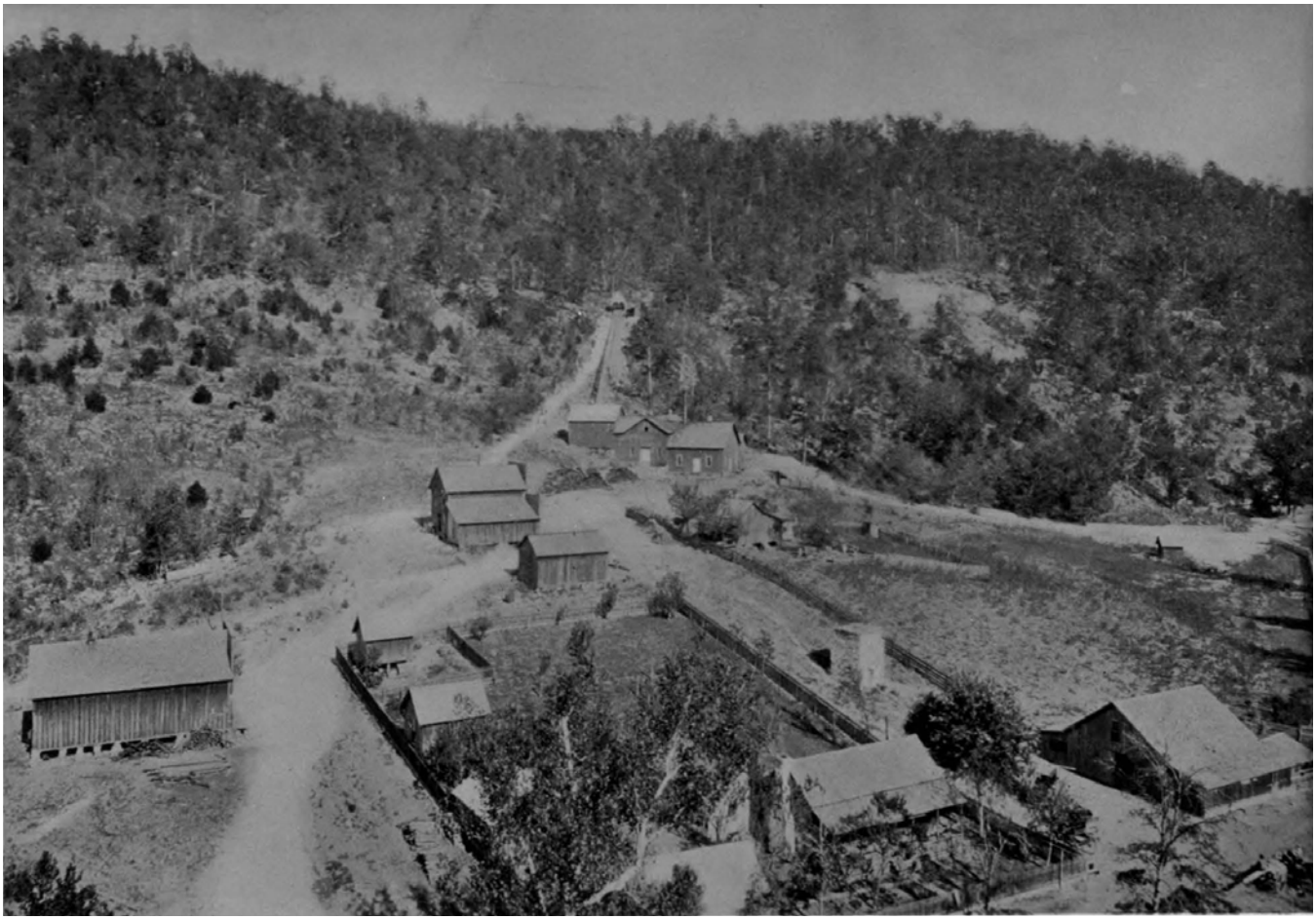
National Park Service
U.S. Department of the Interior



Rush Historic District
Buffalo National River
Cultural Landscape Report and Environmental Assessment

March 2019

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National Park Service
Buffalo National River
Mark Brose, Park Superintendent
Caven Clark, Chief of Interpretation and Resource Management
Suika Rivett, Archeologist
Chuck Bitting, Park Geologist
Jesse Morris, Acting Chief of Facility Management

Midwest Regional Office
Marla McEnaney, Historical Landscape Architect

Consultant Team
Mundus Bishop
Tina Bishop, Principal
Shelby Scharen, Preservation Planner
Madalyn Shalkey, Graphics

CORVUS Environmental Consulting
Mary Powell, Project Manager

Anderson Hallas
Kristen Craig, AIA, Architect

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National Park Service
U.S. Department of the Interior

BUFFALO NATIONAL RIVER
HARRISON, AR

RUSH HISTORIC DISTRICT CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT

INTRODUCTION

The National Park Service (NPS) is proposing to implement management actions at Rush Historic District (study area), a component of Buffalo National River (park), that focus on preserving the district's cultural landscape and historic structures. Rush Historic District's cultural landscape includes a wide range and large number of cultural landscape features. These include natural features such as Buffalo River and Clabber Creek; circulation features such as roads and trails; prehistoric and historic archaeological sites; and structures associated with townsites, mills, smelters, and mine and mine complexes. Selected management actions include:

- repairing contributing features and rehabilitating historic structures;
- vegetation clearing along roads, at spoils piles, and within domestic spaces;
- clearing vegetation from, stabilizing, and marking building ruins; and
- securing mine adits, portals, and entrances.

The actions will reveal the broad extent of the historic mining industry and associated community. As more of the historic mining landscape is revealed, more opportunities will be created to fully immerse visitors in the study area.

The NPS has completed a combined Cultural Landscape Report and Environmental Assessment (CLR/EA) to document and evaluate the cultural landscape and historic structures of Rush Historic District. The documentation served as a framework upon which alternatives were developed for the treatment and use of the cultural landscape and historic structures of Rush Historic District. The CLR will provide park managers with a comprehensive understanding of the physical evolution of the historic structures and landscapes and guidance for management of the resources.

In compliance with the National Environmental Policy Act of 1969 (NEPA), the NPS prepared the EA to examine alternative treatments and their associated environmental impacts. The treatment alternatives included the selected preservation alternative (Action Alternative 1), an alternative focused on rehabilitation (Action Alternative 2), and a no action alternative. The statements and conclusions reached in this finding of no significant impact (FONSI) are based on documentation and analysis provided in the CLR/EA and associated decision file. To the extent necessary, relevant sections of the CLR/EA are incorporated by reference below.

SELECTED ALTERNATIVE

Based on the analysis presented in the EA, NPS selected the preservation treatment (Action Alternative 1) as the NPS selected alternative because it best meets the purpose and need for the project as well as the project goals to:

- Summarize the prehistoric/historic activity in the region/study area to convey how it influenced today's physical landscape.
- Document the current physical conditions at Rush Historic District to identify ongoing resource threats and resulting impacts, such as invasive native and exotic plants, drainage and/or erosion, and deferred maintenance.
- Recommend methods for vegetation management to control or reestablish significant views.
- Identify opportunities for accommodating universally accessible visitor amenities such as parking, trails and walkways, comfort stations/shelters, and outdoor gathering spaces. Provide recommendations regarding human access to restricted resources. Identify future research potential with regards to history, mineralogy, archeology, etc.

The following highlights major elements of the selected alternative, while detailed description can be found in Chapter 6 of the CLR/EA.

The selected alternative focuses on preserving contributing features and rehabilitating the historic setting. This will provide an immersive visitor experience to improve understanding of the scale of the historic mining operations and the community that supported it. The broad extent of the historic mining landscape, primarily within Morning Star Community landscape character area will be revealed, including spaces and features of the mining industry and associated community.

This alternative will stabilize extant buildings. Extant ruins and foundations will be preserved in-situ and stabilized and repaired according to their condition. Circulation features and patterns, small scale features, and vegetation patterns will be repaired. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) will be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils and tailings piles, and within some domestic spaces will be completed to repair spatial organization. Domestic spaces in House Row and at Rush Smelter and Morning Star Livery Barn ruins will be repaired. Mine adits, portals, and entrances will be secured. Select locations at portals will be cleared of vegetation and interpretation will be provided.

Existing visitor facilities will remain and be improved for universal accessibility. A trail extension will be added on Rush Mountain (Rush Mountain Trail), and improvements will be made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

ALTERNATIVES CONSIDERED

In addition to those for the selected alternative, the EA provides detailed descriptions and analyses of a no-action alternative and a preservation alternative (Action Alternative 1) (see EA Chapter 4).

The no action alternative would follow a preservation approach. This approach would include actions already identified and/or in-progress to stabilize and repair contributing features and essential spaces for

improved visitor contact and wayfinding. The no action alternative would include actions that the park would undertake as part of regular operations. Under the no action alternative, the present level of use, management, interpretation, maintenance and operations would continue. The no action alternative includes actions identified in the park's 2008 Buffalo National River "Foundation for Planning and Management" and long range interpretive plan, and actions already identified and/or in-progress.

In addition to activities described under the no action alternative, Action alternative 2 would focus on repairing contributing features and rehabilitating the historic setting to the greatest extent possible. This alternative would reveal the broadest extent of the historic mining industry and associated community. As more of the historic mining landscape is revealed, more opportunities would be created to fully immerse visitors in the historic mining operations and community.

Building ruins would be cleared of vegetation, stabilized, and marked. Extant ruins and foundations would be preserved. Taylor-Medley General Store would be rehabilitated, and the front porch improved for access onto the porch only. Work would include rehabilitating the exterior façade including the roofing, wood siding, windows and doors. Structural work would stabilize the porch foundation and roof. Footprints of most non-extant buildings and structures, of which some foundations remain, would be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils piles, and within domestic spaces would assist in repairing spatial qualities. Mine adits, portals, and entrances would be secured. Many would be cleared of vegetation and repaired for limited visitor interpretation.

Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Mitigation Measures

The selected alternative will implement several mitigation measures and best management practices to minimize the degree and/or severity of adverse effects on water resources; wildlife and species of concern; native vegetation; and cultural landscapes, historic structures, and archaeological resources and reduce the potential adverse effects of non-native ornamentals and invasive, exotic plant species on native vegetation and other park resources. The selected alternative incorporates the mitigation measures and best management practices listed in Appendix A of this document.

Significance Criteria Review

As defined in 40 CFR § 1508.27, NPS determined the significance of effects by examining ten criteria. A brief discussion explaining why the Selected Alternative will not have a significant effect on the human environment is given below for each criterion. Key areas in which impacts were evaluated in the CLR/EA include cultural landscapes, historic structures, archaeological resources, vegetation, water resources, and special status species.

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the NPS believes that, on balance, the effect will be beneficial.

Implementing the selected alternative, including mitigation measures, will result in both beneficial and adverse impacts. In general, the alternative provides beneficial effects on the cultural landscape and historic structures and no effect on archaeological resources. The alternative will have modest adverse effects on native vegetation due to disturbance and the potential for the establishment and spread of

invasive, exotic plant species. The alternative may affect but would not be likely to adversely affect several bat species. The alternative would have no effect on water resources or special status species of invertebrates, plants, or birds.

Rehabilitation activities included in the selected alternative will result in modest beneficial effects on historic structures by repairing and stabilizing structures and clearing vegetation. Modest beneficial effects on the cultural landscape will result from reestablishing relationships between roads and buildings visible during the period of significance.

Vegetation and ground disturbance associated with thinning vegetation on 16.55 acres of native vegetation will result in local, modest adverse effects on native vegetation. Ground-disturbing activities associated with construction and vegetation management could result in the establishment or spread of invasive exotic species and nonnative vegetation, a local, modest, adverse effect.

With mitigation and conservation measures, vegetation and ground disturbance and securing mine entrances, adits, and portals under the selected alternative will have no effect on special status species of invertebrates, plants, or birds and may affect but are not likely to adversely affect several bat species.

Water resources will not be affected by the selected alternative.

With the mitigation measures listed in Appendix A, overall, the selected alternative will have no more than modest adverse effects on native vegetation and no adverse effects on special status species, water resources, and archaeological resources. The alternative will have no more than modest beneficial effects on the cultural landscape and historic structures. For these reasons, the level of adverse and beneficial effects will not be significant.

(2) The degree to which the proposed action affects public health or safety.

The selected alternative will have a long-term, moderate beneficial effect on public health and safety by securing mine complex entrances, adits, and portals and by limiting visitor proximity to potentially hazardous rock faces.

Temporary facility, trail, and grounds closures will keep the public away from areas where potentially harmful construction and vegetation clearing activities are occurring. Because the public will not be exposed to construction activities, there will be no significant adverse effects on public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic river, or ecologically critical areas.

The selected alternative will have no effect on wild and scenic rivers, prime farmlands, or ecologically critical areas because they are not present in or near the project area. The Buffalo River adjacent to the project area is designated as Critical Habitat for the Rabbitsfoot Mussel (Quadrula cylindrica cylindrica). However, based on its evaluation of the duration and type of disturbance associated with the selected alternative, NPS determined that, with the mitigation and conservation measures described in the CLR/EA (attached as Appendix A), the selected alternative will have no effect on the rabbitsfoot.

The selected alternative will result in beneficial effects on historic structures and the cultural landscape in Rush Historic District. If potential adverse effects are encountered during implementation of the selected alternative, all activities will comply with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716, revised), and, if present, archeological resources near the project area will be identified and delineated for avoidance prior to project work.

Additional mitigation measures and best management practices will be used to avoid adverse impacts of the selected alternative on historic structures and the cultural landscape in the project area. Therefore, with the implementation of the mitigation measures, adverse effects will not be significant.

(4) The degree to which effects on the quality of the human environment are likely to be highly controversial.

Short-term adverse effects on the quality of the human environment will result during construction and vegetation removal but are not anticipated to affect the quality of the human environment over the long-term or at more than small levels. The selected alternative provides beneficial effects on visitor use and experience by more accurately representing conditions during the period of significance and improving visitor use of the Rush Historic District. No highly controversial issue was uncovered during agency and public scoping or during the comment period.

For these reasons, beneficial and adverse effects on the human environment are not likely to be highly controversial or significant.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The activities under the selected alternative will not result in highly uncertain effects or involve unique or unknown risks. Temporary facility, trail, and area closures will keep the public away from areas where potentially harmful construction activities are occurring. Therefore, effects or risks on the human environment will not be significant.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The selected alternative is not a unique, precedent-setting action, does not include new or untested construction methods or materials, and is in keeping with similar actions implemented in other NPS parks. The selected alternative also does not predicate any future actions, whether with significant effects or not. Therefore, the selected alternative will not result in significant effects from a future action or establish a decision principal about future considerations.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

Past, present, and reasonably foreseeable future actions will have no cumulative effects on cultural landscapes, historic structures, and archaeological resources; water resources; or special status species. There will be modest adverse consequences to native vegetation. As described under Criterion 3, with the implementation of mitigation measures to reduce adverse impacts, the level of cumulative adverse effects will not be significant.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places; or may cause loss or destruction of significant scientific, cultural, or historical resources.

The selected alternative will have modest beneficial effects on the cultural landscape and on historic structures. Effects on the cultural landscape will be beneficial over the long term by repairing contributing features, removing noncontributing features, and better representing conditions during the period of significance (1896-1932). To mitigate potential adverse impacts on historic properties, treatment activities

will be implemented in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716, revised). The NPS initiated consultation with the State Historic Preservation Office (SHPO) with a scoping letter sent on September 15, 2016. The SHPO also received a copy of the draft CLR/EA for review and comment. NPS will continue to engage with SHPO prior to and during implementation of the selected alternative. As also determined under criterion 3, with mitigation measures, adverse effects on historic structures and cultural landscapes will not be significant.

(9) The degree to which the action may adversely affect an endangered or threatened species or its critical habitat.

In consultation with US Fish and Wildlife Service (USFWS), NPS determined the following threatened or endangered species may be present in or affected by activities in Rush Historic District for at least some part of the year: Hell Creek Cave crayfish (*Cambarus zophonastes*), rabbitsfoot (*Quadrula cylindrica cylindrica*), snuffbox (*Epioblasma triquetra*), western fanshell (*Cyprogenia aberti*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and tricolored bat (*Perimyotis subflavus*). Additionally, bald eagle (*Haliaeetus leucocephalus*) and three state threatened plants - Alabama snow-wreath (*Neviusia alabamensis*), false gaura (*Stenosiphon linifolius*), and royal catchfly (*Silene regia*) – may occur in Rush Historic District.

Based on its evaluation of the likelihood of species being present and the seasonality, duration, and type of disturbance associated with the selected alternative, NPS determined that, with the mitigation and conservation measures described in the CLR/EA (attached as Appendix A), the selected alternative will have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, Alabama snow-wreath, false gaura, royal catch fly, or bald eagle nor will it affect designated critical habitat for any species. NPS has further determined that the selected alternative may affect, but will not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, and tricolored bat.

A letter seeking concurrence from the USFWS regarding this determination was sent on February 8, 2019. NPS will not proceed with any tree removals before receiving concurrence from the USFWS. NPS will continue to coordinate with USFWS to ensure the selected alternative will have no adverse effects on threatened and endangered species.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The selected alternative will not violate any Federal, State, or local laws or requirements imposed for the protection of the environment.

Decision and Finding of No Significant Impact

Based on the review of the facts and analysis in the CLR/EA, the NPS has selected Action Alternative 1 for implementing the CLR/EA at Rush Historic District in Buffalo National River. The selected alternative will not have a significant impact either by itself or in consideration of cumulative impacts. Accordingly, the requirements of NEPA, regulations promulgated by the CEQ, regulations promulgated by the Department of the Interior, and provisions of Director's Order 12 and the 2015 *National Park Service NEPA Handbook* have been fulfilled.

It is my determination that the selected alternative does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with NEPA and CEQ regulations (40 CFR 1508 et. seq.), and environmental impact statement is not required and will not be prepared for implementation of the selected alternative.

Recommended:

Mark Foust, Park Superintendent
Buffalo National River
Midwest Region

2-20-19
Date

Approved:

Patricia S. Trap, Acting Regional Director
Midwest Region

3.5.19
Date

Appendix A Mitigation Measures

Appendix B Non-Impairment Determination

APPENDIX A- MITIGATION MEASURES

The NPS places strong emphasis on protecting resources against potentially adverse impacts. Mitigation is used to avoid, prevent, or minimize adverse impacts during implementation of projects. The following mitigation measures will be implemented as part of the selected alternative. The NPS may need to obtain federal and state environmental permits and, as part of that process, additional mitigation measures could be required by other agencies. The NPS will implement an appropriate level of monitoring throughout project activities to ensure that protective measures are being properly implemented and are achieving their intended results.

General Measures

- The work area limits will be clearly defined, fenced, flagged, and delineated to keep ground disturbance to a minimum. No disturbance will occur beyond these limits other than protection measures for erosion/sediment control.
- All contractor employees and subcontractors will attend an orientation session(s) regarding park regulations focused on minimizing impacts on resources, human health and safety, and leave no trace measures.
- All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project area upon project completion. Construction debris will be hauled from the park to an appropriate disposal location.
- Staging, materials, and equipment will be in developed areas such as existing parking lots to the extent possible.

Cultural Landscapes, Historic Structures, and Archaeological Resources

- Unless they are part of the project, known historic sites and isolated occurrences will be avoided during construction.
- NPS cultural resources staff will be available during implementation to advise or take appropriate actions should any archeological resources be uncovered during implementation. Should any archeological resources be uncovered during implementation, as appropriate, work will be halted in the area and the NPS archeologist will be contacted immediately. The NPS archeologist will then conduct further compliance measures in accordance with 36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- The park will ensure that all personnel who work on the project are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Personnel will also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic will be minimized in the site. Equipment and materials staging areas will also avoid known archeological resources.

Water Resources

- If minor earthwork is necessary, standard erosion-control measures such as silt fencing will be used to minimize erosion and the introduction of sediments to aquatic habitat during and after construction.
- All vehicle and equipment fueling will occur more than 100 feet from any surface water in a location where a fuel spill will not be able to enter the water.
- A spill prevention and response plan that regulates the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment, will be prepared.
- Disturbed areas will be reseeded as quickly as possible following the work.

Native Vegetation and Non-native Ornamental and Invasive, Exotic Species

- Non-invasive ornamental tree and shrub species will be used in cultural landscape treatments.
- Disturbance to vegetation will be avoided as much as possible and contained to as small a footprint as possible.
- Temporary barriers may be provided to protect existing trees, plants, and root zones not proposed for removal or thinning. Trees or other plants will not be removed, injured, or destroyed without prior approval.
- All equipment entering the park will be cleaned and pressure washed to remove foreign soil, vegetation, and other materials that may contain nonnative seeds or vegetation.
- All disturbed areas will be revegetated with native species. Revegetation plantings, if necessary, will use native species from genetic stocks originating in the park, if possible. Revegetation efforts will focus on recreating the natural spacing, abundance, and diversity of native plant species. All disturbed areas will be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed.
- To minimize introduction of exotic plant species, no hay bales will be used for mulch. Hay often contains seed of undesirable or harmful invasive exotic plant species. Therefore, on a case-by-case basis, the following materials may be used for any erosion control that may be necessary: rice straw, straws determined by the NPS to be weed-free (e.g., barley straw or winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.
- Non-native and invasive exotic plant infestations in restored areas will be treated on a yearly basis for a minimum of three years following project completion.

Wildlife and Species of Concern (Conservation Measures)

- Construction personnel will be instructed on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage, and other attractants.
- Pre-project surveys will be performed to identify sensitive plant species, vegetation communities, and wildlife habitat. Treatment alternatives will be revised, if necessary, to avoid more than minimal impacts on wildlife and to avoid adverse effects on species of concern. Project plans will identify areas to avoid.

- Areas will be designated for stockpiling slash material.
- To reduce noise disturbance and limit impacts on breeding avian and mammalian species, all tree and shrub thinning and removal will be conducted from October 1 to March 1, where feasible.
- If tree and shrub thinning and removal must occur between March 1 and October 1, field surveys for migratory bird nests and cavities and bat roosts and nurseries will be conducted prior to vegetation-disturbing activities. Where active nests or nurseries are present, vegetation removal will not occur until after the young have fledged, and ground-disturbing activities will not occur within 100 feet until the young have fledged.

Public Health and Safety

- Signs, press releases, or other communication methods will be used to inform visitors about construction and any building or area closures or detours during construction.
- Appropriate barriers and barricades will be used to clearly delineate work areas and provide for safe visitor travel near construction areas.
- Emergency response protocols will be developed for implementation during construction. Construction activities will be conducted in accordance with established safety protocols.

APPENDIX B – NON-IMPAIRMENT DETERMINATION

Introduction

In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS *Management Policies 2006* (section 1.4) requires analysis of potential effects to determine whether or not selected alternatives would impair a park's resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the NPS must leave resources and values unimpaired unless a law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values (NPS *Management Policies 2006*). Whether an impact meets this definition depends on the particular resources that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

An impairment determination is not made for visitor use and experience, public health and safety, recreation resources, and transportation because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act and cannot be impaired in the same way that an action can impair park resources and values.

Impairment Determination

Based on the previously described guidelines and basis for determining impairment of park resources and values, a determination of impairment is made for each of the resource impact topics carried forward and

analyzed in the EA for the selected alternative. The EA contains detailed descriptions of the resources and environmental effects of the selected alternative, which are summarized below.

Cultural Landscapes, Historic Structures and Archaeological Resources

Standing structures and ruins are the most visible parts of the overall Buffalo National River cultural landscape and are scattered throughout its boundary. Settlement occurred along the river's length, in fertile tributary valleys, and along forested slopes. Structures or other remains are virtually everywhere, whether still in use as part of active farms or long abandoned.

Rush Historic District is a 1,300-acre former zinc mining district located on the Buffalo National River and two of its tributaries, Rush and Clabber creeks. It is a remnant industrial landscape containing the remains of open-pit and underground zinc mines, concentrating mills, worker housing, and other commercial establishments, in addition to numerous small-scale features that reflect mining community life. The study area's contributing resources have been listed on or determined eligible for the National Register of Historic Places.

The archeological resources at Buffalo National River encompass 12,000 years of human activity and include numerous prehistoric and historic archeological sites, including in the study area. In the study area, the Dirst site is a well-documented prehistoric archeological site located along the Buffalo River at its confluences with Rush and Clabber creeks. Recovered artifacts from stratified deposits date from Early Archaic to Early Mississippian, suggesting various series of use and occupation of the Dirst site from as early as 10,500 years ago to as recently as 840 years ago.

The cultural landscape and historic and prehistoric resources are integral parts of Buffalo National River and are considered significant park resources.

The selected alternative follows a rehabilitation approach. In addition to ongoing repair and improvement projects, additional actions will rehabilitate the historic mining setting to the greatest extent possible.

Under the selected alternative, extant buildings will be stabilized, circulation features and patterns, small scale features, and vegetation patterns will be repaired. Extant ruins and foundations will be preserved. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) will be cleared of vegetation and marked. Vegetation clearing, thinning, and pruning will be completed along roads, at some spoils and tailings piles, and within some domestic spaces to assist in repairing spatial organization. Domestic spaces include those at House Row and at Morning Star Hotel, Mill and Mine Community. Mine adits, portals, and entrances will be secured. Select locations at portals will be cleared of vegetation and repaired for limited visitor interpretation.

The selected alternative will have modest beneficial effects on the cultural landscape by reestablishing relationships between roads and buildings visible during the period of significance. Effects on historic structures will be small and beneficial. There will be no adverse effects on archaeological resources. For these reasons, no impairment of cultural landscapes, historic structures, or archaeological resources will occur.

Native Vegetation

Many northern and southern ecosystems converge in Buffalo National River, as do some western and eastern species. This convergence results in around 56 vegetation association types, including some rare or uncommon types, in Buffalo National River. For this reason, vegetation management and preservation are priorities of Buffalo National River.

Vegetation communities in the study area closely reflect those in the remainder of Buffalo National River, with oak-dominated communities being most prevalent. Coniferous and mixed-coniferous forest and woodland communities are concentrated on south-facing slopes in the Rush Creek and Buffalo River valleys. Communities along Rush Creek and Buffalo River include Bottomland Hardwood Forest, Bottomland Shrubland, and Gravel Bar Sparse Vegetation. Most of the vegetation communities in the study area are common throughout Buffalo National River and elsewhere, although one of the Conifer Woodland sub-types, Ozark Ashe's Juniper Woodland, is considered globally rare but locally more common.

The park's native vegetation is an integral part of the national river established by the enabling legislation. As a biologic feature of the park's ecosystem and part of the park's scientifically recognized assemblage of flora and fauna, native vegetation is considered a significant park resource.

The selected alternative will include thinning and clearing trees, shrubs, and understory on about16.55 acres of native vegetation that has encroached into historically cleared areas. This would represent 1.41% of the estimated 1,194 acres of vegetation in Rush Historic District. In addition to areas in which native vegetation will be removed or managed, there will be small areas of disturbance associated with other treatment elements, including repairing or stabilizing buildings and other structures.

With the mitigation measures that will be included, adverse effects on native vegetation would be modest and noticeable. Because adverse effects on native vegetation will be modest on a local level and the overall integrity of the park's native vegetation resource will not be affected, no impairment of native vegetation resources will occur.

Water Resources

The enabling legislation for Buffalo National River (16 U.S.C. § 460m-8 (1972)) describes the purpose of Buffalo National River as "conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations…" The Arkansas Department of Environmental Quality has designated Buffalo National River as "Extraordinary National Resource Waters." In keeping with the enabling legislation and state designation, maintaining Buffalo National River's ecological functions and values, including high water quality, is a primary influence on how NPS manages Buffalo National River and evaluates proposed activities that may affect the river.

In general, water quality monitoring results for Buffalo River at Rush Landing and Rush and Clabber creeks indicate water quality remains high and has not degraded to the degree seen in middle Buffalo River. Of concern in the study area is the potential to affect water quality through sediment loading and turbidity associated with runoff from road and trail surfaces, ditches, mine spoils, and soils exposed by ground-disturbing activities. Within the steep terrain of the study area, stormwater runoff from unpaved roads and cleared land carries both fine and coarse sediments to Buffalo National River. Increased turbidity results in an unnatural decrease in stream channel stability, increase in eroding stream banks, and degradation of aquatic habitat.

Under the selected alternative, some activities could expose soils to erosion and subsequent transport to surface waters. Any ground disturbing activities will include implementing best management practices to minimize soil erosion and sediment transport to surface waters. Best management practices, including those described as mitigation measures, such as installing silt fences and reseeding disturbed areas as soon as possible following the work, will be implemented. With best management practices and mitigation

measures, the selected alternative will have no discernable effect on water resources. For this reason, the selected alternative will not result in impairment of water resources or their associated values.

Special Status Species

Special status species include species listed as threatened or endangered under the Endangered Species Act and other species considered sensitive by the park, including species listed by the State of Arkansas that are either state threatened, endangered, or of special concern. The NPS is aware of federally endangered and threatened species that may be present in Rush Historic District, including Hell Creek Cave crayfish (*Cambarus zophonastes*), rabbitsfoot (*Quadrula cylindrica cylindrica*), snuffbox (*Epioblasma triquetra*), western fanshell (*Cyprogenia aberti*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and tricolored bat (*Perimyotis subflavus*). Additionally, bald eagle (*Haliaeetus leucocephalus*) and three state threatened plants - Alabama snow-wreath (*Neviusia alabamensis*), false gaura (*Stenosiphon linifolius*), and royal catchfly (*Silene regia*) – may occur in Rush Historic District.

The park's special status species are an integral part of the national river. As a biologic feature of the park's ecosystem and part of the park's scientifically recognized assemblage of flora and fauna, special status species are key to the natural integrity of the park, and are considered a significant park resource.

NPS determined that, with the mitigation and conservation measures described in the CLR/EA, the selected alternative will have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, Alabama snow-wreath, false gaura, royal catch fly, or bald eagle nor will it affect designated critical habitat for any species. NPS has further determined that the selected alternative may affect, but will not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, or tricolored bat. Because the selected alternative will not have substantial short term or long adverse effects, it will not result in an impairment of special status species resources or their associated values.

Conclusion

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the selected alternative.

Cultural Landscape Report Part - I

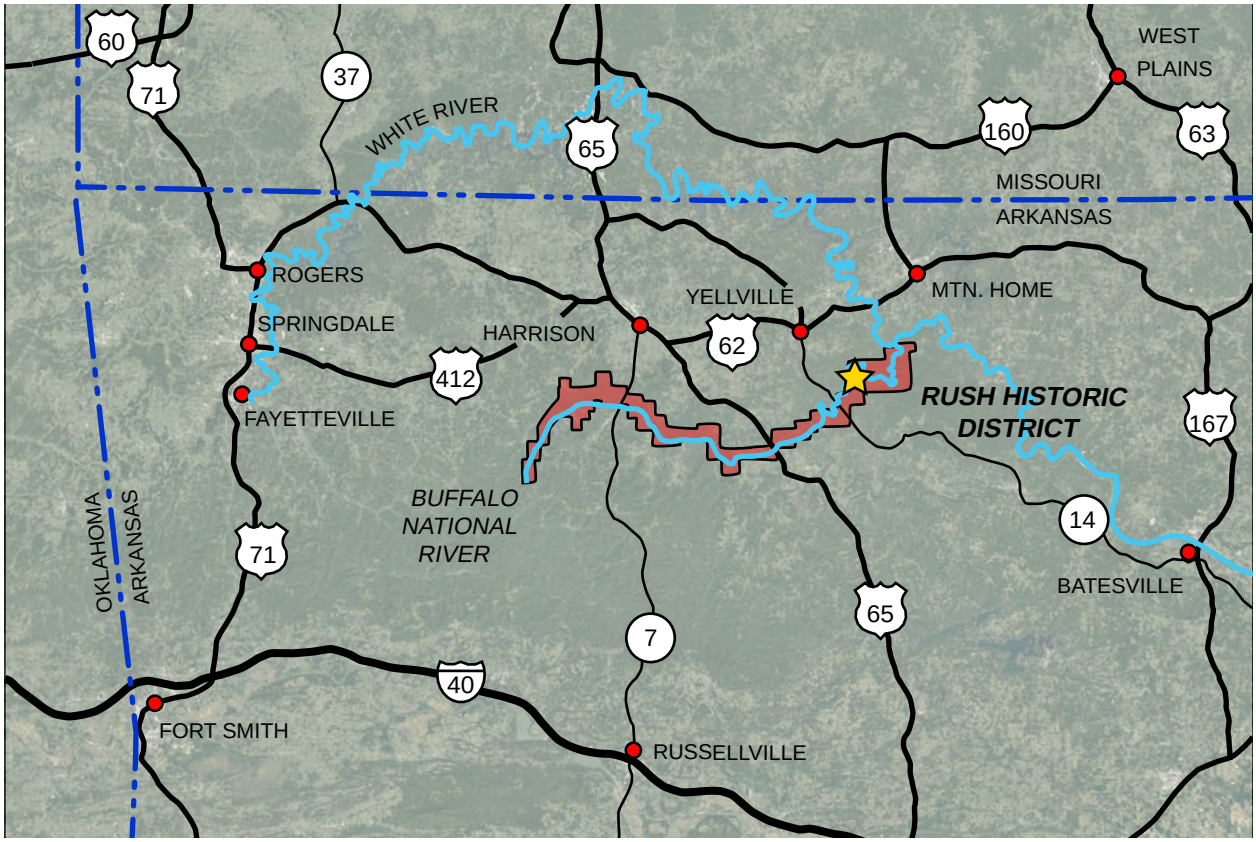


Figure 1-1. Rush Historic District is in the Buffalo National River in the Ozark Highlands. It is accessed by Arkansas Highway 14 and County Road 635. A boat landing on the river provides water access. (Mundus Bishop 2017, adapted from nps.gov/dscw/cad-sheets.htm, Google Maps 2017)

Chapter 1. Introduction

Introduction

This document presents the Cultural Landscape Report and Environmental Assessment (CLR/EA) for Rush Historic District (study area), a component of Buffalo National River (the park).

This CLR/EA provides detailed documentation of Rush Historic District's historical development, evaluates its existing condition, analyzes landscape characteristics, assesses integrity, and defines contributing features.

The CLR/EA is the primary treatment document for Rush Historic District, used to guide management and stewardship. This document defines an appropriate treatment strategy for managing Rush Historic District and accommodating visitor use and access. The treatment guidelines provide interim and long-term resource management, sustainable cyclic maintenance, and support educational programs and recreation.

This work builds upon studies, investigations and documents that already exist for Rush Historic District. These include the 2008 Buffalo National River "Foundation for Planning and Management (FPM)," 2015 Buffalo National River Long Range Interpretive Plan (LRIP), 2012 Rush Historic District Cultural Landscape Inventory (CLI), 1987 Rush Historic District National Register of Historic Places nomination (NRHP), 2006 NPS Rogers et al. "Historic Resource Documentation, Morning Star Mines Interpretive Area," and numerous other plans and resource reports.

This plan fulfills a park priority for facility asset management and resource management at Rush Historic District of Buffalo National River and serves as a component of the park's planning portfolio. This follows the National Park Service's "Planning Portfolio" construct, consisting of a compilation of individual plans, studies, and inventories, which together guide park decision making. The planning portfolio enables the use of targeted planning products to meet a broad range of park planning needs, a change from the previous National Park Service (NPS) focus on standalone general management plans. The general management plan remains a critical piece of the planning framework and will be revised in a timely manner as part of the park's planning portfolio.

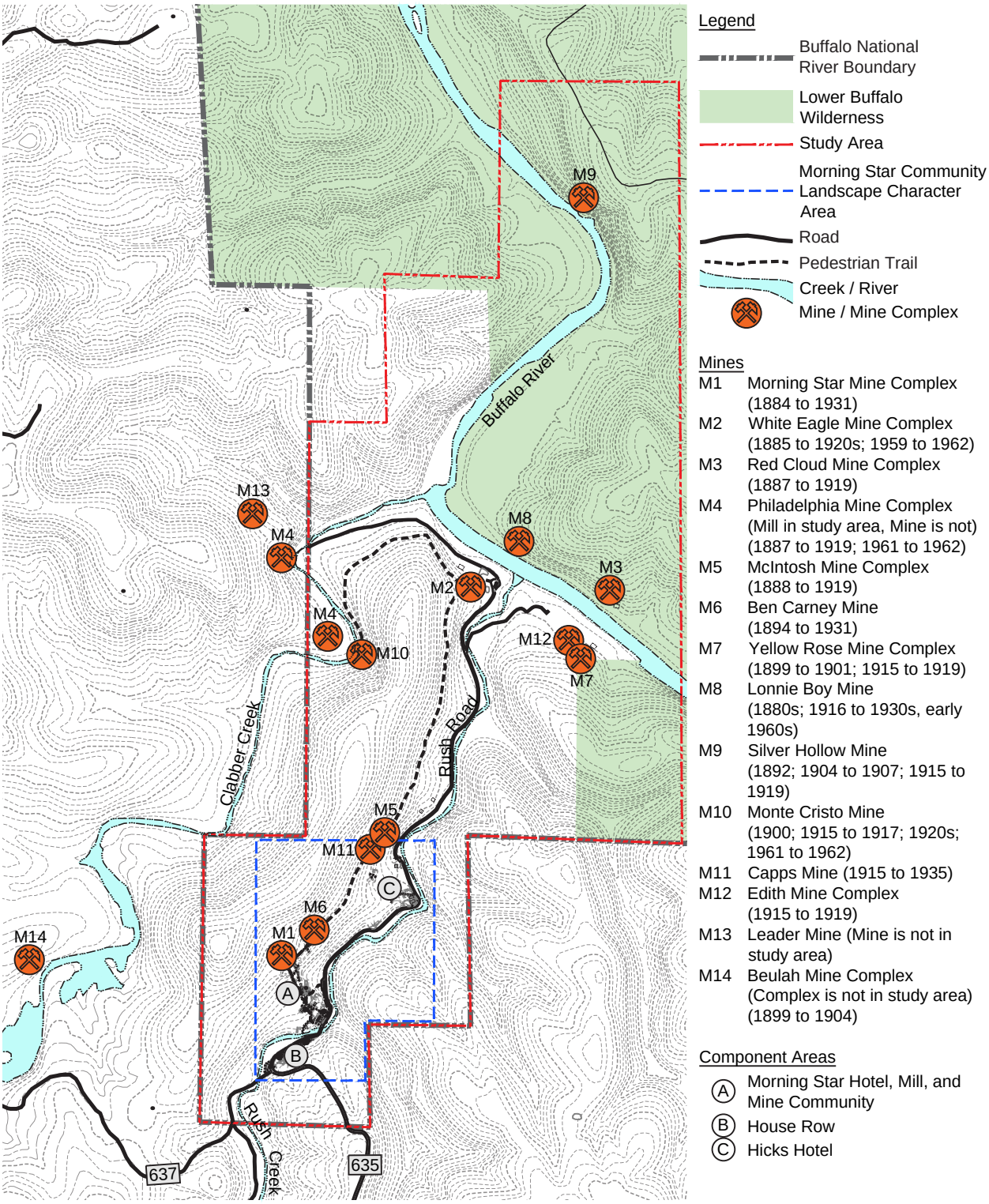


Figure 1-2. Rush Historic District (study area) is defined by steep forested hillsides and narrow river valleys. The former zinc mining district is evidenced by the remains of fourteen mines, eleven of which are in the study area, and seven zinc concentrating mills. Of what was once a larger town, today the Morning Star Community landscape character area is marked by seven standing buildings, ruins of buildings and structures, stone retaining walls, ornamental vegetation, and circulation routes that date from the period of significance.

(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS, Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Study Area

Rush Historic District is in the eastern half of the Buffalo National River in Marion County, Arkansas. Buffalo National River, in northern Arkansas in the Ozark Highlands, provides recreation and access to 135 miles of free-flowing river with boat landings, campgrounds, and visitor facilities. The study area encompasses a 1,316 acre former zinc mining district that flourished in the late 19th and early 20th centuries. The study area is defined by rugged terrain of steep hillsides, exposed rock outcroppings, and the narrow valleys of Buffalo River and two tributaries, Rush and Clabber creeks. Oak/hickory forest is the prominent vegetation type. A portion of the study area is within the Lower Buffalo Wilderness.

This CLR/EA describes the cultural landscape in two sections: the study area and Morning Star Community landscape character area. An overall description and treatment approach for the study area is presented first, including ten of the eleven mines and mine complexes (Morning Star Mine Complex is included in the Morning Star Community landscape character area). Detailed treatment guidance for the Morning Star Community landscape character area, historically the most intensely developed portion of the landscape, is presented separately.[1.1]

Mining activity began when zinc deposits were discovered in the exposed rock outcroppings of Rush Mountain in the 1880s. A mining community quickly grew from individual prospectors' digs to full-scale industrial zinc mining of vast room-and-pillar mines, zinc concentrating mills, and support structures. Mines built on the side of Rush Mountain accessed zinc deposits. Mills and communities developed downhill and on valley floors. Trees were cleared to provide fuel and building materials, and to make room for mining activities.

