agriculture

Date

MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY  
COORDINATION AND COLLABORATION FOR THE PROTECTION OF INDIGENOUS  
SACRED SITES



Pete Buttigieg  
Secretary  
Department Transportation

November 10, 2021

Date

  
Jennifer Granholm  
Secretary  
Department of Energy

11/9/21  
Date

*Michael S. Regan*

Michael S. Regan  
Administrator  
U.S. Environmental Protection Agency

November 9, 2021

Date

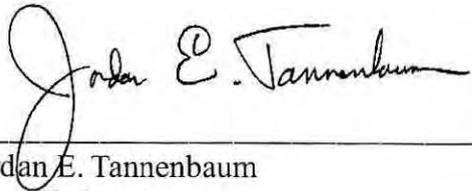
MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY  
COORDINATION AND COLLABORATION FOR THE PROTECTION OF  
INDIGENOUS SACRED SITES

*Brenda Mallory*

---

Brenda Mallory  
Chair  
White House Council on Environmental Quality

November 9, 2021



---

Jordan E. Tannenbaum  
Vice Chairman  
Advisory Council on Historic Preservation

10/15/21

Attachment  
Signature Page to  
MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY  
COORDINATION AND COLLABORATION FOR THE PROTECTION OF  
INDIGENOUS SACRED SITES



11/10/2021

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Jeff Lyash  
President and Chief Executive Officer  
Tennessee Valley Authority

Date

MEMORANDUM OF UNDERSTANDING REGARDING INTERAGENCY COORDINATION AND  
COLLABORATION FOR THE PROTECTION OF INDIGENOUS SACRED SITES

[EXTERNAL] RE: DOI, NPS, Mammoth Cave National Park, Proposed Project to Replacement Obsolete Housing Unit with Multiplex Unit, Edmonson County, Kentucky

Eden Hemming <eden.hemming@osagenation-nsn.gov>

Tue 5/23/2023 1:10 PM

To:Jakaitis, Edward J <edward\_jakaitis@nps.gov>

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

Mr. Jakaitis,  
This meeting invitation should include Dr. Hunter as well.

**Eden Hemming**

Pronouns: She/her

Archaeologist, MA

Osage Nation Historic Preservation Office

627 Grandview Avenue, Pawhuska, OK 74056

Office:918-287-5416 | Fax: 918-287-5376

[eden.hemming@osagenation-nsn.gov](mailto:eden.hemming@osagenation-nsn.gov)

<https://www.osageculture.com/culture/historic-preservation-office>

Starting October 1, 2022 the Osage Nation Historic Preservation Office is changing the project notification process. **All project notifications and reports must be emailed to [s106@osagenation-nsn.gov](mailto:s106@osagenation-nsn.gov)** Include the Lead Agency, Project Name and Number on the subject line.

IMPORTANT: This email message may contain confidential or legally privileged information and is intended only for the use of the intended recipient(s). Any unauthorized disclosure, dissemination, distribution, copying, or the taking of any action in reliance on the information herein is prohibited. Emails are not secure and cannot be guaranteed to be error-free. They can be intercepted, amended, or contain viruses. Anyone who communicates with us by email is deemed to have accepted these risks. Osage Nation is not responsible for errors or omissions in this message and denies any responsibility for any damage arising from the use of email. Any opinion and other statements contained in this message and any attachment are solely those of the author and do not necessarily represent those of the Osage Nation.

*I will be out of the office on the following upcoming dates:*

*All day, Monday, May 29*

*Afternoon, Tuesday, May 30*

-----Original Appointment-----

**From:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>





**Cc:** Trimble, Barclay BCT <Barclay\_Trimble@nps.gov>; Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** Re: [EXTERNAL] RE: Mammoth Cave National Park (NPS): Request to meet via MS Teams

Greetings Ms. Hemming,

Please see the attached letter regarding the Section 106 consultation for the seasonal housing project at Mammoth Cave National Park. The park and its leadership are pleased to receive the information from the Osage Nation on their determination that a sacred landscape exists within Mammoth Cave National Park, and we share your interest in an in-person meeting to discuss consultation for projects within this landscape. We understand that your next availability is several months from now and we will work to identify a date when you are able to travel to the park. In the meantime, we are inviting your input into the current planning effort for the seasonal quarters project as described in the attached letter. If you are able to provide information during this project planning effort, we will gladly integrate information you provide into the Section 106 process for this undertaking.

We acknowledge that the sacred landscape is a legitimate concern and one that we are pleased to recognize within Mammoth Cave National Park. We earnestly hope to hear from your office and receive information that will allow consideration of the sacred landscape to be available to NPS during this Section 106 process.

Copied on this correspondence are Barclay Trimble, Superintendent - Mammoth Cave National Park Superintendent, and Tim Pinion, Program Leader - Science and Resources Management at Mammoth Cave National Park.

Best,  
Ed Jakaitis

--

Edward Jakaitis (*he/him*)  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



---

**From:** Eden Hemming <eden.hemming@osagenation-nsn.gov>  
**Sent:** Monday, June 5, 2023 2:58 PM  
**To:** Jakaitis, Edward J <edward\_jakaitis@nps.gov>  
**Cc:** Pinion, Timothy <Timothy\_Pinion@nps.gov>  
**Subject:** [EXTERNAL] RE: Mammoth Cave National Park (NPS): Request to meet via MS Teams



Please let me know a time in the next two weeks that we could meet for about an hour to have a discussion. I will follow up with an invitation when we hear from your office.

Best,  
Ed Jakaitis

--

Edward Jakaitis (*he/him*)  
Cultural Resource Program Manager  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, KY 42259  
(o)270-758-2143  
(c)270-855-1024  
[edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov)



## **Meeting: Mammoth Cave National Park and Osage Nation**

Topic: Sacred Landscape in relation to Proposed Project to Replace Housing  
5/24/23

### Attendees

Dr. Andrea Hunter, THPO, Osage Nation Historic Preservation Office  
Eden Hemming, Archeologist, Osage Nation Historic Preservation Office  
Ed Jakaitis, Cultural Resource Program Manager, Mammoth Cave National Park  
Amanda Griffis, Interior Region 2 Tribal Liaison, National Park Service

### *Introductions*

### *Discussion*

Dr. Hunter: It is unfortunate what has gone on at Mammoth Cave and what continues to go on there, considering that it is a sacred burial site. This is our ancestors that we are talking about. We consider this a desecration of our ancestral burial sites. We are trying to fulfill the role given to us at Osage Nation in protecting cultural resources and burials. These situations are very difficult for us. The continued construction in these sacred landscapes is something that we are absolutely opposed to. What should happen is that this should be completely closed as a sacred site and everything that was built, be removed. That would be our preference. You are making money off a sacred site.

Mr. Jakaitis: I understand this is a very difficult and emotional process. I acknowledge the sensitivities of that. Could you give us more information on the nature and boundaries of the sacred landscape?

Dr. Hunter: Areas surrounding the cave.

Mr. Jakaitis: If I were to estimate the distance from the cave entrance, I'd say that the project area is three quarters of a mile away. I can't offer any resolution at this time, but it was important to get a chance to meet you and hear your concerns face-to-face.

Dr. Hunter: What has been the response from other associated Tribes?

Mr. Jakaitis: We invited 13 associated Tribes to consult on this project. The Eastern Shawnee Tribe of Oklahoma replied in September with a determination of "no adverse effect." They requested we contact them should newly identified resources be discovered.

Dr. Hunter: This location and our association with it goes back to the Early Woodland, Middle Woodland, and Late Archaic periods. A lot of people have difficulties trying to trace that footprint and being able to associate with it, but our oral histories take us back to this area even though it's a remote time period. We do not just disregard it because of time. We still have those connections. We feel it is our responsibility to protect those locations and try to ensure they're not impacted further. What is happening is really a desecration of our sacred

area. It has just taken us time to be able to have the resources to work in these areas that are very much removed from us. The cave has been operating for quite some time. There has not been any type of recognition of those associations. That is something that really needs to be considered in some manner so that the public knows what our perspective is. In terms of what they're getting to participate in as a recreation.

Mr. Jakaitis: We are developing an interpretive guide for park staff and guides. It will specifically be oriented toward Indigenous history and heritage. I'm hoping to discuss this guide with Tribal representatives. If that's something that would be of interest to you, and would be something that could help communicate some of these concerns, I would be all for supporting that and can connect you to the appropriate staff members.

*Next Steps*

Dr. Hunter: We need to have a consultation meeting with the leadership.

Mr. Jakaitis: I can accommodate that. Would you prefer it be on Teams or onsite.

Dr. Hunter: It would be an in-person meeting. Please provide the Superintendent's contact info and we will be in direct contact with him.

Mr. Jakaitis: I'll send that via email after the call.



## United States Department of the Interior

NATIONAL PARK SERVICE  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, Kentucky 42259-0007



Dr. Andrea Hunter,  
Tribal Historic Preservation Officer  
The Osage Nation  
P.O. Box 779  
Pawhuska, OK 74056

June 16, 2023

### **Re: Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park (PEPC 86317)**

Dear Dr. Hunter,

The National Park Service (NPS) requests continued Section 106 consultation with your office for the subject undertaking (project), in accordance with the National Historic Preservation Act (NHPA) [54 U.S.C. §300101 et seq.].

In a letter dated July 28, 2022 our office notified the Osage Nation, along with the 12 other associated Indian tribes with whom we consult, of our proposed project to construct two new 16-unit housing buildings to accommodate the needs of seasonal park staff at Mammoth Cave National Park (park).

On January 20, 2023, the park sent the Kentucky State Historic Preservation Office (SHPO) a cultural resource assessment report detailing the archeological investigation of the project's area of potential effect (APE) [36 CFR 800.16(d)]. Please see the details of this identification in the enclosed report (Enclosure A).

The NPS acknowledges that the reasonable and good faith effort described above is for the identification and protection of historic properties and is in no way reflective of the identification and protection of a historic property when it is attached with religious and cultural significance to an Indian tribe [36 CFR 800.2(c)(2)(ii)]. According to the APE defined for this project, we request advisement by the Osage Nation on the identification and evaluation of the sacred landscape as articulated in your March 17, 2023 letter, during discussion with Edward Jakaitis on May 24, 2023, and your views on efforts to minimize the effects of the undertaking on a historic property.

NPS requests your response within 30-days from the date of receipt of this letter. At the time of this deadline, the NPS will complete the identification and development of measures to minimize effects to the sacred landscape as assessed by the NPS. All documented efforts will be shared with the Osage Nation and all consulting parties.