The First World War's increased demand for zinc, used in munitions, greatly expanded the industry. At its height, the mining district included ten mining companies, fourteen mines (eleven of which are in the study area), seven zinc concentrating mills, and over 2,000 residents.[1.2] Prior to the war's end the national surplus of zinc led to deflation in prices and the mines quickly closed. The most prominent mine, Morning Star Mine (M1), closed in 1931 signaling the end of the mining boom, although informal mining continued into the 1960s.

Rush Historic District was listed in the NRHP in 1987. It is significant for its role in the development of Arkansas mineral resources; for the cohesive unity of the mining community; and for the information that its buildings, structures, mines, and archeological sites offer for an understanding of historical mining techniques and associated community life. The period of significance is 1885 to 1931.[1.3]

Contributing features include mines, mining complexes, and features associated with the mining community. This encompass buildings and building ruins, structures, vegetation, and archeological resources. Mine complexes consist of a mine with an associated mill, mines are those not associated with a mill. The ruins of eleven mines and mining complexes include ruins of seven zinc concentrating mills, and eleven former zinc

1.1 A "landscape character area" is an area defined by the physical qualities of a cultural landscape and the type and concentration of cultural resources.

1.2 *Cultural Landscapes Inventory.* (U.S. Department of the Interior, National Park Service, 2012), 29.

1.3 *Rush Historic District, National Register of Historic Places Inventory - Nomination Form*. (1987), 36.

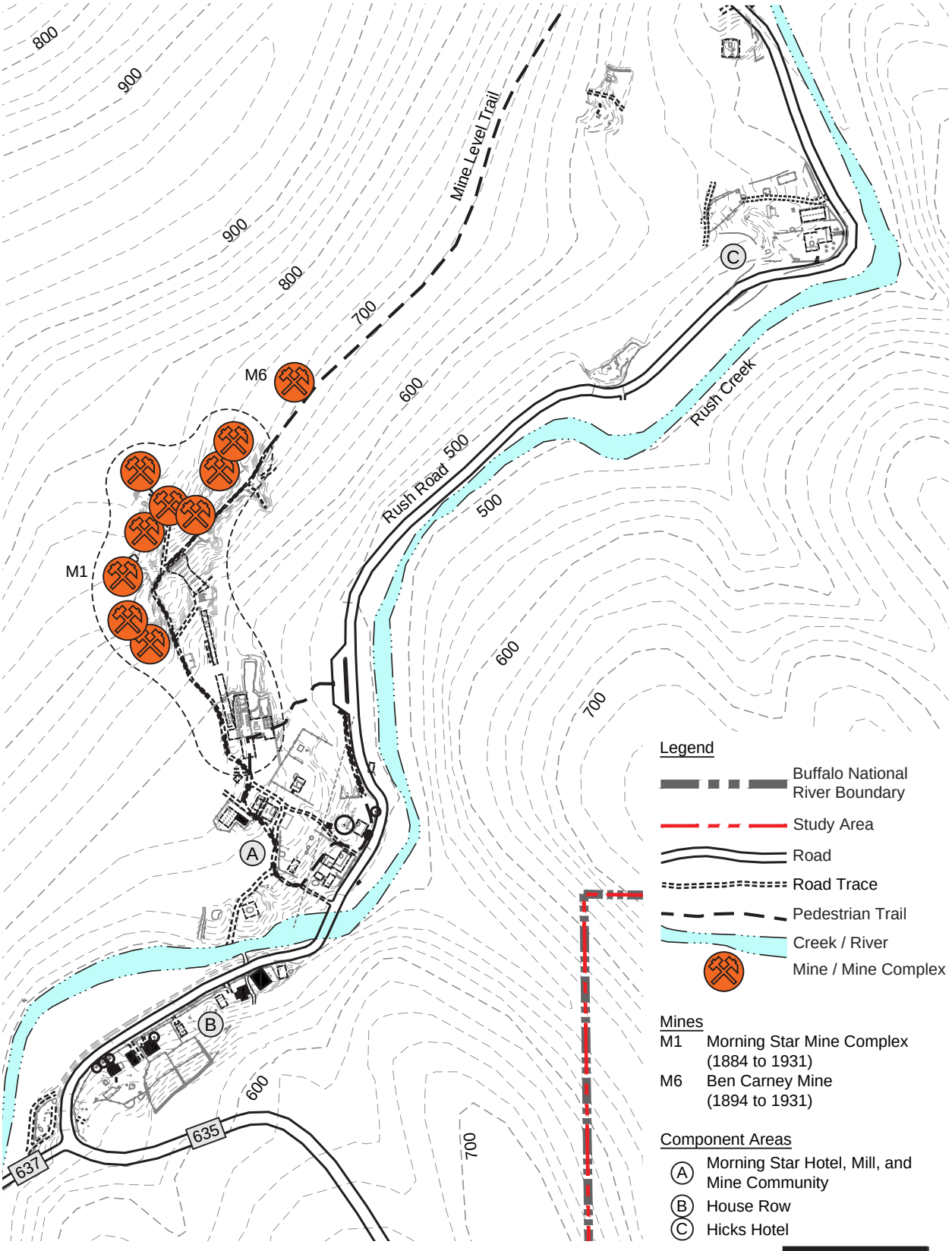
Matrix 1-1. Study Area - Features		
Feature	**Date**	**Contributing/ Non-Contributing**
Ruins		
New Town Site	1915 to 1920	Contributing
New Town Building Ruin	c 1915	Contributing
Keystone Town Site	1904 to 1919	Contributing
McIntosh Hotel Ruins	1900	Contributing
McIntosh Livery Ruins	1900	Contributing
Pop Campbell House Site Ruins	1900	Contributing
George Jones Site	c 1929 to 1939	Contributing
Boiling Spring Site	c 1915	Contributing
Gotley House Site	c 1899	Contributing
Cold Springs Hollow Structures	c 1910 to 1920	Contributing
Mine Manager's House Site	c 1925	Contributing
Pat McCormick House Site	Date unknown	Contributing
Hicks Rental Houses Sites	1915	Contributing
Con Medley House Site	c WWI	Contributing
William Fernimen Store Site	1906 to 1918	Contributing
Vicker Springs Houses Sites	c 1900	Contributing
Messer General Store Site	1910 to 1917	Contributing
Exeter Town Site	1887-1890s	Contributing
Circulation		
Rush Road	c 1880	Contributing
Morning Star Trail Parking	1988	Non-Contributing
Clabber Creek Road		Contributing
Morning Star Trail	1988	Non-Contributing
Mine Level Trail	c 1885	Historic portions that follow Tramway = Contributing
Mine Level Trail at Ore Cart		Contributing
Clabber Creek Trail		Non-Contributing
McIntosh Roadbed and Spurs	c 1900-1930s	Contributing
Driveway	c 1950	Non-Contributing
Old Road to White Eagle Mine	c 1958	Non-Contributing
Rush Landing	c 1980	Non-Contributing

mines (see Matrix 1-2). Circulation routes include Rush Road, the major vehicular route that terminates at a boat launch (Rush Landing) at Buffalo River, and hiking trails that follow historic routes. Visitor facilities include a campground and picnic area.

Since the period of significance, the cultural landscape was reforested naturally, buildings have been removed or have been subject to deterioration and arson. Historic circulation networks, spatial relationships, and mining remnants remain but are obscured by overgrown vegetation. In several locations, contemporary features encroach on the historic setting.

Matrix 1-1. Study Area - Features		
Feature	**Date**	**Contributing/ Non-Contributing**
Capps Mine Roadbed		Contributing
Rush Landing Parking		Non-Contributing
New White Eagle Mill Parking		Non-Contributing
Campground Road	1915 and earlier	Contributing
Rush Campground Parking		Non-Contributing
Buildings		
Rush Landing Comfort Station		Non-Contributing
Rush Landing Shelter		Non-Contributing
Rush Campground Comfort Station		Non-Contributing
Small Scale Features		
Pole and Cables	1950s	Non-Contributing
Ore Cart		Contributing
Remnant Fencing		Contributing
Stone Retaining Wall		Contributing
Rush Landing Shelter Interpretive Panels		Non-Contributing
Rush Landing Shelter Information Panel		Non-Contributing
Rush Landing Picnic Table (4)		Non-Contributing
Rush Campground Pay Station		Non-Contributing
Rush Campground Information Panel		Non-Contributing
Rush Campground Picnic Table (12)		Non-Contributing
Rush Campground Fire Ring (12)		Non-Contributing
Rush Campground Lantern Hook (12)		Non-Contributing

Matrix 1-2. Study Area - Mines and Mine Complexes		
Mine or Mine Complex	**Associated Mine**	**Associated Mill**
Morning Star Mine Complex (M1) **RE: Morning Star Community Landscape Character Area**	Morning Star Mine Morning Star Drift Mine A Morning Star Drift Mine B Morning Star Drift Mine C Morning Star Loading Platform Morning Star Mine Opening 1 Morning Star Shaft Morning Star Mine Open Cut Morning Star Mine Spoils Pile	Morning Star Mill
White Eagle Mine Complex (M2)	White Eagle Mine	White Eagle Mill Ruins New White Eagle Mill Ruins
Red Cloud Mine Complex (M3)	Red Cloud Mine	Red Cloud Mill Ruins
McIntosh Mine Complex (M5)	McIntosh Mine	McIntosh Mill Ruins
Ben Carney Mine (M6)		Morning Star Mill
Yellow Rose Mine Complex (M7)	Yellow Rose Mine	Yellow Rose Mill Ruins
Lonnie Boy Mine (M8)		*Unknown*
Silver Hollow Mine Complex (M9)	Silver Hollow Mine	Silver Hollow Mill Site
Monte Cristo Mine (M10)		Philadelphia Mill (Outside of study area)
Capps Mine (M11)		*Unknown*
Edith Mine Complex (M12)	Edith Mine	Edith Mill Ruins



(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS, Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Figure 1-3. Morning Star Community landscape character area includes three component areas: Morning Star Hotel, Mill, and Mine Community; House Row; and Hicks Hotel.

Morning Star Community Landscape Character Area

Morning Star Community landscape character area represents the most intensely developed portion of Rush Historic District. This landscape character area generally extends from the park boundary on the west, north to Morning Star Mill, east to Hicks Hotel, and to Rush Creek on the south. Mining related activities are represented by residences and businesses. Key landscape characteristics include spatial organization, circulation, buildings, and vegetation.

Three component areas are distinguished within this landscape character area (Figure 1-3).

- Morning Star Hotel, Mill, and Mine Community;
- House Row;
- Hicks Hotel

Detailed analysis of landscape characteristics and detailed treatment recommendations are provided for each of the three component areas.

Prominent features of the Morning Star Hotel, Mill, and Mine Community include the ruins of the Morning Star Mill, Morning Star Mine Office, and Morning Star Hotel. Rush Blacksmith Shop and Rush Smelter are the only extant buildings. All other buildings and structures are only evident as ruins, foundations or lesser traces on the landscape.

House Row consists of five extant buildings, several building ruins and evidence of former residential activities.

The site of Hicks Hotel and Hicks General Store includes building ruins, extant small scale features, and ornamental vegetation.

Matrix 1-3. Morning Star Community Landscape Character Area - Features

Feature	Date	Contributing/ Non-Contributing
Buildings and Structures		
Rush Smelter	1886	Contributing
Rush Blacksmith Shop	1935	Contributing
Morning Star Hotel Ruins	c 1900	Contributing
Lyons House Ruins	c 1925	Contributing
Post Office Ruins	c 1890	Contributing
Morning Star Livery Barn Ruins	c 1899	Contributing
Smith House Ruins	c 1899	Contributing
Chase and Mulholland Store Ruins	c 1899	Contributing
Morning Star Mine Office Ruins	c 1911	Contributing
Warehouse Ruins	1927	Contributing

Matrix 1-3. Morning Star Community Landscape Character Area - Features		
Feature	**Date**	**Contributing/ Non-Contributing**
Oil Storage House Ruins	c 1911	Contributing
Morning Star Mill Ruins	1898	Contributing
Morning Star Mill Stone Retaining Wall		Contributing
Morning Star Mill Stone Tower Ruins		Contributing
Tramway Ruins		Contributing
Barn Ruins	c 1902	Contributing
Courthouse Site	c 1916	Contributing
Hopper House Ruins		Contributing
Morning Star Shelter		Non-Contributing
Morning Star Mine (M1)		
Building Site		Contributing
Morning Star Drift Mine A		Contributing
Morning Star Drift Mine B		Contributing
Morning Star Drift Mine C		Contributing
Morning Star Loading Platform		Contributing
Morning Star Mine Opening 1		Contributing
Morning Star Shaft		Contributing
Morning Star Mine Open Cut		Contributing
Morning Star Mine Spoils Pile		Contributing
Small Scale Features		
Stone Retaining Wall at Chase Mulholland Store		Contributing
Scale Pit		Contributing
Stone Retaining Wall - at Tramway		Contributing
Footbridge Pillar	c 1915	Contributing
Rush Blacksmith Shop Fence		Non-Contributing
Wood Fence		Non-Contributing
Interpretive Panels		Non-Contributing
Benches		Non-Contributing

Matrix 1-4. House Row - Features		
Feature	**Date**	**Contributing/ Non-Contributing**
Buildings and Structures/Ruins		
Bundy House	c 1899	Contributing
Wash House	c 1899	Contributing
Kastning House	c 1899	Contributing
Brantley House Ruins	c 1899	Contributing
Gotley House Site	c 1899	Contributing
Raby House Ruins	c 1899	Contributing
Storekeeper's House	c 1899	Contributing
Taylor-Medley General Store	c 1899	Contributing
Store Site		Contributing
Small Scale Features		
Shed		Contributing
Root Cellar		Contributing
Chicken House		Contributing
Goose House		Contributing
Privy		Contributing
Trash Piles		Contributing
Privy		Contributing
Mailbox Shelter		Contributing
NPS Fencing		Non-Contributing
NPS Signage		Non-Contributing

Matrix 1-5. Hicks Hotel - Features		
Feature	**Date**	**Contributing/ Non-Contributing**
Buildings and Structures/Ruins		
Hicks General Store Ruins	1916	Contributing
Hicks Hotel Site	1903	Contributing
Small Scale Features		
Hicks Wall		Contributing
Stone Flower Beds		Contributing

Project Purpose and Need

The proposed project addresses the need to preserve Rush Historic District's historically significant landscape, structures, and features, and to supplement current baseline information. This CLR/EA will generate needed baseline documentation, supplement existing historical data, provide recommendations for future study, and provide guidance for treatment and resource protection.

This CLR/EA is needed to document the changes to the cultural landscape over time, to transfer knowledge, and to provide holistic and integrated guidance for the long-term preservation and stewardship of Rush Historic District. The project is needed to connect cultural landscape maintenance to other resource management plans and projects.

This CLR/EA addresses the following.

- Explore concepts for visitor amenities, including accommodations for universal access, and augmenting sustainable operations.
- Provide recommendations and guidance on future protection of the mines, buildings, and related historic features.
- Provide guidance on preservation, maintenance, and treatment of the cultural landscape.
- Provide stabilization strategies for the extant buildings.
- Reconsider how exterior spaces are programmed and determine whether more or different spaces are needed.

Project Goals

This CLR/EA addresses the following goals.

- Summarize the prehistoric/historic activity in the region/study area to convey how it influenced today's physical landscape.
- Document the current physical conditions at Rush Historic District to identify ongoing resource threats and resulting impacts, such as invasive native and exotic plants, drainage and/or erosion, and deferred maintenance.
- Recommend methods for vegetation management to control or reestablish significant views.
- Identify opportunities for accommodating universally accessible visitor amenities such as parking, trails and walkways, comfort stations/shelters, and outdoor gathering spaces. Provide recommendations regarding human access to restricted resources. Identify future research potential with regards to history, mineralogy, archeology, etc.

Methodology

The CLR/EA was conducted at a thorough level of investigation and documentation for historical research, existing condition assessment, and landscape analysis. This research methodology, as defined by the NPS, focuses on the use of select documentation of known and presumed relevance, including primary and secondary sources that are readily available.[1.4]

The existing condition investigation was conducted according to best practices. A review of existing documentation included information from the park, the Denver Service Center eTIC data and information, and the National Park Service's Midwest Regional Office (NPS-MWRO).[1.5] This review included planning documents, administrative reports, technical reports, natural resource studies, and correspondence.

Review of historical documentation included the NRHP nomination for Rush Historic District, historic drawings and photographs, and correspondence available from primary and secondary sources. Background data provided by the NPS was used to prepare CLR/EA base mapping, drawings and illustrations. This included historic drawings, supplemented with field observations and measurements. Contour data is adapted from the 2006 Rogers et al. Historic Resource Documentation of Morning Star Mine Area, and USGS data, and is approximate. Site investigations in April and September 2017 documented the study area's existing condition. Archeological research focused on review of previous archeological investigations. The CLR/EA did not include any additional archeological investigations.

1.4 Robert R. Page, Cathy A. Gilbert and Susan A. Dolan. *A Guide to Cultural Landscape Reports: Contents, Processes and Techniques*. (Washington D.C.: National Park Service, 1998).

1.5 (http://etic.nps.gov/).

Park Purpose and Significance

Buffalo National River was established in 1972 as the country's first national river. The park's purpose is to preserve, conserve, and interpret a clear, clean, free-flowing river and its Ozark mountain setting of deep valleys, towering bluffs, wilderness, and pastoral landscapes.[1.6]

The park is significant for its free-flowing river, karst geology, Ozark culture, complex ecosystem, recreational setting, and the 22,500 acre Lower Buffalo Wilderness.[1.7]

Buffalo River is undammed and is the only river protected for its entire length within the Ozark Highlands. As a dynamic river ecosystem, Buffalo River is important for scientific discoveries and advances in ecosystem management and restoration. Approximately 135 miles of the river are included in the boundaries of the park, with 1.94 miles flowing trough Rush Historic District. The river originates in the Boston Mountains and generally flows in an easterly direction to its confluence with White River.

The karst geology of the region is a prominent landscape feature. Flanking the river are bluffs of eroded sandstone, limestone, and dolomite that tower in some places 400-feet above the river. The park includes a wide variety of plant and animal species and a diversity of habitats. Visitor amenities include more than 100 miles of designated trails and 21 access points to the river, as well as access to three wilderness areas.

1.6 P.L. 92-237.

1.7 *Buffalo National River, Arkansas, Foundation for Planning and Management, Foundation Workshop Results, December 2-5, 2008.* (U.S. Department of the Interior, National Park Service, 2008). The full statement of significance can be found in the FPM.

Cultural resources include Rush Historic District, and other sites that reflect the prehistoric/historic settlement and development of the park and region.

More than 700 archeological sites have been recorded. Two bluff shelters, Cob Cave and Indian Rockhouse, have provided pivotal information about prehistoric life.

The Boxley Valley is a living rural community that carries on traditional farming practices. Other cultural sites include pioneer homesteads, Civil War sites, and industrial sites. Historic resources, including Rush Historic District, are identified as fundamental resources to Buffalo National River.[1.8]

1.8 *FPM*, 11.

Management

Rush Historic District is managed by the NPS as part of Buffalo National River. Maintenance crews and law enforcement travel from the visitor contact station at Buffalo Point to Rush Historic District. The 22,500 acre Lower Buffalo Wilderness borders Rush Historic District.

The management of Buffalo National River is primarily guided by the FPM, LRIP, fire management plan, and 2012 Rush Historic District Cultural Landscape Inventory (CLI).

The FPM establishes the fundamental resources and values of Buffalo National River. These include the Ozark cultural landscape and historic resources including Rush Historic District.[1.9]

LRIP recommendations for Rush Historic District seek to increase understanding of the significance of the cultural landscape through publications and non-personal services. Recommendations include developing "digital media to provide virtual access to the historic Rush Mining district and the prehistoric Rush campsite. Digital, cross-platform 3-D media will allow audiences to 'see what can't be seen.' " The plan recommends researching possibilities for providing interpretation via mobile platforms, as coverage is available.[1.10]

The following management issues were identified in consultation with park staff, and through research and evaluation of the cultural landscape. In general, management issues associated with Rush Historic District, and existing features, structures, or associated operations or maintenance

1.9 *FPM*, 11.

1.10 *Buffalo National River, Long Range Interpretive Plan*. (Harpers Ferry Center, U.S. Department of the Interior, National Park Service, 2015), 2015, 41-45. and *LRIP*, 41-45.

are those that make it difficult to realize the vision and goals of this CLR. These issues assist in defining treatment recommendations to address concerns.

Building and Ruin Stabilization

The study area's historic buildings are in need of stabilization and repair. Emergency stabilization of Taylor-Medley General Store was undertaken recently, as an interior structure. Identification of the critical assets to prioritize repair work is needed.

Vandalism, including arson, has occurred. Three structures have been destroyed by arson since Rush Historic District was designated. The most recent was in 2004.

Mine Stabilization and Security

Stabilization of the mine exteriors and potential access is needed. Existing chainlink fencing surrounds the entrances and metal grates are at mine portals. This chainlink fencing is not compatible or historically appropriate, and does little to ensure visitor safety. A need exists to identify how to best secure the mines. Threatened and endangered bats have been recorded living in the mines.

Lack of Interpretation

Rush Historic District lacks appropriate levels of interpretation that would make it easy for visitors to visualize the extent of mining and development that occurred historically.

The study area is a popular canoe take-out location along Buffalo River. It is the last takeout before the majority of the Lower Buffalo Wilderness; the next takeout is 26 miles downstream at Buffalo City.

Limited interpretation is provided for visitors to or through the study area. To the uninitiated, the landscape does not appear to be a mining district, due to vegetation that obscures the ruins, and loss of buildings. Minimal visitor engagement or interpretation of the historic resources is provided. Most visitors are visiting the area for recreation, not historic interest. Additional, focused interpretation and trails could invite additional visitors. Existing trails are self-guided, and the community desires to expand the trail system.

Vegetation Overgrowth and Management

Overgrown vegetation obscures cultural resources making it difficult to visualize spaces and understand the development of the mines and community. Some invasive plant species impact the study area.[1.11] The park follows the Terrestrial Habitat Management Plan for vegetation management.

Architectural Barriers Act (ABA) Accessibility

The study area has steep gradients making universal accessibility difficult. A location for a universal accessible experience is desired along Rush Road.

Archeological Resources

The study area includes significant prehistoric and historic archeological resources. Prehistoric sites include a site at the mouth of Rush Creek, a site at Clabber Creek and additional unrecorded sites. Rush Historic District contains the numerous

1.11 Consultation with BUFF staff, CLR/EA Work Session April 2017.

historic sites of former buildings, structures, smaller features below-grade, and the mines. No recent archeological work or surveys have been completed, and opportunities exist for future archeological work. Sites are threatened by erosion and looting. Recommendations are needed to protect the prehistoric and historic resources.

Flooding/Stormwater Run-off

Buffalo River and Rush Creek frequently flood, impacting buildings and ruins. Stormwater runoff is an issue around some buildings and structures. A small intermittent creek drainage at House Row has potential to damage the Taylor-Medley General Store. At Rush Road, drainage is an issue where the paved road meets the gravel pavement. Low-water creek crossings are subject to flash-flooding. Recommendations are needed to address stormwater runoff and flooding issues.

Biological Resources

Rush Historic District includes important biological resources such as Buffalo River, Rush and Clabber creeks, uncommon vegetation associations, and a number of bat species, some of which are listed as threatened or endangered under the Endangered Species Act. Bats are known to use the area and have hibernacula in some mines. Restricting human access to mines with bat-permeable grates is an important management measure to reduce impacts to hibernating bats.

Environmental Assessment

The Environmental Assessment (EA) for this CLR evaluates potential effects on resources from the proposed treatment alternatives and a no action alternative. This CLR/EA provides the decision-making framework to: 1) analyze a reasonable range of alternatives to meet objectives of the proposal; 2) evaluate potential issues and impacts to Rush Historic District's resources and values; and 3) identify mitigation measures to lessen the degree or extent of these impacts.

This EA evaluates impacts to historic structures and cultural landscapes, archaeological resources, special status species, water resources, and vegetation. Other impact topics were dismissed because the project would result in no more than minor effects. No major effects were identified that would result from implementing the proposed alternatives in an initial analysis of effects.

The public, regulatory agencies, tribal partners, and other stakeholders have had opportunities to comment on this CLR/EA. Comments received during scoping and the public comment period will be considered in the final evaluation of effects.

Scoping

Scoping is an early and open process to determine the breadth of issues and alternatives to be addressed in an EA. Park staff and resource professionals of the NPS Midwest Regional Office conducted internal scoping. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the relationship of the proposed action to other planning efforts at BUFF and Rush Historic District.

As part of tribal consultation, scoping letters were sent to federally recognized tribes for consultation with Buffalo National River on November 7, 2017, to determine if any ethnographic or other resources are in the project area and to inquire whether tribes wanted to be involved in the environmental compliance process. The tribes and governments that received letters were:

- Absentee Shawnee Tribe;
- Caddo Tribe of Oklahoma;
- Cherokee Nation of Oklahoma;
- Eastern Shawnee Tribe of Oklahoma;
- Osage Tribe of Oklahoma;
- Quapaw Tribe of Oklahoma,
- Shawnee Tribe;
- Tunica-Biloxi Tribe of Louisiana;
- United Keetoowah Band of the Cherokee Nation, and;
- Wichita and Affiliated Tribes.

Consultations with Native American tribes will continue throughout the planning process to ensure that tribal concerns are considered and identified resources are protected.

Section 106 of the National Historic Preservation Act (NHPA) (16 USC 470 et seq.) requires the consideration of impacts on cultural resources, either listed in or eligible to be listed in, the National Register of Historic Places. Park staff sent a scoping letter to the Arkansas State Historic Preservation Office (SHPO) on November 7, 2017 to solicit input on issues of concern. BUFF will continue to consult with the SHPO to determine the effects of the action alternatives on eligible historic resources and to develop mitigation for impacts on historic features, if any, from the preferred alternative.

In compliance with Section 7 of the Endangered Species Act, BUFF also sent a scoping letter on November 7, 2017 to the U.S. Fish and Wildlife Service (USFWS) to solicit input on issues of concern. As part of formal Section 7 consultation, the NPS will also forward this CLR/EA and NPS' effects determination to the USFWS to determine if they concur with the NPS' findings of effect, and whether additional conservation measures are needed to protect listed species.

A public open house was held on October 23, 2018 at Harrison, Arkansas to allow the public an opportunity to learn about the CLR/EA process and to provide comments on the proposed treatment alternatives and on issues they believe are important to address in the CLR/EA.

Finally, the public, regulatory agencies, tribal partners, and others have an opportunity to comment on the final CLR/EA during a public comment period. Comments will be compiled and taken into consideration by NPS when deciding which of the alternatives to select for implementation.

Issues and Impact Topics

An important part of the decision-making process is seeking to understand the consequences of making one decision over another. This CLR/EA identifies the anticipated impacts of possible actions on certain resources and values. The impacts are organized by topic, such as "vegetation" or "historic structures." Impact topics serve to focus the environmental analysis and ensure the relevance of impact evaluation.

Impact topics were developed from the questions and comments brought forth during scoping; site conditions; staff

knowledge of resources; and any laws, regulations, policies, or orders applicable to the project. Some topics were dismissed from detailed analysis because the resource is not present in the study area or because the treatment alternatives would either have no effect on the impact topic, or the effects would be unnoticeable or barely noticeable. Some impact topics were retained even though the effects of the alternatives would be small because the impact topic is a particularly sensitive resource, or was identified as an important topic in scoping.

As a rule, an issue or impact topic is carried forward for detailed analysis if:

- the environmental impacts associated with the issue are central to the proposal or of critical importance;
- a detailed analysis of environmental impacts related to the issue is necessary to make a reasoned choice between alternatives;
- the environmental impacts associated with the issue are a big point of contention among the public or other agencies;
- or there are potentially significant impacts to resources associated with the issue.

Impact Topics Selected for Analysis

The topics evaluated in detail in this CLR/EA are:

- Cultural landscapes and historic structures;
- Archaeological resources;
- Special status species;
- Water resources;
- Vegetation

Impact Topics Dismissed from Further Consideration

According to NPS guidance on preparing EAs, it is not necessary to carry an issue or impact topic forward for detailed analysis simply because a resource is present or is affected. Detailed analysis under each alternative is reserved for significant issues (i.e., pivotal issues or issues of critical importance) that will play a key role in selecting a preferred alternative. Other than the retained impact topics previously listed, remaining impact topics were eliminated from consideration because either the resources are not present in the areas proposed for management implementation or because the effects, if any, would be negligible to minor, either with impacts alone or with mitigation measures. Because they are often considered in EAs or were preliminarily identified during scoping and are dismissed in this CLR/EA, reasons for dismissing certain impact topics or issues are summarized below.

Geology and Soils

While geologic resources contribute to the significance of the park, the treatment alternatives would have little to no impact on site geology because no subsurface excavation is anticipated to be deep enough to affect important or unusual geologic formations. Any activities proposed in the study area would have indiscernible effects on soils because activities would occur within previously disturbed areas, would not substantially affect the soil profile, and/or would include measures to minimize or avoid changes in soil erosion. Because the alternatives would not result in any unacceptable effects, this topic was dismissed from further analysis.

Wetlands

The term "wetlands" means those areas that are inundated by surface water or saturated by ground water frequently enough to support a prevalence of vegetation that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

A survey for wetlands at Rush Historic District has not been completed, so the location and extent of wetlands that may be affected by the treatment alternatives is not known; although, it is certain that wetlands of some type and size are adjacent to Buffalo river and Rush and Clabber creeks. Other wetlands may be associated with smaller streams and hillside seeps. An estimate of the order of magnitude of wetlands in Rush Historic District can be made based on vegetation community mapping completed by the NPS Vegetation Inventory Program.[1.12] The Bottomland Hardwood Forest, Bottomland Shrubland, and Gravel Bar Sparse Vegetation categories are present in 75 acres of the floodplains of Buffalo River and Rush and Clabber creeks at Rush. Floodplains are where wetlands are most likely to be present. The three categories include vegetation associations dominated by species often found in wetlands, including box-elder (*Acer negundo*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), sweetgum (*Liquidambar styraciflua*), hazel alder (*Alnus serrulata*), and rough-leaved dogwood (*Cornus obliqua*). If 10% of the 75 acres covered by the three categories are assumed to be wetlands (a conservative estimate), 7.5 acres of wetlands would be present at Rush. The actual number of acres of wetlands is likely higher, but well within an order of magnitude of the estimate.

Proposed treatment alternatives would primarily be in upland areas on hillsides and well-drained areas, so impacts to wetlands are not anticipated for any treatment alternatives. Prior to implementing vegetation or ground-disturbing activities, areas would be evaluated for the presence of wetlands. If any wetlands were identified within the project footprint, impacts would be avoided by revising the activity, if possible.

If unavoidable impacts would occur because of constructing visitor trails, for example, NPS would comply with the provisions of Executive Order 11990 (Protection of Wetlands) and NPS Director's Order #77-1 (Wetland Protection), minimizing impacts as much as practicable. In addition to the requirements of the Director's Order, NPS activities that involve the discharge of dredged or fill material into wetlands or other "waters of the United States" must also comply with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Under Section 404, authorized activities with wetland impacts over 0.10 acre must include a compensatory wetland mitigation plan, which typically results in no net loss of wetland functions and values.

In the improbable event that unanticipated, unavoidable wetland impacts would be as high as 0.5 acre in extent, the impacts would be six percent of the estimated 7.5 acres of wetlands in Rush Historic District and an even smaller percentage of wetlands in Buffalo National River. Impacts would likely be authorized under one or more Clean Water Act Section 404 nationwide permits.

1.12 Kevin Hop, et al. *National Park Service vegetation inventory program: Buffalo National River, Arkansas. Natural Resource Report NPS/HTLN/NRR—2012/526*. (Fort Collins: U.S. Department of the Interior, National Park Service, 2012). https://www1.usgs.gov/vip/buff/buffrpt.pdf (accessed October 3, 2017).

The nationwide permits are issued following the determination by U.S. Army Corps of Engineers and Environmental Protection Agency through their NEPA process that impacts of 0.5 acre or less do not have a significant adverse effect on wetland resources. Therefore, because the worst case of 0.5 acre of impacts would impact just 6% of estimated Rush Historic District wetlands and the impacts would be authorized under a permit that considers 0.5 acres of impact to not be significant under NEPA, , wetlands were dismissed as an impact topic.

Wildlife

A variety of wildlife species are found in the park, including various birds, reptiles, amphibians, and mammals. The study area provides somewhat limited wildlife habitat because parts of the area consist of disturbed areas associated with structures, trails, and roads. Human activity in the area further limits wildlife use compared to more intact habitats elsewhere in the park. The trees and shrubs surrounding the structures and landscaping provide some habitat for birds, insects, and small mammals (including bats).

Proposed treatment alternatives include vegetation management activities such as thinning trees and shrubs and reestablishing landscape features associated with Rush Historic District's period of significance. At most, 10.84 acres within the study area boundary may receive at least some vegetation management treatment, with most tree and shrub thinning focused around the structures and ruins. Proposed treatment alternatives would result in the loss or disturbance of select trees and shrubs, which would have a long-term, minor adverse effect on wildlife displaced by the habitat change. Because similar habitats are readily available in areas surrounding the study area and in the park, on local and regional levels, the change of wildlife habitat associated with vegetation management would be small. Measures such as performing vegetation removal outside of bird and bat reproductive season would be undertaken to avoid disturbing active bird nests or bat maternity roosts. The small scale of vegetation affected and mitigation measures to minimize impacts would result in negligible to minor impacts on wildlife, so wildlife was dismissed as an impact topic.

Floodplains

The proposed alternatives would not modify structures or topography in the floodplains along Buffalo River, Rush or Clabber creeks, or any other streams in the study area. Because there would be no effect on floodplains, this topic was dismissed from further consideration.

Indian Trust Resources

The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights. Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of the Interior agencies be explicitly addressed in environmental documents. The order represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. No Indian trust resources are present at Buffalo National River, so this topic was dismissed from detailed analysis.

Ethnographic Resources

Ethnographic resources are defined by the NPS as any "site, subsistence, or other significance in the cultural system of a group traditionally associated with it." Certain contemporary Native American and other communities are permitted by law, regulation,

or policy to pursue customary religious, subsistence, and other cultural uses of park resources with which they are traditionally associated. Such continuing use is often essential to the survival of family, community, or regional cultural systems, including patterns of belief and economic and religious life.

As part of scoping, November 7, 2017 NPS sent letters to the affiliated Tribes to solicit their involvement and identify ethnographic resources of concern. As of the date of this draft CLR/EA, the Tribes have not responded or expressed concern with the proposed alternatives. The Tribes will be notified when the draft CLR/EA is made available for public comment. If no responses are received during the remainder of the CLR/EA process or during the public comment, NPS will assume the proposed alternatives would have no discernible effect on ethnographic resources. Although it is possible that plant species used by Tribes may be in areas that would be impacted by the treatment alternatives, because appropriate steps would be taken to protect any ethnographic resources that are inadvertently discovered or disclosed during on-going tribal consultation, ethnographic resources were dismissed as an impact topic.

Environmental Justice

Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed treatment alternatives would have no direct effect on minority or low-income populations because none are present at Rush Historic District and there would be no indirect effects that would affect minority or low-income populations outside of the park, if any are present. Additionally, the facilities improvements would be available for use by all visitors regardless of race or income, and the construction workforces would not be hired based on their race or income. Because there would be no disproportionate effects, this topic was dismissed as an impact topic.

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Chapter 2. Site History

Historical Overview

Rush Historic District (study area) is a former zinc mining district and remnant industrial landscape. It contains the remains of open-pit and underground zinc mines, concentrating mills, and a community of housing and retail establishments. The study area is listed in the National Register of Historic Places (NRHP), with a period of significance covering the area's productive zinc mining period of 1885 to 1931.

Before its establishment as a zinc mining district, the landscape was inhabited by American Indians. The lush natural setting of the Buffalo River Valley drew people to the area as early as the Dalton period (10500 to 9500 BP). They established temporary settlements at the confluence of Rush Creek and Buffalo River. By 800 AD, they had permanent dwellings and practiced small scale horticulture, growing squash and maize along the banks of the river were established.

Beginning in the early 19th century, French settlers prospected for minerals in the Ozark Highlands. Zinc ore was discovered on Rush Mountain around 1880 near the site of the future Morning Star Mine. Prospectors were hopeful that the ore contained silver and built a smelter to process it. No silver was found. The smelter was abandoned, and remains today. However, the ores of Rush Mountain were very rich in zinc content (40 to nearly 70% zinc) containing possibly the highest grade zinc ever discovered in North America.[2.1]

In 1885 Morning Star Mine (M1) was founded, formally kicking off the mining industry and subsequent boom. Over time mines opened along Rush and Clabber creeks, creating the community first called Buffalo Mining District and later known as Rush Mining District.[2.2] Mines were established in the district, including White Eagle Mine (M2), Red Cloud Mine (M3), McIntosh Mine (M5), Ben Carney Mine (M6), and Yellow Rose Mine (M7). This contributed to the broader zinc industry in the Midwest, shipping ore for smelting to Van Buren, Fort Smith, and St. Louis.[2.3]

Zinc is a component of the alloys brass and bronze. The zinc extracted at Rush Historic District was used in weapons and ammunition, and for common materials such as roofing, water tanks, paints, and rubber. Many of the first zinc deposits extracted were of relatively pure composition that did not require further processing before smelting. As demand for zinc grew, the purest deposits were mined out and mine owners invested in concentration mills with equipment that could roll, crush, and extract the zinc from the surrounding rock.

The demand for zinc ebbed and flowed through the early 20th century. Mines would open, close, and reopen based on market prices. The start of World War I brought new demand for zinc, as munitions manufacturers sought out the material. As market pricing increased, mining operations accelerated resulting in a mining boom. This led to ten different mining companies operating fourteen separate mines within the mining district.[2.4] As thousands of miners arrived, the community expanded to include hotels, stores, a post office, courthouse, and

2.1 Suzanne Rogers, et al. *Historic Resource Documentation, Morning Star Mines Interpretive Area, Rush Historic District.* (U.S. Department of the Interior, National Park Service, 2006), II-5.

2.2 Rogers et al., *Morning Star Mines Interpretive Area*, III-7.

2.3 Rogers et al., *Morning Star Mines Interpretive Area*, II-2.

2.4 Eleven mines are located in the study area. Three mines, Philadelphia Mine (M4), Leader Mine, and Beulah Mine, are outside NPS property and the NRHP boundary.

permanent residences. The influx of residents outpaced available housing, and many miners lived in tents.

The mining boom became a bust towards the end of the war. National stockpiling of zinc led to a dramatic drop in prices. The majority of American zinc mines closed in the postwar recession. The closing of Morning Star Mine (M1) in 1931 marked the true end of the mining boom.[2.5] Efforts continued sporadically to reignite the mining industry but the arrival of the Great Depression kept investment low, and World War II failed to bring new business to the community. Gradually the residents of Rush left the town, and the post office closed in 1953. In the late 1950s investors made another attempt to revive the mining industry, while the remaining residents advertised the 'Rush Ghost Town' in an attempt to generate tourism dollars. The last industrial mining ended when the New White Eagle Mine closed in 1962. With the closure of that mine the final residents relocated.

The 1970s conservation movement brought changes to the region. The U.S. Army Corps of Engineers proposed two dams, Lone Rock on the lower river and Gilbert on the middle river. This served as a rallying point for environmentalists who advocated the river's continued conservation and recreational use. In 1972, Public Law 92-237 established Buffalo National River to preserve the river as a free-flowing stream, and the area which eventually became Rush Historic District came under jurisdiction of the NPS.

2.5 Rogers et al., *Morning Star Mines Interpretive Area*, II-23.

Statement of Significance and Period of Significance

Rush Historic District's contributing resources have been listed in the NRHP under Criteria A, C, and D, representing a period of significance covering the productive zinc mining era, 1885 to 1931.

The study area is associated with the mining industry of the Ozark Highlands, and its significance is evident in the mines, spoils piles, mill ruins, road and tramway networks, and community of stores, offices, and residences, now largely evidenced as ruins and lesser traces on the landscape. The study area's remnant features express the history of zinc mining and associated community life in the Ozark Highlands. The extant vernacular and industrial building styles express the design of Ozark culture and exemplify the forms of an isolated mining settlement. The built environment encapsulates a range of activities that occurred during the mining era, and reflects the regional economic influence of the mining industry. The successful mines stimulated development throughout northern Arkansas, providing jobs, encouraging settlement, contributing to the arrival of the railroad, and providing national publicity for the value of Arkansas minerals. The size and scale of the mines and mining companies were more than any other mining district in northern Arkansas.