Due to the current disagreement with the finding for this undertaking the Advisory Council for Historic Preservation (Council) has been formally notified of this consultation, pursuant to 36 CFR 800.5(c)(2)(i). However, the NPS anticipates a resolution to this consultation through the process described in the previous paragraph. Should the NPS not receive a response within 30-days of this notification to the Osage Nation, or the proposed identification and views on minimization efforts are not understood to accommodate our effort to resolve the disagreement, the NPS will request the Council's review of the finding pursuant to 36 CFR 800.5(c)(3)(i-ii).

All documentation of the consultation effort to this point will now be shared with the Council [36 CFR 800.11(e)].

Please forward written comments to Edward Jakaitis, Cultural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, please contact Edward Jakaitis by telephone at (270)855-1024 or by email at [edward\\_jakaitis@nps.gov](mailto:edward_jakaitis@nps.gov).

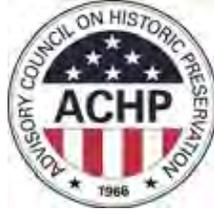
Sincerely,

A handwritten signature in cursive script that reads "Barclay C. Trimble".

Barclay C. Trimble  
Superintendent

Cc: Kirsten Kulis, Liaison, ACHP

## **APPENDIX A3: SECTION 106 ACHP CONSULTATION**



**Advisory Council on Historic Preservation**  
**Electronic Section 106 Documentation Submittal System (e106) Form**  
**MS Word format**

Send to: [e106@achp.gov](mailto:e106@achp.gov)

Please review the instructions at [www.achp.gov/e106-email-form](http://www.achp.gov/e106-email-form) prior to completing this form. Questions about whether to use the e106 form should be directed to the assigned ACHP staff member in the Office of Federal Agency Programs.

**I. Basic information**

**1. Purpose of notification.** Indicate whether this documentation is to:

- Notify the ACHP of a finding that an undertaking may adversely affect historic properties
- Invite the ACHP to participate in a Section 106 consultation
- Propose to develop a project Programmatic Agreement (project PA) for complex or multiple undertakings in accordance with 36 C.F.R. 800.14(b)(3)
- Supply additional documentation for a case already entered into the ACHP record system
- File an executed MOA or PA with the ACHP in accordance with 800.6(b)(iv) (where the ACHP did not participate in consultation)
- Other, please describe  
[Click here to enter text.](#)

**2. ACHP Project Number** (If the ACHP was previously notified of the undertaking and an ACHP Project Number has been provided, enter project number here and skip to Item 7 below): [Click here to enter text.](#)

**3. Name of federal agency** (If multiple agencies, list them all and indicate whether one is the lead agency):

U.S. National Park Service

**4. Name of undertaking/project** (Include project/permit/application number if applicable):

**PEPC 86317: Replace Rapidly Deteriorating Seasonal Housing**

**5. Location of undertaking** (Indicate city(s), county(s), state(s), land ownership, and whether it would occur on or affect historic properties located on tribal lands):

Mammoth Cave, Edmonson County, Kentucky

The undertaking is in Mammoth Cave National Park, on federal land managed by the National Park Service. The project is not located on tribal lands.

**6. Name and title of federal agency official and contact person for this undertaking, including email address and phone number:**

**Agency official: Barclay Trimble, Superintendent – [Barclay Trimble@nps.gov](mailto:Barclay.Trimble@nps.gov) – 270-758-2184**

**Contact : Edward Jakaitis, Cultural Resource Program Manager – [Edward Jakaitis@nps.gov](mailto:Edward.Jakaitis@nps.gov) – 270-855-1024**

## **II. Information on the Undertaking\***

**7. Describe the undertaking and nature of federal involvement** (if multiple federal agencies are involved, specify involvement of each):

Mammoth Cave National Park, home of the world's largest cave system, is designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site and the core component within an International Biosphere Reserve. The park welcomes approximately 550,000 to 600,000 visitors annually and supports more than 100 employees. This project supports 24 seasonal employees.

Quarters 97, 98, and 99 are single-story seasonal apartment buildings with four one-bedroom apartments each. Each apartment has two beds, allowing for a maximum of eight occupants per building. The three buildings combined have 12 total bedrooms and 24 beds. Each 2,100-SF building also includes a combination utility/laundry/storage room.

These buildings are rapidly deteriorating and beyond their useful life. Concrete entryway steps do not comply with standards of accessibility per the Architectural Barriers Act (ABA), nor do they meet current National Park Service (NPS) quarters policy, which require one bedroom and one bathroom per seasonal employee.

Replacing these outdated and deteriorating buildings with two new units, per the NPS prototype, will address overcrowding, fire safety, accessibility, and mold/hazmat exposure.

The replacement units will have 24 total bedrooms and beds.

### Measurable Results

Replacing outdated and insufficient seasonal employee housing at Mammoth National Park will achieve the following results:

This is a 24 bed for 24 bed replacement; however, to meet current standards, the apartments will be designed to have one bedroom and bathroom per employee.

Compliance with the ABA and current NPS quarters policy.

Improved efficiency by incorporating a 25kw solar array.

Improved park appearance by demolishing deteriorating structures and replacing them with two new multi-story buildings (Prototype #7).

A reduction in health and safety risks to 24 seasonal employees by eliminating exposure to mold and

asbestos and upgrading fire protection.

Greater ability to attract high quality seasonal employees with new, mold-free apartments offering private bedrooms and bathrooms, storage, fenced in back porches, indoor gathering space, and open-air pavilion.

An increased return rate for seasonal employees by providing safer, cleaner living spaces, as opposed to previous years when poor housing conditions deterred employees from returning.

25% reduction of annual operational and maintenance (O&M) costs to \$51,000 (from current cost of \$68,000).

3% reduction of deferred maintenance (DM) by \$2,700,000 (from park total non-road DM of \$98,000,000).

### **8. Describe the Area of Potential Effects (APE):**

The area of potential effect (APE) for the proposed project is a 2.5-acre plot defined by activities that would include constructing two new multi-story units, a supporting indoor gathering area, outdoor pavilion and community gathering space, and options for storage and parking (see attached APE map and project layout). The preferred site location for this project is to the north of the current residential area. This location would allow for the new structures to be constructed at the north end of the administrative complex, away from the current three housing units and the operations center. The APE also includes the larger living quarters district, which is a mix of Mission 66 and Civilian Conservation Corps (CCC) residential houses and associated small scale features, and the CCC era Superintendent's house.

### **9. Describe steps taken to identify historic properties:**

**Archeological Resources Notes:** Systematic survey by Loughlin (2002) and Jakaitis (2022) resulted in no significant archeological resources being identified within the APE.

A Cultural Resource Assessment report was developed under contract and details the results of the archeological survey, with NPS-developed Kentucky Historic Property Documentation Forms attached to the report as an appendix. The resources documented are summarized below.

### **10. Describe the historic property (or properties) and any National Historic Landmarks within the APE (or attach documentation or provide specific link to this information):**

#### **Historical Structures/Resources Present: Yes**

**Property Name:** Residence #31    **LCS:** 007555    **ParkID:** MACA 031  
**Location:** CCC-era Residential Area

**Property Name:** Residence #28    **LCS:** 007558    **ParkID:** MACA 028  
**Location:** CCC-era Residential Area

**Property Name:** Residence #33    **LCS:** 012111    **ParkID:** MACA 033  
**Location:** CCC-era Residential Area

**Property Name:** Residence #30    **LCS:** 007556    **ParkID:** MACA 030

**Location:** CCC-era Residential area

**Property Name:** Residence #29 **LCS:** 007557 **ParkID:** MACA 029  
**Location:** CCC-era Residential Area

**Property Name:** Residence #32 **LCS:** 012112 **ParkID:** MACA 032  
**Location:** CCC-era Residential Area

**Property Name:** Superintendent's House (Quarters # 038) **LCS:** 007552 **ParkID:** 038  
**Location:** CCC-era Residential Area, Mammoth Cave National Park

**Historical Structures/Resources Notes:** Nine (9) buildings relating to Mission 66 era housing are also identified in the APE. Four (4) of these buildings (34, 37, 39 and 40) are recommended as contributing to the District and potentially two of these buildings (43 & 44) could be eligible individually, under Criterion A. Associated small scale features contributing to the districts include three (3) culverts associated with the Mission 66 housing (A,B, & F) and three (3) culverts associated with the CCC-era (E,G, and I).

**Cultural Landscapes Present:** Yes

**Property Name:** Park Operations Area Cultural Landscape  
**Location:** Mammoth Cave National Park

#### **11. Describe the undertaking's effects on historic properties:**

The construction of the two multiplex housing units and the associated constructions which include sidewalks, gathering spaces, fitness center, storage units, and parking areas will encompass the area within the 2.5-acre defined APE. The project will result in ground disturbance in this space, to prepare the land for the buildings and surface features. The construction easement (APE) will include those areas for staging.

The finished structures will add a new profile of two structures to the north end of the Housing Area component landscape within the Park Operations Area Cultural Landscape. This new 2-story profile has visual effects that will be minimized by its placement within the treelined perimeter of the landscape. This will extend the Housing Area perimeter to the north less than 100-feet from the current tree line perimeter.

The style of the housing will be consistent with the CCC Houses and Superintendent's Residences, but not attempt to mimic those styles. Synthetic weatherboard siding and faced limestone veneer will be used on the exterior walls and a gable roof on each building will be similar in profile to the other buildings. This will create a stylistic consistency across the Housing Area, without attempting to reconstruct the architectural history of these early 20th century developments. The lines of sight between the 1930s/40s era buildings has been preserved by siting the current construction farther to the north and partially within the trees.

Based on these minimization efforts, the NPS has determined that this project will have no adverse effect on historic properties [36 CFR 800.5(d)(1)].

**12. Explain how this undertaking would adversely affect historic properties** (include information on any conditions or future actions known to date to avoid, minimize, or mitigate adverse effects):

The National Park Service has determined that for those historic properties identified, there has been a no adverse effect assessed. This good faith effort has been applied based on subject matter expertise available to the agency.

**13. Provide copies or summaries of the views provided to date by any consulting parties, Indian tribes or Native Hawai'ian organizations, or the public**, including any correspondence from the SHPO and/or THPO.

\* see *Instructions for Completing the ACHP e106 Form*

### III. Additional Information

**14. Please indicate the status of any consultation that has occurred to date, including whether there are any unresolved concerns or issues the ACHP should know about in deciding whether to participate in consultation.** Providing a list of consulting parties, including email addresses and phone numbers if known, can facilitate the ACHP's review response.

All tribal governments traditionally associated with in Mammoth Cave National Park and claiming ancestral lands that were once ranging through the Commonwealth of Kentucky, were notified of the undertaking. The Tribal Historic Preservation Officers (THPO) of the Absentee Shawnee Tribe, Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Cherokee Nation, The Chickasaw Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Muscogee (Creek) Nation, The Osage Nation, Poarch Band of Creek Indians, Shawnee Tribe, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians in Oklahoma were notified by letter in an email attachment sent on July 28, 2022.

The National Park Service completed identification of the area of potential effect (APE) with both an archeological survey that included shovel testing and a cultural resource assessment study for above ground resources. Following this notification, consultation between NPS and KY SHPO was initiated and concluded, providing concurrence with the Determinations of Eligibility and Finding of Effect, on February 21, 2023.

In a letter dated March 17, 2023 the Osage Nation THPO stated:

While the footprint of the proposed project will be in the same footprint of the housing that existed there previously and therefore will not disturb any historic properties, **the ONHPO still has objections to the proposed project based on the fact that this location within Mammoth Cave National Park is part of a sacred landscape.**

Following 36 CFR § 800.5 (c)(2)(ii)(A) this is a site of "traditional religious and cultural importance" and the above named would constitute an adverse effect. As such, we cannot endorse the continued use of this sacred place for housing.

The National Park Service immediately requested a meeting with the Osage Nation THPO in order to determine the areas of the project that were affecting the sacred landscape and the nature of the effects. A videoconference meeting was held online between the National Park Service and The Osage Nation THPO on May 24, 2023. At that time, no new information was shared regarding the area or nature of affects on the sacred landscape due to the undertaking. Information shared by the THPO experts at that

time was consistent with the information in the quoted passage above, with no further information.

In a June 16, 2023 letter the National Park Service invited the Osage Nation to come to Mammoth Cave National Park to visit with the Superintendent and park staff for a consultation on the undertaking and its affects on the sacred landscape and/or provide additional information if they were unable to attend in person. As of July 28, 2023 there has been no response to the invitation by The Osage Nation THPO.

**15 Does your agency have a website or website link where the interested public can find out about this project and/or provide comments?** Please provide relevant links:

Planning Environment, and Public Comment database: <https://parkplanning.nps.gov>

**16. Is this undertaking considered a “major” or “covered” project listed on the Federal Infrastructure Projects Permitting Dashboard?** If so, please provide the link:

No.

**The following are attached to this form** (check all that apply):

- Section 106 consultation correspondence
- Maps, photographs, drawings, and/or plans
- Additional historic property information
- Consulting party list with known contact information
- Other: [Click here to enter text.](#)

## **ACHP e106 Submittal Attachments**

Links are provided below to all documents that were submitted to ACHP with the e106 form. Each of these documents is attached to this EA in a previous Appendix:

- **Section 106 Correspondence**
  - **THPO Correspondence**
    - **THPO Initiation Letters**
    - **THPO Response Letters**
    - **Osage Nation Correspondence**
  - **Archaeological and Cultural Survey Report**
  - **KY SHPO Site Forms**

# Consultation Timeline for the Proposed Project to Replace Obsolete Housing Unit with Multiplex Unit at Mammoth Cave National Park (PEPC 86317)

Date - Sent  
Date - Received  
Date - Concurrent meeting

Date -->	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
<b>Consulting Parties</b>													
V													
National Park Service	28 - Project Initiation letter	24 - Identification Package	1 - Request confirmation of APE limits 13 - Notification of APE limits 26 - Continue project as planned				20 - Cultural Resource Assessment Report	21 - Concurrence: Determinations of Eligibility, Findings of Effect	17 - Objection - APE in Sacred Landscape	24 - Teleconference	5 - Email invite to talk with Superintendent via MS Teams 5 - Email response requiring 2 - 3 month lead time to meet 16 - Identification package details sent. Request for comment	28 - Request to ACHP for consultation review	
Kentucky State Historic Preservation Officer	28 - Project Initiation letter	24 - Identification Package	1 - Request confirmation of APE limits 2 - Request confirmation of APE limits				20 - Cultural Resource Assessment Report	21 - Concurrence: Determinations of Eligibility, Findings of Effect				28 - Request to ACHP for consultation review	
Absentee Shawnee Tribe, Tribal Historic Preservation Officer (THPO)	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Alabama-Coushatta Tribe of Texas, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Alabama-Quasasaw Tribal Town, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Cherokee Nation, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
The Chickasaw Nation, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Eastern Band of Cherokee Indians, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Eastern Shawnee Tribe of Oklahoma, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Muscogee (Creek) Nation, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
The Osage Nation, THPO	28 - Project Initiation letter							17 - Objection - APE in Sacred Landscape			24 - Teleconference	5 - Email invite to talk with Superintendent via MS Teams 5 - Email response requiring 2 - 3 month lead time to meet 16 - Identification package details sent. Request for comment	28 - Request to ACHP for consultation review
Poarch Band of Creek Indians, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Shawnee Tribe, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Thlopthlocco Tribal Town, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
United Keetoowah Band of Cherokee Indians in Oklahoma, THPO	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Advisory Council for Historic Preservation	28 - Project Initiation letter												28 - Request to ACHP for consultation review
Other, general public													28 - Request to ACHP for consultation review



## **APPENDIX B: USFWS CONSULTATION CORRESPONDENCE**



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office  
330 West Broadway, Suite 265  
Frankfort, Kentucky 40601  
(502) 695-0468

October 7, 2020

Mr. Rick Toomey  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, Kentucky 42259

Subject: FWS 2020-B-731; Seasonal Housing Demolition Project; Mammoth Cave National Park, Kentucky

Dear Mr. Toomey:

The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed the project information and request for concurrence provided to our office on September 18, 2020. Mammoth Cave National Park (MCNP) is proposing to demolish three buildings that no longer provide adequate housing for seasonal staff. These buildings are located within a developed area of the park. The KFO offers the following comments in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

#### **Federally Listed Species**

MCNP has determined that the proposed project will have "no effect" on the clubshell (*Pleurobema clava*), fanshell (*Cyprogenia stegaria*), northern riffleshell (*Epioblasma rangiana*), pink mucket (*Lampsilis abrupta*), purple cat's paw (*Epioblasma obliquata*), ring pink (*Obovaria retusa*), rough pigtoe (*Pleurobema plenum*), sheepnose (*Plethobasus cyphus*), snuffbox (*Epioblasma triquetra*), spectaclecase (*Cumberlandia monodonta*), rayed bean (*Villosa fabalis*), rabbitsfoot (*Quadrula cylindrica cylindrica*), and diamond darter (*Crystallaria cincotta*) due to lack of suitable habitat within the project area. There is no statutory requirement to request concurrence with a "no effect" determination; however, the KFO acknowledges this determination and has no additional comments or concerns regarding these species. MCNP has also determined that the proposed project has the potential to affect the Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), and Kentucky cave shrimp (*Palaemonias ganteri*).

Federally Listed Bat Species: MCNP supports Indiana bats, gray bats, and northern long-eared bats during the summer roosting and winter hibernation. This project will not impact any caves and will not require the removal of any trees. There may be temporary noise associated with the project; however, the noise will be short-term and should not disturb bats if they were roosting in

the area. In addition, these structures are unlikely to be used by bats for day roosting, as they are currently inhabited by seasonal staff. However, as an added precaution all structures will be evaluated for bat use prior to demolition. If bats are observed using the structures, appropriate exclusion methods or time of year restrictions will be implemented. Therefore, we concur with your determination that the proposed action, “may affect, but is not likely to adversely affect” the Indiana bat, gray bat, and northern long-eared bat.

Kentucky Cave Shrimp: The project area is located in a drainage that is known to support the Kentucky cave shrimp. MCNP will implement appropriate erosion and run-off control measures to ensure the demolition and any associated landscaping will not degrade cave streams that occur in the basin. In addition, the geology of the project area includes of a sandstone cap, which would significantly minimize any accidental run-off from reaching groundwater. Therefore, we concur that the proposed action "may affect, but is not likely to adversely affect" the Kentucky cave shrimp.

### **Summary**

The KFO concurs that the proposed action “may affect, but is not likely to adversely affect” the Indiana bat, gray bat, northern long-eared bat, and Kentucky cave shrimp. Therefore, the requirements of Section 7 have been fulfilled as they relate to federally listed species. MCNP’s obligations under Section 7 must be reconsidered, however, if: (1) new information reveals that the proposed project may affect listed species or designated critical habitat in a manner or to an extent not previously considered, (2) the proposed project is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed project.

Thank you for the opportunity to comment on this proposed action. If you have any questions, please contact Carrie Allison at 502-695-0468, extension 46103.

Sincerely,

for Virgil Lee Andrews, Jr.  
Field Supervisor

# Informal Consultation -- Mammoth Cave National Park -- New Seasonal Housing Complex

Toomey, Rickard <Rick\_Toomey@nps.gov>

Tue 6/7/2022 4:45 PM

To: KentuckyES, FW4 <kentuckyes@fws.gov>

Cc: Pinion, Timothy <Timothy\_Pinion@nps.gov>

 4 attachments (9 MB)

20\_0731 MCNP Demolition Project\_I\_cla (1).pdf; Mammoth Cave seasonal housing preferred site layout 2022-05-17.pdf; proposed seasonal housing area.pdf; Mammoth Cave seasonal housing preferred site photo.jpg;

Hello,

Mammoth Cave National Park is beginning an EA process for construction of a new seasonal housing complex. This seasonal housing complex will replace aging seasonal housing buildings that will be demolished (previous consultation FWS 2020-B-731 attached). The seasonal housing complex will have 2 two-story buildings with apartments, a storage/gym, a gym, a picnic shelter, a stormwater filtration system for parking lots, and realigning the roads and parking areas. I have attached the preferred site plan. I have also attached a map with the location of the selected site.

Although, where possible, the construction will selectively remove large trees in the construction area, the project will clear vegetation that will total up to 1.2 acres. Most of the vegetation being removed will be small trees and shrubs; however, between 10 and 20 larger trees may be impacted. I have attached a photo looking at the construction area. The existing parking lot shown in the photo is the straight parking lot shown on the site layout.

We would like to initiate informal consultation on this project.

For projects on the park, we currently consult for 17 listed species present (or likely present) on park, consisting of two endangered bats, one threatened bat, 11 endangered freshwater mussels, one threatened freshwater mussel, one endangered crustacean, and one fish with unoccupied critical habitat. The 17 listed species are:

- Gray bat (*Myotis grisescens*) (endangered)
- Indiana bat (*Myotis sodalis*) (endangered)
- Northern long-eared bat (*Myotis septentrionalis*) (threatened)
- Clubshell (*Pleurobema clava*) (endangered)
- Fanshell (*Cyprogenia stegaria*) (endangered)
- Northern riffleshell (*Epioblasma rangiana*) (endangered)
- Pink mucket (pearlymussel) (*Lampsilis abrupta*) (endangered)
- Purple cat's paw (purple cat's paw pearlymussel) (*Epioblasma obliquata*) (endangered)
- Ring pink (mussel) (*Obovaria retusa*) (endangered)
- Rough pigtoe (*Pleurobema plenum*) (endangered)
- Sheepnose mussel (*Plethobasus cyphus*) (endangered)
- Snuffbox mussel (*Epioblasma triquetra*) (endangered)
- Spectaclecase (mussel) (*Margaritifera monodonta*) (endangered)
- Rayed Bean (mussel) (*Villosa fabalis*) (endangered)
- Rabbitsfoot (*Quadrula cylindrica*) (threatened) (critical habitat on park)
- Kentucky cave shrimp (*Palaemonias ganteri*) (endangered) (critical habitat on park)
- Diamond darter (*Crystallaria cincotta*) (unoccupied critical habitat on park)

The primary impact of this project is expected to be loss of trees in construction area. Some of these trees could be habitat for listed bats. However, all trees that could be listed bat habitat which must be removed for the construction will be removed between November 15 and March 31 (as per our vegetation management BO). With these mitigations, we think that the proposed work is "not likely to adversely impact any of the listed bats."