Rush Historic District contains buildings and features that represent the vernacular construction of the Ozark Highlands. Remaining houses depict common rural styles found in the Ozark Highlands in the early 20th century – simple massing and roof forms, vertical board construction, front porches, and stone pier foundations. Inexpensive materials, such as local stone, metal roofs, and newspaper insulation, indicate vernacular building traditions.

The study area's archeological features, including ruins and artifacts below-grade, have the ability to provide archeological information concerning the industrial and social life during the period of significance.

The period of significance, 1885 to 1931, captures the study area's development from a small mining outpost using crude mining techniques to a thriving commercial center utilizing modern methods. The end date marks the permanent closing of Morning Star Mine Complex (M1), the dominant mining operation.

Periods of Landscape Development

Five periods of landscape change describe the physical evolution of Rush Historic District. The beginning and end of each period corresponds to, and documents, a point of major physical modifications or significant change in development patterns.

These periods of development are described through narrative text and illustrations. One period falls within the period of significance, as noted in bold italic text.

Pre-European American Settlement (pre 1800)

Early European American Settlement (1800 to 1885)

The Mining Era (1885 to 1931)

Post-Mining Era (1932 to 1971)

Buffalo National River to Present Day (1972 to Present Day)

Pre-European American Settlement (pre 1800)

American Indian groups inhabited the Ozark Highlands beginning in the Paleo-Indian period. During the Archaic period (9500 BP) the region warmed, bringing forth the deciduous forest and pine uplands that are extant today. By 800 AD, American Indians had established a permanent settlement at the confluence of Rush Creek and Buffalo River. They cleared the forest adjacent to the river and utilized the river terrace for crop production, growing domesticated plants of squash, gourds, and maize.

12000 to 9000 BP

The Paleo-Indian period marks the earliest record of people living in the Ozark Highlands. People resided in the valleys and ridgetops, and utilized bluff shelters. These early people employed a variety of stone tools for killing and harvesting big game, and harvested nuts and berries.[2.6]

10500 to 9500 BP

The Dalton period represents the expansion of generalized hunting and gathering adaptations to a changing environment in the Ozark Highlands.[2.7] People utilized a wide variety of tools, indicating familiarity with numerous plant and animal species and how to use them.

During the Dalton-Early Archaic period, people established a settlement at the confluence of Rush Creek and Buffalo River.[2.8] The Dirst Site contains a transitional Dalton-Archaic component, and was likely a temporary seasonal village.[2.9]

9500 to 5000 BP

The Archaic period was a long span of time that generally marks the time between the end of the Pleistocene to the beginning of farming and pottery in North America. The Archaic period in the Ozark Highlands began a warmer and drier environment, which contributed to the formation of modern deciduous forests and creation of streams, such as Buffalo River.[2.10] People made seasonal rounds hunting small game, fishing and gathering wild foods. They would typically return to the same camp or seasonal village year after year, as was the case with the Dirst Site.[2.11]

3000 BP to 200 AD

The late Archaic and Woodland Transition period marks an expansion of hickory/oak forests with an increase in pine in upland areas. Local domestication of plants began, and settlements began to be used year-round. The Dirst Site was occupied during this time, indicating some locally cultivated plants and stone tool manufacturing.[2.12]

500 BP to 800 AD

During the Woodland period people in the Ozark Highlands utilized valley floors and stream bottoms to maintain domesticated plants.[2.13] Farming led to more permanent

2.6 Dwight Pitcaithley, *Let the River Be, A History of the Ozarks Buffalo River.* (Santa Fe: U.S. Department of the Interior, National Park Service, Southwest Cultural Resources Center, 1989), 5.
2.7 Maria Nieves Zedeno. *Cultural Affiliation Statement, Buffalo National River, Arkansas*. Bureau of Applied Research in Anthropology, Univ. of Arizona: 2008, 17.
2.8 Theodore Catton. *Life, Leisure, and Hardship Along the Buffalo, Historic Resources Study, Buffalo National River.* (Omaha: U.S. Department of the Interior, National Park Service, Midwest Region, 2008), 21.
2.9 Zedeno. *Cultural Affiliation Statement,* 18.
2.10 Zedeno. *Cultural Affiliation Statement,* 20.
2.11 Catton. *Life, Leisure, and Hardship along the Buffalo*, 12.
2.12 Zedeno. *Cultural Affiliation Statement,* 22.
2.13 Pitcaithley, *Let the River Be*, 5.

village sites, production of pottery, and expanded trade networks.

The Early Woodland component of the Dirst site indicates that squash and gourds were grown adjacent to Buffalo River.[2.14]

The Dirst site was occupied during the Middle to Late Woodland period. People established permanent dwellings, and artifacts show evidence of an "Emergent Mississippian" cultural presence, indicating cultural influence from the Mississippian peoples to the east. The village was occupied year-round, with a subsistence economy based on hunting, gathering, and domesticated plant production including maize.[2.15]

800 AD to 1550

During the Mississippian period, the major waterways of the Ozark Highlands were permanently occupied. The valleys were utilized for farming maize, and uplands were used for hunting.[2.16]

1541 to 1700

The first European presence in the Mississippi Valley did not provide much insight into the native use of the Ozark Highlands. According to early French settlers, the Quapaw had tenuous control of the Arkansas Ozarks and organized hunting parties into the Ozark region from their main settlement area in the lower Arkansas river.[2.17]

1700s to 1800

Around 1700 the Osage pushed into the Ozark Highlands from the north and east. They primarily resided in Missouri but ventured into the Buffalo River Valley to hunt.[2.18]

2.14 Sabo, George, III, et al. *Archaeological Investigations at 3MR80-Area D in the Rush Development Area, Buffalo National River, Arkansas.* (Santa Fe: U.S. Department of the Interior, National Park Service, Southwest Region, 1990), 333.
2.15 Sabo et al. *Archaeological Investigations,* 333.
2.16 Zedeno. *Cultural Affiliation Statement,* 29.
2.17 Catton. *Life, Leisure, and Hardship along the Buffalo*, 23.
2.18 Zedeno. *Cultural Affiliation Statement,* 3.

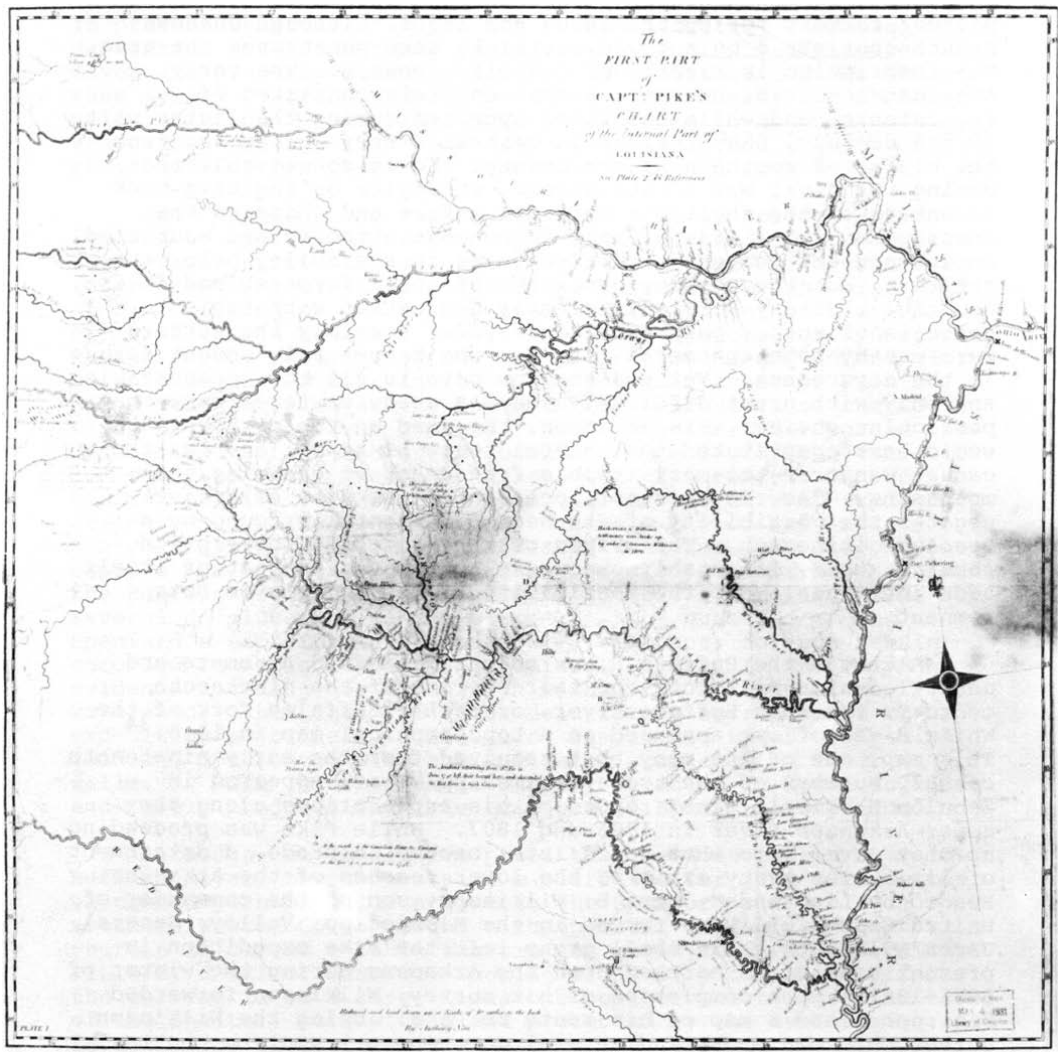


Figure 2-1. Zebulon Pike's 1810 map including the Buffalo River region. (Let the River Be)

Early European American Settlement (1800 to 1885)

The 19th century was a period of transition, as American Indian groups who had settled and established permanent farms in the region were displaced by Europeans. To the new settlers, the region was rugged, remote, and heavily forested. General Land Office surveyors noted the predominance of cane breaks along the river, which have been linked to abandoned American Indian farms (cane grew up in places where corn had previously grown).[2.19] The region remained sparsely inhabited during the 19th century, but small farmsteads were established along the river bottoms by arriving Europeans, and a grist mill was built along Rush Creek.

Early 1800s

American Indian groups in the eastern United States migrated west during this period. The Shawnee, Delaware, and Cherokee spent time in the Buffalo River region.[2.20] The Cherokee established farmsteads in the major river valleys and utilized the uplands on seasonal hunting trips.[2.21]

French settlers from Louisiana migrated north to the Ozark Highlands to extract lead and other minerals from the mountains.[2.22]

1819

Arkansas Territory was established out of the Missouri Territory by the United States.[2.23]

1820s to 1830s

Increasingly, European settlers arrived in the Buffalo River region. The area was sparsely settled until the 1830s due to the limited roads, rugged terrain, and remoteness of the area.[2.24]

1828

The Cherokee who had settled in Arkansas began to move further west after relinquishing rights to their lands in Arkansas.[2.25]

1836

The State of Arkansas was established.[2.26]

1838

The Trail of Tears, which moved the Cherokee out of their homeland in the Appalachians included a route that passed north of Rush Historic District through Yellville, AR.[2.27]

1845

Surveyors of the General Land Office recorded the Buffalo River Valley.[2.28]

Survey Plats and Notes of townships show creeks, roads, and cane breaks along the valley floors.[2.29]

Settlement of the region increased until the Civil War.[2.30]

2.19 Catton. *Life, Leisure, and Hardship along the Buffalo*, 44.
2.20 *Buffalo National River, Theme Identification Context Studies and Property Evaluations, SOL: N6068030063.* (Nashville: Thomason and Associates and Hawkins Partners, 2004), 6.
2.21 Catton. *Life, Leisure, and Hardship along the Buffalo*, 23.
2.22 *CLI*, 15.
2.23 *Theme Identification Context Studies,* 9.
2.24 *Theme Identification Context Studies,* 6.
2.25 *Theme Identification Context Studies,* 11.
2.26 *Theme Identification Context Studies, 12*.
2.27 Catton. *Life, Leisure, and Hardship along the Buffalo*, 39.
2.28 Catton. *Life, Leisure, and Hardship along the Buffalo*, 44.
2.29 General Land Office. Survey of Public Lands in Arkansas, Township 17 N, Range 15 W. U.S. Department of the Interior, Bureau of Land Management,1845.
2.30 *Theme Identification Context Studies,* 7.

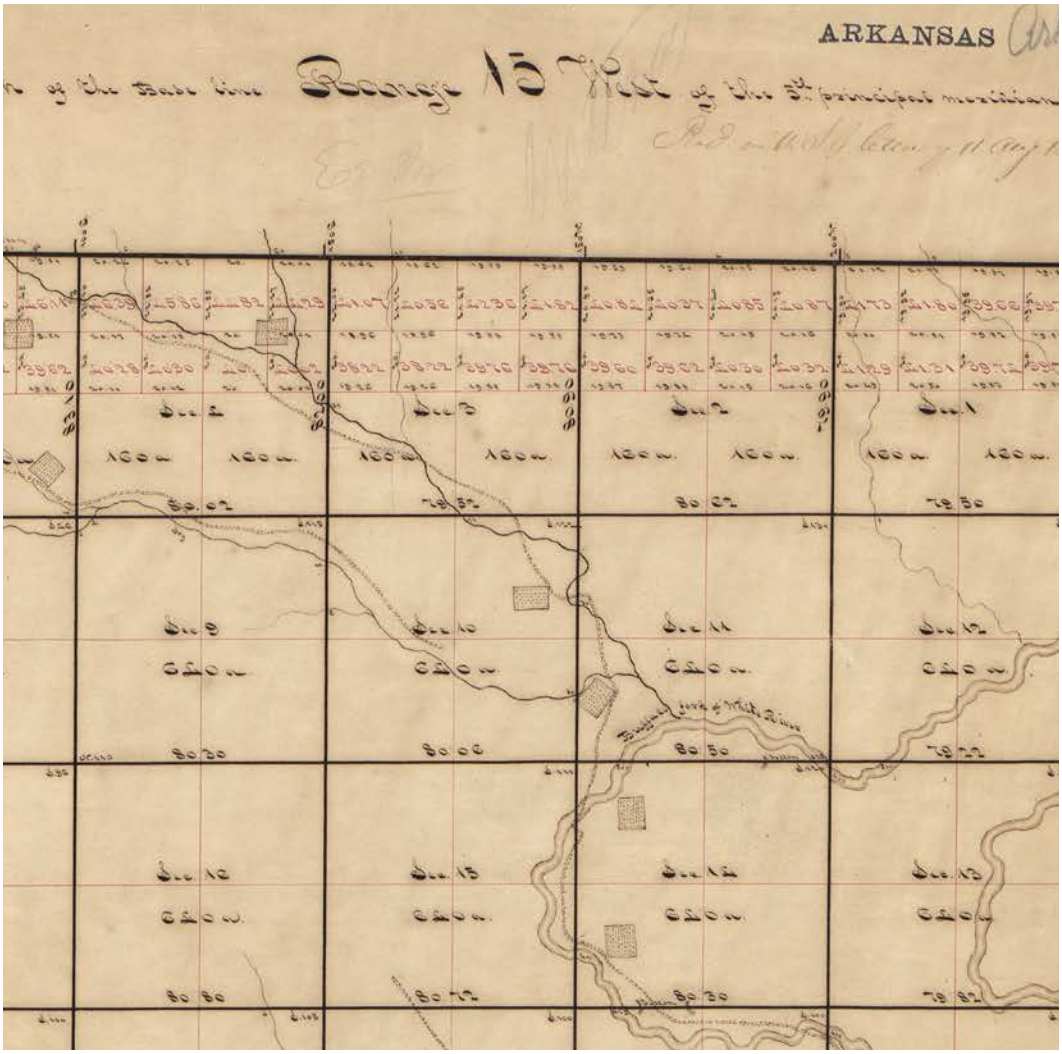


Figure 2-2. 1845 General Land Office Survey Plat of T17N-R15W of Buffalo River. Cane breaks, evidence of former agricultural fields, were noted on the valley floors. (Bureau of Land Management, Records)

1880

The first zinc deposits were discovered by James McCabe, a local farmer who discovered zinc ore showing in a bluff along a foot trail on Rush Mountain. He thought he had found gold.[2.31]

2.31 *CLI*, 26.

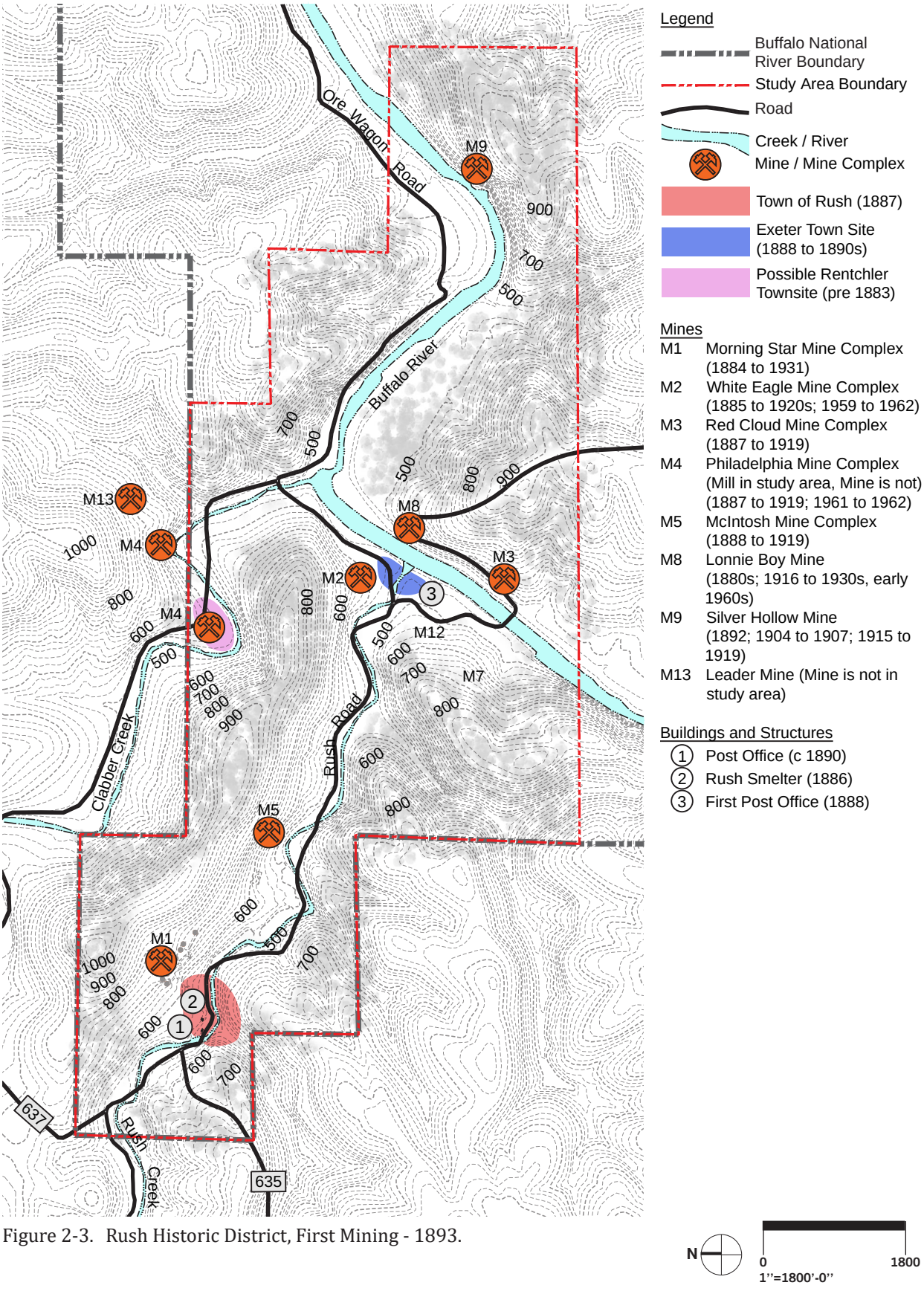


Figure 2-3. Rush Historic District, First Mining - 1893.

(USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012, BUFF Archives - Rush Period Plan, USGS 1893, 1989 Special Use Study)

The Mining Era (1885 to 1931)

During this period, Rush Mining District included fourteen mines and seven mills. The population ranged from 2,000 to 3,000. The study area was a working industrial landscape with few trees, vast spoils piles, elevated tramways, and massive mill structures.

Mines were developed either as drift mines, shafts driven down into the earth, or as vast room-and-pillar structures that excavated earth horizontally. Waste rock was discarded at the entrance of each mine, forming large spoils piles. Ore was transported by elevated tramways to zinc concentrating mills. The mills were massive structures and were cooled by water held in large retention ponds. Tailings, the unwanted remains of the milling process, were spread at the base of the mills. To supply mills with fuel, hillsides were stripped of available timber. Aside from residential areas, the landscape appeared tree-less, with prominent mill buildings and waste rock on the hillsides.

Support structures and residential areas were clustered on the lower hillsides and valley floors below the mills. The town of Rush began as a cluster of development below the Morning Star Mill. The town grew to include offices, hotels, barns, stores, and a post office and courthouse. A row of houses was built at House Row, and development expanded to Hicks Hotel and New Town adjacent to the river. Additional smaller communities were associated with individual mining companies.

Although plans were made to develop a railroad, they were never realized. Zinc ore was hauled by wagon or truck along Ore Wagon Road that paralleled Buffalo River.

1880 to 1885

Mining began at Morning Star Mine (M1), founded by James McCabe, John Wolfer, and Allen Setzer.[2.32]

1886

Rush Smelter, the oldest extant structure at Rush Historic District, was built near Morning Star Mine (M1) by smeltermen brought to Rush by McCabe, Wolfer, and Setzer. The smelter was built to separate silver from the zinc ore, however there was no silver in the ore mined at Rush, and smelting was brief.[2.33]

1889

George Chase invested in the construction of Morning Star Mill.[2.34]

1890

The first 'lode claim' was filed in Arkansas by George Chase. Morning Star No. 1 claim was purchased by Charles A Mulholland.[2.35]

By 1890 at least four mining companies had developed mines in the study area. Buffalo Zinc and Copper opened two mines, White Eagle Mine (M2) and Red Cloud Mine (M3). Other mines included Silver Hollow Mine (M9), Monte Cristo Mine (M10), and Capps Mine (M11).[2.36]

1891

Morning Star Mine (M1) were purchased by George Chase, and the Morning Star Company was formally organized.[2.37]

2.32 *CLI*, 23.
2.33 Rogers et al., *Morning Star Mines Interpretive Area,* I-15.
2.34 Rogers et al., *Morning Star Mines Interpretive Area,* II-7.
2.35 *CLI*, 24.
2.36 *CLI*.
2.37 *CLI*, 24.

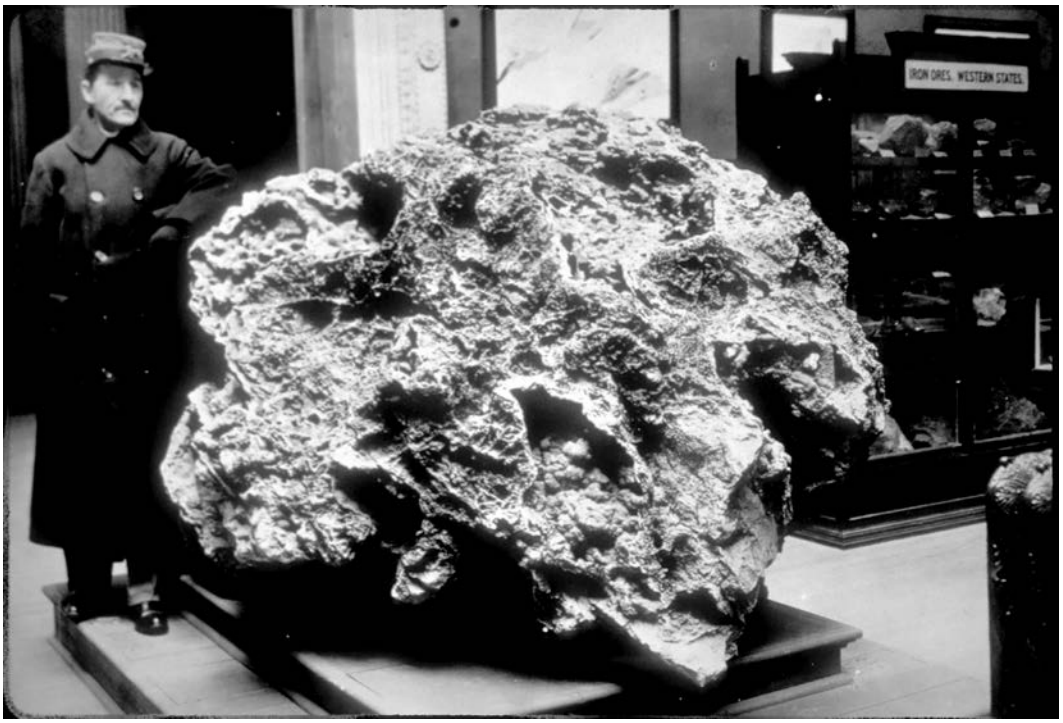


Figure 2-4. Jumbo, a six-ton piece of relatively pure zinc ore from Morning Star Mine (M1), as displayed at the World's Columbian Exposition, 1893. (Field Museum of Natural History)



Figure 2-5. Morning Star miners, 1898. (BUFF Archives, Bessie Kastning Collection)

1893

A six-ton gold medal winning piece of relatively pure zinc ore, nicknamed 'Jumbo,' from Morning Star Mine (M1), was displayed at the 1893 World's Columbian Exposition in Chicago.[2.38]

1898

Morning Star Mill was built to concentrate ore as the purest zinc deposits began to run out. Concentrating mills were later built at some other mines in the area.[2.39]

1894

Ben Carney Mine (M6) began production.[2.40]

1900

Red Cloud Mill was built to serve Red Cloud Mine (M3).[2.41]

1901

Zinc prices dropped and due to the high cost of shipping ore, mining activity slowed.[2.42]

1902

The Missouri and North Arkansas railroad was completed, connecting regional markets to Buffalo River. The railroad did not reach the mines at Rush Historic District.[2.43]

1903

Hicks Hotel was built by Lee and Alice Hicks.[2.44]

Winter 1904 to 1905

Milling operations again ceased.[2.45]

1905

Mining operations resumed again.[2.46]

1911 to 1918

Between 1911 and 1918, mining experienced a dramatic boom in operations, labor force, and zinc sales in response to the demands of World War I. Promotional publications announced easy fortunes made in the Ozark Highlands, with special attention paid to Rush.[2.47]

New Town was platted at the confluence of Rush Creek and Buffalo River to house a growing population.[2.48]

1914 to 1915

Zinc prices quadrupled.[2.49]

1915

A railroad bed was graded between Buffalo River and Rush Road, but rails were not laid. Before any track was laid the mining boom was over.[2.50]

Capps Mine (M11) began production.[2.51]

2.38 *CLI*, 24.
2.39 *CLI*, 27.
2.40 *CLI*, 37.
2.41 Rogers et al., *Morning Star Mines Interpretive Area,* I-22.
2.42 Rogers, Suzanne. *Rush Historic Structures Report, Working Draft* (1985), 6.
2.43 *Theme Identification Context Studies,* 7.
2.44 *CLI*, 24.
2.45 Rogers, *HSR, Working Draft*, 6.
2.46 Rogers, *HSR, Working Draft*, 7.
2.47 *Scope of Work*.
2.48 *CLI*, 29.
2.49 *CLI*, 29.
2.50 *CLI*, 80.
2.51 *CLI*, 24.

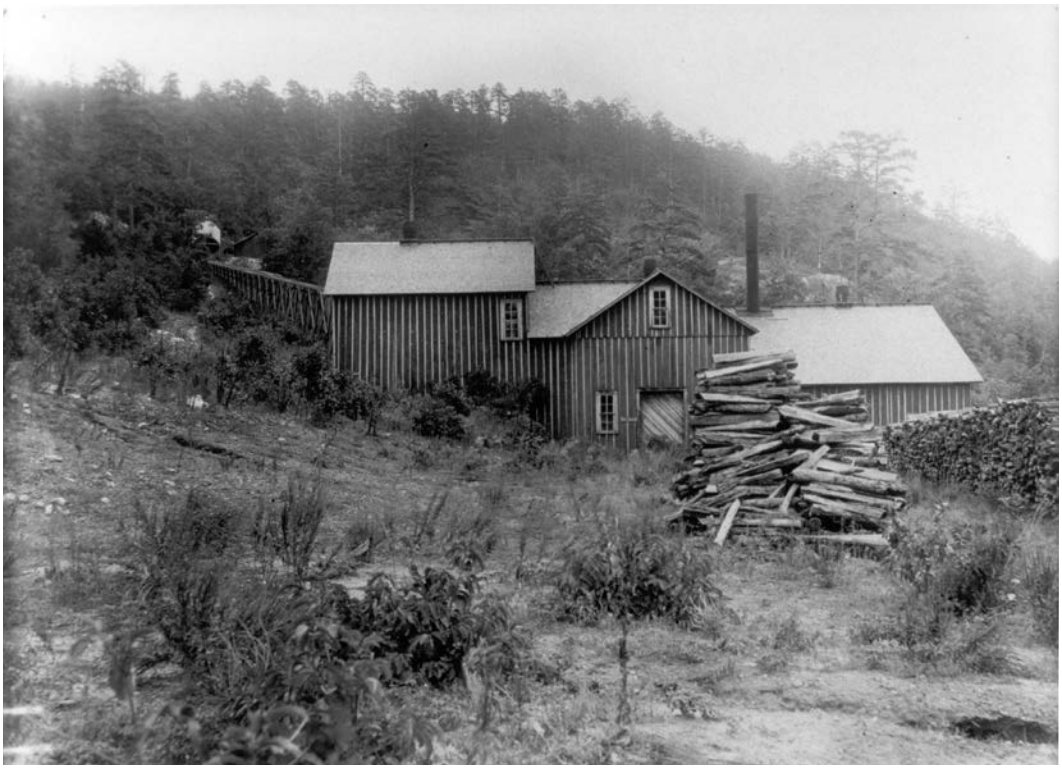


Figure 2-6. Morning Star Mill, c 1904. The huge stack of lumber was used for fueling the mill. Surrounding hillsides were extensively cut during the mining period. (BUFF Archives)

1916

Lee and Alice Hicks expanded their business to include a general store near their hotel.[2.52]

1919

Marion County bought Morning Star Mine property as the zinc market collapses.[2.53]

1920

The state of Arkansas' production of zinc dropped to 917 tons per year. This was down from more than 18,000 tons per year in 1916.[2.54]

Jefferson Township, in which Rush was located, dwindled to only 344 residents.[2.55]

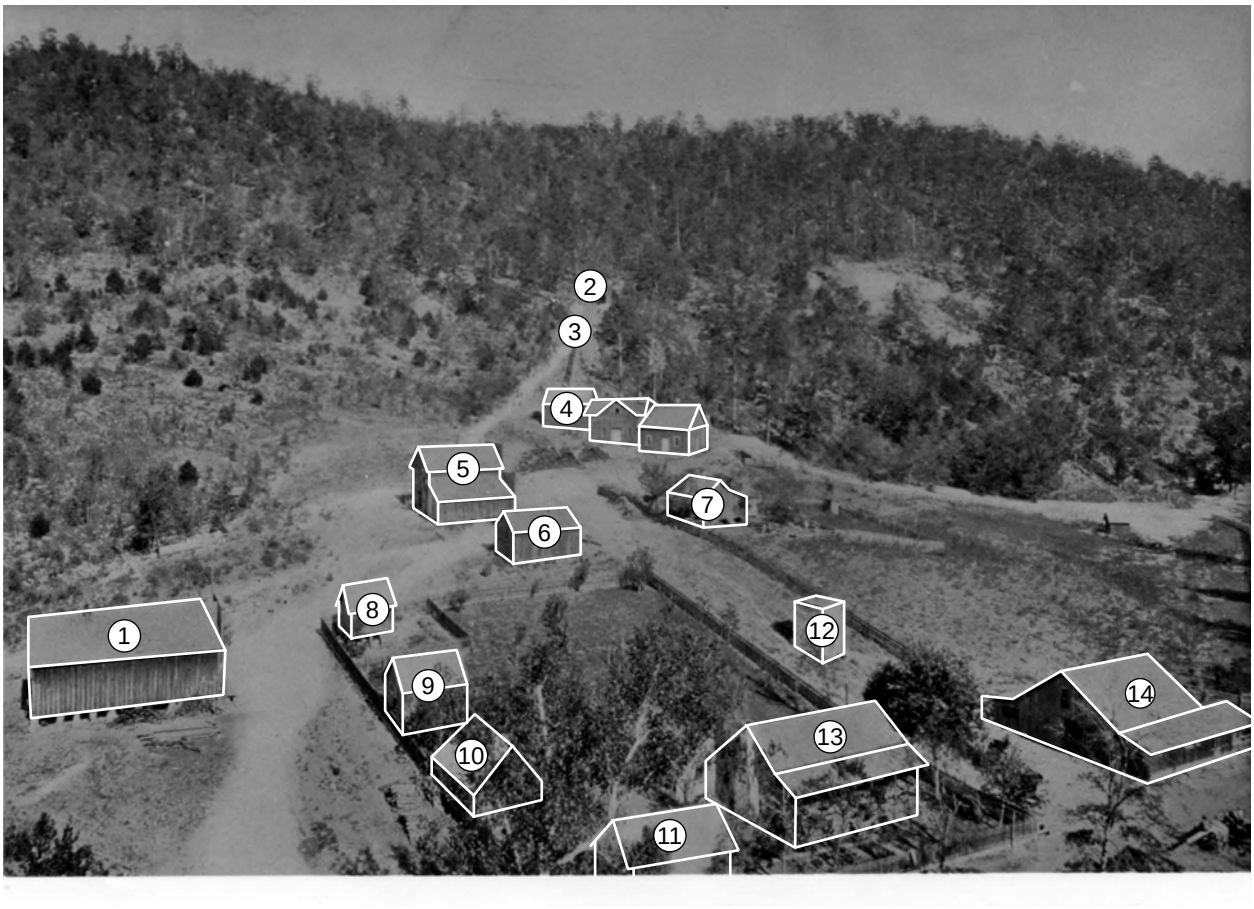
1931

The last of the operating Morning Star Mines, Capps Mine (M11), closed.[2.56]

2.52 *NRHP,* 7.
2.53 *CLI*, 24.
2.54 (Huggard 2004, 2-6) *CLI*, 15.
2.55 *CLI*, 29.
2.56 *CLI*, 4.



Figure 2-7. Rush Smelter with unknown building and Chase and Mulholland Store at left, 1900. (BUFF Archives, USGS Collection)



Legend

1. Courthouse (c 1916)
2. Hopper House (c 1898)
3. Tramway (c 1898)
4. Morning Star Mill (c 1898)
5. Chase and Mullholland Store (c 1898)
6. Unknown Building (date unknown)
7. Smith House (c 1899)
8. Chicken House (date unknown)
9. Doctor's / Maxey House (c 1916)
10. Barn (1902)
11. Post Office (c 1890)
12. Rush Smelter (1886)
13. Morning Star Hotel (c 1900)
14. Morning Star Livery Barn (c 1889)

Figure 2-8. The Morning Star Hotel, Mill, and Mine Community, looking northeast, c 1916. Note the lack of vegetation on hillside, waste rock pile in upper left, and the yard and open pasture around the Morning Star Hotel and Livery Barn. (BUFF Archives)

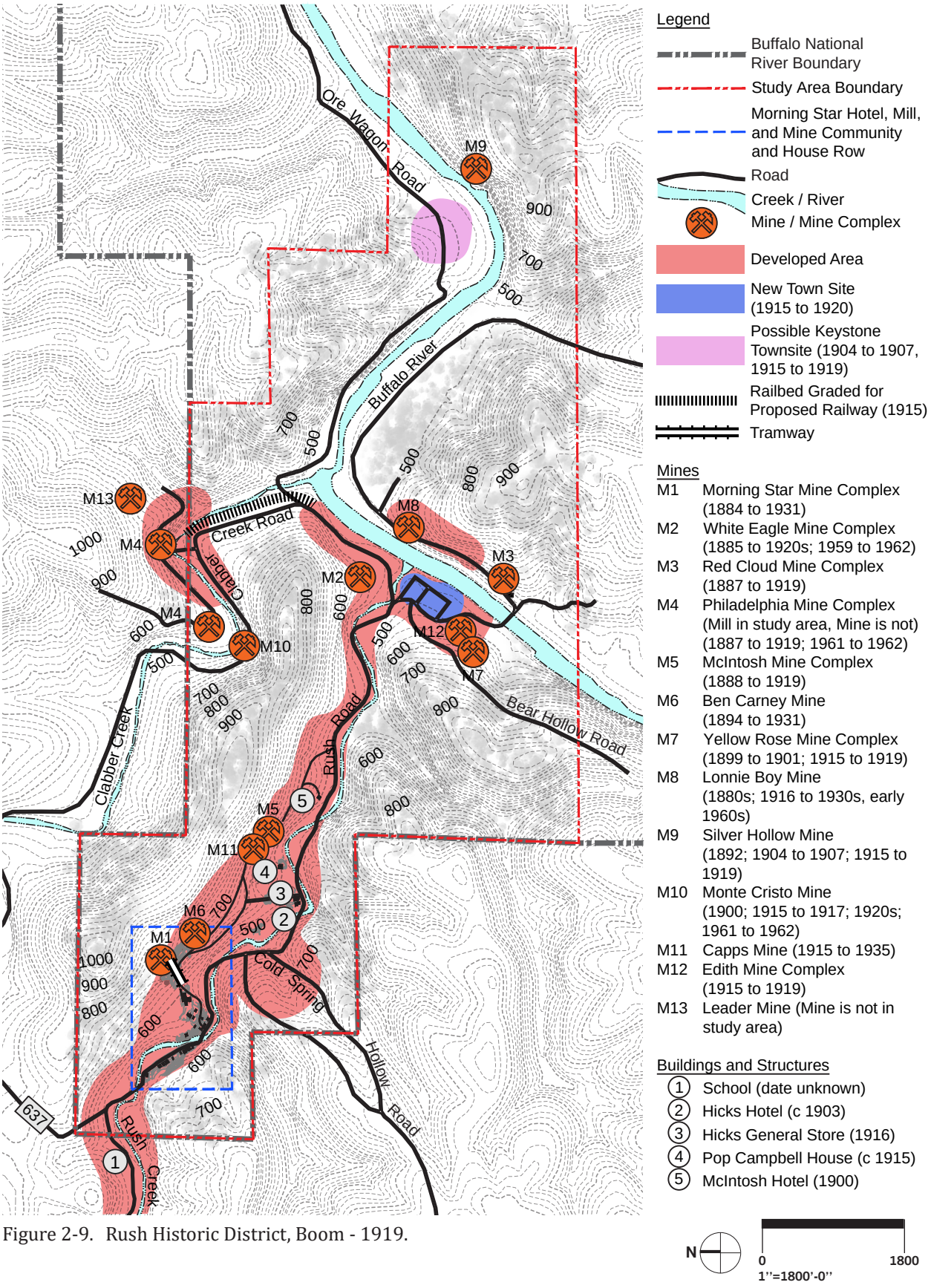
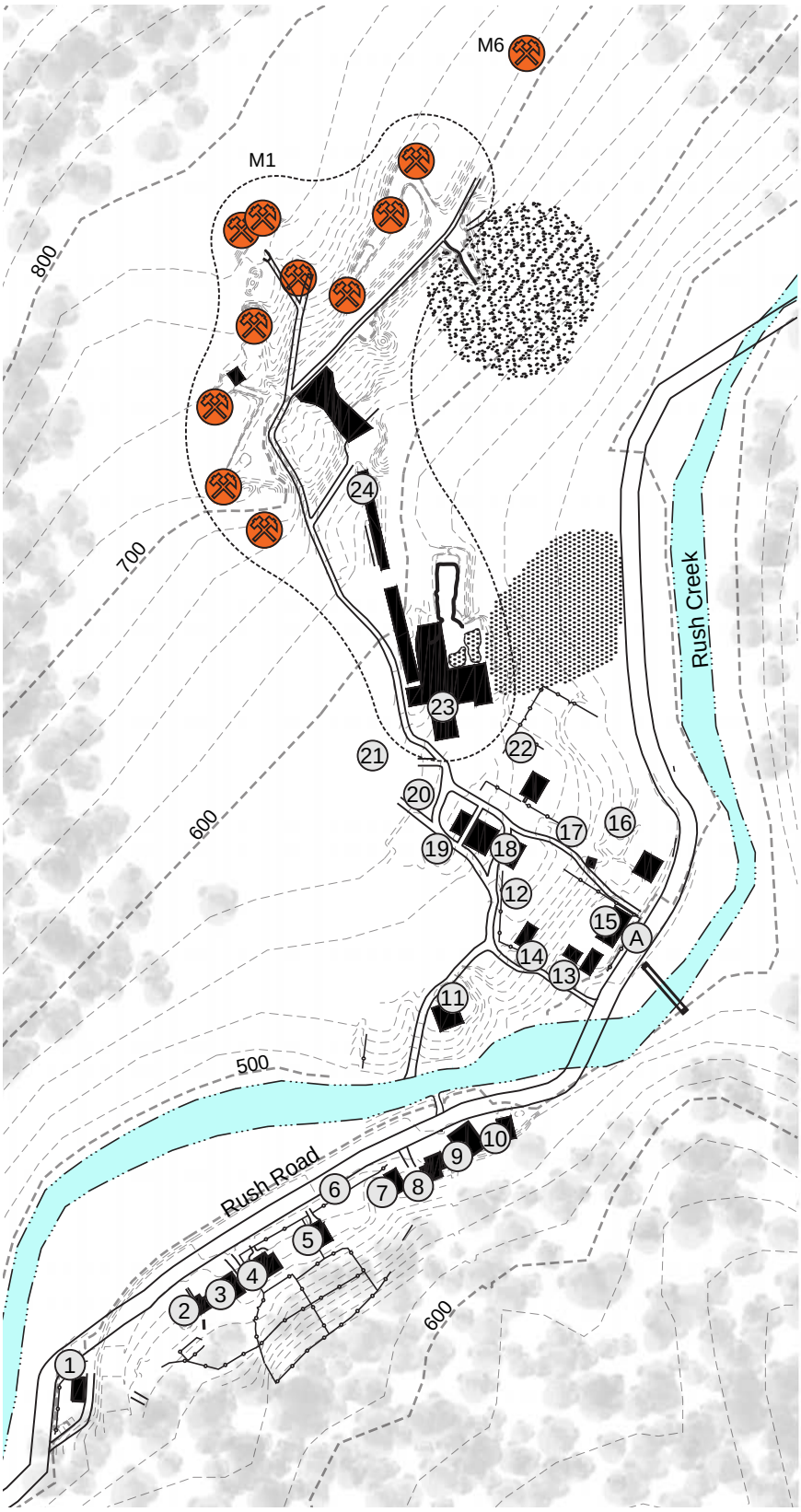


Figure 2-9. Rush Historic District, Boom - 1919.

(USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012, BUFF Archives - Rush Period Plan, USGS 1905, 1989 Special Use Study)



Legend

- Road
- Creek / River
- Mine / Mine Complex
- Fence
- Morning Star Mine Spoils Pile
- Morning Star Mill Tailings Pile

Mines

- M1 Morning Star Mine Complex (1884 to 1931)
- M6 Ben Carney Mine (1894 to 1931)

Buildings and Structures

1. Mulholland Building Site (c 1900 to 1920)
2. Bundy House (c 1899)
3. Wash House (c 1899)
4. Kastning House (c 1899)
5. Brantley House (c 1899)
6. Gotley House Site (c 1899)
7. Raby House (c 1899)
8. Storekeeper's House (c 1899)
9. Taylor-Medley General Store (c 1899)
10. Store Site (date unk)
11. Courthouse (c. 1916)
12. Doctor's / Maxey House (c 1916)
13. Post Office (c 1890)
14. Barn (1902)
15. Morning Star Hotel (c 1900)
16. Morning Star Livery Barn (c 1899)
17. Rush Smelter (1886)
18. Unknown Building (date unknown)
19. Chase and Mulholland Store (c 1899)
20. Morning Star Mine Office (c 1911)
21. Oil Storage House (c 1911)
22. Smith House (c 1899)
23. Morning Star Mill (c 1898)
24. Tramway (c 1898)

Circulation

- A Footbridge (c 1915)

N

0 240

1''=240'-0''

Figure 2-10. Morning Star Hotel, Mill, and Mine Community and House Row, Boom - 1919.

(USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012, BUFF Archives - Rush Period Plan, USGS 1905, 1989 Special Use Study)

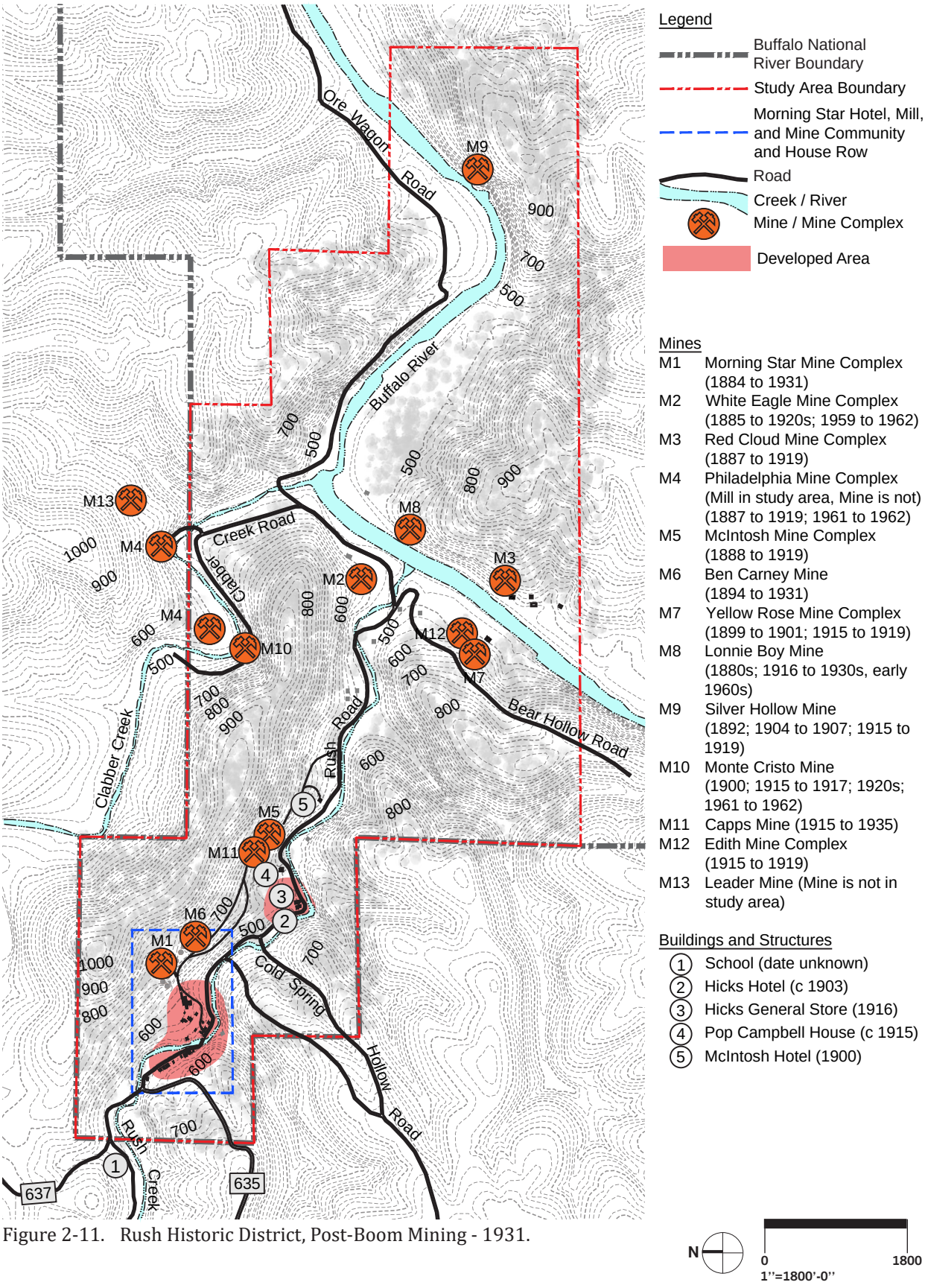
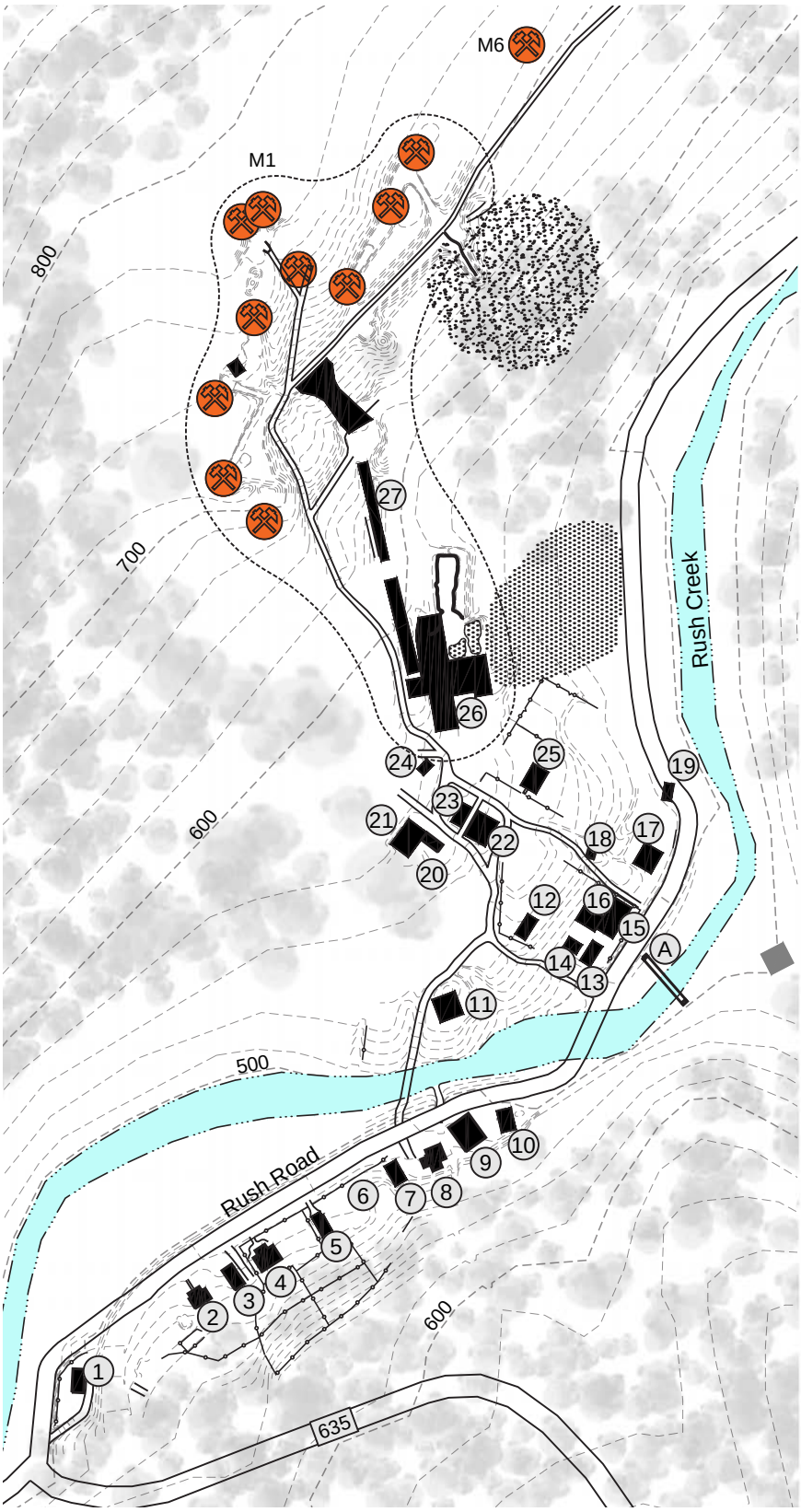


Figure 2-11. Rush Historic District, Post-Boom Mining - 1931.

(USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012, BUFF Archives - Rush Period Plan, USGS 1929 1989 Special Use Study)



Legend

Road
Creek / River
Mine / Mine Complex
Fence
Morning Star Mine Spoils Pile
Morning Star Mill Tailings Pile

Mines

M1 Morning Star Mine Complex (1884 to 1931)
M6 Ben Carney Mine (1894 to 1931)

Buildings and Structures

1. Mulholland Buildings Site (c 1900 to 1920)
2. Bundy House (c 1899)
3. Wash House (c 1899)
4. Kastning House (c 1899)
5. Brantley House (c 1899)
6. Gotley House Site (c 1899)
7. Raby House (c 1899)
8. Storekeeper's House (c 1899)
9. Taylor-Medley General Store (c 1899)
10. Store Site (date unk)
11. Courthouse (c 1916)
12. Doctor's / Maxey House (c 1916)
13. Post Office (c 1890)
14. Barn (1902)
15. Morning Star Hotel (c 1900)
16. Lyons House (c 1925)
17. Morning Star Livery Barn (c 1899)
18. Rush Smelter (1886)
19. Morning Star Mill Pump House (1926)
20. Rush Blacksmith Shop (1925)
21. Warehouse (1927)
22. Chase and Mulholland Store (c 1899)
23. Morning Star Mine Office (c 1911)
24. Oil Storage House (c 1911)
25. Smith House (c 1899)
26. Morning Star Mill (c 1898)
27. Tramway (c 1898)

Circulation

A Footbridge (c 1915)

N

0 240

1''=240'-0''

Figure 2-12. Morning Star Hotel, Mill, and Mine Community and House Row, Post-Boom Mining - 1931.

(USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012, BUFF Archives - Rush Period Plan, USGS 1929, 1989 Special Use Study)

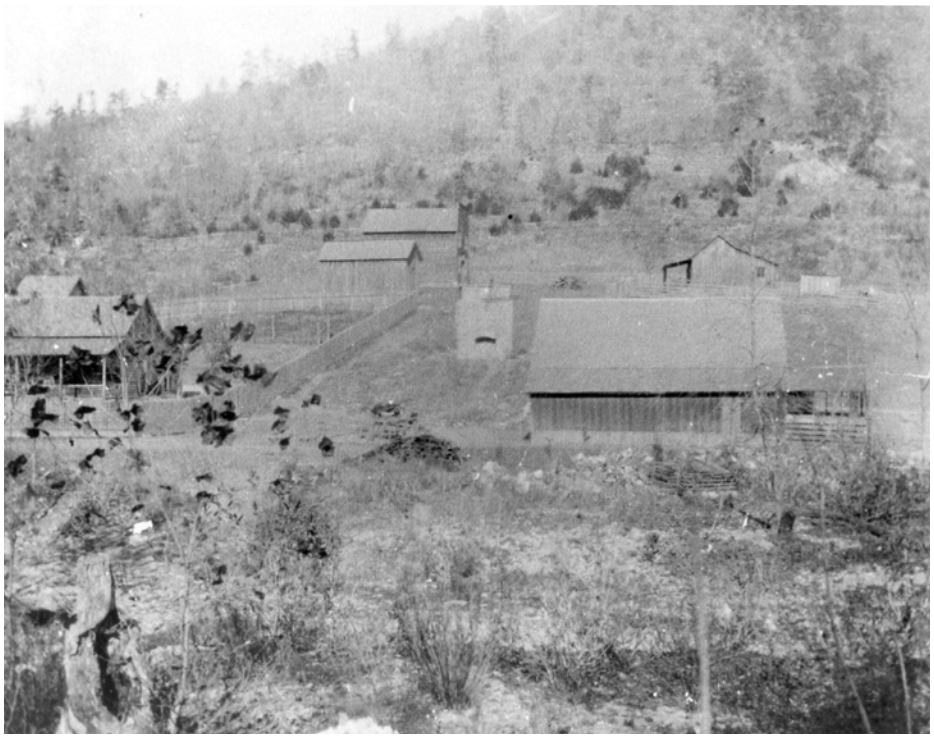


Figure 2-13. Morning Star Hotel, Rush Smelter, and Morning Star Livery Barn in the foreground and unknown building, Chase and Mulholland Store, and Smith House in the background, date unknown. (BUFF Archives, Arkansas History Commission)



Figure 2-14. Chase and Mulholland Store and Morning Star Mine Office, 1915. (BUFF Archives)

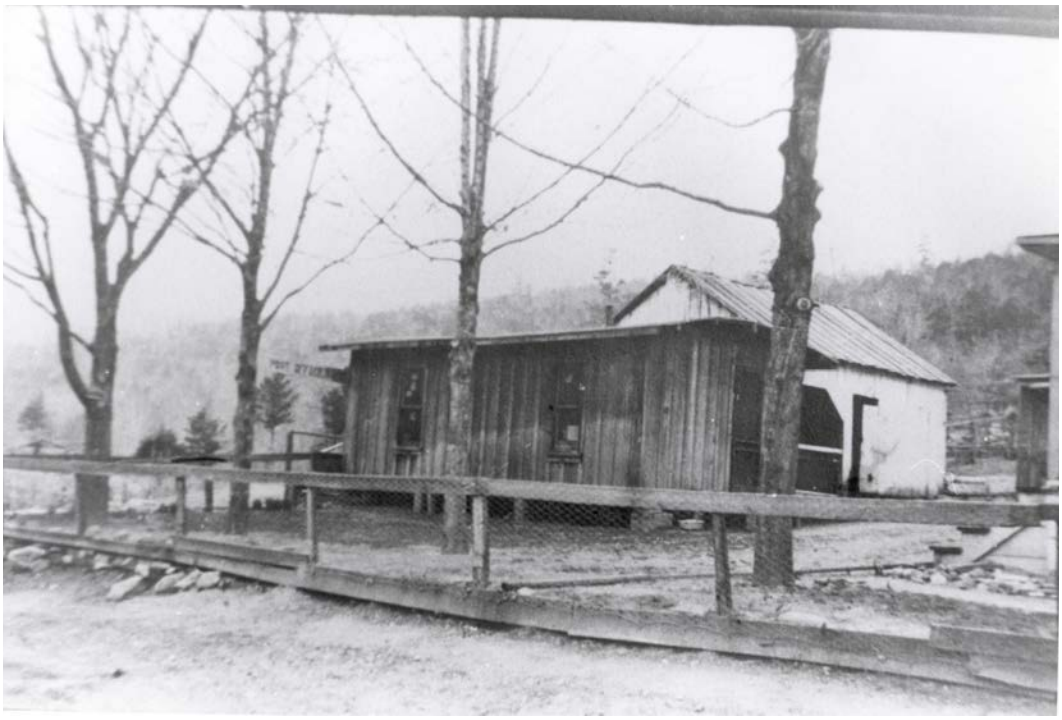


Figure 2-15. Rush Post Office, c 1920s. (BUFF Archives, Bessie Kastning Collection)



Figure 2-16. Morning Star Livery Barn, 1925. (BUFF Archives)



Figure 2-17. Rush Blacksmith Shop, 1925. (BUFF Archives)



Figure 2-18. View across the yard behind the Morning Star Hotel, towards the Chase and Mulholland Store and Morning Star Mill, 1926. (BUFF Archives, Bessie Kastning Collection)



Figure 2-19. Morning Star Mine, open cut, 1900. (BUFF Archives, USGS Collection)



Figure 2-20. Morning Star Mill, 1915. (BUFF Archives)



Figure 2-21. Morning Star Mill and Mine, 1916. (BUFF Archives, USGS Collection)



Figure 2-22. Morning Star Mill, 1918. (BUFF Archives)



Figure 2-23. Morning Star Mine, 1925. (BUFF Archives, Bessie Kastning Collection)

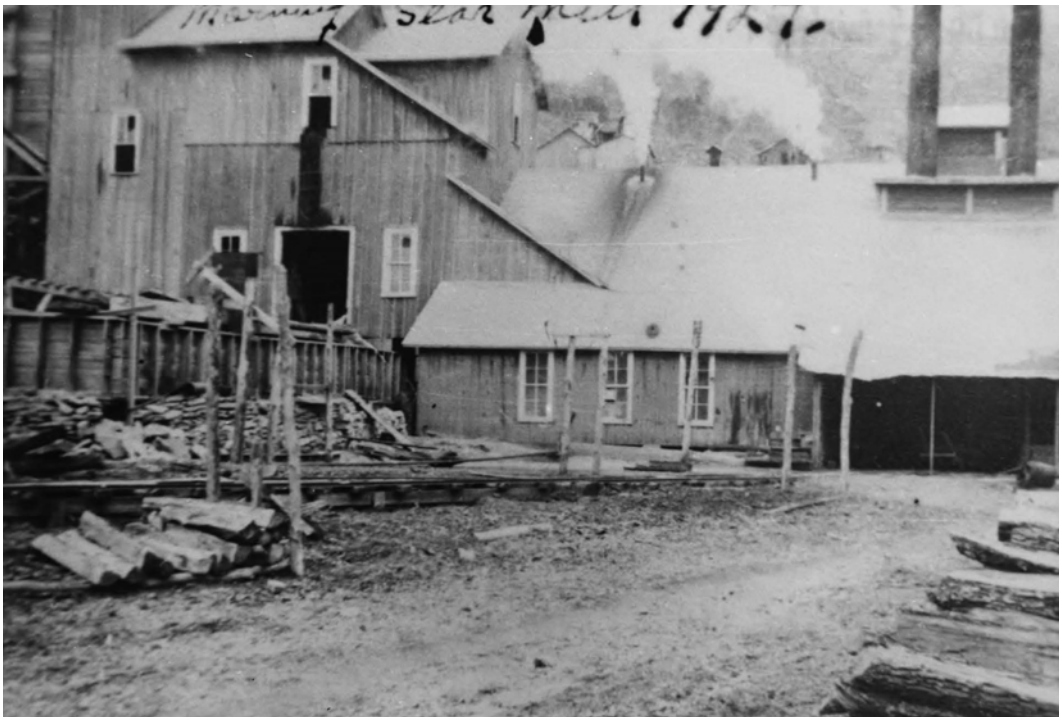


Figure 2-24. Morning Star Mill, 1927. (BUFF Archives)

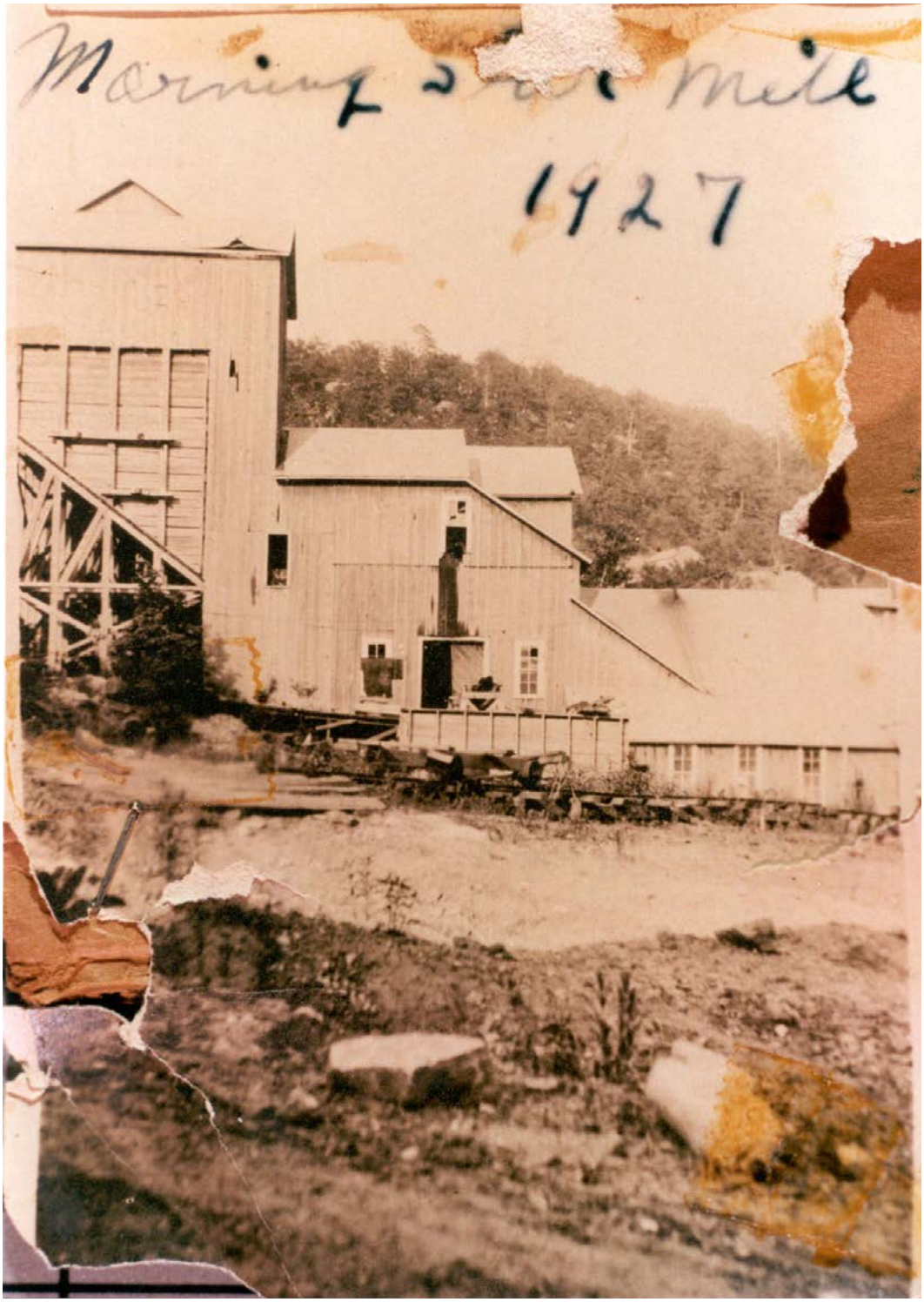


Figure 2-25. Morning Star Mill, 1927. (BUFF Archives, Bessie Kastning Collection)

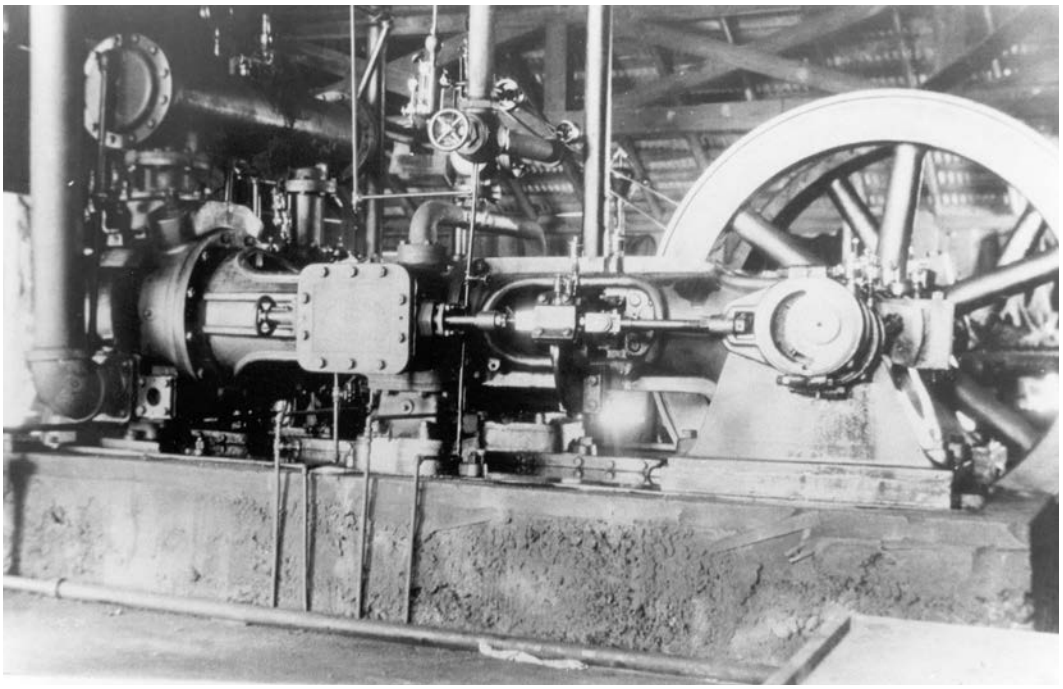


Figure 2-26. Air compressor at Morning Star Mill, 1927. (BUFF Archives, Bessie Kastning Collection)

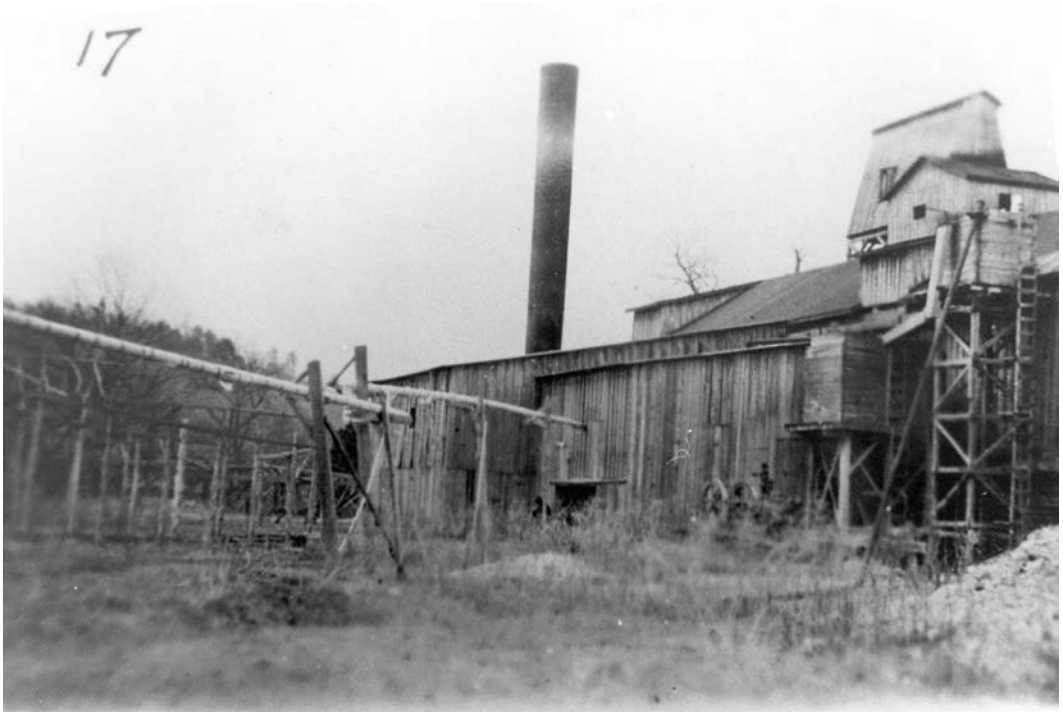


Figure 2-27. White Eagle Mill, 1917. (BUFF Archives, Bessie Kastning Collection)

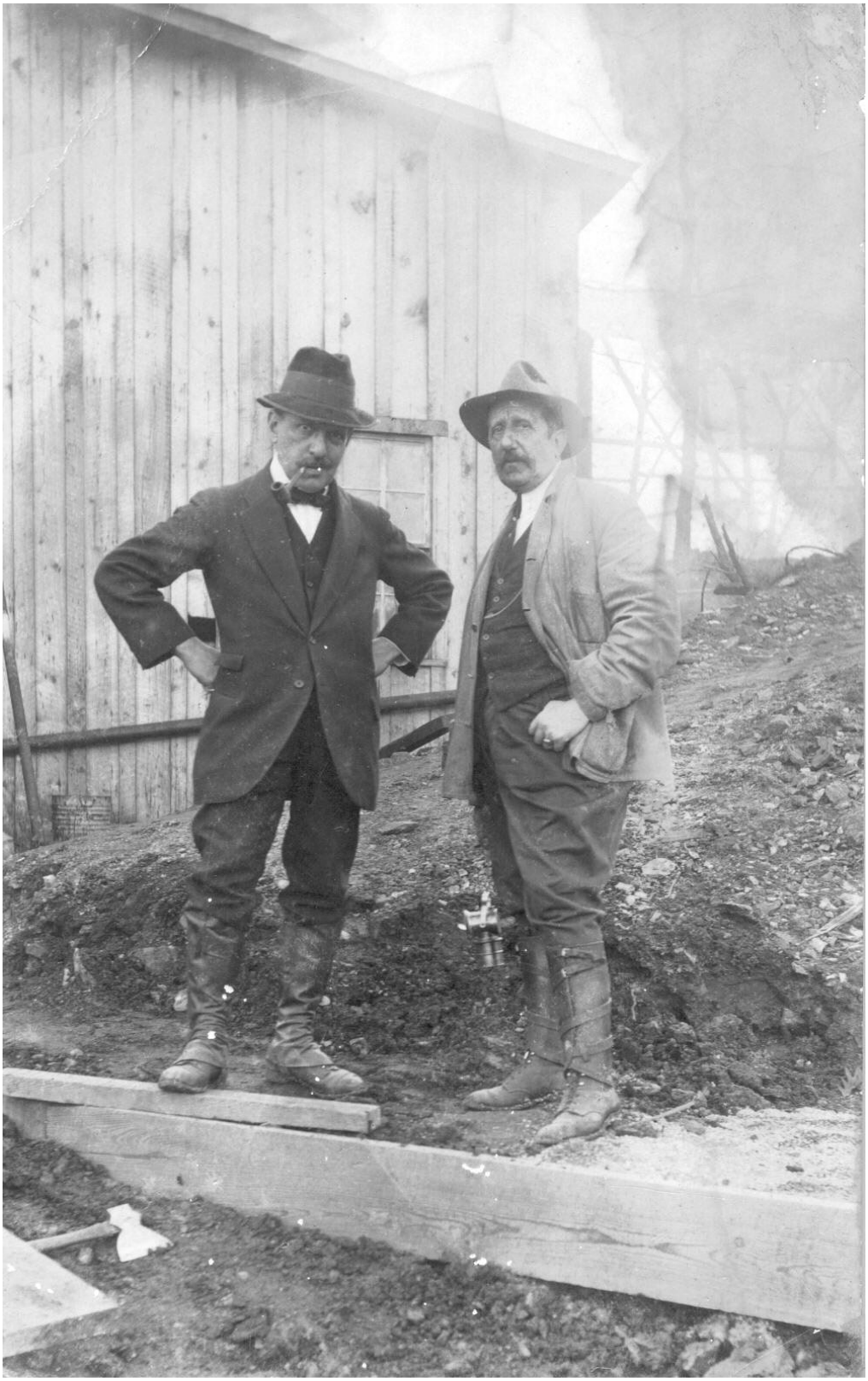


Figure 2-28. Engineers G. DeBeughem and Le Vasseur at Red Cloud Mill, 1909. (BUFF Archives)

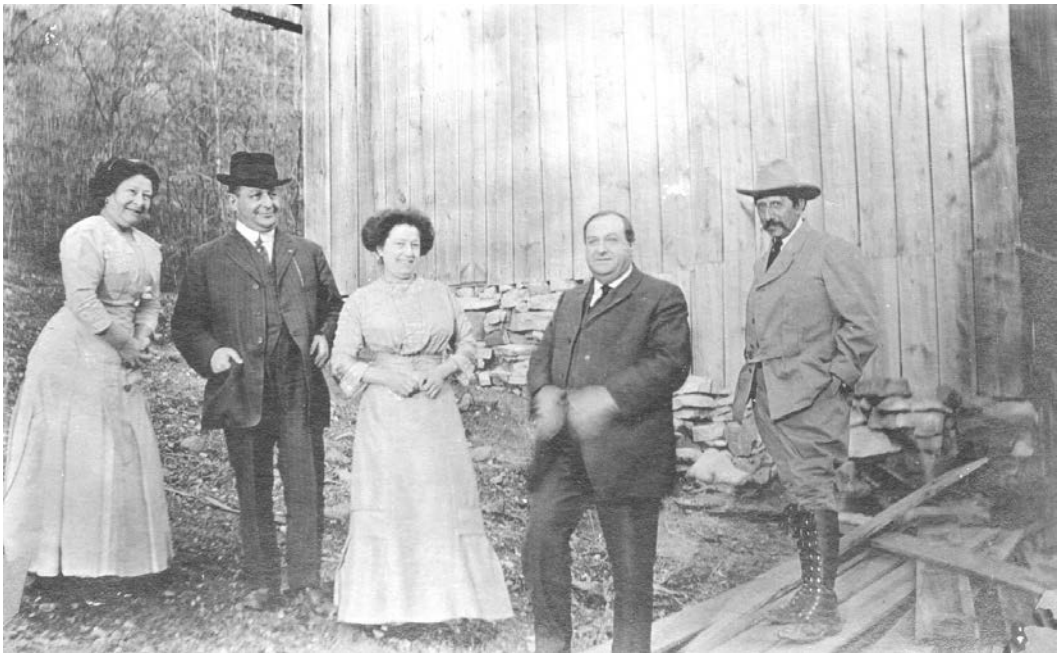


Figure 2-29. The owners of Red Cloud Mine (M3), 1910. (BUFF Archives)



Figure 2-30. Red Cloud Mine (M3) and Mill from Buffalo River, looking east, 1915. (BUFF Archives)



Figure 2-31. Red Cloud Mill, 1915. (BUFF Archives, Bessie Kastning Collection)



Figure 2-32. Red Cloud miners, 1915 or 1916. (BUFF Archives, Helen Lack Collection)



Figure 2-33. McIntosh Mill, 1900. (BUFF Archives, USGS Collection)



Figure 2-34. McIntosh Hotel and Office, 1916. (BUFF Archives, USGS Collection)

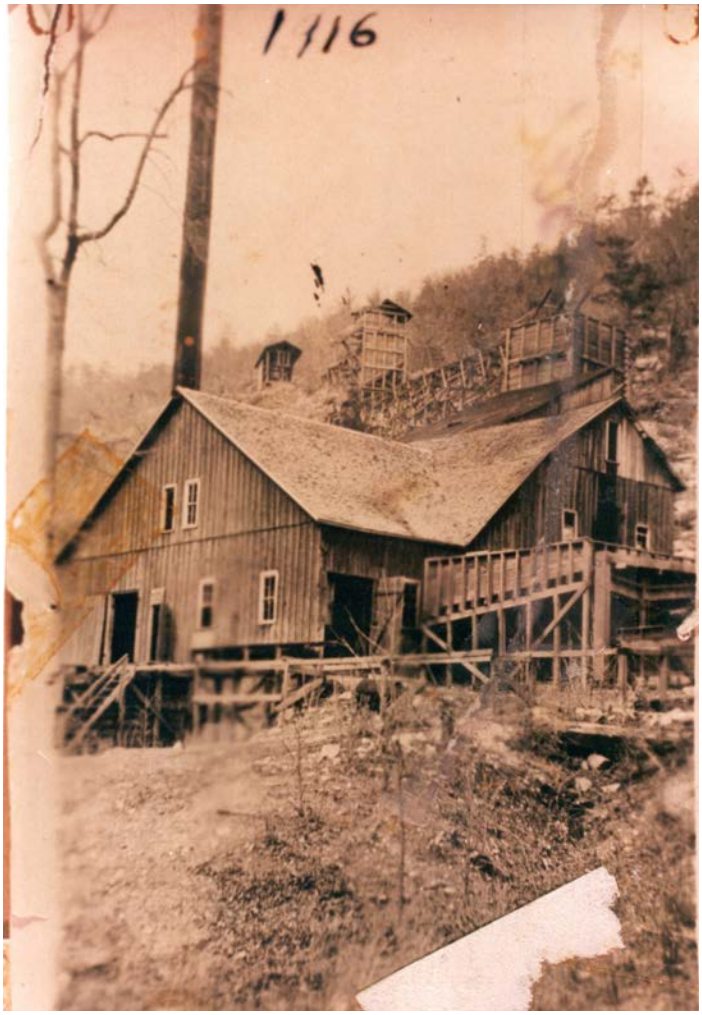


Figure 2-35. McIntosh Mill, 1916. (BUFF Archives, Bessie Kastning Collection)



Figure 2-36. McIntosh Hotel, facing northeast, c 1922. (BUFF Archives)



Figure 2-37. Nettie Medley, infant Bessie Kastning, and boy in front of McIntosh Hotel, 1922. (BUFF Archives, Bessie Kastning Collection)



Figure 2-38. Unknown woman, Nettie Medley, and infant Bessie Kastning in front of McIntosh Hotel, 1922. (BUFF Archives, Bessie Kastning Collection)



Figure 2-39. Yellow Rose Mill, 1917. (BUFF Archives, Bessie Kastning Collection)



Figure 2-40. Edith Mill, 1918. (BUFF Archives, Bessie Kastning Collection)



Figure 2-41. Group in front of Hicks Hotel, 1920. (BUFF Archives, Bessie Kastning Collection)



Figure 2-42. Post mining use of the New Town area. Mine workings associated with Yellow Rose Mine (M7) and Edith Mine (M12) appear in the lower left, 1939. ((USGS 1939:LR383) Rogers et al, Historic Resource Documentation, Morning Star Mines Interpretive Area)

Post-Mining Era (1932 to 1971)

Mines and businesses closed, and residents left Rush following the mining boom. Buildings were either taken down for salvage or were left to the elements. The economy shifted to tourism, with the vacant buildings lending to the promotion of "Rush Ghost Town" by the remaining residents. In the 1950s and 1960s, locals made improvements to visitor amenities, including a boat landing, campground, and cabins, in order to attract tourists. Over time, the forest revegetated naturally, covering the spoils piles and ruins. Despite the closure of the mines, locals continued to extract free ore from the mines, selling to nearby mills. Some free ore operations caused mines to physically collapse.[2.57]

1930s

Tourist cabins were built at Rush Landing.[2.58]

1942

The United States Army Corps of Engineers explored Rush to benefit the national stockpile of zinc. Their exploratory borings confirmed that the remaining zinc deposits were minimal.[2.59]

1947

The Morning Star Hotel was destroyed by fire.[2.60]

1950s

In the late 1950s, Buffalo River became a popular tourist destination. Locals promoted the idea of the "Rush Ghost Town" to attract visitors.