This work will be in the Echo River underground drainage basin. This drainage basin is Kentucky Cave Shrimp habitat. However, the construction zone is on the overlying sandstone, so direct flow into the aquifer is limited. Silt and stormwater runoff control on the construction zone will limit impacts of the site on the water in the underground streams that house cave shrimp. In addition, the project includes a stormwater filtration system to protect water quality during the use of the facilities. For these reasons we think that the project is "not likely to adversely impact the Kentucky cave shrimp."

There are listed mussels in the Green River; however, the proposed construction site is an upland site several miles from the Green River. With adequate run-off control, we expect no impact on the Green River from this work. For this reason we think this project will have "no effect" on listed mussels.

The project will have "no effect" on the diamond darter because its critical habitat is unoccupied and the proposed construction site is an upland site.

Do you concur with our assessment of the project?

Please let me know if you need additional details on the area, maps, or other info.

Thanks,

Rick Toomey

--

Rickard S. Toomey III, Ph.D. (he, him)

Cave Resource Management Specialist and Research Coordinator

SR&M  
Mammoth Cave NP  
PO Box 7  
Mammoth Cave, KY 42259  
voice 270-758-2145  
fax 270-758-2663  
email [rick\\_toomey@nps.gov](mailto:rick_toomey@nps.gov)



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office  
330 West Broadway, Suite 265  
Frankfort, Kentucky 40601  
(502) 695-0468

July 7, 2022

Rick Toomey  
Mammoth Cave National Park  
P.O. Box 7  
Mammoth Cave, Kentucky 42259

Subject: FWS 2022-0053125; Mammoth Cave National Park Housing Project; Edmonson County, KY

Dear Rick Toomey:

The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed the above-referenced project and request for concurrence received on June 7, 2022. Mammoth Cave National Park (MCNP) proposes to construct a seasonal housing complex. The KFO offers the following comments in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

#### **Proposed Action**

MCNP proposes to construct a seasonal housing complex within the same area as the existing, aging housing complex that is scheduled for demolition. The new complex will include two two-story apartment buildings, storage, a gym, a picnic shelter, a stormwater filtration system for the parking areas, and realigning the existing roads and parking areas. The project area consists of the existing housing complex, maintained lawns, and marginal forested habitat. The project will require clearing approximately 1.2 acres of vegetation.

#### **Federally Listed Species**

MCNP has determined that the proposed action will have "no effect" on the Diamond Darter (*Crystallaria cincotta*), Diamond Darter designated critical habitat, Clubshell (*Pleurobema clava*), Fanshell (*Cyprogenia stegaria*), Northern Riffleshell (*Epioblasma rangiana*), Pink Mucket (*Lampsilis abrupta*), Purple Cat's Paw (*Epioblasma obliquata*), Ring Pink (*Obovaria retusa*), Rough Pigtoe (*Pleurobema plenum*), Sheepnose (*Plethobasus cyphus*), Snuffbox (*Epioblasma triquetra*), Spectaclecase (*Cumberlandia monodonta*), Rayed Bean (*Villosa fabalis*), and Rabbitsfoot (*Quadrula cylindrica cylindrica*) because there no impacts to aquatic habitats are proposed. There is no statutory requirement to request concurrence with a "no effect" determination; however, the KFO acknowledges this determination and has no additional comments or concerns regarding these species or DCH.

MCNP has also determined that the proposed action has the potential to affect the Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), and Kentucky cave shrimp (*Palaemonias ganteri*).

**Federally Listed Bat Species:** MCNP supports Indiana bats, gray bats, and northern long-eared bats year-round. This project will not impact caves. The project may require the removal of 10 to 20 trees that provide marginal roosting habitat for the Indiana bat and northern long-eared bat; however, none of these trees are considered suitable Indiana bat primary maternity roost trees. In addition, all tree removal will occur from November 15 to March 31, when these species will be hibernating in caves; therefore, impacts to individual bats that could be roosting or foraging in the area are not expected. There may be temporary noise during construction; however, the noise will be short-term and is not expected to disturb bats if they are roosting in the area. Consequently, we concur with your determination that the proposed action, “may affect, but is not likely to adversely affect” the Indiana bat, gray bat, and northern long-eared bat.

**Kentucky Cave Shrimp:** The proposed housing complex occurs in the Echo River drainage basin, which is known to support the Kentucky cave shrimp. The housing complex will occur on an overlying sandstone; therefore, filtration into the underground basin is limited. In addition, MCNP will implement best management practices to control silt and runoff during and after construction. Based on the sandstone layer and implementation of best management practices, we concur with your determination that the proposed action "may affect, but is not likely to adversely affect" the Kentucky cave shrimp.

### **Summary**

The KFO concurs that the proposed action “may affect, but is not likely to adversely affect” the Indiana bat, gray bat, northern long-eared bat, and the Kentucky cave shrimp. Therefore, the requirements of Section 7 have been fulfilled as they relate to federally listed species. MCNP’s obligations under Section 7 must be reconsidered, however, if: (1) new information reveals that the proposed project may affect listed species or designated critical habitat in a manner or to an extent not previously considered, (2) the proposed project is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed project.

Thank you for the opportunity to comment on this proposed action. If you have any questions, please contact Carrie Allison at 502-695-0468, extension 46103 or [Carrie.Allison@fws.gov](mailto:Carrie.Allison@fws.gov).

Sincerely,

for Virgil Lee Andrews, Jr.  
Field Supervisor

## APPENDIX C: WETLAND TECHNICAL REPORT

# TECHNICAL MEMORANDUM NO. 21-120.01

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**PREPARED FOR:** Mammoth Cave National Park

**PREPARED BY:** Alan Moore, PWS, Project Scientist II

**DATE:** May 31, 2022

**SUBJECT:** Aquatic Resource report for proposed seasonal housing unit replacement project site

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## CONTENTS

1.0	Introduction .....	1
2.0	Site Description .....	1
3.0	Site Reconnaissance.....	2
	Upland Point 1.....	2
	Upland Point 2.....	3
	Upland Point 3.....	4
	Upland Point 4.....	4
	Upland Point 5.....	5
4.0	CONCLUSIONS.....	5
5.0	REFERENCES.....	6

Appendix A. US Army Corps of Engineers Jurisdictional Data Forms

## LIST OF FIGURES

Figure 1. Vicinity Map, Mammoth Cave seasonal housing unit environmental assessment.

Figure 2. Aerial close up of the area of investigation (AOI) for the proposed seasonal housing units in Mammoth Cave National Park.

Figure 3. USGS topographic map, Mammoth Cave Area of Investigation for proposed new seasonal housing unit replacements.

Figure 4. NRCS soil map, Mammoth Cave Area of Investigation for proposed new seasonal housing units.

## LIST OF PHOTOS

Photo 1. Upland soil profile at upland point 1 (UP-1).

Photo 2. Wooded area at UP-1 at the northern edge of the area of investigation.

Photo 3. Small linear depression at UP-2 from historical tree fall that is holding water from recent rains. Soils in the depression did not meet a hydric soil indicator.

Photo 4. Soil profile collected from linear depression at UP-2. These soils did not meet a hydric soil indicator.

Photo 5. Large group of eastern red cedars near UP-2 appeared to have fallen at the same time several decades ago, likely due to an acute and severe weather event.

Photo 6. Soil profile at UP-2. Soils at UP-2 did not meet a hydric soil indicator.

Photo 7. Soil profile at UP-3. Soils at UP-3 did not meet a hydric soil indicator.

Photo 8. View of maintained grassy area at UP-4.

Photo 9. Soil profile at UP-4. Soils at UP-4 did not meet a hydric soil indicator.

Photo 10. Slight hillslope at UP-5.

Photo 11. Soil profile at UP-5. Soils at UP-5 did not meet a hydric soil indicator. The ground cover vegetation seen here is dwarf periwinkle (*Vinca minor*).

## 1.0 INTRODUCTION

Nutter & Associates, Inc. (NAI) was contracted by Mammoth Cave National Park (MACA) in west-central Kentucky, to conduct evaluations regarding the presence of aquatic resources on property selected for the construction of replacement housing units for seasonal employees (Figure 1). Aquatic resource surveys were conducted to identify potential environmental constraints and support the ongoing National Environmental Policy Act (NEPA) environmental assessment (EA) for the proposed seasonal housing project.

## 2.0 SITE DESCRIPTION

The proposed project area of investigation (AOI) is located off Maintenance Road, east of the MACA Visitor's Center, northwest of the Superintendent's office and in the vicinity of the Residential and Mission 66 districts within the Housing Area of the park's Operations Area (Figures 1 and 2). The AOI is approximately 3.8 acres and contains an existing parking lot and maintained grassy area along the ridgetop, and a second-growth oak-hickory forested along the northern hillslope (Figure 2).

The proposed project site has a slightly sloping gradient, around two to six percent along the ridge, with a steeper slope within the forested area to the north (Figure 3). There are no apparent surface water features on the site. Drainage is provided through small, localized swales and other ephemeral features that eventually contribute to the Eaton Valley. Soils on the site include the Clarkrange, Wellston and Lily series (Figure 4). A description of each soil series follows.

The Clarkrange series is a deep, moderately well drained soil formed in residuum on uplands (NRCS, 2010). It typically contains a silt loam brown topsoil overlying a clay enriched yellowish brown subsurface horizon. Most notably, these soils have a dense fragipan in the subsoil (horizon is restrictive to root growth and water movement) typically found about 24 inches below the soil surface. The seasonal water table depth ranges between 18 to 30 inches. The Clarkrange series is not a hydric soil, but is likely to exhibit perched water above the fragipan during wetter time periods.

The Lily series is well drained, with a brown loam topsoil overlying a clay enriched subsurface horizon (NRCS, 2010). These soils are generally shallow, with bedrock within the upper 36 inches of the soil surface that may restrict vertical water movement. These soils are not hydric, and have a seasonal high water table of greater than six feet.

The Wellston series is well drained and derived from two parent materials, loess over residuum (NRCS, 2010). These soils have a dark brown topsoil overlying a clay enriched subsoil. Bedrock is not typically encountered within five feet of the soil surface, but there is a general increase of rock fragments with depth. These soils are not hydric, and have a seasonal high water table of greater than six feet.

### 3.0 SITE RECONNAISSANCE

A reconnaissance of the AOI was conducted on April 19 and 20, 2022. The investigation was performed following the United States Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2) (USACE, 2012). Wetland Indicator Status for the plant species identified were established based upon the Eastern Mountains and Piedmont ranking provided in the 2020 USACE National Wetland Plant List database (version 3.4). Representative photographs of the delineation area are provided in Photos 1 through 11.

No jurisdictional wetland areas or other Waters of the US were observed within the AOI. Some standing puddles of water were present within the AOI at various locations but none of these areas contained hydrophytic vegetation or hydric soils. According to the Mammoth Cave weather station, 0.37 inches of rain fell the day prior to the investigation on April 18, 2022. In the seven days prior to the field investigation a total of 3.43 inches of rain were recorded at the Mammoth Cave weather station. It is not uncommon to encounter areas of standing water in the early spring given the soils on the site and antecedent weather conditions.

Five upland data points were documented throughout the AOI to establish the lack of wetland features observed (Figure 4). The upland point locations were recorded using differentially corrected Trimble Geo 7X Global Navigation Satellite System (GNSS) unit. The GNSS data were exported into ArcMap® software and plotted. At each upland point, the vegetation and soils were described and USACE data forms were completed. Data forms are provided in Appendix A. The following is a description of each upland data point soils and vegetative community.

#### Upland Point 1

Upland point 1 (UP-1) is the lowest elevation point within the AOI, located along the northern edge of the area of investigation (Figure 4; Photos 1 through 2). Hydrology indicators were absent from UP-1. Soils at UP-1 were light olive brown silt loam to 0.7 feet, underlain by

brownish yellow silt clay loam to 1.2 feet. Soils at UP-1 were further underlain by yellowish brown silt clay loam to 2 feet. Soils at UP-1 did not meet a hydric soil indicator. The tree stratum at UP-1 is dominated by mature facultative upland (FACU) tulip trees (*Liriodendron tulipifera*) and FACU winged elm (*Ulmus alata*). The forest canopy at UP-1 contained several subdominant species including FACU American beech (*Fagus grandifolia*), facultative (FAC) red maple (*Acer rubrum*), FACU eastern hop hornbeam (*Ostrya virginiana*), FACU eastern red cedar (*Juniperus virginiana*), and FACU dogwood (*Cornus florida*). The sapling/shrub layer was dominated by FACU American beech, FACU eastern hop hornbeam, and FACU coral-berry (*Symphoricarpos orbiculatus*) with subdominants including FACU dogwood, FAC American holly (*Ilex opaca*), and FAC common pawpaw (*Asimina triloba*). The herbaceous stratum was dominated by FACU Christmas fern (*Polystichum aristichoides*) and FACU Japanese honeysuckle (*Lonicera japonica*). Subdominant herbs included FACU coral-berry, FACU spring beauty (*Claytonia virginica*), FACU partridge berry (*Mitchella repens*), unclassified wild comfrey (*Cynoglossum virginianum*), FACU limestone adder's tongue (*Ophioglossum engelmannii*), unclassified three-leaved rattlesnake root (*Prenanthes trifoliata*), upland (UPL) star chickweed (*Stellaria media*), and FACU sticky-willy (*Gallium aparine*). The vine layer was occupied by FACU Japanese honeysuckle and FACU Virginia creeper (*Parthenocissus quinquefolia*). There were no dominant plant species present that are classified as wetland facultative (FACW) or wetland obligate (OBL), and the vegetation at UP-1 failed the dominance test for hydrophytic vegetation.

## Upland Point 2

Upland point 2 (UP-2) is located on a ridge toward the center of the AOI (Figure 4; Photos 3 through 6). Although UP-2 is an upland, there is one isolated linear area (approximately 50 square feet in total) that can hold water after precipitation (likely perched above the fragipan beneath, see soil description in general notes) (Photos 3 and 4). The depression appears to have been created several decades ago when a severe acute weather event uprooted a row of multiple eastern red cedar trees, leaving depressions where the trees were knocked over (Photo 5). Other than standing water in the linear depression from recent rains (0.37 inches the day prior), there were no hydrology indicators at UP-2. Soils at UP-2 were brown silt loam to 0.3 feet, underlain by brownish yellow silt loam to 1.5 feet (Photo 6). Soils at UP-2 were further underlain by brownish yellow silt loam containing 40 percent pale brown inclusions to 2 feet. Soils at WP-2 did not meet a hydric soil indicator. The canopy layer at UP-2 was dominated by FACU tulip tree, FACU dogwood, FACU southern red oak (*Quercus falcata*), and subdominant UPL post oak (*Quercus stellata*). The sapling/shrub stratum was dominated by FACU American beech and FAC American holly with subdominants that included FACU eastern hop hornbeam, FACU winged elm, FACU redbud (*Cercis canadensis*), FACU dogwood, FACU coral-berry, and

FACU multiflora rose (*Rosa multiflora*). The herb stratum was dominated by unclassified dwarf periwinkle (*Vinca minor*) and FACU coral-berry with subdominants that included FACU Japanese honeysuckle, FACU poison ivy (*Toxicodendron radicans*), FACU Christmas fern, and FACU black cherry (*Prunus serotina*). The vine layer consisted exclusively of FACU Japanese honeysuckle. There were no dominant plant species present that are classified as FACW or OBL, and the vegetation at UP-2 failed the dominance test for hydrophytic vegetation.

### Upland Point 3

Upland point 3 (UP-3) is located in a wooded area towards the eastern end of the AOI (Figure 4; Photo 7). There were no hydrology indicators at UP-3. The soil profile at UP-3 is brown silt loam to 0.5 feet underlain by yellowish brown silt loam containing 20 percent strong brown redoximorphic (redox) concentrations to 1.2 feet. Soils were further underlain by yellowish brown silt clay loam containing 20 percent brown inclusions to 2 feet. Soils at UP-3 did not meet a hydric soil indicator. The canopy tree stratum was dominated by FACU northern red oak (*Quercus rubra*). Subdominants in the canopy stratum included unclassified Virginia pine (*Pinus virginiana*), FACU eastern red cedar, FACU dogwood, FACU black maple (*Acer nigrum*), FACU persimmon (*Diospyros virginiana*), and FACU white oak (*Quercus alba*). The sapling/shrub layer included FACU American holly, FACU dogwood, FACU American beech, and subdominant FACU coral-berry. The herb stratum was dominated by FACU coral-berry. Subdominants in the herb layer included FACU Christmas fern, FACU spring beauty, unclassified downy yellow violet (*Viola pubescens*), FACU Japanese honeysuckle, FACU black maple, FACU poison ivy, FACU black cherry, FACU ebony spleenwort (*Asplenium platyneuron*), FACU winged elm, and FACU sticky willy. Woody vines were absent from UP-3. There were no dominant plant species present that are classified as FACW or OBL, and the vegetation at UP-3 failed the dominance test for hydrophytic vegetation.

### Upland Point 4

Upland point 4 (UP-4) is located in a maintained grassy area adjacent to the parking lot (Figure 4; Photos 8 and 9). There were some areas of standing water near UP-4 but these were not considered indicators of wetland hydrology given the recent rains. Soils at UP-4 are brown silt loam to 0.6 feet containing 10 percent yellowish brown redox concentrations and 5 percent reddish yellow redox concentrations. Soils are further underlain by yellowish brown silt clay loam to 1.5 feet underlain by yellowish brown silt clay loam to 2 feet containing 5 percent reddish yellow redox concentrations. Soils at UP-4 did not meet a hydric soil indicator. The tree, sapling/shrub, and vine strata were absent from UP-4. The herb layer was dominated by FACU Kentucky bluegrass (*Poa pratensis*), FACU broom sedge (*Andropogon virginicus*), FACU tulip

tree, with subdominant unclassified callery pear (*Pyrus calleryana*), and unclassified common henbit (*Lamium amplexicaule*). There were no dominant plant species present that are classified as FACW or OBL, and the vegetation at UP-4 failed the dominance test for hydrophytic vegetation.