A boat landing and campground on Buffalo River was established by resident Fred Dirst.[2.61]

1953

The post office discontinued service at the Taylor-Medley General Store.[2.62]

1958

New White Eagle Mill began production, but closed four years later.[2.63]

1960s

Rush Road was rerouted to eliminate multiple creek crossings and to bypass natural rock crossings. Concrete water crossing slabs were added.[2.64]

Late 1960s

Multiple buildings were demolished after the Morning Star Mining Company sold its land holdings.[2.65]

2.57 *CLI*, 29.
2.58 *NRHP,* 9.
2.59 *CLI*, 29.
2.60 *CLI*, 25.
2.61 (Stratton and Mansberger 2005, 23), *CLI*, 29.
2.62 (Stratton and Mansberger 2005, 23), *CLI*, 29.
2.63 *CLI*, 25.
2.64 *NRHP*, 4.
2.65 *NRHP,* 8.



Figure 2-43. Footbridge below post office, 1948. (BUFF Archives, Bessie Kastning Collection)



Figure 2-44. Rush Post Office and Taylor-Medley General Store, c 1950s. (BUFF Archives, Bessie Kastning Collection)



Figure 2-45. Rush Creek, c 1950s. (BUFF Archives, Bessie Kastning Collection)



Figure 2-46. Tourists at Rush Smelter, 1955. (BUFF Archives, Bessie Kastning Collection)



Figure 2-47. Chase and Mulholland Store and Morning Star Mine Office, 1955. A few residents were still living in Rush at this time, but the majority of the town's buildings were vacant. (BUFF Archives, Bessie Kastning Collection)

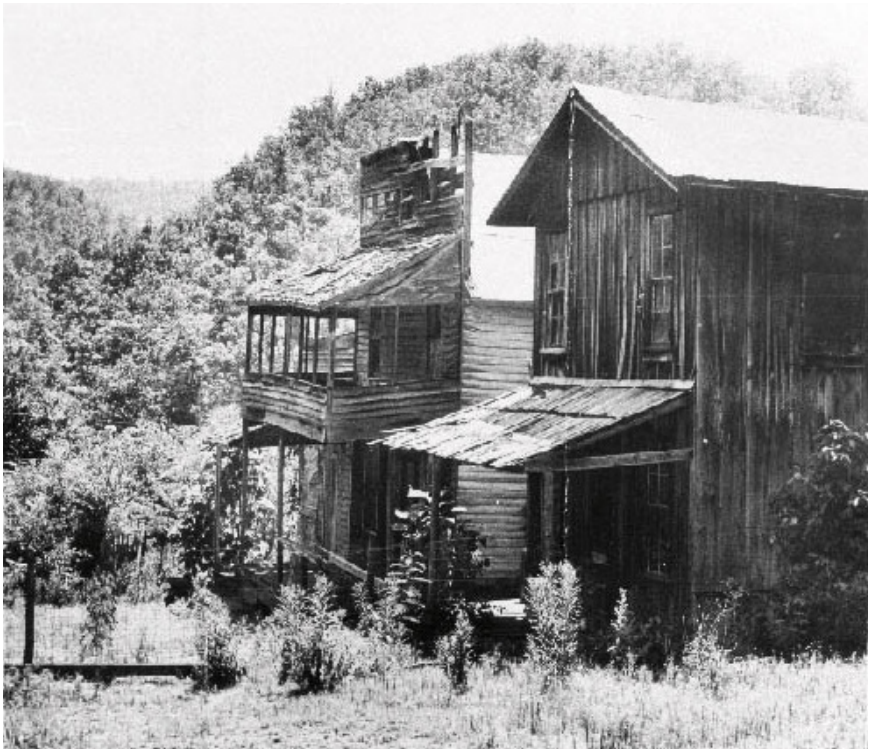


Figure 2-48. Chase and Mulholland Store and Morning Star Mine Office, 1958. (BUFF Archives)

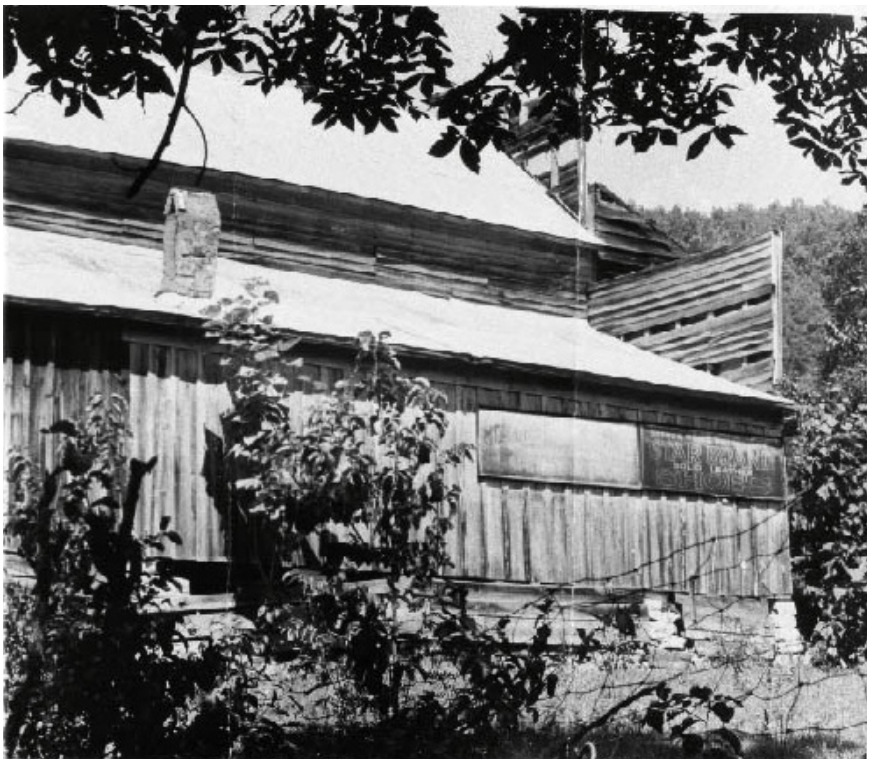


Figure 2-49. Chase and Mulholland Store, 1958. (B. Kastning, BUFF Archives)



Figure 2-50. Rush community members on porch of Taylor-Medley General Store, 1955. (BUFF Archives)

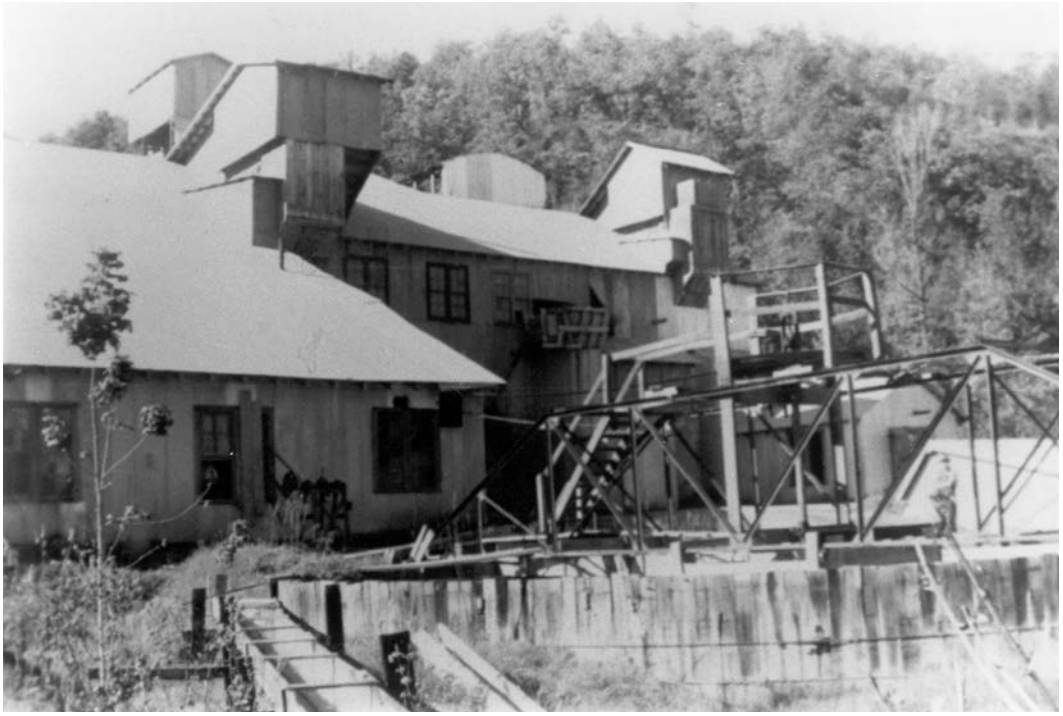


Figure 2-51. New White Eagle Mill, 1960. (BUFF Archives, Bessie Kastning Collection)

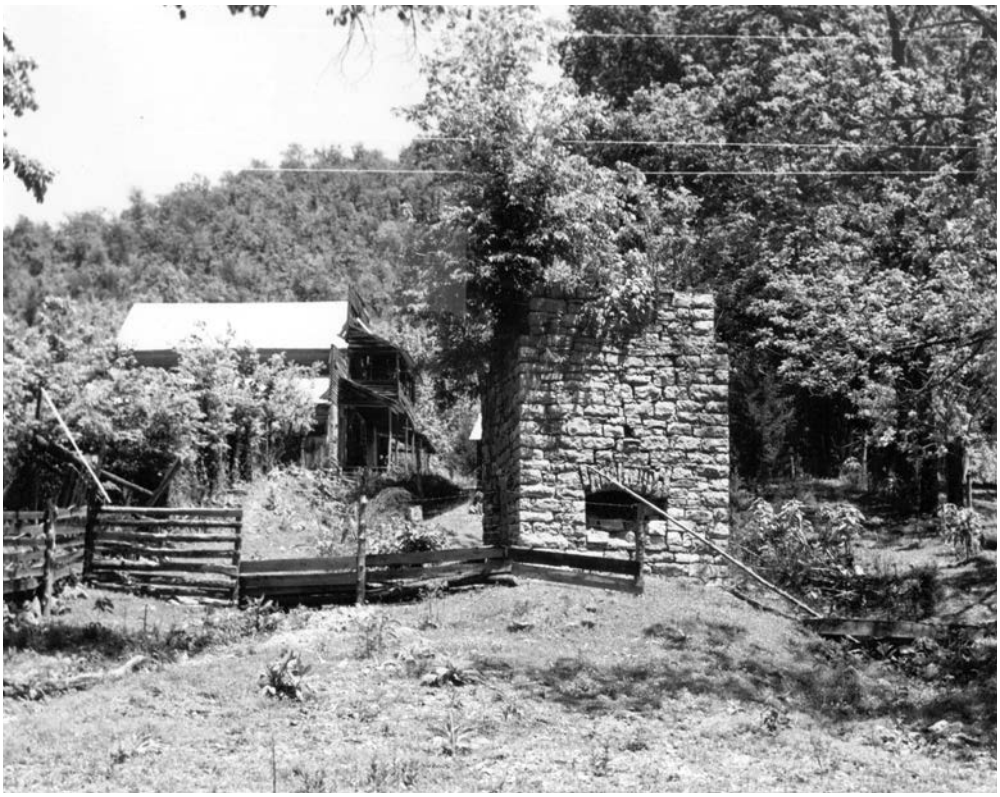


Figure 2-52. Rush Smelter, c 1960s. (BUFF Archives, Phelps Collection)



Figure 2-53. Main Street, c 1960s. (BUFF Archives, Phelps Collection)



Figure 2-54. Taylor-Medley General Store, c 1960s. (BUFF Archives, Phelps Collection)



Figure 2-55. Main Street, c 1960s. (BUFF Archives, Phelps Collection)



Figure 2-56. Mill foundation, c 1960s. (BUFF Archives, Phelps Collection)



Figure 2-57. Rush Mining Company Mill, New Mill 1969. (BUFF Archives)



Figure 2-58. Taylor-Medley General Store, 1977. (BUFF Archives)

Buffalo National River/Present Day (1972 to Present Day)

Establishment of Buffalo National River in 1972 encompassed Rush Historic District. The NPS documented the cultural landscape and improvements were made to visitor access and amenities. Rush Road was widened and graveled, and a loop drive provided river access at Rush Landing. Interpretive trails were added to provide access to the mines and mill ruins. Structures were stabilized and vegetation was cleared from the ruins, while other areas remained forested. Hicks Store was remodeled and converted into NPS staff housing. Many buildings and structures collapsed over time, while others were subject to arson, leaving only a few standing today.

1972

Buffalo National River was established by U.S. Congress on March 1,1972. Four families still resided in Rush at the time.[2.66]

1972 to 1983

The NPS acquired property from Donald Willsey, including House Row.[2.67]

1978

Hicks Store was converted into NPS staff housing.[2.68]

1979

Removal of the 1950s New White Eagle Mill.[2.69]

2.66 *FPM*, 4.
2.67 *CLI*, 25.
2.68 Rogers, *Selected Time Line of NPS Undertakings.*
2.69 Rogers, *Selected Time Line of NPS Undertakings.*

1980 to 1982

Rush Road improvements were completed by NPS.[2.70]

1982

A record high flood (100 and 500 year) on Buffalo River deposited sand and mud into the study area.[2.71]

1984

The mines were inspected by Office of Mine Safety.[2.72]

Rush Road was improved, including improvements to the concrete water slab.[2.73]

1985

The NPS built fences to restrict entry to mine tunnels and shafts.[2.74]

Marion county paved the portion of Rush Road owned by the county.[2.75]

The Warehouse adjacent the Rush Blacksmith Shop collapsed due to heavy snow loads.

The NPS stabilized the Morning Star Livery Barn, Rush Smelter, and Taylor-Medley General Store with emergency support. Some vegetation was thinned around the structures.[2.76]

2.70 Rogers, *Selected Time Line of NPS Undertakings.*
2.71 *The Flood of December 1982 and the 100- and 500- Year Flood on the Buffalo River. Arkansas.* (U. S. Geological Survey, 1985).
2.72 Rogers, *Selected Time Line of NPS Undertakings.*
2.73 Rogers, *Selected Time Line of NPS Undertakings.*
2.74 *NRHP,* 5.
2.75 NPS Drawing, *Stabilize Historic Structures*. 1985. Dwg Number 173-80018. Also, Rogers, *Selected Time Line of NPS Undertakings.*
2.76 *NRHP,* 8.



Figure 2-59. House Row, 1985. (S. Rogers, BUFF Archives)

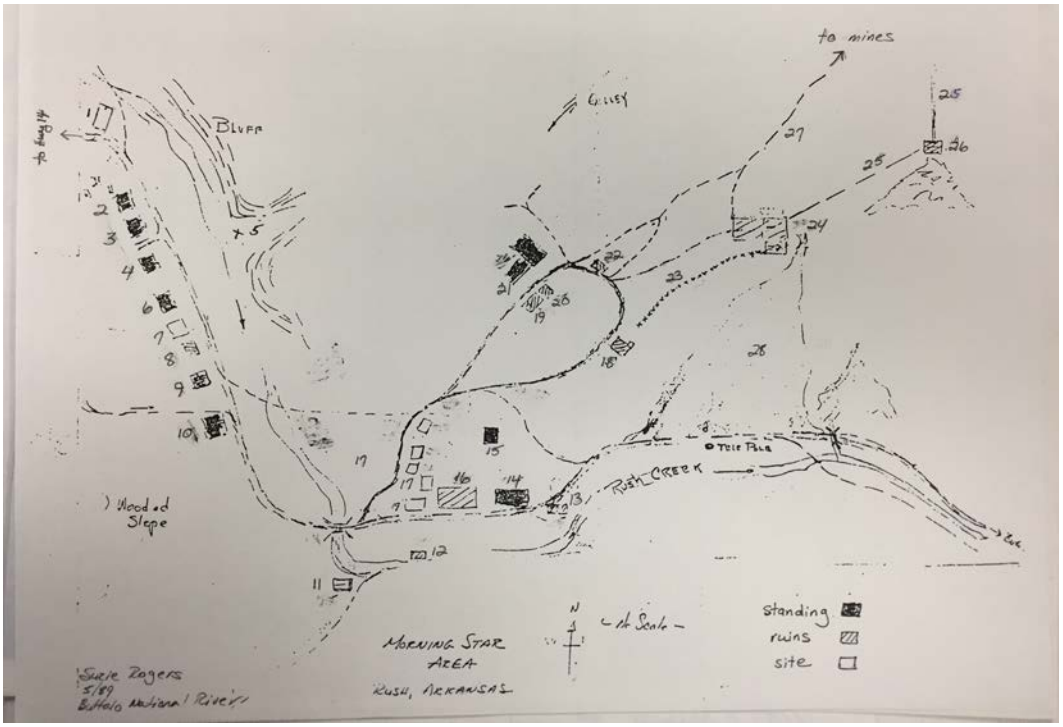


Figure 2-60. Morning Star Area standing structures, May 1989. (S. Rogers, BUFF Archives)

1986

Fencing around House Row completed.[2.77]

Rush Campground was improved with a road and water crossing from Rush Road to the campground. Other improvements included a loop road (extant) at the end of Rush Road to Rush Landing.[2.78]

1987

Rush Historic District was listed in the NRHP on February 27, 1987.[2.79]

Park maintenance staff and Youth Conservation Corps cleared vegetation around House Row and installed interpretive waysides.[2.80]

Morning Star Trail was built through the Morning Star Community landscape character area. Youth Conservation Corps and volunteers built the Morning Star Trail parking and two interpretive waysides.[2.81]

Rush Road was graded, widened and resurfaced.[2.82]

1988

Some House Row structures were stabilized and non-historic additions were removed.[2.83]

1989

Rush Blacksmith Shop was stabilized.[2.84]

Youth Conservation Corps performed trail improvements. [2.85]

1998

Brantley House and Morning Star Livery Barn were destroyed by arson.[2.86]

2000

Hicks Wall, in front of the Hicks Hotel and Hicks General Store, was repaired.[2.87]

2001

Visitor amenities were added by the NPS, including eleven interpretive exhibits and a one quarter of a mile visitor trail.

2004

Hicks General Store was destroyed by arson.[2.88]

2005

Laffoon Cemetery (outside study area) and White Eagle Mine New Mill Piers received a Determination of Eligibility for the NRHP from the Arkansas State Historic Preservation Office.[2.89]

2011

Emergency stabilization measures for the Taylor-Medley General Store were proposed.[2.90]

2.77 Rogers, *Selected Time Line of NPS Undertakings.*
2.78 NPS Drawing, *Rush Campground*. Denver Service Center, 1985-86. Dwg Number 173-41055.
2.79 *Theme Identification Context Studies,* 8.
2.80 Rogers, *Selected Time Line of NPS Undertakings.*
2.81 Rogers, *Selected Time Line of NPS Undertakings.*
2.82 NPS Drawing, *Rush Landing Comprehensive Design*. Dwg Number 173-41036.
2.83 Rogers, *Selected Time Line of NPS Undertakings.*
2.84 Rogers, *Selected Time Line of NPS Undertakings.*
2.85 Rogers, *Selected Time Line of NPS Undertakings.*
2.86 Suzie Rogers, various emails RE; Arson loss, December, 1998.
2.87 *CLI*, 30.
2.88 Rogers et al., *Morning Star Mines Interpretive Area,* III-299.
2.89 *CLI*, 20.
2.90 *Draft Project Agreement, PMIS 161446, Emergency Stabilization of Historic Taylor-Medley General Store.* (U.S. Department of the Interior, National Park Service, 2011).



Figure 2-61. Morning Star Livery Barn prior to stabilization, 1984. (S. Rogers, BUFF Archives)



Figure 2-62. Morning Star Livery Barn after stabilization, 1985. (S. Rogers, BUFF Archives)



Figure 2-63. Rush Smelter prior to stabilization, 1984. (S. Rogers, BUFF Archives)



Figure 2-64. Stabilization of the Rush Smelter included earthwork around the base of the smelter as part of the overall stabilization effort, c 1985. (BUFF Archives)

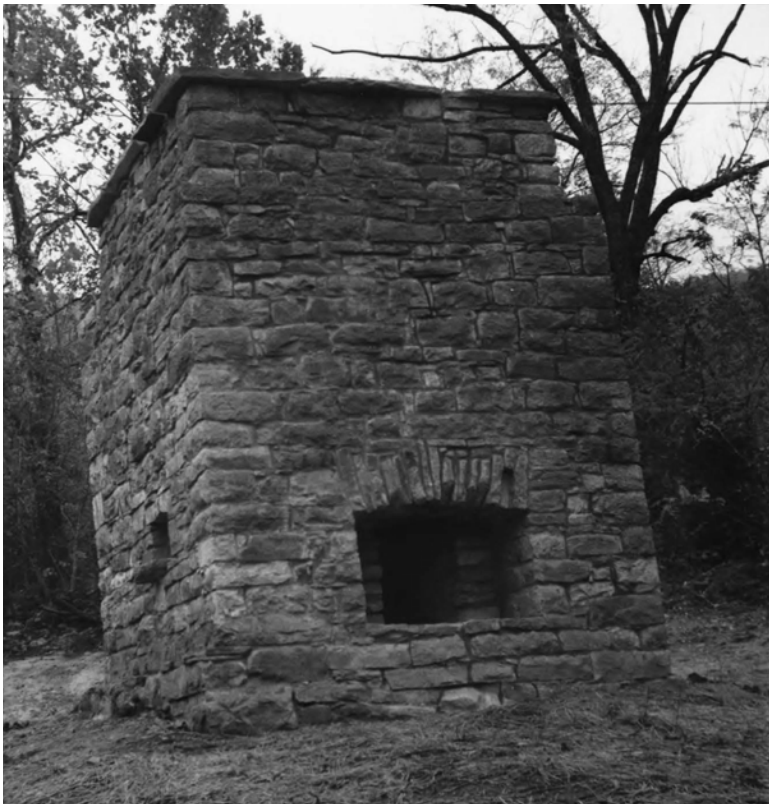


Figure 2-65. Rush Smelter after stabilization work, 1985. (S. Rogers, BUFF Archives)

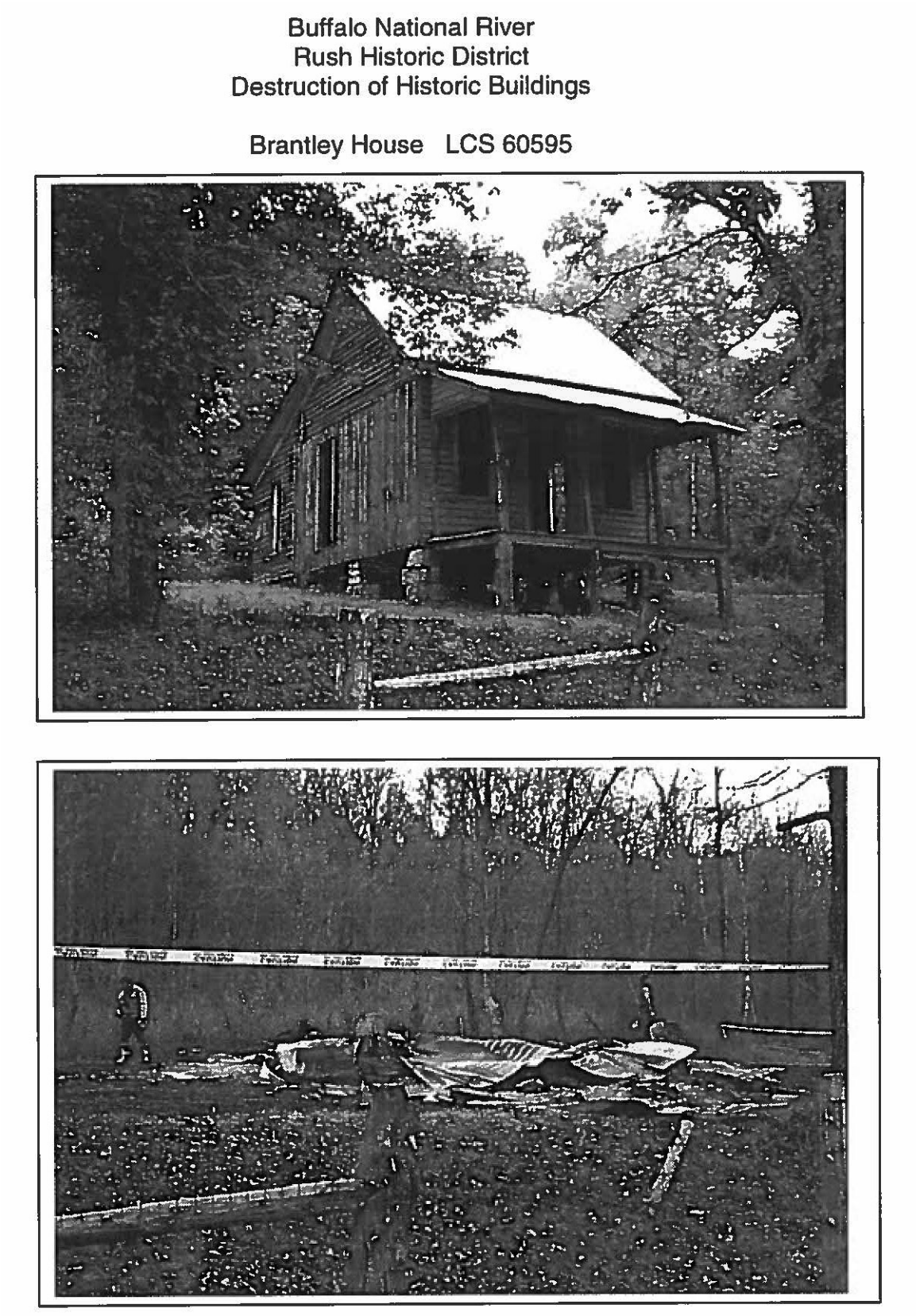


Figure 2-66. Brantly House was destroyed by arson in 1998. (S. Rogers, 1998)

Buffalo National River
Rush Historic District
Destruction of Historic Buildings

Morning Star Barn LCS# 60598

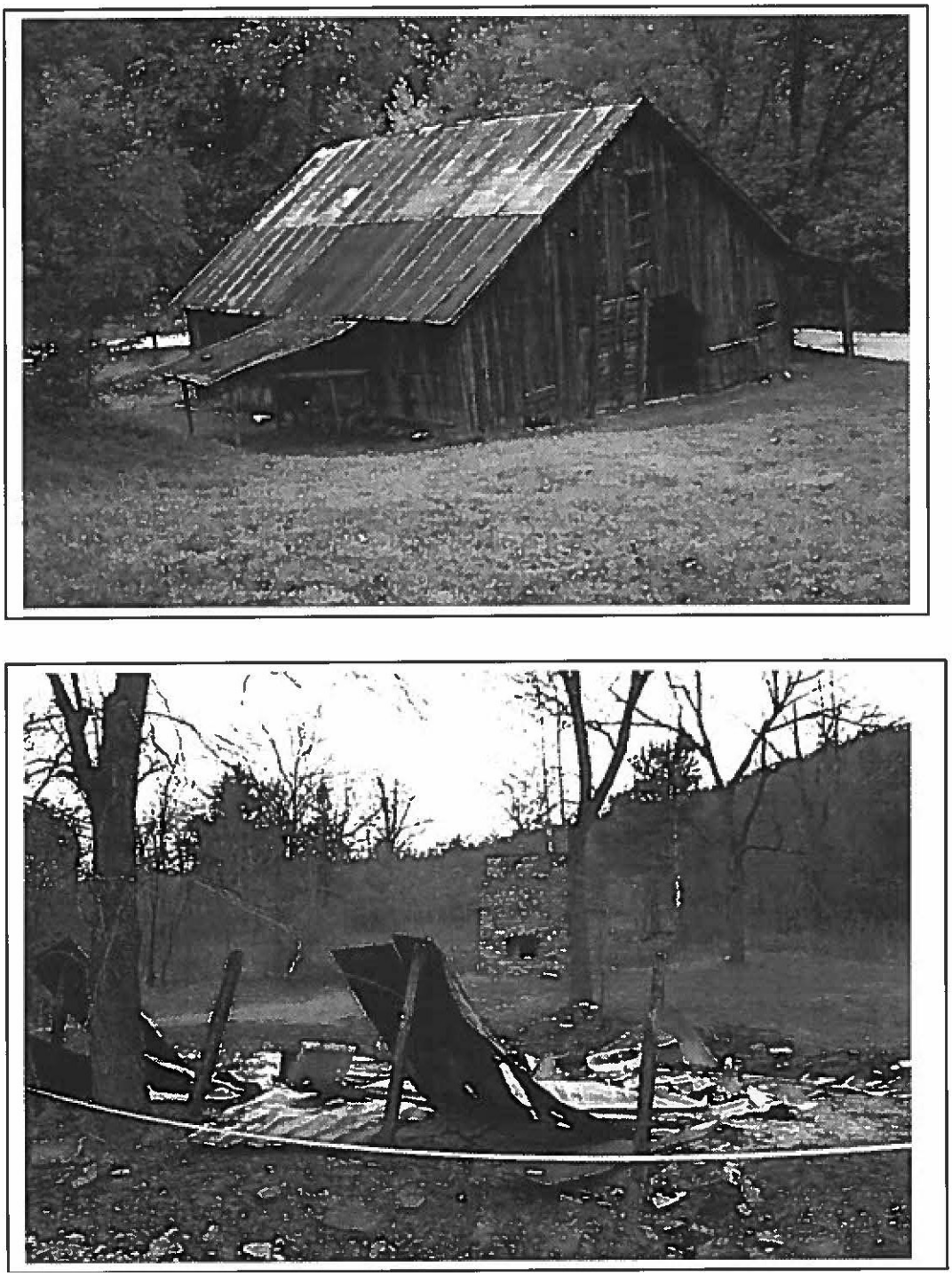


Figure 2-67. Morning Star Livery Barn was destroyed by arson in 1998. (S. Rogers, 1998)

Chapter 3. Existing Condition and Analysis

Introduction

This chapter presents the existing condition and analysis of integrity for Rush Historic District cultural landscape. Narrative, photographs, plans, and illustrative analysis diagrams describe the study area and Morning Star Community landscape character area.

This analysis was undertaken to understand the cultural landscape as a whole, and to identify and document those qualities that contribute to its historic character and significance. Site investigations recorded the existing condition of the cultural landscape in April and September 2017.

This chapter is organized to present the existing condition assessment and analysis for the study area first, followed by more detailed assessment for the Morning Star Community landscape character area.

The existing condition of the cultural landscape is evaluated according to the following criteria.

Good – Those features of the landscape that do not require intervention. Only minor or routine maintenance is needed at this time.

Fair – Some deterioration, decline, or damage is noticeable; the feature may require immediate intervention. If intervention is deferred, the feature will require extensive attention in a few years.

Poor – Deterioration, decline, or damage is serious; the feature is seriously deteriorated or damaged or presents a hazardous condition. Due to the level of deterioration, damage, or danger the feature requires extensive and immediate attention.

The study area and landscape character area are evaluated and analyzed according to a series of landscape characteristics that relate to tangible and intangible aspects of the cultural landscape. These characteristics collectively create the historic character of the study area and aid in understanding its historic importance. The landscape characteristics serve as categories under which individual features are documented and listed. The existing condition and analysis is completed according to the following landscape characteristics.

Natural Systems and Features are those natural aspects that have influenced the development and physical form of the cultural landscape.

Archeological Sites contain surface or subsurface remnants related to historic or prehistoric land use.

Land Use is the organization, form, and shape of the cultural landscape in response to use.

Cluster Arrangement and Topography are the location and organization of buildings, structures, and features, and the 3-dimensional configuration of the landscape surface.

Circulation are features and materials that constitute systems of movement including vehicular and pedestrian routes.

Buildings and Structures are 3-dimensional man-made constructs.

Small Scale Features are human-scaled elements that provide detail and function.

Vegetation is indigenous or introduced trees, shrubs, vines, groundcovers, herbaceous materials, or natural vegetative cover.

Assessment of Integrity

Integrity is the ability of a cultural landscape to convey its significance. It is assessed to determine if the landscape characteristics that shaped the cultural landscape during the period of significance are present.

Integrity is evaluated according to seven aspects or qualities: location, setting, feeling, design, materials, workmanship, and association.

Rush Historic District retains integrity in six aspects: location, setting, design, materials, workmanship, and association. The study area has diminished integrity of feeling.

Location and Setting

Location is where the cultural landscape was constructed or where an historic event occurred. Setting is the physical environment of the cultural landscape.

Rush Historic District retains integrity in location and setting. Although only seven standing buildings remain, building ruins and features from the mills, mines, and circulation network retain original locations set on steep wooded hillsides and rocky escarpments above Buffalo River, Rush and Clabber creeks.

Feeling

Feeling is the cultural landscape's expression of the aesthetic or historic sense of a particular period of time.

The study area has diminished integrity in feeling due to the loss of buildings. Visitors have difficulty visualizing the mining process within the landscape context. Integrity remains in the individual mines where the landscape reflects the active mining period of open portals, cart tracks, mine spoils, and rock fall. Diminished integrity of feeling occurs at the mills and adjacent community, where spatial relationships are diminished.

Historically, Rush Historic District was a working landscape. Ore was extracted from the mines and processed in the mills. Mining operations shaped the landscape with movement of vast quantities of rock and earth, and construction of tramways to move ore to large mill structures for processing. Clear visual relationships between these activities existed historically, with the mills as dominant features in mass and scale. Today mining activities are evident through seven standing buildings, building ruins, ruins, roads, mining resources such as adits (a horizontal or nearly horizontal entrance to an underground mine), spoils piles, and open cuts. Overgrown vegetation obscures many features, making it is difficult to visualize and understand how the mining district operated. While the overall change in appearance, i.e., loss of once prominent structures, particularly mills and the tramway, diminishes integrity of feeling, actions such as vegetation management could repair spatial relationships and convey the scale of the cultural landscape. The loss of scale and massing from important mining buildings diminishes affects the feeling of the industrial working landscape.

Design, Materials, and Workmanship

Design is the combination of elements that create the form, plan, space, structure, and style of a cultural landscape. Materials are the physical elements that were combined or deposited during the particular period of time and in a particular pattern or configuration to form the cultural landscape. Workmanship includes the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Rush Historic District retains integrity of design. Built as a functional, working

landscape, the focus on resource extraction created the industrial landscape evident today. Mines were sited based on the geology and zinc deposits and designed to efficiently extract ore. Three different types of construction were used for the mines: horizontal (room-and-pillar), vertical, and open-pit, based on how the vein of ore was situated. The design of these mine features is extant today.

Mills and support structures, offices, and the associated community were designed to support the mining industry. Buildings were built quickly with inexpensive, locally available materials of wood, stone, and concrete. The extant buildings contain original materials and the design and workmanship reflect vernacular building styles of the Ozark Highlands. Extant buildings depict simple massing and roof forms, vertical board construction, dry stacked stone walls, pier foundations, metal roofing, and front porches.

Association

Association is the direct link between an important historic event or person and a cultural landscape.

Rush Historic District retains integrity of association as being developed as part of the Ozark mining industry in the early 20th century. The development of mines, mills, and support structures are evidence of the study area's role in supporting the war effort associated with World War I, and development of the Ozark Highlands in general.

Contributing and Non-Contributing Features

Contributing features are those individual elements that remain from the period of significance and contribute to the integrity of Rush Historic District. Non-contributing features are recent additions that were not built within the period of significance and do not contribute to the integrity of the study area.