## Upland Point 5

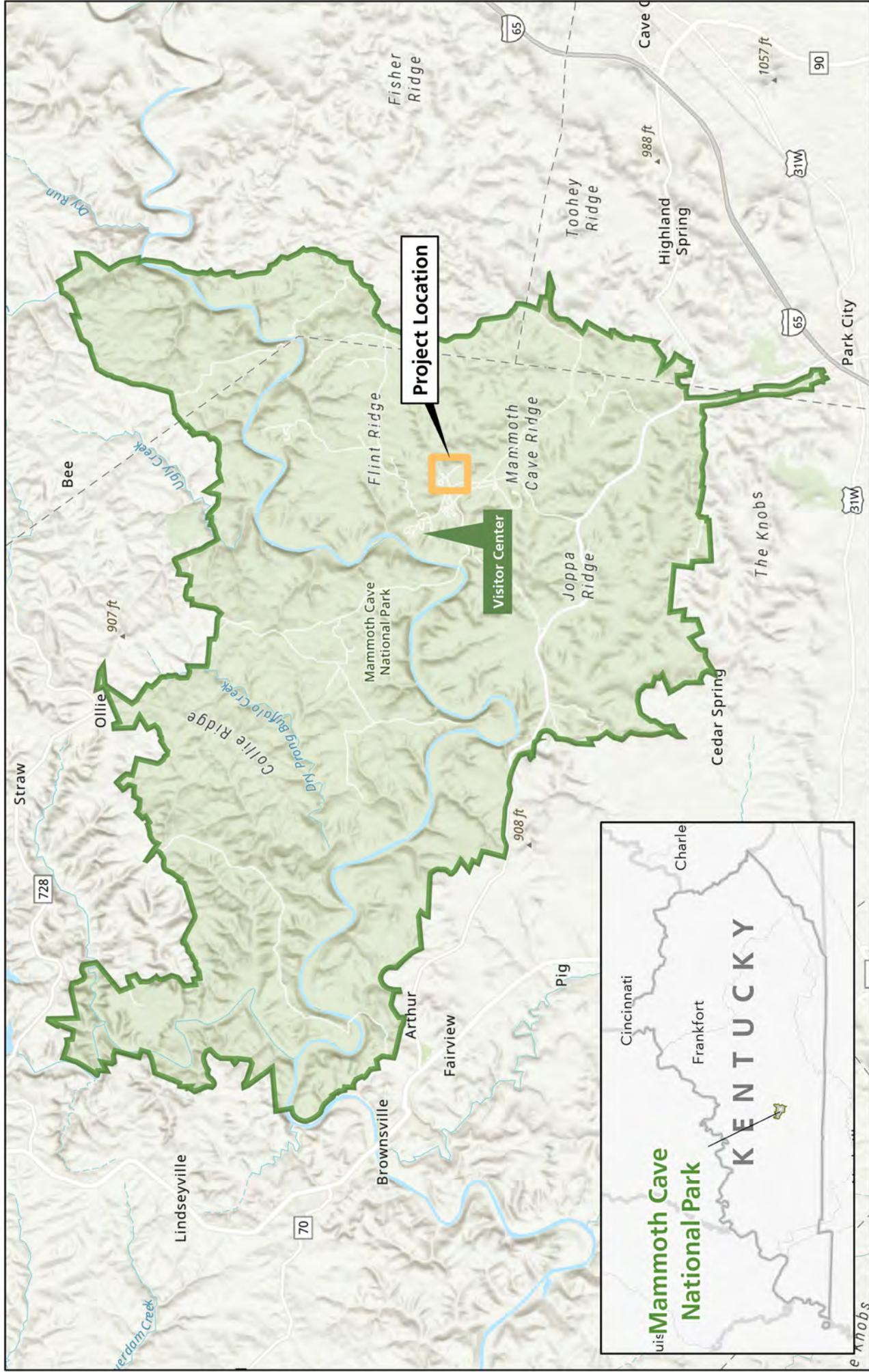
Upland point 5 (UP-5) is located in a low elevation draw toward the north portion of the AOI (Figure 4; Photos 10 and 11). There were no hydrology indicators at UP-5. Soils at UP-5 were brown silt loam to 0.6 feet underlain by yellowish brown silt loam to 1.1 feet. Soils are further underlain by strong brown clay loam to 2 feet. Soils at UP-5 did not meet a hydric soil indicator. The tree stratum at UP-5 is dominated by FACU tulip tree and FACU black cherry. Subdominant trees included FACU winged elm, FACU Virginia pine, FAC slippery elm (*Ulmus rubra*), FAC red maple, and FACU white ash (*Fraxinus americana*). The sapling/shrub layer is dominated by FACU tulip tree, FACU white ash, and FACU coral-berry with subdominants FAC American holly, FACU winged elm, FACU American beech, and FACU dogwood. The herb layer is dominated by unclassified dwarf periwinkle. Subdominant herbs included FACU coral-berry, FAC red maple, FACU Japanese honeysuckle, UPL partridgeberry, and FACU Christmas fern. The vine layer is occupied exclusively by FACU Japanese honeysuckle. There were no dominant plant species present that are classified as FACW or OBL, and the vegetation at UP-5 failed the dominance test for hydrophytic vegetation.

## 4.0 CONCLUSIONS

Aquatic resource investigations were completed for the AOI identified for the proposed replacement seasonal housing units at Mammoth Cave National Park in April of 2022. During the investigation, the soils and vegetation were described throughout the AOI. None of the soils investigated met a hydric soil indicator. The AOI contains a combination of paved parking areas, maintained grassy areas, and mature second growth oak hickory forest. None of the dominant plants documented during the investigation are classified as FACW or OBL. The entire AOI consists of non-wetland.

## 5.0 REFERENCES

- US Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- US Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-20. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- US Department of Agriculture-Natural Resource Conservation Service (NRCS). 2010. Soil survey of Mammoth Cave National Park, Kentucky.



Seasonal Housing Unit Replacement  
Environmental Assessment/Analysis of Effects

FIGURE 1: Vicinity map, Mammoth Cave seasonal housing unit environmental assessment.

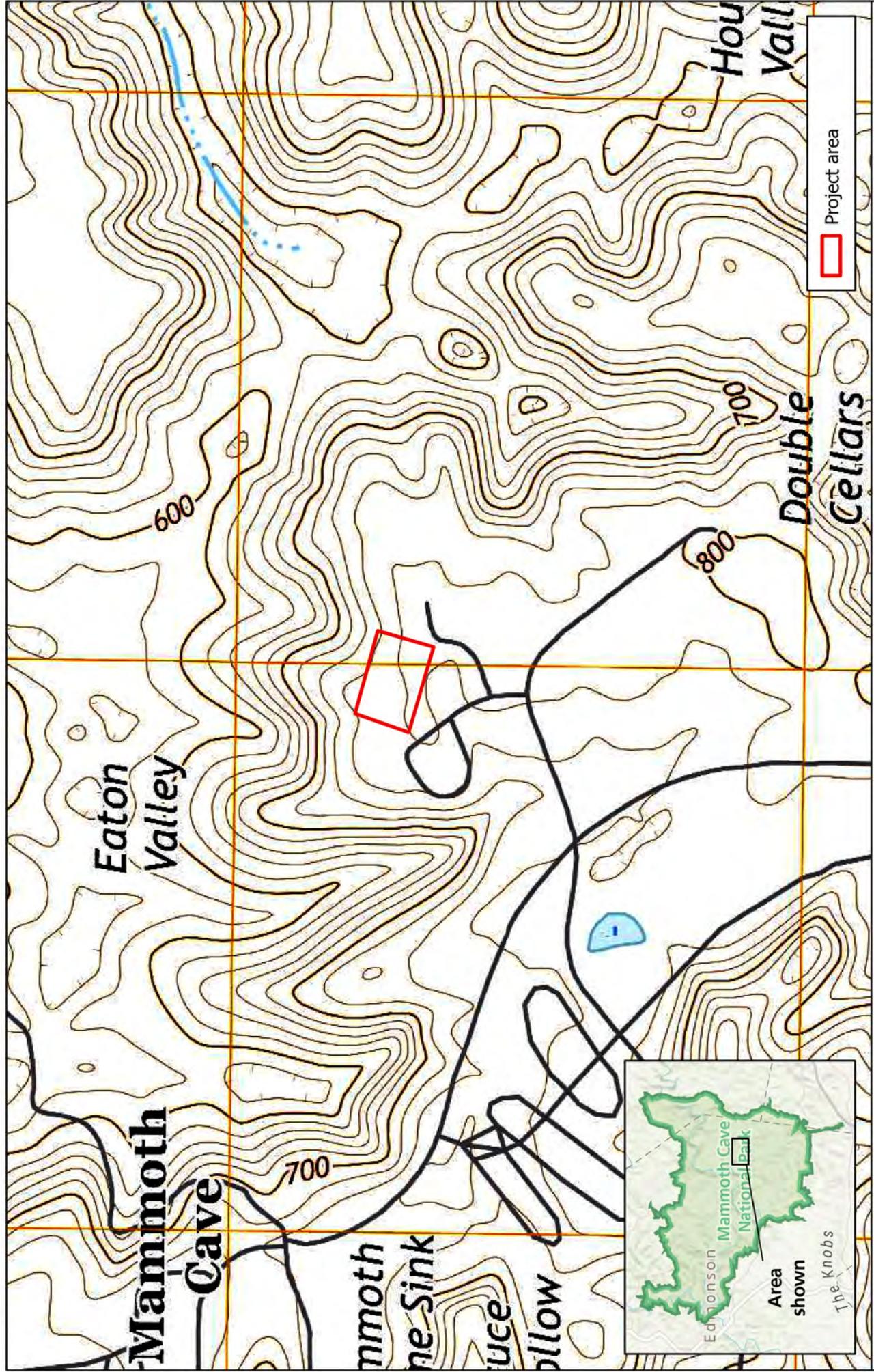


Sources: NPS Park Data, ESRI Base Data



Seasonal Housing Unit Replacement  
Environmental Assessment/Assessment of Effects

FIGURE 2: Aerial close-up of area of investigation (AOI) for the proposed seasonal housing units in Mammoth Cave National Park.



Seasonal Housing Unit Replacement  
Environmental Assessment/Assessment of Effects

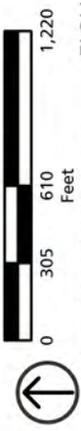


FIGURE 3: USGS 2016 topographic map, Mammoth Cave Area of Investigation for proposed new seasonal housing unit.

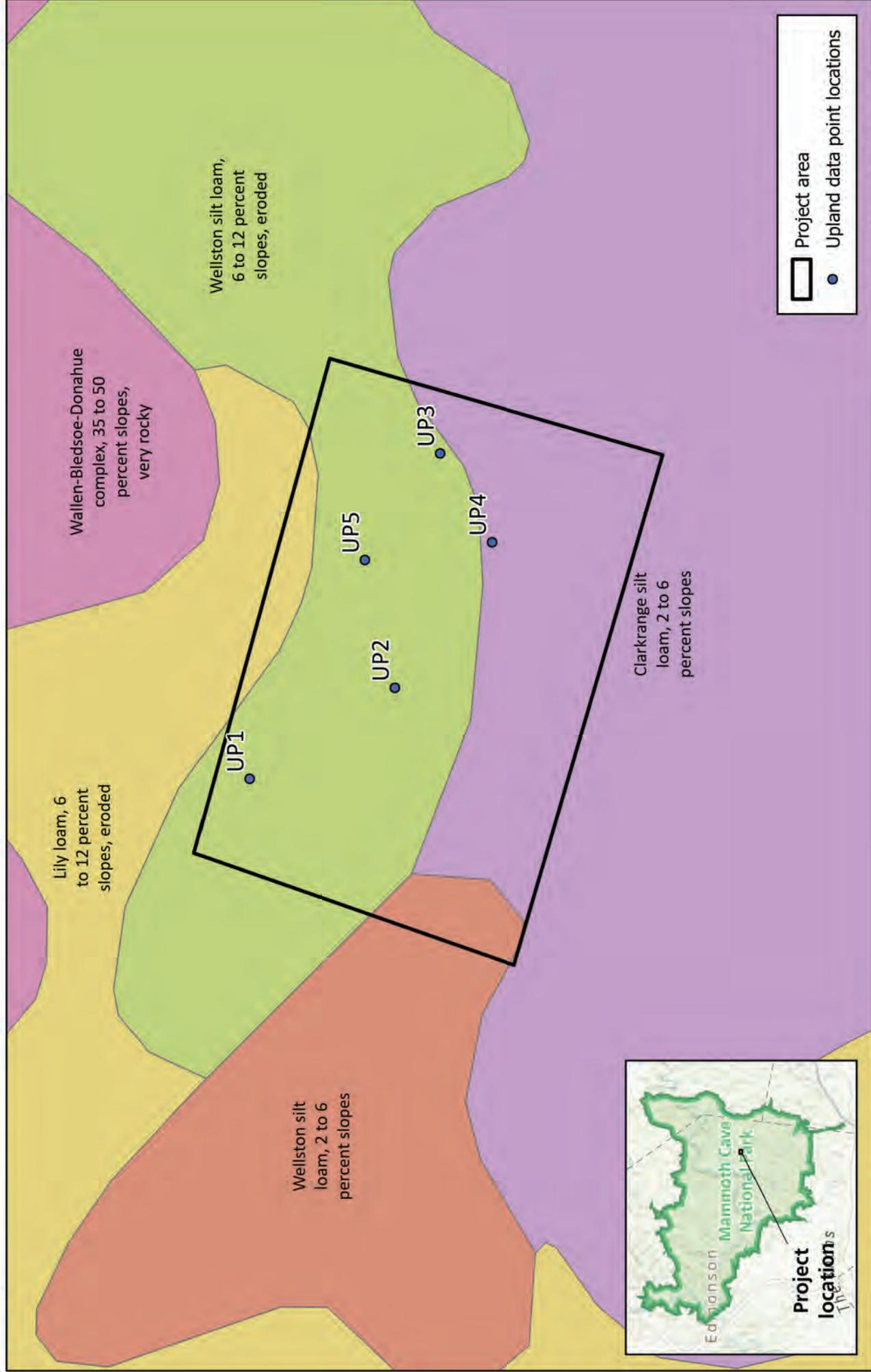


FIGURE 4: NRCS soil map, Mammoth Cave Area of Investigation for proposed new seasonal housing unit.