Study Area

Contributing Features

- Buffalo River
- Rush Creek
- Clabber Creek
- Boiling Spring
- Karst Geology
- Hardwood Forest
- New Town Site (1915-1920)
- New Town Building Ruin (c 1915)
- Keystone Town Site (1904 to 1919)
- McIntosh Hotel Ruins (1900)
- McIntosh Livery Ruins (1900)
- Pop Campbell House Site Ruins (c 1915)
- George Jones Site (c 1929 to 1939)
- Boiling Spring Site (c 1915)
- Cold Springs Hollow Structures (c 1910 to 1920)
- Mine Manager's House Site (c 1925)
- Pat McCormick House Site (date unknown)
- Hicks Rental Houses Sites (1915)
- Con Medley House Site (c WWI)
- William Fernimen Store Site (1906 to 1918)
- Vicker Springs Houses Sites (c 1900)
- Messer General Store Site (1910 to 1917)
- Exeter Town Site (1887-1890s)
- Cluster Arrangement and Topography
- Rush Road
- Clabber Creek Road (date unknown)
- Campground Road (1915 and earlier)

- Mine Level Trail (date unknown)
- Mine Level Trail at Ore Cart
- McIntosh roadbed and spurs (c 1900 to 1930S)
- Driveway
- Old Road to White Eagle Mine
- White Eagle Mine Complex
  - White Eagle Mine (M2) (1885 to 1920S; 1959 to 1962)
  - White Eagle Mill Ruins (1903)
- Red Cloud Mine Complex
  - Red Cloud Mine (M3) (1887 to 1919)
  - Red Cloud Mill Ruins (1900)
- McIntosh Mine Complex
  - McIntosh Mine (M5) (1888 to 1919)
  - McIntosh Mill Ruins (1900)
- Ben Carney Mine (M6) (1894 to 1931)
- Yellow Rose Mine Complex
  - Yellow Rose Mine (M7) (1899 to 1901; 1915 to 1919)
  - Yellow Rose Mill Ruins (1915)
- Lonnie Boy Mine (M8) (1880s; 1916 to 1930s, early 1960s)
- Lonnie Boy Pumphouse Ruins (c late 1920s)
- Silver Hollow Mine (M9) (1892; 1904 to 1907; 1915 to 1919)
- Silver Hollow Mill Site (1903)
- Monte Cristo Mine (M10) (1900; 1915 to 1917; 1920s; 1961 to 1962)
- Monte Cristo Mine Steam Compressor and Shed Ruins (c 1890 to 1920)
- Capps Mine (M11) (1915 to 1935)
- Edith Mine Complex
  - Edith Mine (M12) (1915 TO 1919)
  - Edith Mill Ruins (1916)
- Exploratory Diggings
- Ore Cart
- Remnant Fencing
- Stone Retaining Wall at Edith Mine

Non Contributing Features

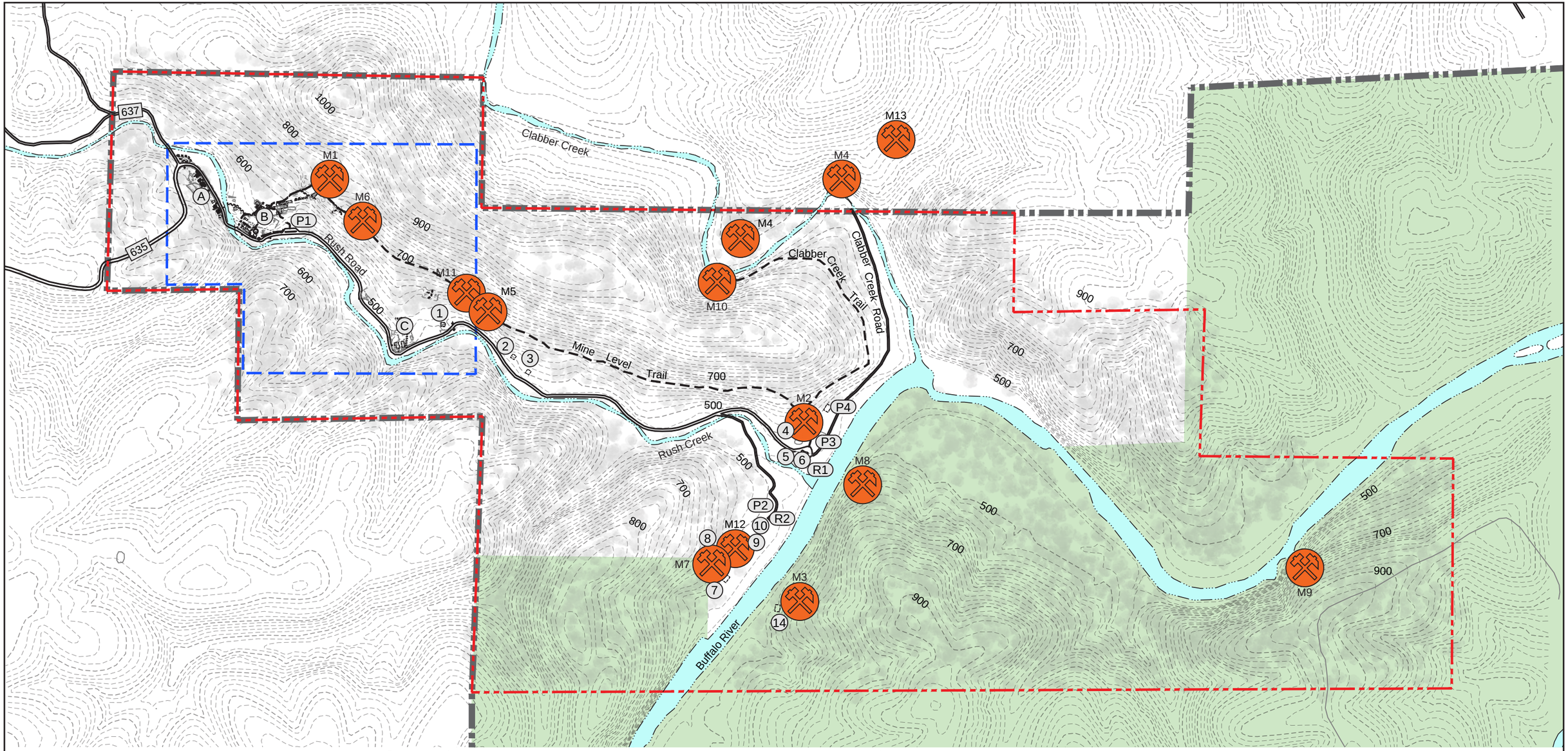
- Morning Star Trail parking
- Morning Star Trail (1988)
- Clabber Creek Trail (date unknown)
- Rush Landing (1970s and 1980s)
- Rush Landing parking
- New White Eagle Mill parking
- intermittent stream
- Rush Campground (1950s to present)
- Rush Landing Comfort Station
- Rush Campground parking
- Rush Landing Shelter
- Rush Campground Comfort Station
- New White Eagle Mill Ruins (1958 to 1961)
- Rush Landing Shelter Interpretive Panels
- Information Panel
- Pole and Cables (1950s)
- Rush Landing Picnic Table (4)
- Rush Campground Pay Station
- Rush Campground Information Panel
- Rush Campground Picnic Table (12)
- Rush Campground Fire Ring (12)
- Rush Campground Lantern Hook (12)

Morning Star Community Landscape Character Area

Morning Star Hotel, Mill, and Mine Community

Contributing Features

- Rush Smelter (1886)
- Rush Blacksmith Shop (1925)
- Morning Star Hotel Ruins (c 1900)
- Lyons House Ruins (c 1925)
- Post Office Ruins (c 1890)
- Morning Star Livery Barn Ruins (c 1899)
- Morning Star Mill Pumphouse Ruins (1926)
- Smith House Ruins (c 1899)
- Chase and Mulholland Store Ruins (c 1899)
- Morning Star Mine Office Ruins (c 1911)
- Warehouse Ruins (1927)
- Oil Storage House Ruins (c 1911)
- Morning Star Mine Complex
  - Morning Star Mine (M1) (1884 to 1935)



Mines

- M1 Morning Star Mine Complex (1884 to 1931)
- M2 White Eagle Mine Complex (1885 to 1920s; 1959 to 1962)
- M3 Red Cloud Mine Complex (1887 to 1919)
- M4 Philadelphia Mine Complex (Mill in study area, Mine is not) (1887 to 1919; 1961 to 1962)
- M5 McIntosh Mine Complex (1888 to 1919)
- M6 Ben Carney Mine (1894 to 1931)
- M7 Yellow Rose Mine Complex (1899 to 1901; 1915 to 1919)
- M8 Lonnie Boy Mine (1880s; 1916 to 1930s, early 1960s)
- M9 Silver Hollow Mine (1892; 1904 to 1907; 1915 to 1919)
- M10 Monte Cristo Mine (1900; 1915 to 1917; 1920s; 1961 to 1962)
- M11 Capps Mine (1915 to 1935)
- M12 Edith Mine Complex (1915 to 1919)
- M13 Leader Mine (Mine is not in study area)

Component Areas

- (A) Morning Star Hotel, Mill, and Mine Community
- (B) House Row
- (C) Hicks Hotel

Buildings and Structures

- (1) Pop Campbell House Site Ruins (c 1915)
- (2) McIntosh Mill Ruins (1900)
- (3) Mcintosh Hotel Ruins (1900)
- (4) White Eagle Mill Ruins (1903)
- (5) Rush Landing Shelter
- (6) Rush Landing Vault Toilet
- (7) Yellow Rose Mill (1915)
- (8) New Town Ruins (c 1915)
- (9) Edith Mill Ruins (1916)
- (10) Campground Vault Toilet
- (11) Red Cloud Mill Ruins (1900)

Legend

- Buffalo National River Boundary
- Lower Buffalo Wilderness
- Study Area
- Morning Star Community Landscape Character Area
- Road
- Pedestrian Trail
- Creek / River
- Mine / Mine Complex

Parking

- (P1) Morning Star Trail parking
- (P2) Rush Campground parking
- (P3) Rush Landing parking
- (P4) New White Eagle Mill parking

Recreation

- (R1) Rush Landing
- (R2) Rush Campground

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

N W E S
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NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
ARKANSAS

173/141247

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 3-1.

TITLE OF DRAWING
EXISTING CONDITION - STUDY AREA

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION: MIDWEST
COUNTY: MARION
STATE: ARKANSAS

  - Morning Star Mine Spoils Pile (c 1898 to 1931)
  - Morning Star Mill Ruins (1898)
  - Morning Star Mill Stone Retaining Wall
  - Morning Star Mill Stone Tower Ruins
- Tramway Ruins (1898)
- Barn Ruins (c 1902)
- Doctor's/Maxey House Ruins (c 1916)
- Courthouse Site (c 1916)
- Hopper House Ruins
- Loading Platform
- Morning Star Shaft
- Stone Retaining Wall at Chase and Mulholland Store
- Scale Pit
- Stone Retaining Wall at Tramway
- Footbridge Pillar (c 1915)

Non Contributing Features

- Morning Star Shelter
- Rush Blacksmith Shop Fence
- Wood Interpretive Trail Fence
- Interpretive Panels
- Benches

House Row

Contributing Features

- Mulholland Building Site (1900 to 1920)
- Bundy House (c 1899)
- Wash House (1927)
- Kastning House (c 1899)
- Brantley House Ruins (c 1899)
- Gotley House Site (c 1899)
- Raby House Ruins (c 1899)
- Storekeeper's House (c 1899)
- Taylor-Medley General Store (c 1899)
- Store Site
- Shed
- Root Cellar
- Chicken House Ruins
- Goose House Ruins
- Privy (2)
- Trash Piles
- Mailbox Shelter

Non-Contributing Features

- NPS Fencing
- NPS Signage

Hicks Hotel

Contributing Features

- Hicks General Store Ruins (1916)
- Hicks Hotel (c 1903)
- Hicks Wall
- Stone Flower Beds

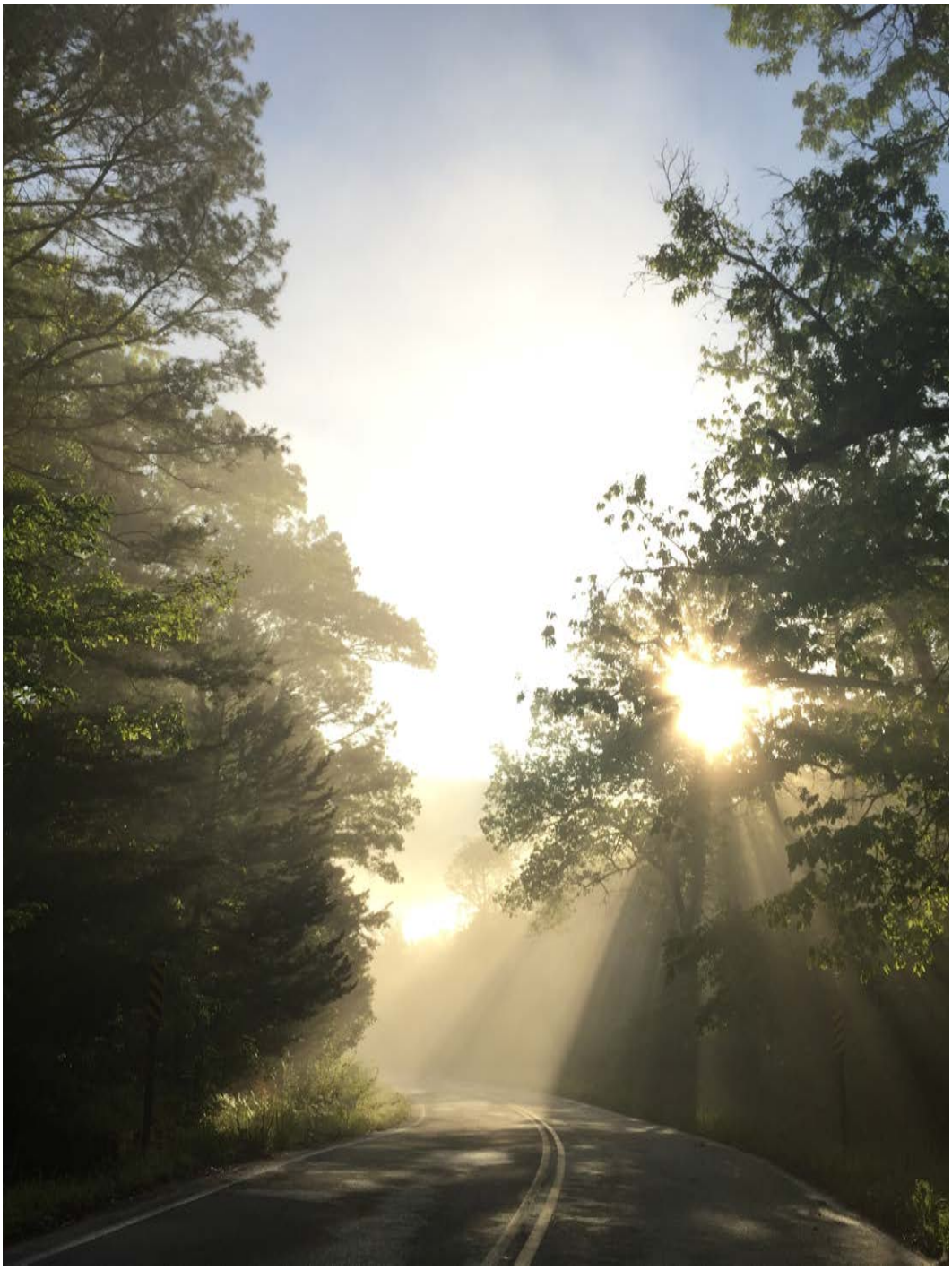


Figure 3-1. The natural setting is characterized by steep hills and valleys, and thick forests of oak and hickory. Rush Road follows the natural drainage of Rush Creek. (Mundus Bishop 2017)

Study Area

The study area includes the broader cultural landscape associated with Rush Historic District. This includes all of the mines and mine complexes, the road and trail system, boat launch, campground, and archeological sites.

This section evaluates the existing condition of the study area's cultural landscape and documents its modifications and changes over time. The evaluation is described through the following landscape characteristics.

- Natural Systems and Features
- Archeological Sites
- Land Use
- Cluster Arrangement and Topography
- Circulation
- Buildings and Structures
- Mines and Mine Complexes
- Small Scale Features
- Vegetation

This evaluation and analysis is presented as narrative text, complemented by photographs, diagrams, and matrices describing the existing condition of each landscape characteristic.

Natural Systems and Features

The study area is set in the Buffalo River valley of the Ozark Highlands. The natural setting is characterized by steep hills and valleys. The streams of Rush and Clabber creeks and Buffalo River, cut deeply into the bedrock, leaving tall vertical bluffs. Rush Mountain is a dominant feature. A small fresh water spring, Boiling Spring, is located along Rush Creek.

The underlying geology of the area was cause for the physical development of Rush Historic District. The study area is at



Figure 3-2. Rush Historic District is at the intersection of two physiographic regions, the Springfield Plateau and Salem Plateau in the White River Hills. (Rafferty, The Ozarks: land and life)

the approximate intersection of the two physiographic regions: Springfield Plateau and the Salem Plateau. The Springfield Plateau is underlain by limestone and cherty limestone of Mississippian age. The Salem Plateau is underlain by rocks of the Cambrian and Ordovician age. These rocks are primarily limestone, dolomite, and sandstones laid down as part of an ancient sea bed. Uplifting and erosion over time created the landscape of today. Water dissolved carbonate rocks (limestones and dolomites) to form caves and karst topography, typical of the region.[3.1] Pockets of ore such as zinc and lead, formed where the rock was broken and brecciated. The zinc found at Rush Historic District was the highest-grade zinc ore discovered up to that time in the United States.[3.2]

Rush Historic District's climate is characterized by long, hot summers and relatively short, mild winters. Rainfall averages 46 inches annually with the greatest

3.1 Buffalo National River, Climate and Geology. Accessed online September 8, 2017 (https://www.nps.gov/buff/learn/nature/climate-and-geology.htm).

3.2 *CLI*, 16.

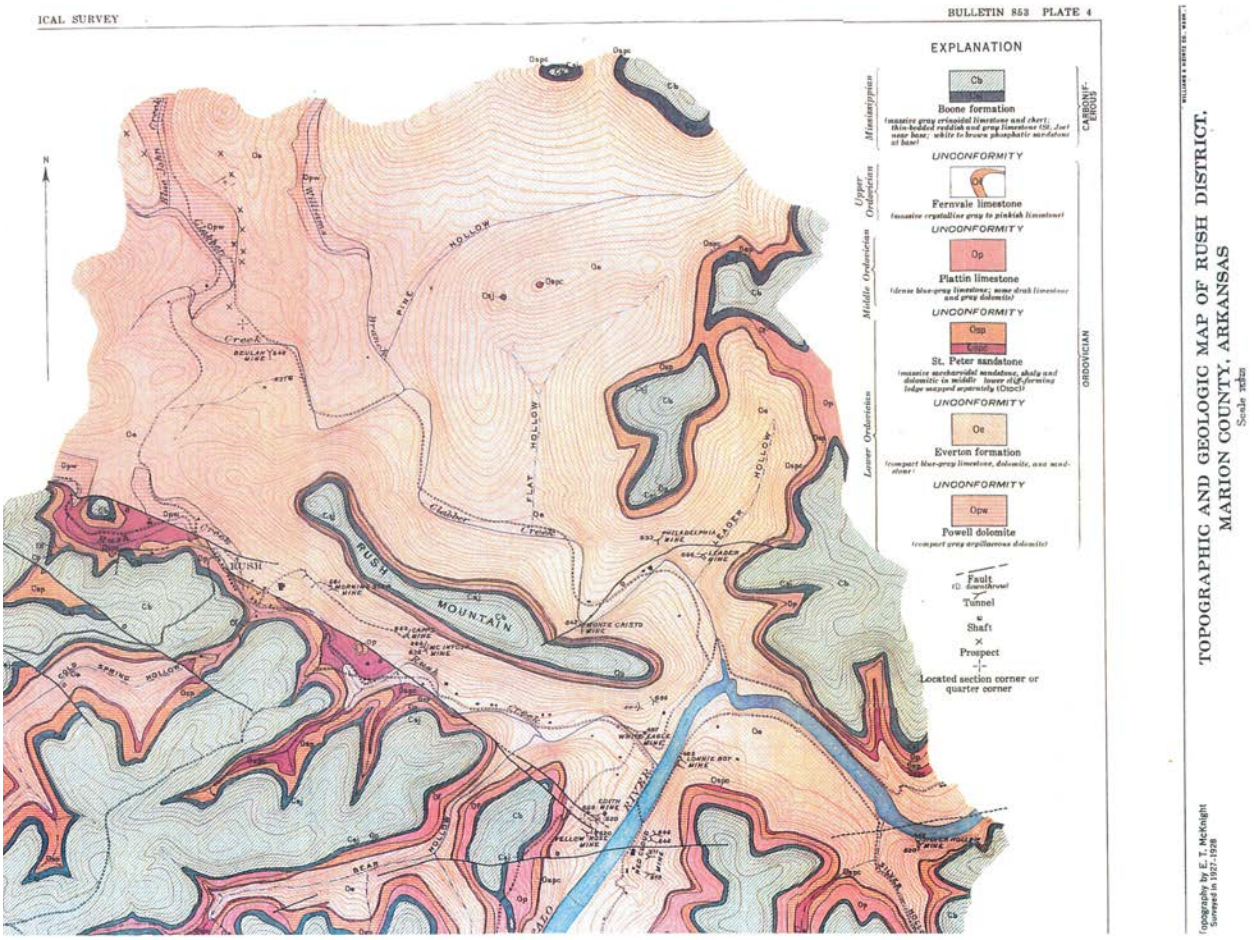


Figure 3-3. Topographical and Geological Map of Rush, showing the surface geology, fault lines, and locations of mines and structures. The mining boom had already begun its decline at the time this map was drawn, 1935. (BUFF Archives)

amounts of precipitation in winter and spring. Average winter snowfall is 12 inches. Relative humidity ranges from moderate to high, and the growing season is 200 days annually.

Hardwood forest dominates the cultural landscape with deciduous trees such as red oak, hickory, locust, paw paw, and white mulberry as dominant species.

The mining industry grew because of these natural mineral deposits, and in turn, the mining industry impacted the natural landscape. Extensive tree-cutting left the native hillsides barren. Ore was extracted from the mines and waste rock was discarded in massive spoils piles strewn across the cultural landscape. Waste rock was also discarded in tailings piles at mills. Today, these spoils and tailings piles have become grown over by vegetation and almost appear as native hills.

Recent testing of water quality in Clabber Creek as found cadmium in measurable amounts in periphyton in the stream. The periphyton appears to be able to take up and concentrate the cadmium from the sediment. The cadmium is not necessarily in measurable quantities in the water column.[3.3]

Assessment of Integrity

The natural systems and features of the study area were historically altered by the mining industry. Since the period of significance vegetation has regrown in places and rebounded from the industrial practices. The natural systems and features retain integrity and contribute to the cultural landscape.

3.3 Jacob R McCauley and Jennifer L. Bouldin. "Cadmium Accumulation in Periphyton from an Abandoned Mining District in the Buffalo National River, Arkansas," *Bulletin of Environmental Contaminants and Toxicology* Vol. 96, No. 6, (2016): 757-761.

Matrix 3-6. Natural Systems and Features

Feature	Description	Condition	Contributing/ Non-Contributing
Buffalo River	East-west river through the study area		Contributing
Rush Creek	Creek forms central spine of Rush Historic District. Creek varies in width and depth of flow. Creek bed is approximately 20 feet wide on average		Contributing
Clabber Creek	Creek located north end of study area; forms drainage of Monte Cristo Mine (M10)		Contributing
Boiling Spring	Natural spring at Rush Creek adjacent to Rush Road.	Good	Contributing
Intermittent Stream	Between Storekeeper's House and Taylor-Medley General Store. Erosion. Culvert under Rush Road		Non-Contributing
Karst Geology	Natural mineral deposits of zinc ore	Good	Contributing
Hardwood Forest	Native vegetation, in historic locations	Good/Fair	Contributing



Figure 3-4. New Town as it appeared c 1916 from the north bank of Rush Creek. The development of New Town was spurred by mining expansion during World War I that led to construction of Edith Mine (M12) and a new mill at Yellow Rose Mine (M7) (uphill on right). Today only a few ruins of New Town are visible above grade. Below grade resources associated with these mine complexes likely exist as they do throughout the study area is area. (Buffalo National River: Dorthea Shipman Collection)



Figure 3-5. Pop Campbell House Site ruins, looking west, 1985. (S. Rogers, BUFF Archives)

Archeological Sites

This section describes previously documented prehistoric archeological sites located within Rush Historic District. These sites represent earlier prehistoric periods of development associated with the study area.

Below grade and extant historic ruins from the zinc mining industry of Rush Historic District are also described in this section. Below-grade resources from the period of significance are likely to remain throughout the study area, but were not investigated. Ruins are evidence of former buildings, structures or features visible above grade. They are associated with the historic mining landscape.

Prehistoric Archeological Sites

The study area includes prehistoric archeological sites at the confluence of Rush Creek and Buffalo River. They are Dirst site (3MR80), and sites 3MR51, 3MR52, and 3MR157. These multicomponent sites span from the Dalton period through the Early Mississippian period. Archeological evidence suggests the boundaries of the deposits may be somewhat arbitrary and sites may actually overlap.[3.4]

Dirst site is a stratified multicomponent site spanning from the Dalton to Early Archaic through Early Mississippian periods, occupied between 3,000 BP and 400 AD. Archeological finds include two Dalton bifaces, two Graham Cave side-notched points, and one early Archaic Rice Lobed point recovered from a paleosol in Area D. The earliest portions of the site likely represent a series of temporary occupations. An Early Woodland component represents the earliest documentation of the use of pottery in the Ozark Highlands.[3.5]

Later occupation of the Dirst site dates to the Middle Woodland to Early Mississippian periods. It represents a year-round settlement inhabited by a sedentary community that relied on a subsistence economy of hunting and gathering, and domesticated plant production. These inhabitants also participated in trade with more distant populations of the Mississippian culture. A variety of domesticated plants were grown along the banks of Buffalo River including little barley, maygrass, chenopodium, sunflower, squash/gourd, and maize.[3.6]

Historic Archeological Sites and Ruins

Remnants of the zinc mining industry and its associated communities remain today in original locations as the only vestiges of previously developed town, mining or housing sites. Some consist primarily of below grade features and archeological deposits with little visible evidence on the surface. Previously documented sites that include New Town, Keystone Town, and McIntosh House ruins are noted in this CLR. No additional research or field documentation was provided by the CLR. The extent and location of these sites and features have not been thoroughly documented. [3.7]

In addition to below grade features, many traces of Rush Historic District's historical development exist today as ruins. Above grade remnants include sites and features associated with the study area's mine and mill complexes and the community along Rush Road. Ruins of non-extant stores, hotels, offices, residences and other features include foundations, collapsed brick chimneys, stone walls and stone work, and fencing.

3.4 Sabo et al. *Archaeological Investigations*. 333.
3.5 Sabo et al., *Archaeological Investigations*, 144.
3.6 Sabo et al., *Archaeological Investigations*, 319, 330.
3.7 *NRHP*, I-26.

The condition of the study area's ruins range from fair to poor as most have not been stabilized or repaired. For several mines and mine complexes, ruins are the last vestiges of non-extant features associated with zinc mining. An example is the single stone foundation that remains at New Town. This ruin is the only evidence of what was historically a much larger development of homes and at least 20 businesses set adjacent to Yellow Rose Mine Complex (M7), and Edith Mine Complex (M12).

Assessment of Integrity
Many below grade archeological sites and features associated with the historic mining landscape likely remain throughout the study area. Further research and archeological investigations are needed to determine the extent and location of resources. These features retain integrity as buried resources, and contribute to the significance of the cultural landscape.

Many ruins remain from the period of significance. They are the last vestiges of many mining related structures, features, and buildings that are no longer extant. The lack of standing buildings and structures makes it difficult to discern the study area's historical development, and historic patterns and relationships. As extant features, ruins assist in preserving the study area's history and development. Although ruins are in various conditions, they retain integrity and are contributing features to the cultural landscape.

Prehistoric archeological sites are significant resources within the study area. As they pre-date the period of significance of Rush Historic District, they are considered non-contributing features to the cultural landscape. These archeological sites have not been completely investigated, and others may be identified. All likely contain intact, buried archeological deposits that have the ability to provide additional information on prehistoric lifeways and adaptations to the Ozark Highlands.

Matrix 3-7. Study Area - Historic Archeological Sites and Ruins				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
New Town Site	1915 to 1920	Archeological deposits in New Town are unverified		Contributing
New Town Building Ruin	c 1915	Coursed, mortared stone foundation. Average 3' high.		Contributing
Keystone Town Site	1904 to 1919	No visible surface remains		Contributing
McIntosh Hotel Ruins	1900	Dry masonry walls; Concrete post; Iron pipes.		Contributing
McIntosh Livery Ruins	1900	Dry staked stone foundation.		Contributing
Pop Campbell House Site Ruins	1900	Rock piers and fallen brick chimney.		Contributing
George Jones Site	c 1929 to 1939	Stone retaining wall; dirt midden; pier falls		Contributing
Boiling Spring Site	c 1915	Rectangular 10'x15'x6' deep cellar depression. Metal trash (bed frame, corrugated roofing); stone scatter/pier falls	Poor	Contributing
Gotley House Site	c 1899	No visible above-grade ruins.		Contributing
Cold Springs Hollow Structures	c 1910 to 1920	No visible above-grade ruins.		Contributing
Mine Manager's House Site	c 1925	No visible above-grade ruins.		Contributing
Pat McCormick House Site	Date unknown	No visible above-grade ruins.		Contributing
Hicks Rental Houses Sites	1915	No visible above-grade ruins.		Contributing
Con Medley House Site	c WWI	No visible above-grade ruins.		Contributing
William Fernimen Store Site	1906 to 1918	No visible above-grade ruins.		Contributing
Vicker Springs Houses Sites	c 1900	No visible above-grade ruins.		Contributing
Messer General Store Site	1910 to 1917	No visible above-grade ruins.		Contributing
Exeter Town Site	1887-1890s	No visible above-grade ruins.		Contributing



Figure 3-6. Mine Level Trail provides recreation, interpretation and access to the mines. The entrance to McIntosh Mine (M5) is on the right. (Mundus Bishop 2017)



Figure 3-7. Buffalo River from Rush Campground. Buffalo National River attracts thousands of visitors every year, and Rush Landing is a popular take-out location for boaters. (Mundus Bishop 2017)

Land Use

The study area is a component of Buffalo National River (BUFF), administrated by the National Park Service. Buffalo National River current land use is a public national park, established by Public Law 92-237 "for the purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations." A portion of the study area is a designated wilderness area, the Lower Buffalo Wilderness [3.8]

Historically, land use was related to zinc mining. Land use included mining, resource extraction, and milling operations. Offices, hotels, stores, and a post office supported the mining industry. Residential areas were nearby, housing miners and families, and portions of the landscape provided pasture and gardens.

After mining ended, several people continued to reside in the study area through the 1950s. Tourism then became the dominant industry with people visiting the 'ghost town' of Rush. Rush Campground dates to this period, established by Fred Dirst in the 1950s, and is in the same location today.

Assessment of Integrity
Today, the study area's land use is a national park with a mandate to protect resources and provide for visitor enjoyment. A portion of the study area is a designated wilderness area—Lower Buffalo Wilderness.

Recreation and interpretation are the primary visitor activities, most related to interactions with the park's natural resources. Visitor facilities within the study area include developed trails, camping, and picnicking. Boating access is provided to Buffalo River. Support facilities include a boat launch, comfort stations, and parking. Interpretive trails provide access to Morning Star Mill ruins, mine portals, and other buildings and features related to the mining industry.

The study area is listed in the National Register of Historic Places (NRHP) . Its historic land uses related to zinc mining contribute to its significance. Patterns and extant features that express the historic land use remain, although hidden by overgrown vegetation. Land use patterns and features include mining, resource extraction, milling operations, housing, retail, and lodging.

Although the land use of the study area has changed since the period of significance, evidence of historic patterns and features remain from the historic land use and contribute to the significance of the cultural landscape. Current-day land use, related to the national park including recreation, interpretation, and associated facilities, does not diminish the integrity of the cultural landscape.

3.8 P.L. 92-237

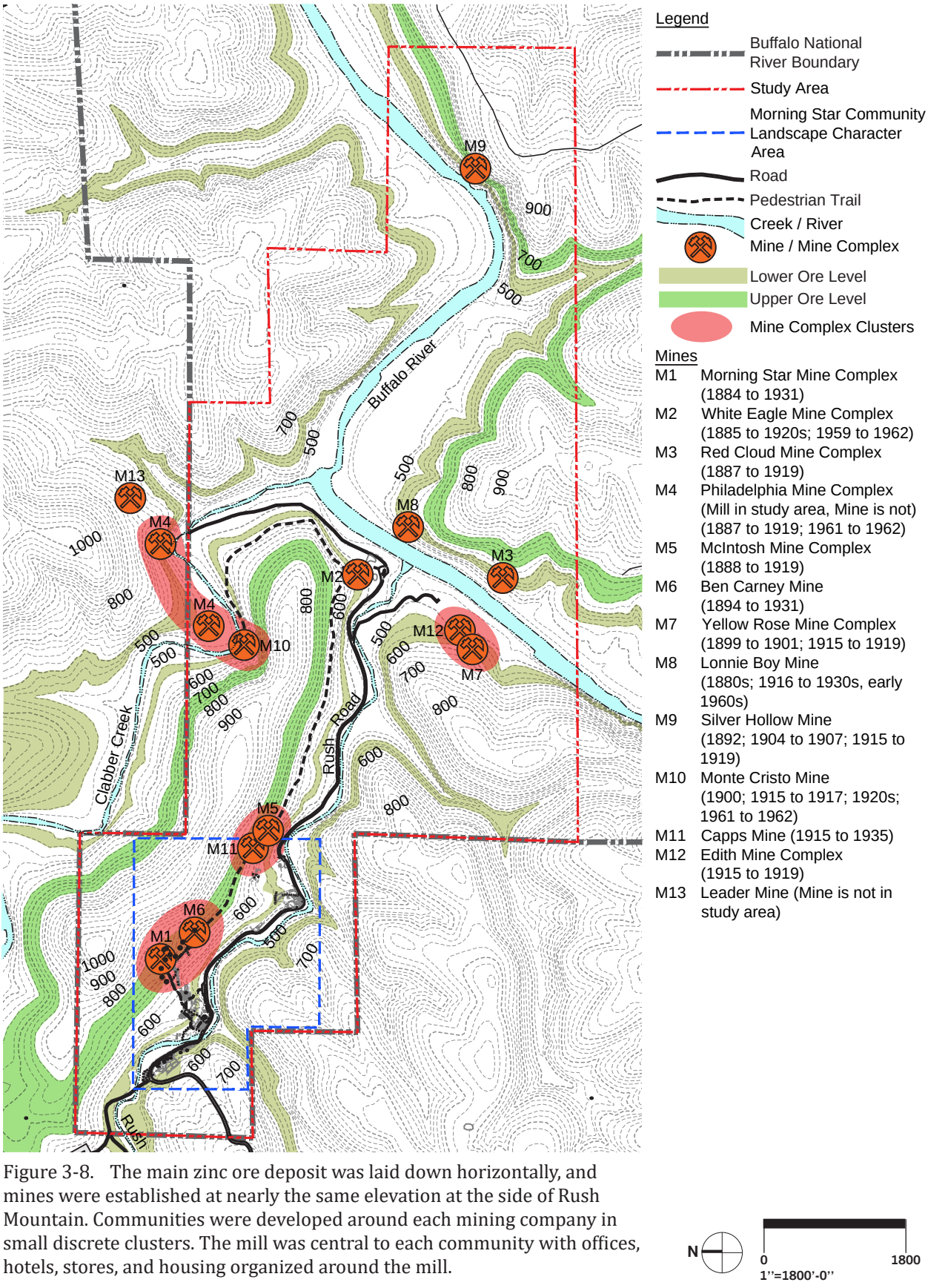


Figure 3-8. The main zinc ore deposit was laid down horizontally, and mines were established at nearly the same elevation at the side of Rush Mountain. Communities were developed around each mining company in small discrete clusters. The mill was central to each community with offices, hotels, stores, and housing organized around the mill.

(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS, Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Cluster Arrangement and Topography

The cultural landscape is defined by steep forested hillsides and the narrow valleys of Buffalo River and Rush and Clabber creeks. A 500 foot difference in elevation exists between mountain ridgelines and valley floors. Exposed rock outcroppings follow Buffalo River and Rush Mountain.

Buffalo River divides the study area. Morning Star Community landscape character area is on the west side. Monte Cristo Mine (M10) is on the north side of Rush Mountain along Clabber Creek. On the river's east side are the Red Cloud Mine Complex (M3), Lonnie Boy Mine (M8), and Silver Hollow Mine (M9).

The development patterns of the zinc mining industry were intertwined with the study area's natural topography. Location and organization of land uses, along with associated buildings, structures and features, were in sync with natural terrain. Each mine complex was developed as an individual 'cluster' with associated structures and uses, and was separated from other mines and mine complexes and communities by topography and vegetation.

Most mines were set at the same, or consistent elevation: the elevation of the zinc deposit. Built features were organized to facilitate the zinc mining process and to take advantage of topography. Mines were set high on hillsides with mills located downhill. The study area's naturally steep hillsides facilitated the movement of ore from each mine to mills by way of a gravity-fed tramways.

Most mines were drift mines. Some were built in the room-and-pillar method in which the hillside was excavated horizontally rather than vertically. Waste rock was discarded in spoils piles at entrance to almost every mine. Spoils piles were huge and altered native topography in the vicinity of each mine. Today the man-made topography of spoils piles remain and are visible features. Most have settled and are overgrown by forest vegetation.

Most mines included an associated mill. In addition to the mill building, the complex included offices and support structures and uses around it or nearby.

The relatively flat bottomland of the river valleys were developed as communities with homes, stores, and lodging including hotels. Buildings and structures were built along the corridors of Rush and Clabber creeks, and at the confluence of Buffalo River with Rush Creek. The mines and mine complexes and the community were connected by Rush Road, the key transportation route.

The Rush community and mines and mine complexes initially developed as relatively discrete clusters. During the height of mining (1915 to 1919) the community grew into a larger linear development along Rush Road and Rush Creek. The mines and mine complexes also expanded with little distinction between some. Once the boom ended, the patterns of development remained, even as people moved and structures and buildings were removed, damaged, or collapsed.

Assessment of Integrity
Few modern intrusions have modified the cluster arrangement and topography of the study area. Vegetation has grown and obscured views and relationships between features of mines and mine complexes and most buildings and structures no longer remain. Clusters of buildings, structures, and features present during the period of significance remain today as clusters of primarily ruins and remnants.

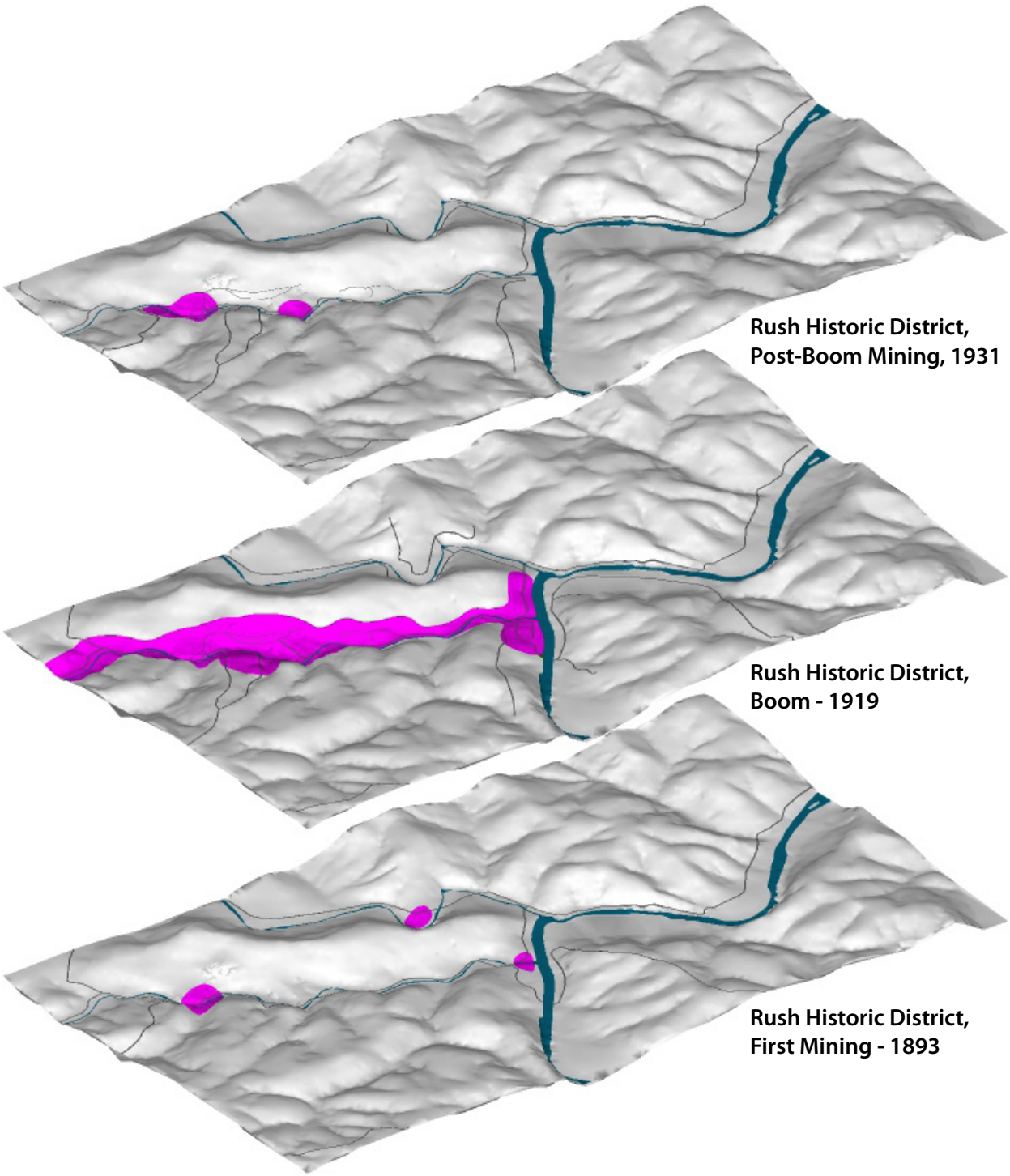


Figure 3-9. Rush land use varied through the periods of landscape development, during the period of significance the entire Rush Creek valley was one connected community. (Mundus Bishop 2018)

The loss of historic building fabric diminishes the integrity of the study area. Modifications to provide recreation access to Buffalo River have diminished the setting of White Eagle Mill ruins, where Rush Landing parking encroaches on the mill's setting.

The study area's natural and man-made topography has not been altered since the period of significance. The exception is the settling of the spoils piles and natural flooding in the valleys. Due to the presence of ruins and the opportunity for vegetation clearing to reveal historic spaces and relationships, the cluster arrangement and topography retain integrity. They contribute to the significance of the cultural landscape.