Photo 1. Upland soil profile at upland point 1 (UP-1).



Photo 2. Wooded area at UP-1 at the northern edge of the area of investigation.



Photo 3. Small linear depression at UP-2 from historical tree fall that is holding water from recent rains. Soils in the depression did not meet a hydric soil indicator.



Photo 4. Soil profile collected from linear depression at UP-2. These soils did not meet a hydric soil indicator. See data sheet in Appendix A for a description of this soil profile in the general notes.



Photo 5. Large group of eastern red cedars near UP-2 appeared to have fallen at the same time several decades ago, likely due to an acute and severe weather event.



Photo 6. Soil profile at UP-2. Soils at UP-2 did not meet a hydric soil indicator.



Photo 7. Soil profile at UP-3. Soils at UP-3 did not meet a hydric soil indicator.



Photo 8. View of maintained grassy area at UP-4.



Photo 9. Soil profile at UP-4. Soils at UP-4 did not meet a hydric soil indicator.



Photo 10. Slight hillslope at UP-5.



Photo 11. Soil profile at UP-5. Soils at UP-5 did not meet a hydric soil indicator. The ground cover vegetation seen here is dwarf periwinkle (*Vinca minor*).

## Appendix A

### US Army Corps of Engineers Jurisdictional Data Forms

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: MACA Seasonal Quarters Site 1 City/County: Edmonson Sampling Date: 4/19/2022  
 Applicant/Owner: Mammoth Cave National Park State: KY Sampling Point: UP-1  
 Investigator(s): Alan Moore PWS, Shelley Dodd CE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR or MLRA): MLRA 120A Lat: 37.1849045 Long: -86.0881783 Datum: NAD83  
 Soil Map Unit Name: Wellston silt loam, 6 to 12 percent slopes, eroded NWI classification: unclassified

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Lowest elevation point on Site 1.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor C1 <input type="checkbox"/> Saturation A3 <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches: _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches: _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches: _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UP-1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Liriodendron tulipifera</i></u>	30	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>9</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. <u><i>Ulmus alata</i></u>	25	Yes	FACU	
3. <u><i>Fagus grandifolia</i></u>	15	No	FACU	
4. <u><i>Acer rubrum</i></u>	15	No	FAC	
5. <u><i>Ostrya virginiana</i></u>	7	No	FACU	
6. <u><i>Juniperus virginiana</i></u>	5	No	FACU	
7. <u><i>Cornus florida</i></u>	5	No	FACU	
8. _____	-	-	-	
Total Cover =	102.0	50% 51.0	20% 20.4	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Fagus grandifolia</i></u>	20	Yes	FACU	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____
2. <u><i>Ostrya virginia</i></u>	20	Yes	FACU	
3. <u><i>Symphoricarpos orbiculatus</i></u>	15	Yes	NI	
4. <u><i>Cornus florida</i></u>	8	No	FACU	
5. <u><i>Ilex opaca</i></u>	5	No	FAC	
6. <u><i>Asimina triloba</i></u>	5	No	FAC	
7. _____	-	-	-	
8. _____	-	-	-	
9. _____	-	-	-	
10. _____	-	-	-	
Total Cover =	73.0	50% 36.5	20% 14.6	
<b>Herb Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Polystichum aristichoides</i></u>	40	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Lonicera japonica</i></u>	20	Yes	FACU	
3. <u><i>Symphoricarpos orbiculatus</i></u>	10	No	FACU	
4. <u><i>Claytonia virginica</i></u>	2	No	FAC	
5. <u><i>Mitchella repens</i></u>	2	No	UPL	
6. <u><i>Cynoglossum virginianum</i></u>	2	No	NI	
7. <u><i>Ophioglossum engelmannii</i></u>	2	No	FACU	
8. <u><i>Prenanthes trifoliata</i></u>	2	No	NI	
9. <u><i>Stellaria media</i></u>	2	No	UPL	
10. <u><i>Gallium aparine</i></u>	2	No	FACU	
11. _____	-	-	-	
12. _____	-	-	-	
Total Cover =	84.0	50% 42.0	20% 16.8	
<b>Woody Vine Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Lonicera japonica</i></u>	2	Yes	FACU	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. <u><i>Parthenocissus quinquefolia</i></u>	2	Yes	FACU	
3. _____	-	-	-	
4. _____	-	-	-	
5. _____	-	-	-	
6. _____	-	-	-	
Total Cover =	4.0	50% 2.0	20% 0.8	
Remarks: (Include photo numbers here or on a separate sheet.				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>

**SOIL**

Sampling Point: UP-1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Feet)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-0.7	2.5Y 5/3	100					silt loam	
0.7-1.2	10YR 6/6	60	2.5Y 5/3	40		M	silt clay loam	
1.2-2.0	10YR 5/6	100					silt clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8 (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) LRR N	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12	
<input type="checkbox"/> Depleted Below Dark Surface A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1 LRR N,	<input type="checkbox"/> Iron-Manganese Masses (F12 (LRR N,		
<input type="checkbox"/> MLRA 147, 148)	<input type="checkbox"/> MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix S4)	<input type="checkbox"/> Umbric Surface (F13 (MLRA 136, 122		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) MLRA 127, 147)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches : _____	Hydric Soil Present?    Yes _____    No <u>X</u>
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Remarks:

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: MACA Seasonal Quarters Site 1 City/County: Edmonson Sampling Date: 4/19/2022  
 Applicant/Owner: Mammoth Cave National Park State: KY Sampling Point: UP-2  
 Investigator(s): Alan Moore PWS, Shelley Dodd CE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Ridge Local relief (concave, convex, none): Flat Slope (%): 0  
 Subregion (LRR or MLRA): MLRA 120A Lat: 37.1845201 Long: -86.0878745 Datum: NAD83  
 Soil Map Unit Name: Wellston silt loam, 2 to 6 percent slopes, eroded NWI classification: Unclassified  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Upland area with small linear depression that ponds rain water. No hydric soils. see below	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ True Aquatic Plants (B14) ___ High Water Table (A2)      ___ Hydrogen Sulfide Odor C1 ___ Saturation A3      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1)      ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3)      ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4)      Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth inches): _____ Water Table Present? Yes _____ No _____ Depth inches): _____ Saturation Present? Yes _____ No _____ Depth inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Within the larger upland plot there is a very small area of linear depression (~15x3 feet) caused by uprooted cedar trees where water was standing from recent rains. 0.37 inches of rain fell 4/18/22. 0.25 inches fell 4/16/22. 1.13 inches of rain fell 4/14/22. Many uprooted cedar trees in the area looks as if they all fell at the same time > 50 years ago. Soils in these small depression, although close, did not meet hydric soil indicators. Soils in the depression described below  <b>Feet</b> 0-0.6 10YR 4/3 93%; 10YR 4/4 2%; 10YR 5/8 5% 0.6-1.9 10YR 5/1 40%; 10YR 6/6 60%	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UP-2

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Liriodendron tulipifera</i></u>	40	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>13%</u> (A/B)
2. <u><i>Cornus florida</i></u>	25	Yes	FACU	
3. <u><i>Quercus falcata</i></u>	20	Yes	FACU	
4. <u><i>Quercus stellata</i></u>	15	No	UPL	
5. _____		-	-	
6. _____		-	-	
7. _____		-	-	
8. _____		-	-	
Total Cover =	100.0	50% 50.0	20% 20.0	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Fagus grandifolia</i></u>	15	Yes	FACU	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>1</u> (B)  Prevalence Index = B/A = _____
2. <u><i>Ilex opaca</i></u>	15	Yes	FAC	
3. <u><i>Ostrya virginiana</i></u>	5	No	FACU	
4. <u><i>Ulmus alata</i></u>	5	No	FACU	
5. <u><i>Cercis canadensis</i></u>	5	No	FACU	
6. <u><i>Cornus florida</i></u>	5	No	FACU	
7. <u><i>Symphoricarpos orbiculatus</i></u>	5	No	FACU	
8. <u><i>Rosa multiflora</i></u>	2	No	FACU	
9. _____		-	-	
10. _____		-	-	
Total Cover =	57.0	50% 28.5	20% 11.4	
<b>Herb Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Vinca minor</i></u>	25	Yes	NI	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u><i>Symphoricarpos orbiculatus</i></u>	20	Yes	FACU	
3. <u><i>Lonicera japonica</i></u>	10	No	FACU	
4. <u><i>Toxicodendron radicans</i></u>	5	No	FAC	
5. <u><i>Polystichum arostichoides</i></u>	3	No	FACU	
6. <u><i>Prunus serotina</i></u>	2	No	FACU	
7. _____		-	-	
8. _____		-	-	
9. _____		-	-	
10. _____		-	-	
11. _____		-	-	
12. _____		-	-	
Total Cover =	65.0	50% 32.5	20% 13.0	
<b>Woody Vine Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Lonicera japonica</i></u>	10	Yes	FACU	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m tall).  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____		-	-	
3. _____		-	-	
4. _____		-	-	
5. _____		-	-	
6. _____		-	-	
Total Cover =	10.0	50% 5.0	20% 2.0	
<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.				