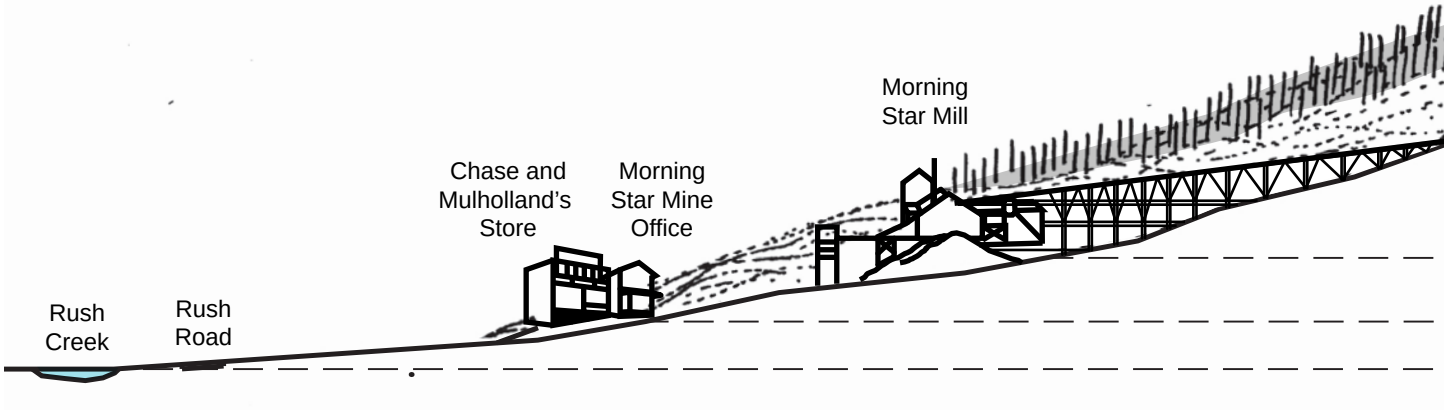


Figure 3-10. Approximate historic cross section at Morning Star Mill Complex (M1). (Mundus Bishop 2017, BUFF Archives)

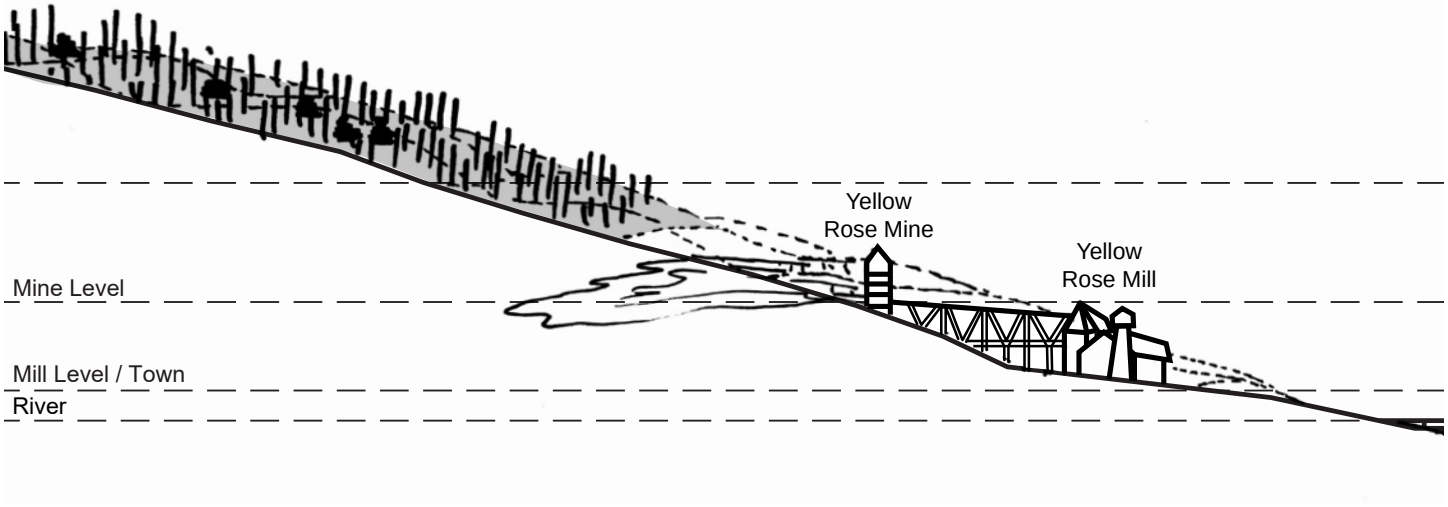
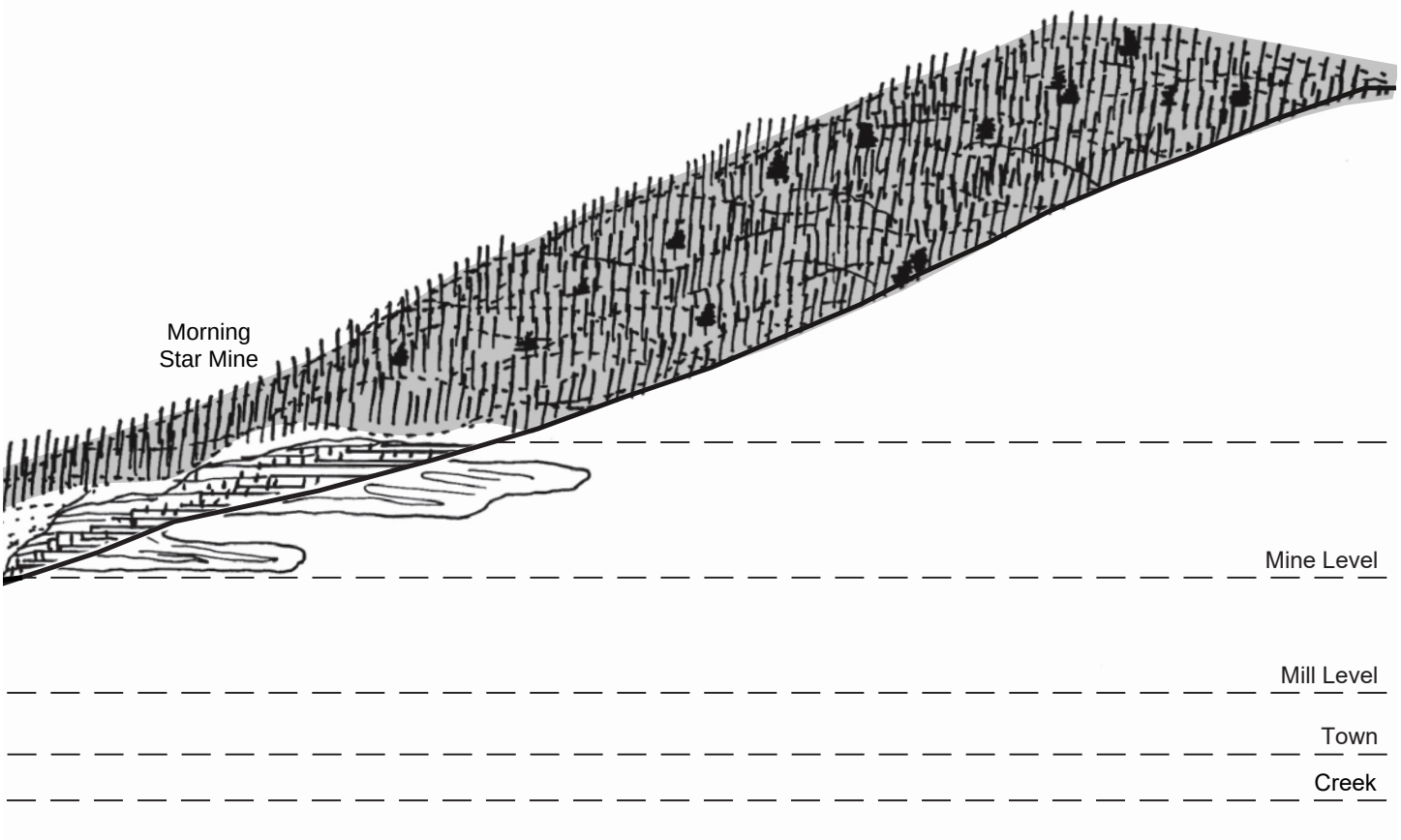


Figure 3-11. Approximate historic cross section, left to right: Yellow Rose Mill Complex (M7), Buffalo River, Red Cloud Mine Complex (M3). (Mundus Bishop 2017, BUFF Archives)


Morning
Star Mine
Mine Level
Mill Level
Town
Creek

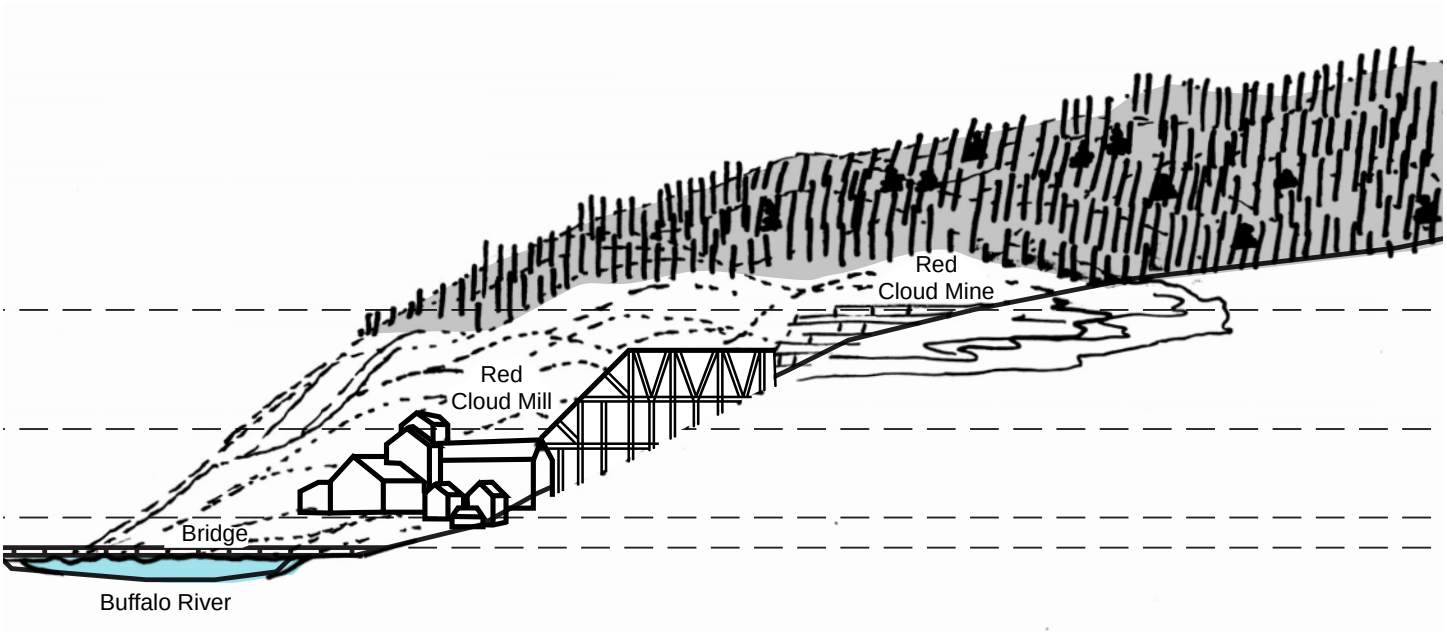

Red
Cloud Mine
Red
Cloud Mill
Bridge
Buffalo River



Figure 3-12. Mines were set high on hillsides. Mills were located directly below. Mining communities with support structures such as hotels, stores, and residential buildings were clustered on the valley floor. (BUFF Archives, Mundus Bishop 2017)

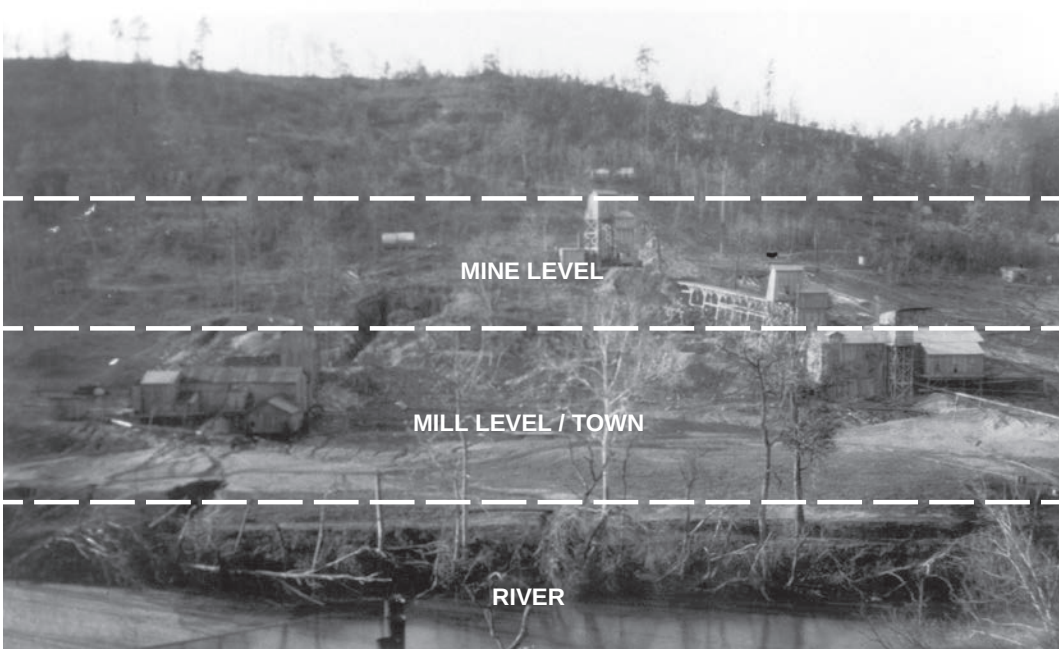


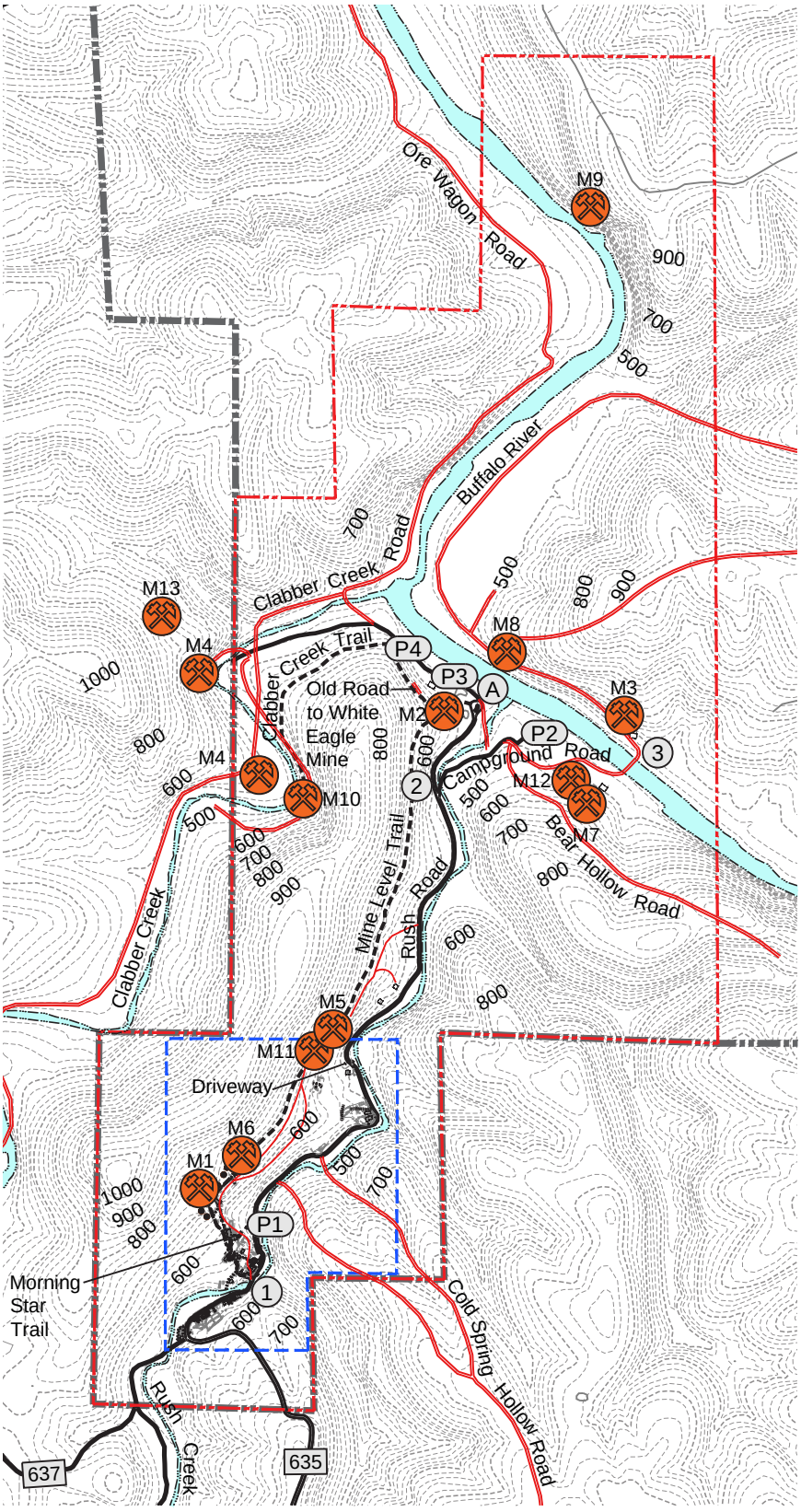
Figure 3-13. New Town, Edith Mill and Yellow Rose Mill. The town was arranged below the mines. (BUFF Archives, Mundus Bishop 2017)



Figure 3-14. Morning Star spoils pile from, 1917. (BUFF Archives)



Figure 3-15. The spoils pile from Morning Star Mine (M1). Over time the spoils piles have settled and revegetated. They are easily mistaken for natural hills. (Mundus Bishop 2017)



Legend

- Buffalo National River Boundary
- Study Area
- Morning Star Community Landscape Character Area
- Road
- Pedestrian Trail
- Creek / River
- Mine / Mine Complex
- Non Extant / Road Trace

Mines

- M1 Morning Star Mine Complex (1884 to 1931)
- M2 White Eagle Mine Complex (1885 to 1920s; 1959 to 1962)
- M3 Red Cloud Mine Complex (1887 to 1919)
- M4 Philadelphia Mine Complex (Mill in study area, Mine is not) (1887 to 1919; 1961 to 1962)
- M5 McIntosh Mine Complex (1888 to 1919)
- M6 Ben Carney Mine (1894 to 1931)
- M7 Yellow Rose Mine Complex (1899 to 1901; 1915 to 1919)
- M8 Lonnie Boy Mine (1880s; 1916 to 1930s, early 1960s)
- M9 Silver Hollow Mine (1892; 1904 to 1907; 1915 to 1919)
- M10 Monte Cristo Mine (1900; 1915 to 1917; 1920s; 1961 to 1962)
- M11 Capps Mine (1915 to 1935)
- M12 Edith Mine Complex (1915 to 1919)
- M13 Leader Mine (Mine is not in study area)

Water Circulation

- (A) Rush Landing

Low Water Crossing

- (1) Rush Road Concrete Water Crossing
- (2) Campground Road Concrete Water Crossing
- (3) Non Extant Bridge

Parking

- (P1) Morning Star Trail parking
- (P2) Rush Campground parking
- (P3) Rush Landing parking
- (P4) New White Eagle Mill parking

N

0 1800

1''=1800'-0''

(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Figure 3-16. Most of today's circulation routes follow historic routes. Non-extant routes from the period of significance are visible as road traces.

Circulation

The study area's circulation system consists of vehicular, pedestrian, tramway, and water routes. Most routes were built during the period of significance. Today they provide access to the historic resources, access to the water, support recreational uses, and provide access to private property.

Vehicular Circulation

Existing vehicular routes include gravel roads and parking areas. Rush Road is the main route into the study area and connects to County Road 635 and Arkansas Highway 14 on the west. Rush Road crosses Rush Creek via a concrete water crossing adjacent to House Row and extends to the edge of Buffalo River, where a loop drive provides access to the river. Two parking areas are at the end of Rush Road and another is downhill of Morning Star Mill ruins. Rush Road meets Clabber Creek Road at Buffalo River. Clabber Creek Road runs north south at the edge of the river to extend up Clabber Creek. Campground Road crosses Rush Creek via a concrete water crossing and extends south to provide access to Rush Campground.

The vehicular circulation system was developed in the late 1800s as part of the initial settlement. Roads and trails were built in response to the native topography, which often necessitated steep gradients to access the mines. Rush Road is the main route through the study area, with a network of roads branching off from this central spine.

Several vehicular routes that existed historically are overgrown with vegetation and visible today as traces. These include the roads at Morning Star Hotel, Mill, and Mine Community, Hicks Hotel, Edith Mine Complex (M12), and White Eagle Mill ruins. In several places spur roads that are evident on historic maps that crossed Rush Creek to the south do not appear to be extant today. In the 1880s ore was hauled out of the study area via the Ore Wagon Road that followed Buffalo River downstream. This route was later phased out in favor of the northern route via Rush Road to County Road 365 to Arkansas Highway 14 to Yellville railroad. After the 1930s the Ore Wagon Road was discontinued and no longer evident on historic maps. Some clearing and grading was done to Ore Wagon Road in the 1980s by the NPS to provide access to Laffoon Cemetery at Cabin Creek (outside study area).

Between the late 1880s and 1929 a bridge crossed Buffalo River, connecting the mines on either side. The bridge and roads on the east side of the river are not extant.

Assessment of Integrity
The study area's vehicular circulation system remains similar to the period of significance and retains integrity. Most existing roads follow historic alignments. Modifications to Rush Road include widening and resurfacing completed in the 1980s, and addition of parking areas and loop drive at the river landing. These alterations do not diminish the integrity of the road. Campground Road, built in the 1990s, followed an historic route in this same alignment that was part of New Town's main street.

Pedestrian Circulation

Pedestrian routes include hiking trails and informal routes along Rush Road that access ruins and the river. These routes compose a system of trails primarily developed by the NPS to provide recreation and interpretation of Rush Historic District. Some of the trails follow historic routes.

Morning Star Trail was built in 1988 and provides an interpretive walking trail through the Morning Star Hotel, Mill, and Mine



Figure 3-17. Rush Road at House Row, the Storekeeper's House and Taylor-Medley General Store at right, date unknown. (BUFF Archives)



Figure 3-18. Rush Road at House Row. The road retains its historic alignment but has been widened and resurfaced since the period of significance. (Mundus Bishop 2017)

Community. This route follows historic roads for a portion of the length, and provides a view to Morning Star Mill ruins from the west.

The longer interpretive loop, Mine Level Trail, connects to the mining level and follows an historic trail that parallels the contour level of the mine entrances on the south side of Rush Mountain. The west part of this trail follows the former tramway line that extended from Capps Mine (M11) to Morning Star Mill, used between 1890 and 1935 to transport ore.

Clabber Creek Trail connects White Eagle Mill to Monte Cristo Mine (M10) on the north side of Rush Mountain, where it connects to Clabber Creek Road. It is unknown if this is an historic route.

Historically, a footbridge connected House Row with the Morning Star Mine Complex (M1), and it is likely other footbridges provided access across Rush Creek at various points. These footbridges are non-extant. Other than footbridges, the circulation system did not distinguish between vehicular and pedestrian routes.

Assessment of Integrity
The pedestrian circulation system is similar to the historic condition. Portions of existing trails follow historic vehicular or tramway routes, similar to the historic. Pedestrian routes retain integrity and contribute to the study area's cultural landscape.

Tramway/Rail Circulation

Historically mines and associated mills each had circulation networks of tramways that transported ore from mine to mill. Tramways were gravity-fed, shipping rock from the mine to the mill for processing. Tramway piers are extant at Morning Star Mill ruins. The tramway bed from Capps Mine (M11) to Morning Star Mill used between 1890 and 1935 is extant as a route, although the track is gone. Rail fragments are extant inside some mines.

During active mining, a railway was intended for Rush Valley. Portions of Clabber Creek Road and Campground Road to Edith Mine Complex (M12) were graded in preparation for the railway, but the tracks were never installed. Today the railway bed is evident along Clabber Creek Road, and reads as a wide level route.

Assessment of Integrity
The tramway/rail system is evident in the landscape today but its presence is diminished due to the loss of track and the elevated tramway structures. Since the period of significance these features have been removed and the tramway system has diminished integrity.

Water Circulation

Boating and fishing are popular activities within Buffalo National River and visitors enter and exit the study area from Buffalo River. Rush Landing is a boat launch that provides access to the river. Parking at the end of Rush Road accommodates boat trailers. The landing and parking are contemporary additions.

Assessment of Integrity
The water circulation system during the historic period differed from today's use. Initially mine operators transported ore on Buffalo River. Due to low water volume, shipping ore on the river proved difficult year-round and by the early 20th century water transport was given up in favor of overland routes. Although the pattern of use has changed, the access points to the river are in similar locations to historic locations and the pattern of water circulation retains integrity.



Figure 3-19. Rush Road is the major vehicular route through Rush Historic District dating to the late 1800s. It retains the original alignment following Rush Creek. (Mundus Bishop 2017)



Figure 3-20. Rush Road crosses Rush Creek via a concrete water crossing near House Row. (Mundus Bishop 2017)

Matrix 3-8. Study Area - Circulation				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Rush Road	c 1880	Two-way gravel road, 20' to 24' wide. Water crossing at Rush Creek at-grade concrete slab.	Good	Contributing
Morning Star Trail Parking	1988	Wood guardrails, trailhead kiosk, shade structure with two benches. Gravel surfaced loop drive at Rush Road	Good	Non-Contributing
Clabber Creek Road		Rock/unimproved surface at edge of cliff-face, typical 10' wide to 15' wide. At road closure, road widens to 16 to 20' across, gravel	Good to Fair	Contributing
Morning Star Trail	1988	*NPS Interpretive Trail* - Loop trail from parking to Morning Star Livery Barn ruins/Rush Smelter; Rush Blacksmith Shop; Morning Star Mill ruins. 4' wide, gravel with pressure treated steps and water bars. Stone steps	Good	Portions are Contributing
Mine Level Trail	c 1885	4' wide, gravel, pressure treated timbers, steps and water breaks. Splits 100 yards from trailhead, west to Morning Star Mine Complex (M1), north to Clabber Creek Trail and Monte Cristo Mine (M10)	Good	Historic portions that follow Tramway = Contributing
Mine Level Trail at Ore Cart		5' Wide level terrace, lower stone rubble retaining wall, 24" width x 3' height	Good	Contributing
Clabber Creek Trail		3' wide, dirt surface. Connects White Eagle Mill with Monte Cristo Mine (M10)	Good	Non-Contributing
McIntosh Roadbed and Spurs	c 1900-1930s		unverified	Contributing
Driveway	c 1950	Spur off of Rush Road across from Boiling Spring, 12' wide, gravel	Fair	Non-Contributing
Old Road to White Eagle Mine	c 1958	20' to 25' wide road trace, legible but overgrown	Fair	Non-Contributing
Rush Landing	c 1980	Accessed by loop drive at end of Rush Road. Landing is dirt/exposed rock surface.	Good to Fair	Non-Contributing
Capps Mine Roadbed			unverified	Contributing
Rush Landing Parking		Gravel paved parking area opposite comfort station. Approximately 40' wide by 60' long. Accommodates approximately 10 passenger vehicles and room for boat trailer parking.	Good	Non-Contributing
New White Eagle Mill Parking		Square parking at New White Eagle Mill ruins; one entrance from Clabber Creek Road.	Good	Non-Contributing
Campground Road	1915 and earlier	Gravel road, 16' wide average. Water crossing at junction of Rush Road and Rush Creek of at-grade concrete slab. Road terminates at campground	Good	Contributing
Rush Campground Parking		Gravel paved, angular parking area, edged with timber guardrails. Accommodates approx 12 vehicles.	Good	Non-Contributing



Figure 3-21. Morning Star Trail parking was added in the 1980s and is a non-contributing feature. (Mundus Bishop 2017)



Figure 3-22. Rush Landing parking is a non-contributing feature and encroaches on the setting of the White Eagle Mill ruins, in background. (Mundus Bishop 2017)



Figure 3-23. Campground Road concrete water crossing at Rush Creek. Campground Road is part of the original route to New Town, Yellow Rose Mine Complex (M7), and Edith Mine Complex (M12), established in the early 1900s. (Mundus Bishop 2017)



Figure 3-24. Rush Campground parking is a non-contributing feature. (Mundus Bishop 2017)



Figure 3-25. Clabber Creek Road connects to Monte Cristo Mine (M10) and Ore Wagon Road. This route also provides access to private property beyond the NPS boundary. (Mundus Bishop 2017)



Figure 3-26. Rush Landing. (Mundus Bishop 2017)



Figure 3-27. Clabber Creek Trail connects White Eagle Mine (M2) with Monte Cristo Mine (M10). (Mundus Bishop 2017)

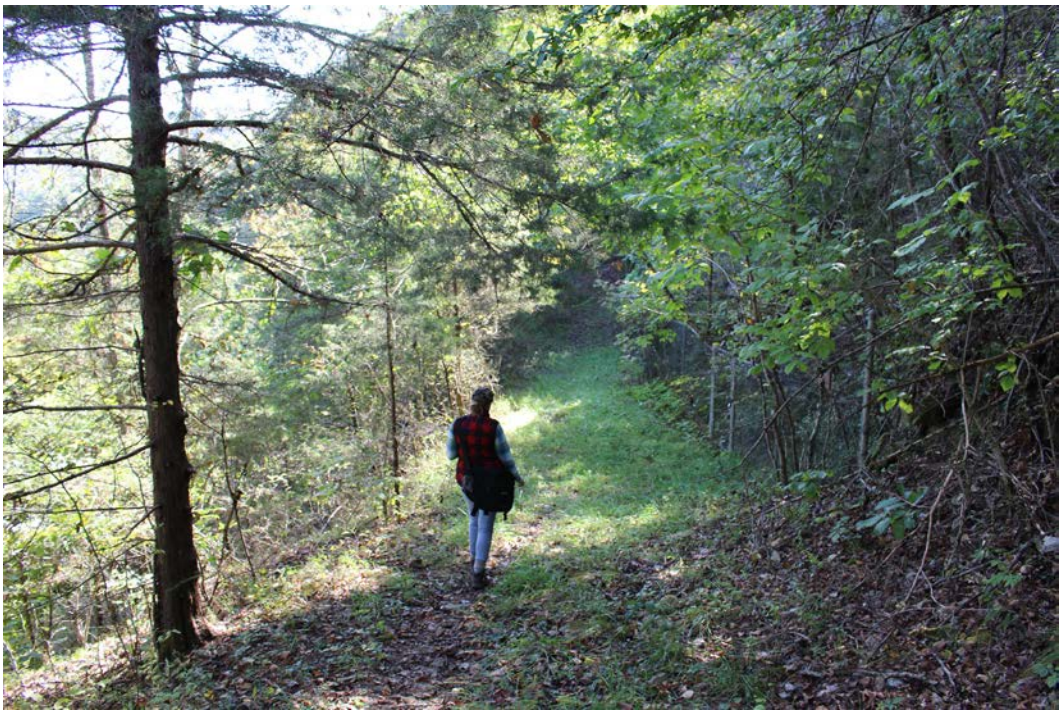


Figure 3-28. Clabber Creek Road near Monte Cristo Mine (M10). The road is narrow and set on the edge of the hillside. Clabber Creek is downhill to the left. (Mundus Bishop 2017)



Figure 3-29. Mine Level Trail adjacent to Morning Star Mine (M1). The trail follows an older, historic route. (Mundus Bishop 2017)

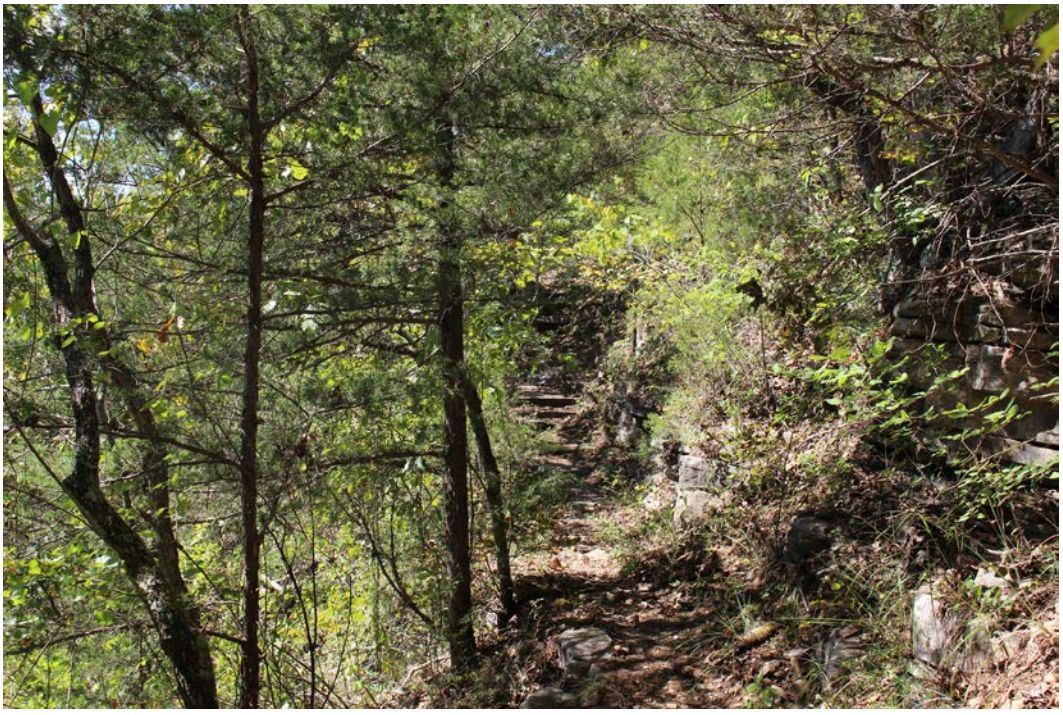


Figure 3-30. Mine Level Trail near Capps Mine (M11). This portion of the trail follows the former tramway that extended from Capps Mine to Morning Star Mill, used between 1890 and 1931 to transport ore. (Mundus Bishop 2017)



Figure 3-31. Gravity-fed tramways shipped ore from mines to mills. The exact route of these tramways is unknown, except near Morning Star Mill, where the tramway piers are extant, date unknown. (BUFF Archives)



Figure 3-32. Footbridge across Rush Creek, Taylor-Medley General Store behind, date unknown. (BUFF Archives)



Figure 3-33. Morning Star Trail was added in the 1980s. Below Rush Blacksmith Shop the trail follows the alignment of an historic road. (Mundus Bishop 2017)



Figure 3-34. Morning Star Trail disrupts the historic spatial organization by ascending the tailings pile of Morning Star Mill ruins before crossing an historic retaining wall to meet the level terrace of the mill. (Mundus Bishop 2017)

Buildings and Structures

Buildings and structures within the study area include two visitor comfort stations and a shelter. These were added by the NPS to support recreational activities associated with the river landing and campground.

Buildings and structures associated with Morning Star Community landscape character area are presented separately in the section reserved for the landscape character area.

Assessment of Integrity
Buildings and structures of the study area are contemporary additions and non-contributing features.

The many buildings and structures built during the period of significance, have been removed and/or were abandoned and left to deteriorate. Today these buildings are predominantly ruins.



Figure 3-35. Rush Landing Shelter. (Mundus Bishop 2017)



Figure 3-36. Rush Campground Comfort Station. (Mundus Bishop 2017)

Matrix 3-9. Study Area - Buildings and Structures

Feature	Date	Description	Condition	Contributing/ Non-Contributing
Rush Landing Comfort Station		Prefabricated fiberglass pit toilet on concrete pad	Good	Non-Contributing
Rush Landing Shelter		Rectangular wood structure 16' x 10' on concrete pad. Picnic tables, information panels	Good	Non-Contributing
Rush Campground Comfort Station		Prefabricated fiberglass pit toilet on concrete pad	Good	Non-Contributing



Figure 3-37. The lower entrances to McIntosh Mine (M5) are closed off with metal grates, typical of most horizontal mine portals. The dense vegetation makes it difficult to see the mine portals and rock face. (Mundus Bishop 2017)



Figure 3-38. Chainlink fencing has been installed across most mine entrances. This fencing distracts from the historic character. (Mundus Bishop 2017)

Mine and Mill Complexes

Rush Historic District was comprised of ten mining companies and fourteen zinc mines, which operated between 1885 and 1962.[3.9] Mines were established based upon terrain and the deposits of zinc. Three different types of mines were built: horizontal, vertical, and open-pit mines.

At higher elevations, miners extracted ore horizontally, creating horizontal adits cut into the rock face. Over time, these mines became extensive caverns. Many horizontal mines were developed along drifts, while others utilized the room-and-pillar method of mining, which included blasting large voids of the rock while leaving solid pillars to support the overlying rock. This resulted in a mine with broad, open rooms interrupted by occasional pillars. Today, room-and-pillar mines are visible on the surface, evidenced by wide stone portals at the face of stone outcropping. Mines of this type include Capps Mine (M11) and Red Cloud Mine (M3). Monte Cristo Mine (M10), McIntosh Mine (M5), and Ben Carney Mine (M6) were drift mines.

Mines at the lower elevations extracted ore vertically. Vertical mines were vertical shafts or pits descending into the ground that extracted ore through vertical shafts, often with adits cut into the slopes above. Typically, the vertical shafts had a hoist house to pull ore out of the shaft. Today, vertical mines are visible either as deep holes in the ground or as depressions. Mines of this type include White Eagle Mine (M2), Edith Mine (M12), and Lonnie Boy Mine (M8).

Open-pit mining was the least common method used. This was employed at Morning Star Mine (M1) where an open cut was made 400 feet long, 100 feet wide and approximately 50 feet deep into the mountain. This type of mining was the easiest to undertake. Today Morning Star Mine open cut is very apparent and visible.

The ruins of the zinc concentrating mills are components of the mines both physically and functionally. Concentrating mills were associated only with the major mining companies. Mills included Morning Star Mill, White Eagle Mill, Red Cloud Mill, Philadelphia Mill, McIntosh Mill, Yellow Rose Mill, and Edith Mill.

Mills were the largest buildings within the study area, and were prominent due to their elevated position and lack of surrounding trees. These structures housed large pieces of equipment and were set on concrete pier foundations. Elevated tramways on tall trestles connected the mills to the mines. Today, mill ruins are evidenced by massive pyramidal concrete pier foundations. Most of the superstructures were removed for scrap after productive mining had ended. Additional remains of the mills may occur below-grade.

The mines at Rush Historic District retain integrity. The mines are reflective of the historic condition with few alterations. Most mines are fenced with security fencing with metal grates at the portals and chainlink fence set away from the portal to prohibit entry. Smaller digs have no apparent portals and are evidenced as cuts into the hillside. Vegetation obscures most of the entry portals and adits. Rock fall at the adits and horizontal cuts is common, obscuring the historic form. Mines are vulnerable to rock instability, cave-ins, and subsidence issues that create unstable walking surfaces. Investigations in 1989 reported most of the mine interiors were

3.9 Field investigations for this CLR included study of the exterior of the mines focusing on the visual and spatial experience. The interior condition of the mines and descriptions are based upon Burghardt, J. *1989 Safety Inspection of the Rush District Abandoned Mines*. (1989). Eleven mines are located in the study area. Three mines, Philadelphia Mine (M4), Leader Mine, and Beulah Mine, are outside NPS property and the NRHP boundary.



Figure 3-39. White Eagle Mill (M2), 1902. (Mundus Bishop 2017)



Figure 3-40. The entrance to White Eagle Mine (M2) is collapsed, with no visible portal. (USGS Photos, BUFF Archives)

unstable, portions were flooded, and abrupt drop-offs make the mines dangerous to enter.[3.10] Rock fall and erosion have added to the degradation of the mining entrances, and vegetation obscures the rock outcroppings and wide portal openings. The presence of chainlink fence, at varying distances from the mine openings, diminishes from the historic setting and obscures the mine portals.

White Eagle Mine Complex

White Eagle Mine (M2) (1885 to 1920s; 1959 to 1962)

White Eagle Mine (M2) was active between 1885 and the 1920s, and again between 1959 and 1962. It was operated by the Buffalo Zinc and Copper Company, and the Rush Creek Mining Company. The mine consists of 3 adits on the hillside of Rush Mountain. The main adit is closed in with no open portal. A large spoils rock pile is evident across and downhill from the mine opening. Additional openings/ mine locations of White Eagle Mine have been noted by the NRHP.[3.11]

Assessment of Integrity
White Eagle Mine (M2) was blasted shut after the end of the period of significance. The horizontal adit can still be seen. The mine retains integrity and contributes to the cultural landscape.

White Eagle Mill Ruins

White Eagle Mill, established in 1903, was one of the earliest mills built. Mill ruins include a series of concrete piers and a dry stacked stone wall. A retention basin is to the west of the mill piers. Multiple tailings piles are evident near the mill ruins. Rush Landing parking is located on top of a portion of the former mill, which diminishes the historic setting.

Assessment of Integrity
White Eagle Mill ruins retain integrity although it is diminished due to the parking built over the underground ruins. The mill ruins contribute to the cultural landscape.

New White Eagle Mill Ruins

New White Eagle Mill was active from 1959 to 1962. The mill ruins are located just west of the New White Eagle parking off Clabber Creek Road. Visible ruins include concrete pyramidal piers and a wide tailings area.

New White Eagle Mill was removed for salvage after closing in the 1960s. These ruins are more visible than at the other mills due to lack of vegetation and proximity of New White Eagle Mill parking.

Assessment of Integrity
New White Eagle Mill dates after the period of significance and is not a contributing feature, but it is compatible with the historic character of the study area.

3.10 Burghardt, *Safety Inspection.*
3.11 *NRHP*, 1-22.



Figure 3-41. White Eagle Mill, 1917. (BUFF Archives)



Figure 3-42. White Eagle Mill ruins are a series of concrete piers, at the edge of Rush Landing parking. (Mundus Bishop 2017)

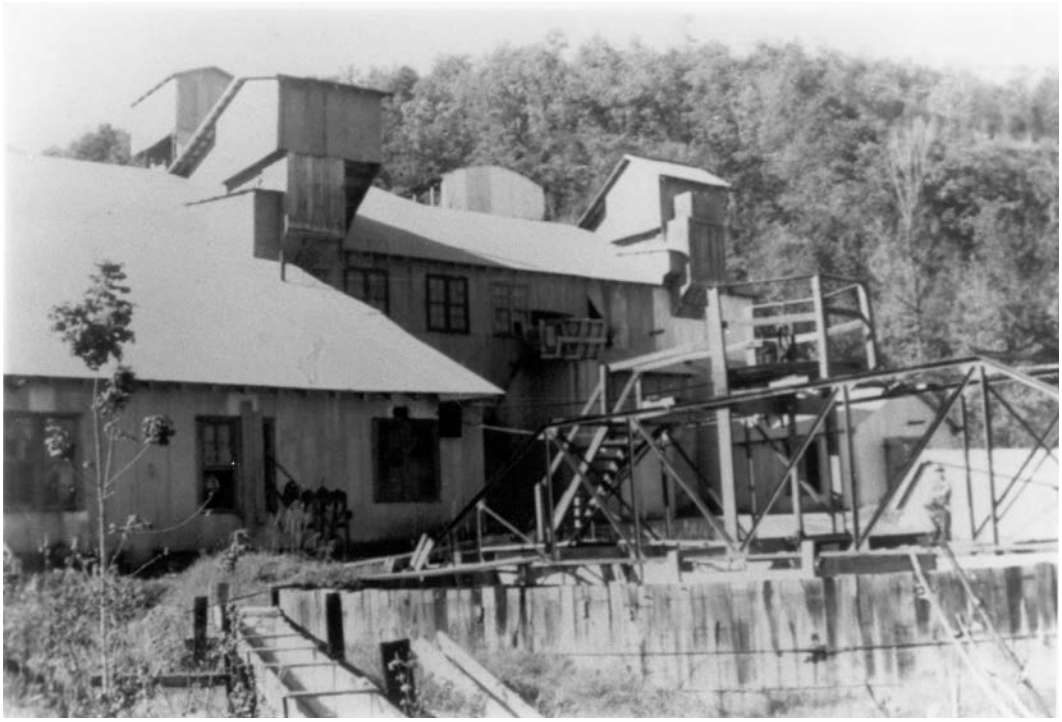


Figure 3-43. New White Eagle Mill, 1960. (BUFF Archives)



Figure 3-44. New White Eagle Mill ruins. (Mundus Bishop 2017)



Figure 3-45. Main portal, Red Cloud Mine (M3), date unknown. (BUFF Archives)



Figure 3-46. Red Cloud miners, c 1915-1916. (BUFF Archives)

Red Cloud Mine Complex

Red Cloud Mine (M3) (1887 to 1919)

Red Cloud Mine (M3) is on the eastern bank of Buffalo River. It is a room-and-pillar mine with multiple portals in the rock face. These openings are nearly 40 feet wide with slabs of rock overhanging the entrance. The portals are not fenced with metal grates but a chainlink fence secures the openings. Red Cloud Mine was one of the largest ore producers in the study area.[3.12]

Assessment of Integrity
Red Cloud Mine (M3) retains integrity, reflects the historic setting, and contributes to the cultural landscape.

Red Cloud Mill Ruins

According to the NRHP, Red Cloud Mill was established in 1900 and outlying portions of the mill were buried by river sediment. Other buildings included a hotel, office, and other unidentified structures.[3.13]

Assessment of Integrity
Red Cloud Mill ruins lacks integrity. The location of this mill is not readily apparent due to river flooding and erosion of the steep river bluff above. Underground remains likely exist, but these are unverified.

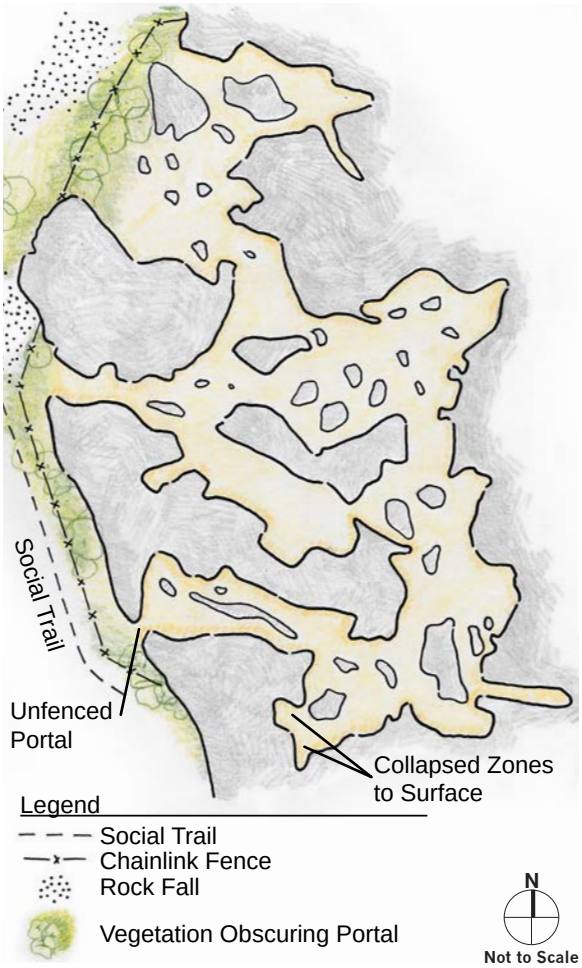


Figure 3-47. Red Cloud Mine (M3) existing condition. (Mundus Bishop 2017, Adapted from Burghardt 1989 Safety Inspection of the Rush District Abandoned Mines)

3.12 *NRHP.*
3.13 *NRHP.*



Figure 3-48. Red Cloud Mine (M3) main entrance, 1985. (S. Rogers, BUFF Archives)



Figure 3-49. Red Cloud Mine (M3) has no metal grates at the open portals, making it easier to view the interior rooms. Access to Red Cloud Mine is difficult, with no formalized trail to the mine. (Mundus Bishop 2017)



Figure 3-50. Red Cloud Mill, 1915. (BUFF Archives)



Figure 3-51. Red Cloud Mill ruins, 1993. (S. Rogers, BUFF Archives)



Figure 3-52. McIntosh Mine (M5), upper portal. (Mundus Bishop 2017)



Figure 3-53. McIntosh Mine (M5), lower portal. (Mundus Bishop 2017)

McIntosh Mine Complex

McIntosh Mine (M5) (1888-1919)

McIntosh Mine (M5) was owned and operated by McIntosh Mining Company and Shepherd Mining Company. It was active from 1888 to 1919. The mine has an upper and a lower entrance with an approximate 30 feet difference in elevation. The lower entrance has an exposed rock face of 40 feet and two portals. Rock fall is noticeable at the portals and the adits are grown in with small trees and shrubs.

Assessment of Integrity
McIntosh Mine (M5) retains integrity and contributes to the cultural landscape.

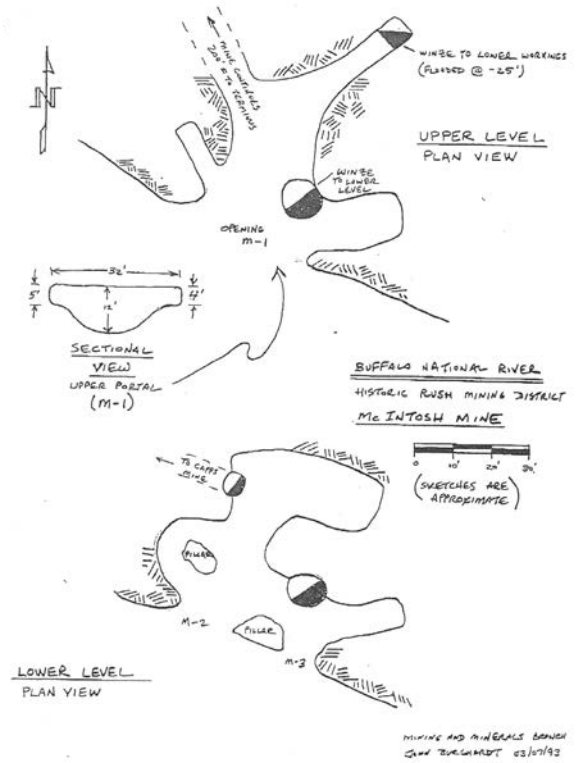


Figure 3-54. McIntosh Mine (M5) closure estimate sketch, 1993. (BUFF Archives)

McIntosh Mill Ruins

McIntosh Mill operated until 1919 when the mine closed. Today ruins include a multi-level area with dry masonry stone wall and concrete piers.

Assessment of Integrity
Although the McIntosh Mill is a ruin today, it retains integrity and contributes to the cultural landscape.



Figure 3-55. McIntosh Mill, 1900. (BUFF Archives)

Ben Carney Mine (M6) (1894 to 1931)

Ben Carney Mine (M6) was operated by the Morning Star Mining Company and was active between 1915 and 1935. Ore was transported from Ben Carney Mine to Morning Star Mill for processing. The mine is a multi-chambered drift mine. Historically, a roadbed connected Ben Carney Mine to Capps Mine (M11).

Assessment of Integrity
Ben Carney Mine (M6) retains integrity and contributes to the cultural landscape.



Figure 3-56. Entrance to Ben Carney Mine (M6), looking northeast, 1985. (S. Rogers, BUFF Archives)



Figure 3-57. Approach view of Ben Carney Mine (M6). (CLI, NPS 2/2005, BUFF Archives)

Yellow Rose Mine Complex

Yellow Rose Mine (M7) (1899 to 1901; 1915 to 1919)

Yellow Rose Mine (M7) was operated by the Yellow Rose Mining Company from 1899 to 1901, and from 1915 to 1919. Mining at Yellow Rose was worked largely as a shallow open-pit and is visible today as vertical cuts and closed drifts into the hillside with spoils piles across the hill. Yellow Rose Mine and Edith Mine (M12) are adjacent to one another, separated by property lines rather than topography.



Figure 3-58. Yellow Rose Mine (M7). (Mundus Bishop 2017)

Assessment of Integrity
Yellow Rose Mine (M7) retains integrity and contributes to the cultural landscape.

Yellow Rose Mill

Yellow Rose Mill was established in 1916 and closed in 1919. Mill ruins are concrete pyramidal piers averaging 4' in height. Yellow Rose Mill was one of the last to be developed at Rush Historic District. It was the first mill in the study area to use oil-powered engines.



Figure 3-59. Yellow Rose Mill ruins, extant pier foundation. (Mundus Bishop 2017)

Assessment of Integrity
The Yellow Rose Mill ruin retains integrity and contributes to the cultural landscape.



Figure 3-60. Lonnie Boy Mine (M8) shaft. (Mundus Bishop 2017)



Figure 3-61. Lonnie Boy Pumphouse ruin. (Mundus Bishop 2017)

Lonnie Boy Mine (M8) (1880s; 1916 to 1930s, early 1960s)

Lonnie Boy Mine (M8) is a vertical tunnel and shaft with a wide spoils rock pile downhill and to the north. According to the NRHP, two adits occur close to the river, today these are filled in with river sediment and are not visible. The mine was active from 1916 to the 1930s, under lease from the Buffalo Zinc and Copper Company, and was revitalized briefly in the 1960s. A chainlink fence surrounds the shaft entrance.

Assessment of Integrity
Lonnie Boy Mine (M8) retains integrity and contributes to the cultural landscape.

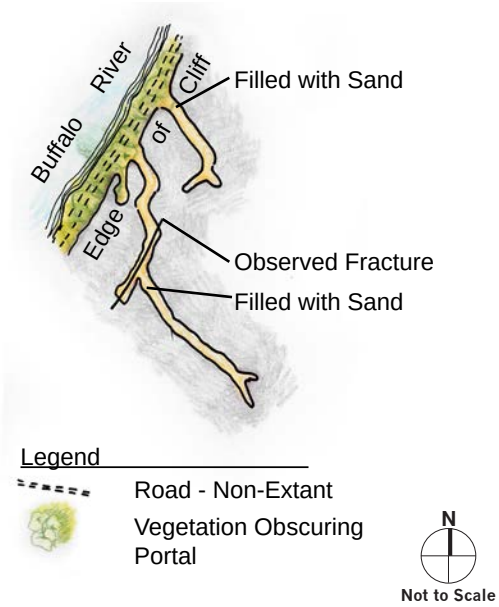


Figure 3-62. Lonnie Boy Mine (M8) existing condition. (Mundus Bishop 2017, Adapted from McNight, Zinc and Lead Deposits of Northern Arkansas)

Lonnie Boy Pumphouse Ruins

The Lonnie Boy Pumphouse ruins are located on the steep river slope, downhill from the vertical shaft of the mine. The pumphouse was constructed in the late 1920s and provided water for Lonnie Boy Mine (M8) through the early 1930s.

Assessment of Integrity
The ruin of the Lonnie Boy Pumphouse retains integrity and contributes to the cultural landscape.



Figure 3-63. The Lonnie Boy Mine (M8) fencing can be seen from Rush Landing. (Mundus Bishop 2017)

Silver Hollow Mine (M9) (1892; 1904 to 1907; 1915 to 1919)

Silver Hollow Mine (M9) is located one mile downstream and across the river from Rush Landing. The mine was active from 1904 to 1907, and from 1915 to 1919. It is a multi-entranced mine on two levels.[3.14]

During active mining, Silver Hollow Mine (M9) supported a separate mining community known as Keystone. Silver Hollow Mine was a room-and-pillar mine, and has one of the largest interior spaces of all the study area mines, measuring 60 feet high and 100 feet wide. Silver Hollow Mine has three levels and adits go 1,000 feet into the mountain.[3.15]

3.14 *NRHP*.

3.15 *Special Use Study, Rush Historic District, Buffalo National River.* (Santa Fe: U.S. Department of the Interior, National Park Service, Southwest Regional Office, 1989), 24.

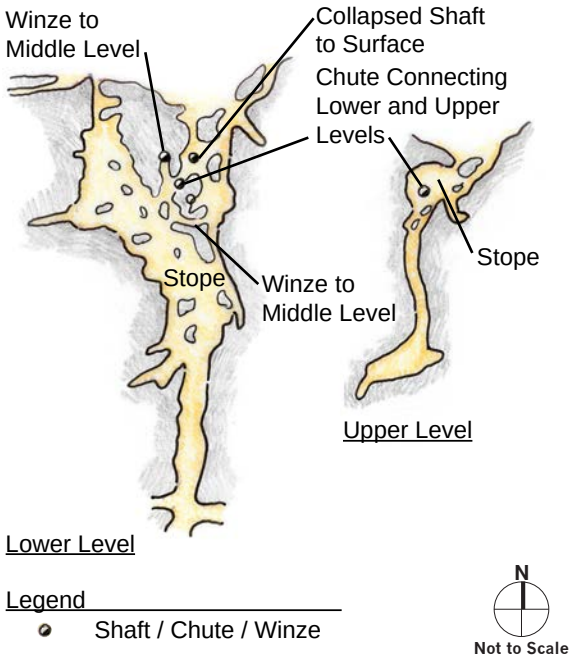


Figure 3-64. Silver Hollow Mine (M9) existing condition. (Mundus Bishop 2017, Adapted from Burghardt 1989 Safety Inspection of the Rush District Abandoned Mines)



Figure 3-65. Fenced lower entrance at Silver Hollow Mine (M9). (CLI, NPS 2/2012)

Monte Cristo Mine (M10) (1900; 1915 to 1917; 1920s; 1961 to 1962)

Monte Cristo Mine (M10) was active in 1900, 1915 to 1917, in the 1920s, and from 1961 to 1962. It is a three-level mine with four visible portals. A long chainlink fence extends along Clabber Creek Road, separating the road from the entrance to the mine.

Monte Cristo Mine (M10) was developed on three levels - the upper level at the top of Rush Mountain, middle level at Clabber Creek Road, and the lower level below Clabber Creek Road. There are several noticeable portals at the middle level at Clabber Creek Road. The westernmost portal opens into a broad stope approximately 40 feet in diameter and 25 feet in height. The interior is flooded. To the east, another portal leads to a shaft to the lower level of the mine, 25 feet below.[3.16] These portals are fenced with metal grates. Rock fall around each portal is abundant.

A steam-powered air compressor, installed between 1890 and 1920, is located to the east of the mine portals, along Clabber Creek Road. A collapsed metal-roofed shed covers the air compressor. Historically, an aerial tramway across Clabber Creek connected Monte Cristo Mine (M10) with Philadelphia Mill, where the ore was processed.

Assessment of Integrity
Since the period of significance, rock fall has obstructed some of the mine portals at the Monte Cristo Mine (M10). Despite this change, the mine retains integrity and contributes to the cultural landscape.

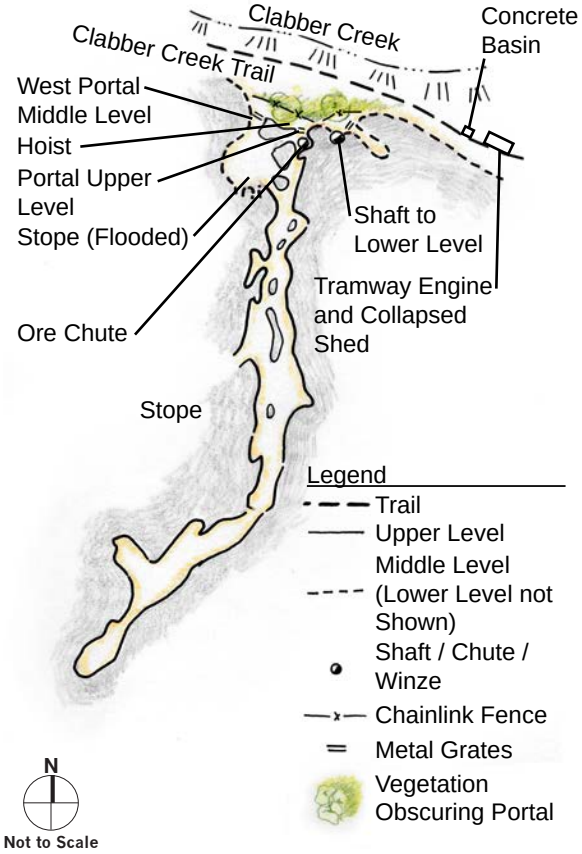


Figure 3-66. Monte Cristo Mine (M10) existing condition. (Mundus Bishop 2017, Adapted from 1989 Safety Inspection of the Rush District Abandoned Mines)

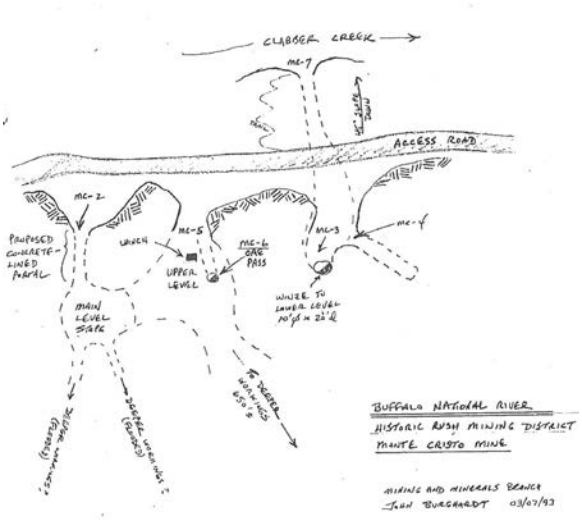


Figure 3-67. Monte Cristo Mine (M10) closure estimate sketch, 1993. (BUFF Archives)

3.16 Burghardt, *Safety Inspection.*



Figure 3-68. The Philadelphia Mill was located across Clabber Creek from Monte Cristo Mine (M10), it processed ore from both the Monte Cristo Mine and the Philadelphia Mine (M4), the mill is in the study area, Philadelphia Mine is not. (Buffalo National River: Harley Myles Collection, http://uark.maps.arcgis.com/apps/MapJournal/index.html?appid=c513b4f4e17b475092eac332ee5c9d59)

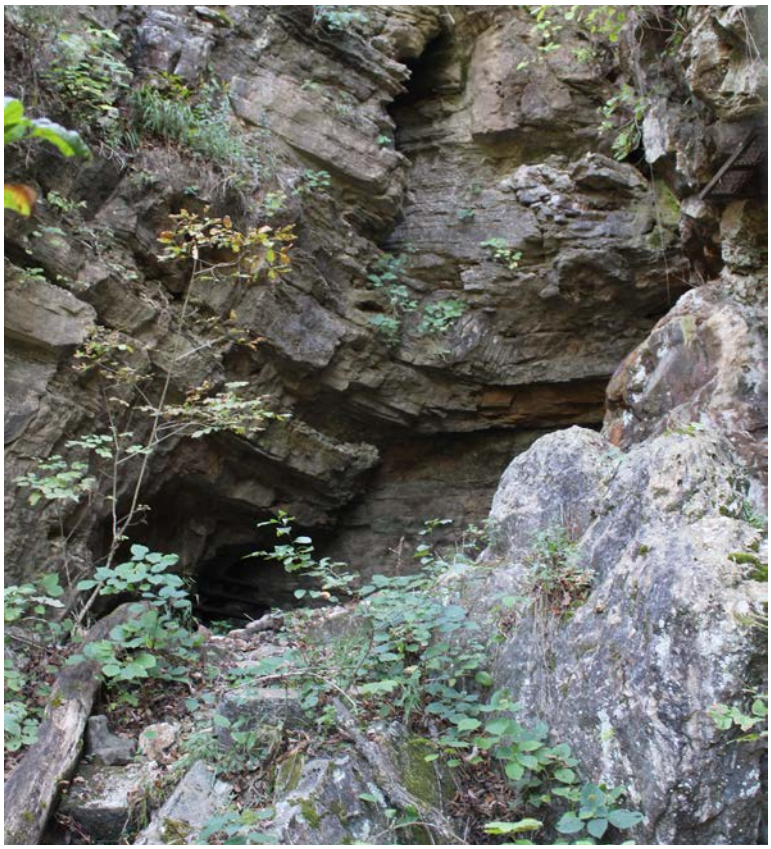


Figure 3-69. Monte Cristo Mine (M10) was developed on three levels and has multiple portals set into the rock face. (Mundus Bishop 2017)



Figure 3-70. Portals at Monte Cristo Mine (M10) are secured with metal grates, but they make it difficult to see interior rooms. (Mundus Bishop 2017)



Figure 3-71. Monte Cristo Mine (M10) opening two. (Mundus Bishop 2017)



Figure 3-72. Monte Cristo Mine (M10) opening three. In contrast to other mines, the portals at Monte Cristo are easily seen from the trail, through the chainlink fence. (Mundus Bishop 2017)



Figure 3-73. Monte Cristo Mine Steam Compressor and Shed Ruins. (Mundus Bishop 2017)

Capps Mine (M11) (1915 to 1935)

Capps Mine (M11) was operated by the Morning Star Mining Company and was active from 1915 to 1935. Ore was transported by tramway to Morning Star Mill for processing.

Capps Mine (M11) is a multi-chambered room-and-pillar mine with piping and track evident at the entrance. Two portals occur at the entrance, one upper and one lower. Investigations in 1989 reported that the portal to this mine was unstable, portions were flooded, and abrupt drop-offs within the mine and proximity to the trail make this mine one of the more dangerous within the study area.[3.17]

Assessment of Integrity
Since the period of significance Capps Mine (M11) has been subject to instability and rock fall, yet despite these alterations the mine retains integrity and contributes to the cultural landscape.

3.17 Burghardt, *Safety Inspection.*

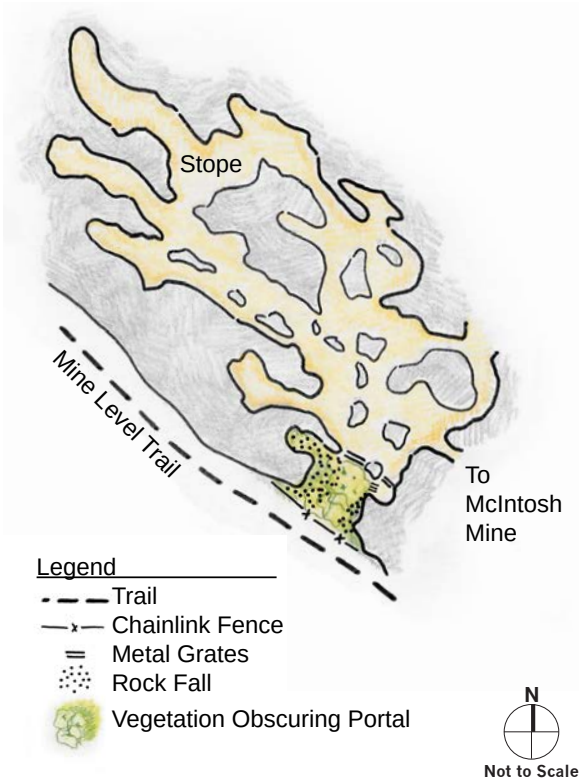


Figure 3-74. Capps Mine (M11) existing condition. (Mundus Bishop 2017, Adapted from Burghardt 1989 Safety Inspection of the Rush District Abandoned Mines)



Figure 3-75. Capps Mine (M11) opening 1. (Mundus Bishop 2017)



Figure 3-76. Capps Mine (M11) opening 2. (Mundus Bishop 2017)

Edith Mine Complex

Edith Mine (M12) (1915 to 1919)

Edith Mine (M12) was operated by the Edith Mining Company under lease from the Buffalo Zinc and Copper Company. It was active from 1915 to 1919. The mine opening is not apparent and appears to have been filled in. Investigations in 1989 reported that Edith Mine had a deep vertical shaft. Numerous other adits appear as vertical cuts in the hillside. Cast iron pipe, a dry stacked stone wall, and concrete block with pole and cable are on the hillside. Spoils piles cover the hillside.[3.18]

Assessment of Integrity
Since the period of significance Edith Mine (M12) has been blasted shut but the mine retains integrity and contributes to the cultural landscape.

Edith Mill Ruins

Edith Mill ruins are approximately 20' downhill of Edith Mine (M12), and were established in 1915. The mill ruins include a series of concrete pyramidal piers and poured concrete blocks. An office and other buildings once stood nearby, but their ruins are not visible. Edith Mill represents one of the new modern mills built as a result of the mining boom during World War I.

Assessment of Integrity
Edith Mill ruins retains integrity and contributes to the cultural landscape.

Clabber Area Mine

The NRHP and 1989 investigations documented a shaft, shallow adit, and spoils pile in the Clabber Field location. The NRHP states this may have been an early dig associated with Red Cloud Mine (M3).[3.19]



Figure 3-77. Edith Mine (M12) Opening 2. (Mundus Bishop 2017)



Figure 3-78. Edith Mill ruins are evidenced by concrete pyramidal piers. (Mundus Bishop 2017)

Other Mines/Exploratory Diggings

Adits and evidence of exploration exist throughout the study area. Several mines built and operated early in the period of significance, including a vertical shaft at White Eagle Mine (M2), were abandoned early. Many have since collapsed and are covered in sediment from Buffalo River flood events.[3.20] Other adits are along the hillside of Rush Mountain and it is unconfirmed with which mine these are associated.

3.18 Burghardt, *Safety Inspection.*
3.19 *NRHP*, 22. Burghardt, *Safety Inspection.*
3.20 Burghardt, *Safety Inspection.*

Matrix 3-10. Study Area - Mine Complexes				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Morning Star Mine Complex (M1)	1884 to 1931	Re: Morning Star Community landscape character area "Matrix 3-13. Morning Star Hotel, Mill, and Mine - Morning Star Mine (M1)" on page 3-106		
White Eagle Mine (M2)	1885 to 1920s; 1958 to 1962	*Opening 1* - Cut into hillside, opening collapsed, no gate or fence, 56-60' long, 15' width, berm for tramway, rubble rock		Contributing
		Opening 2 - Spoils pile at base of trail, one mine opening no fence or gate, 20' long entrance with 10'x10' opening		
		Opening 3 - 50' long entrance cut opening, 10' width and 5' height, no fence or gate, cliff face 20' height, pieces of metal at end of entrance		
White Eagle Mill Ruins	1903	White Eagle Mill ruins at Rush Landing parking, concrete piers and earthen berms 3' height, 10' deep retaining pond. Tailings piles 20' height by 20-30' long, varying width	Poor	Contributing
New White Eagle Mill Ruins	1958 to 1961	Concrete piers	Fair	Non-Contributing
Red Cloud Mine (M3)	1887 to 1919	East Side of Buffalo River		Contributing
		Opening 1 - Wide opening 40' width x 25' height chainlink fence, no metal grate fence		
		Opening 2, 3 and 4 - South of opening 1, 20' to 30' wide opening, view to interior, pillar mine		
Red Cloud Mill Ruins	1900	Unverified in field	unverified	Contributing
McIntosh Mine (M5)	1888 to 1919	*Lower Portal* - Two openings, metal grate fence, chainlink fence and signs. Cliff face 30'-36' height		Contributing
		Opening 1 - 18' width x 12' height		
		Opening 2 - 10' width x 12' height, view of interior room and two tunnels		
		Upper Portal - One main opening - 15' width by 15' height, and lower 40' shaft, two openings that have caved in or were exploratory. Metal grate fenced		
McIntosh Mill Ruins	1900	Concrete piers, multi-level area. Dry masonry stone wall		Contributing
Ben Carney Mine (M6)	1894 to 1931			Contributing



Figure 3-79. Mine Shaft #1. (Mundus Bishop 2017)



Figure 3-80. Mine Shaft #2. (Mundus Bishop 2017)

Matrix 3-10. Study Area - Mine Complexes				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Yellow Rose Mine (M7)	1899 to 1901; 1915 to 1919	70' cut into hillside no obvious opening/ caved in, 12' wide		Contributing
Yellow Rose Mill Ruins	1915	8 concrete piers, 36" height, 24" square at bottom x 12" square at top. One concrete pier 36" height, 6' length x 12" width top. 2 concrete blocks with bolts, 5'x12'x4-5' height	Fair	Contributing
Lonnie Boy Mine (M8)	1880s; 1916 to 1930s, early 1960s	East Side of Buffalo River, pit/shaft surrounded by chainlink fence, tree has fallen and damaged fence, no metal grate fence. Pit is 15-20' diameter straight down. Spoils pile at opening downhill from pit to Buffalo River. Visible across river from Rush Landing in winter		Contributing
Lonnie Boy Pumphouse Ruins	late 1920s	Concrete block at edge of cliff, 3' to 4' height, 6' W x 12'	Fair	Contributing
Silver Hollow Mine (M9)	1892; 1904 to 1907; 1915 to 1919			Contributing
Silver Hollow Mill Site	1903			Contributing
Monte Cristo Mine (M10)	1900; 1915 to 1917; 1920s; 1961 to 1962	Large opening at side of rock face facing Clabber Creek		Contributing
		Main Opening - 20' height x 15' width, metal grate fence at opening, shaft goes down into deep dark pit. 30' to 45' height cliff face, fallen boulders at entrance. Chainlink fence at road extends 50' to second opening 2		
		Opening 2 - Vertical shaft up, daylights at top of cliff		
		Opening 3 - 18' to 20' height x 15' width. Interior inner chamber flooded. Cliff face is 25' to 30' height. Pipe from entrance to edge of road to creek		
Monte Cristo Mine Steam Compressor and Shed Ruins	c 1890 to 1920	*Air Compressor* - Steam powered engine, 20' long and 5' diameter on concrete foundation 5'x15' approx 9" thick.	Fair	Contributing
		Shed - Collapsed wood shed, 15'x6' post and corrugated metal roof.	Poor	Contributing
		Basin - Concrete basin 5'x4'x approx 2' deep at grade	Fair	Contributing



Figure 3-81. Capps Mine (M11). (Mundus Bishop 2017)

Matrix 3-10. Study Area - Mine Complexes				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Capps Mine (M11)	1915 to 1935	Two openings, metal grate fence at different elevations, rock cliff face, 15' height,		Contributing
		Opening 1 - 15' width x 3' height (filled/ partially caved)		
		Opening 2 - at lower level, 8' down from adjacent grade. Cut at entrance 20' long x 10' width x 5' depth		
Edith Mine (M12)	1915 to 1919	*Opening 1* - Caved-in/no opening, entrance cut 55' long, 6' to 8' width		Contributing
		Opening 2 - 50' cut into hillside, south of Opening 1, spoils pile at entrance to cut		
		Opening 3 - Pit cut in hillside (group of mines) and rubble wall 12" thick, 3-4' height		
Edith Mill Ruins	1916	Tall concrete piers, four sided flat-topped pyramids. 11 piers at 7.5' height, 24" square wide at bottom, 12" square at top. 10 piers 5'x12" embedded into hillside, two poured concrete blocks, irregular shaped 2.5' height with iron threads	Fair	Contributing
Clabber Area Mine		Mine shaft, vertical runnel, spoils pile	unverified	Contributing
Mine Shaft #1		North of Mine Level Trail, west of White Eagle Mine (M2). 30' diameter at rim, 20-25' deep. Bottom with boards and timbers		
Mine Shaft #2		30' Diameter at rim, 10' deep		
Mine Shaft #3		Adjacent to Clabber Creek Trail, 20' diameter x 10-12' deep		
Mine		Caved in blocked entrance, no fence or gate (looks like a cave). Berm/spoils pile, 30' long, 10' width cut		
Mine #2		Level surrounded by even block rock overhang 10-12', Opening 6' width x 7' height with metal grate fence. Metal pipe emerging from mine		
Exploratory Diggings		Holes, diggings, and small caves on hillside		Contributing



Figure 3-82. Ore cart at Mine Level Trail. (Mundus Bishop 2017)



Figure 3-83. Remnant fencing uphill from Hicks Hotel. (Mundus Bishop 2017)

Small Scale Features

The study area includes small scale features from the period of significance, including remnant fencing, stone retaining walls, and an ore cart. Fencing remnants are on hillsides and around non-extant structures. Most have deteriorated wood posts and the wire fencing is on the ground. Stone walls are typically associated with building ruins, including the mills. An ore cart is on the Mine Level Trail, adjacent to Capps Mine (M11).

Other small scale features post-date the period of significance and are non-contributing. These features provide safety, clarify access, improve visitor experience and access, and assist in interpretation. They include information kiosks, picnic tables, campground features, timber parking barriers, signs, overhead utility lines, chainlink fencing, and metal grates. The chainlink fencing diminishes from the cultural landscape, as the style and character does not reflect the study area's historic character.

Assessment of Integrity
Small scale features that date from the period of significance, including fencing, walls, and the ore cart retain integrity and contribute to the cultural landscape. Other small scale features that were added after the period of significance are non-contributing features.

Matrix 3-11. Study Area - Small Scale Features

Feature	Date	Description	Condition	Contributing/ Non-Contributing
Pole and Cables (c 1950s)	1950s	2, 12' long x 12" diameter wood poles, cable 1.5" diameter attached. Cable fastened to concrete block 3' square by 9" thick.	Fair	Non-Contributing
Ore Cart		Metal Cart, no wheels, rectangular 5'x2'x2' on side of Mine Level Trail	Good	Contributing
Remnant Fencing		Above Hicks Hotel. Wood posts with wire. Approximately 3' height, collapsed most places	Poor	Contributing
Stone Retaining Wall		Near Edith Mine (M12). Height varies 3' to 4' single-course, dry-stacked	Fair	Contributing
Rush Landing Shelter Interpretive Panels			Good	Non-Contributing
Rush Landing Shelter Information Panel			Good	Non-Contributing
Rush Landing Picnic Table (4)			Good	Non-Contributing
Rush Campground Pay Station			Good	Non-Contributing
Rush Campground Information Panel			Good	Non-Contributing
Rush Campground Picnic Table (12)		Standard metal picnic table with powder-coated benches and table top	Good	Non-Contributing
Rush Campground Fire Ring (12)		Round metal fire pit, 30" diameter with upper grill	Good	Non-Contributing
Rush Campground Lantern Hook (12)		Metal hook, approximately 7' height	Good	Non-Contributing



Figure 3-84. Vegetation of Rush Historic District includes hardwood forest, conifer glades, riverbank vegetation, and maintained areas of open mown lawn.

(Mundus Bishop 2017, Adapted from NPS Vegetation of the Buffalo National River. Basemap: USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Vegetation

The study area's vegetation includes a mixed hardwood forest, conifer glades, riverbank vegetation, and maintained areas of open mown lawn with remnant ornamental vegetation. Vegetation for the study area and Morning Star Community landscape character area are described in this section.

The mixed hardwood forest includes southern red oak (*Quercus falcata*), hickory (*Carya spp.*), maple (*Acer spp.*), and black locust (*Robinia pseudo-acacia*) as predominant tree species. The lower canopy is dense, particularly in lower elevations, with mulberry (*Morus rubra*), sassafras (*Sassafras albidum*), paw paw (*Asimina triloba*), dogwood (*Cornus florida*), eastern hophornbeam (*Ostrya virginiana*), and leatherwood (*Dirca palustris*). Understory plants include green brier, poison oak, and wild grape.

Conifers, including Ashe's juniper (*Juniperus ashei*) and eastern red cedar (*Juniperus virginiana*) are on drier south facing slopes, particularly on the higher elevations of Rush Mountain. The Ashe's Juniper glade near Morning Star Mine (M1) is described as a "Special Element – Natural Community" by Arkansas Natural Heritage Commission and is being monitored.[3.21] Plants in this community are unique to the glade due to their requirements for both soil condition and topographic aspect.

In areas of mining activities, the forest is in varied stages of succession. The south facing slope of Rush Mountain was essentially cleared of trees during active mining. Today the mined slope is forested by eastern red cedar (*Juniperus virginiana*), chinkapin oak (*Quercus muehlenbergii*), and bitternut hickory (*Carya cordiformis*).

To the east and north of Rush Mountain, the tree canopy is taller and more open, presumably the forest has had a longer period of time to regenerate since being cut in the late 1800s/early 1900s. This forest has fewer conifers, and includes maple, oak, and hickory. Ferns appear on the northern slope adjacent to Monte Cristo Mine (M10).

Riverbank vegetation includes cane breaks, cottonwoods, and silver maples adjacent to the creeks and Buffalo River.

Several areas are maintained as open mown lawn. Rush Campground, Rush Landing Shelter area, Rush Smelter and Morning Star Livery Barn area, and House Row have maintained landscapes of mown lawn. The oldest trees in the study area are those associated with specific buildings including the former Courthouse site and at House Row. These trees include southern red oak (*Quercus falcata*), hickory (*Carya spp.*), and southern catalpa (*Catalpa bignonioides*).

Non-native exotic plant species are associated with areas that were historically yards, gardens, or pastures. These were all likely planted by the former residents. Extant ornamental plant species include iris, daffodils, lilac, grape hyacinth, forsythia, Russian olive, mimosa, daylilies, and flowering quince. Invasive exotic plant species are those species planted by residents that have now become problematic. These include Japanese honeysuckle (*Lonicera japonica*), Sericea lespedeza (*Lespedeza cuneata*), multiflora rose (*Rosa spp.*), and yellow rocket (*Barbarea vulgaris*).[3.22] Non-native exotic grasses have been found along Rush Road

3.21 *Survey of the Morning Star Mine Interpretive Trail Unit: Botanical Survey of 67 Acres and Recommendations.* (Fayetteville: Hinterthuer Botanical Clearance and Inventory, 2005).

3.22 *Botanical Survey of 67 Acres and Recommendations.*



Figure 3-85. Mixed hardwood forest near the Rush Blacksmith Shop. (Mundus Bishop 2017)



Figure 3-86. Oak-Hickory forest near Monte Cristo Mine (M10). (Mundus Bishop 2017)

and include fescue (*Lolium arundinaceum*), downy brome (*Bromus tectorum*), Kentucky bluegrass (*Poa pratensis*), Johnsongrass (*Sorghum halepense*).

Assessment of Integrity
Prior to active mining, the study area was heavily forested. The forest was clear cut to accommodate mining activities and to fuel mill machinery and homes. Bare hillsides surrounding the developed area are evident in historic photographs. Since the end of the period of significance, the hardwood forest has regrown and obscured relationships between historic spaces. Dense understory vegetation obscures features, making it difficult to discern the study area's historic appearance. Overgrown vegetation obscures historic foundation ruins, spoils piles, and mines, making it difficult to understand the size and scale of mining and building development. Vegetation has not regrown in some places, most notably at the tailings pile below Morning Star Mill ruins.

Present-day vegetation patterns and species differ from the period of significance. Historic man-made clearings are overgrown, diminishing historic patterns of use and settlement. The dense vegetation growing in formerly cleared areas does not contribute to the significance of the study area. The vegetation in other areas, including the mixed hardwood forest, conifer glades, and riverbank vegetation contribute to the character of the study area. Areas of open mown lawn, ornamental vegetation, and extant trees associated with specific buildings retain integrity and contribute to the cultural landscape.