**SOIL**

Sampling Point: UP-2

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Feet)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-0.3	10YR 4/3	100					silt loam	
0.3-1.5	10YR 6/6	100					silt loam	
1.5-2.0	10YR 6/6	60	10YR 6/3	40		M	silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **LRR N**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) **LRR N, MLRA 147, 148)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 136, 122)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **MLRA 127, 147)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) **(MLRA 147**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches : \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: MACA Seasonal Quarters Site 1 City/County: Edmonson Sampling Date: 4/19/2022  
 Applicant/Owner: Mammoth Cave National Park State: KY Sampling Point: UP-3  
 Investigator(s): Alan Moore PWS, Shelley Dodd CE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 3  
 Subregion (LRR or MLRA): MLRA 120A Lat: 37.1844023 Long: -86.0870962 Datum: NAD83  
 Soil Map Unit Name: Wellston silt loam, 6 to 12 percent slopes, eroded NWI classification: Unclassified

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ True Aquatic Plants (B14) ___ High Water Table (A2)      ___ Hydrogen Sulfide Odor C1) ___ Saturation A3)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1)      ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3)      ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4)      Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UP-3

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u>Quercus rubra</u>	25	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20%</u> (A/B)
2. <u>Pinus virginiana</u>	20	No	NI	
3. <u>Juniperus virginiana</u>	15	No	FACU	
4. <u>Cornus florida</u>	15	No	FACU	
5. <u>Acer nigrum</u>	15	No	FACU	
6. <u>Diospyros virginiana</u>	10	No	FAC	
7. <u>Quercus alba</u>	7	No	FACU	
8. _____	-	-	-	
Total Cover =	107.0	50% 53.5	20% 21.4	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u>Ilex opaca</u>	15	Yes	FAC	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>1</u> (B)  Prevalence Index = B/A = _____
2. <u>Cornus florida</u>	15	Yes	FACU	
3. <u>Fagus grandifolia</u>	10	Yes	FACU	
4. <u>Symphoricarpos orbiculatus</u>	7	No	FACU	
5. _____	-	-	-	
6. _____	-	-	-	
7. _____	-	-	-	
8. _____	-	-	-	
9. _____	-	-	-	
10. _____	-	-	-	
Total Cover =	47.0	50% 23.5	20% 9.4	
<b>Herb Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u>Symphoricarpos orbiculatus</u>	15	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Polystichum aristichoides</u>	5	No	FACU	
3. <u>Claytonia virginica</u>	5	No	FAC	
4. <u>Viola pubescens</u>	5	No	-	
5. <u>Lonicera japonica</u>	5	No	FACU	
6. <u>Acer nigrum</u>	3	No	FACU	
7. <u>toxicodendron radicans</u>	3	No	FAC	
8. <u>Prunus serotina</u>	2	No	FACU	
9. <u>Asplenium platyneuron</u>	2	No	FACU	
10. <u>Ulmus alata</u>	2	No	FACU	
11. <u>Gallium aparine</u>	2	No	FACU	
12. _____	-	-	-	
Total Cover =	49.0	50% 24.5	20% 9.8	
<b>Woody Vine Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u>absent</u>	-	-	-	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
2. _____	-	-	-	
3. _____	-	-	-	
4. _____	-	-	-	
5. _____	-	-	-	
6. _____	-	-	-	
Total Cover =	0.0	50% 0.0	20% 0.0	
Remarks: (Include photo numbers here or on a separate sheet.)				

**SOIL**

Sampling Point: UP-3

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Feet)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-0.5	10YR 4/3	100					silt loam	
0.5-1.2	10YR 5/4	80	7.5YR 4/6	20	C	M	silt loam	
1.2-2.0	7.5YR 5/6	80	10YR 4/3	20		M	silt clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **LRR N**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) **LRR N, MLRA 147, 148)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 136, 122)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **MLRA 127, 147)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: MACA Seasonal Quarters Site 1 City/County: Edmonson Sampling Date: 4/19/2022  
 Applicant/Owner: Mammoth Cave National Park State: KY Sampling Point: UP-4  
 Investigator(s): Alan Moore PWS, Shelley Dodd CE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 0  
 Subregion (LRR or MLRA): MLRA 120A Lat: 37.1842636 Long: -86.0873905 Datum: NAD83  
 Soil Map Unit Name: Clarkrange silt loam, 2 to 6 percent slopes NWI classification: Unclassified

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ True Aquatic Plants (B14) ___ High Water Table (A2)      ___ Hydrogen Sulfide Odor C1) ___ Saturation A3)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1)      ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3)      ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4)      Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UP-4

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30 ft</u> )					
1. <u>absent</u>		-	-	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
2. _____		-	-		
3. _____		-	-		
4. _____		-	-		
5. _____		-	-		
6. _____		-	-		
7. _____		-	-		
8. _____		-	-		
Total Cover =	<u>0.0</u>	50% <u>0.0</u>	20% <u>0.0</u>	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30 ft</u> )					
1. <u>absent</u>		-	-		
2. _____		-	-		
3. _____		-	-		
4. _____		-	-		
5. _____		-	-		
6. _____		-	-		
7. _____		-	-		
8. _____		-	-		
Total Cover =	<u>0.0</u>	50% <u>0.0</u>	20% <u>0.0</u>		
<b>Herb Stratum</b> (Plot size: <u>30 ft</u> )					
1. <u>Poa pratensis</u>	<u>90</u>	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. <u>Andropogon virginicus</u>	<u>10</u>	No	FACU		
3. <u>Liriodendron tulipifera</u>	<u>3</u>	No	FACU		
4. <u>Pyrus calleryana</u>	<u>2</u>	No	NI		
5. <u>Lamium amplexicaule</u>	<u>2</u>	No	NI		
6. _____		-	-		
7. _____		-	-		
8. _____		-	-		
9. _____		-	-		
10. _____		-	-		
11. _____		-	-		
12. _____		-	-		
Total Cover =	<u>107.0</u>	50% <u>53.5</u>	20% <u>21.4</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30 ft</u> )					
1. _____		-	-	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m tall).  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
2. _____		-	-		
3. _____		-	-		
4. _____		-	-		
5. _____		-	-		
6. _____		-	-		
Total Cover =	<u>0.0</u>	50% <u>0.0</u>	20% <u>0.0</u>		
<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>					
Remarks: (Include photo numbers here or on a separate sheet.					

**SOIL**

Sampling Point: UP-4

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Feet)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-0.6	10YR 4/3	85	10YR 5/6	10	C	M	Silt loam	
			7.5YR 5/6	5	C	M		
0.6-1.5	10YR 5/6	100					silt clay loam	
1.5-2.0	10YR 5/4	95	7.5YR 6/6	5	C	M	silt clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> 2 cm Muck (A10) LRR N	<input type="checkbox"/> Very Shallow Dark Surface (TF12
<input type="checkbox"/> Depleted Below Dark Surface A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1 LRR N,	
<input type="checkbox"/> MLRA 147, 148)	
<input type="checkbox"/> Sandy Gleyed Matrix S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Polyvalue Below Surface (S8 (MLRA 147, 148)	
<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Iron-Manganese Masses (F12 (LRR N,	
<input type="checkbox"/> MLRA 136)	
<input type="checkbox"/> Umbric Surface (F13 (MLRA 136, 122	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Red Parent Material (F21) MLRA 127, 147)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches : _____	Hydric Soil Present?    Yes _____    No <u>X</u>
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Remarks:

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: MACA Seasonal Quarters Site 1 City/County: Edmonson Sampling Date: 4/20/2022  
 Applicant/Owner: Mammoth Cave National Park State: KY Sampling Point: UP-5  
 Investigator(s): Alan Moore PWS, Shelley Dodd CE Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR or MLRA): MLRA 120A Lat: 37.1846009 Long: -86.0874507 Datum: NAD83  
 Soil Map Unit Name: Wellston silt loam, 6 to 12 percent slopes, eroded NWI classification: Unclassified

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ True Aquatic Plants (B14) ___ High Water Table (A2)      ___ Hydrogen Sulfide Odor C1) ___ Saturation A3)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1)      ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3)      ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4)      Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UP-5

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Liriodendron tulipifera</i></u>	20	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. <u><i>Prunus serotina</i></u>	20	Yes	FACU	
3. <u><i>Ulmus alata</i></u>	10	No	FACU	
4. <u><i>Pinus virginiana</i></u>	10	No	FACU	
5. <u><i>Ulmus rubra</i></u>	10	No	FAC	
6. <u><i>Acer rubrum</i></u>	7	No	FAC	
7. <u><i>Fraxinus americana</i></u>	5	No	FACU	
8. _____	-	-	-	
Total Cover =	82.0	50% 41.0	20% 16.4	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Liriodendron tulipifera</i></u>	15	Yes	FACU	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____
2. <u><i>Fraxinus americana</i></u>	10	Yes	FACU	
3. <u><i>Symphoricarpos orbiculatus</i></u>	10	Yes	FACU	
4. <u><i>Ilex opaca</i></u>	5	No	FAC	
5. <u><i>Ulmus alata</i></u>	4	No	FACU	
6. <u><i>Fagus grandifolia</i></u>	3	No	FACU	
7. <u><i>Cornus florida</i></u>	3	-	FACU	
8. _____	-	-	-	
9. _____	-	-	-	
10. _____	-	-	-	
Total Cover =	50.0	50% 25.0	20% 10.0	
<b>Herb Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Vinca minor</i></u>	90	Yes	NI	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Symphoricarpos orbiculatus</i></u>	8	No	FACU	
3. <u><i>Acer rubrum</i></u>	7	No	FAC	
4. <u><i>Lonicera japonica</i></u>	7	No	FACU	
5. <u><i>Mitchella repens</i></u>	3	No	UPL	
6. <u><i>Polystichum aristichoides</i></u>	3	No	FACU	
7. _____	-	-	-	
8. _____	-	-	-	
9. _____	-	-	-	
10. _____	-	-	-	
11. _____	-	-	-	
12. _____	-	-	-	
Total Cover =	118.0	50% 59.0	20% 23.6	
<b>Woody Vine Stratum</b> (Plot size: <u>30 ft</u> )				
1. <u><i>Lonicera japonica</i></u>	10	Yes	FACU	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m tall).  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____	-	-	-	
3. _____	-	-	-	
4. _____	-	-	-	
5. _____	-	-	-	
6. _____	-	-	-	
6. _____	-	-	-	
Total Cover =	10.0	50% 5.0	20% 2.0	
Remarks: (Include photo numbers here or on a separate sheet.				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>

**SOIL**

Sampling Point: UP-5

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Feet)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-0.6	10YR 4/3	100					silt loam	
0.6-1.1	10YR 5/6	100					silt loam	
1.1-2.0	7.5YR 5/6						clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8 (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) LRR N	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12	
<input type="checkbox"/> Depleted Below Dark Surface A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1 LRR N,	<input type="checkbox"/> Iron-Manganese Masses (F12 (LRR N,		
<input type="checkbox"/> MLRA 147, 148)	<input type="checkbox"/> MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix S4)	<input type="checkbox"/> Umbric Surface (F13 (MLRA 136, 122		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) MLRA 127, 147)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches : _____	Hydric Soil Present?    Yes _____    No <u>X</u>
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Remarks: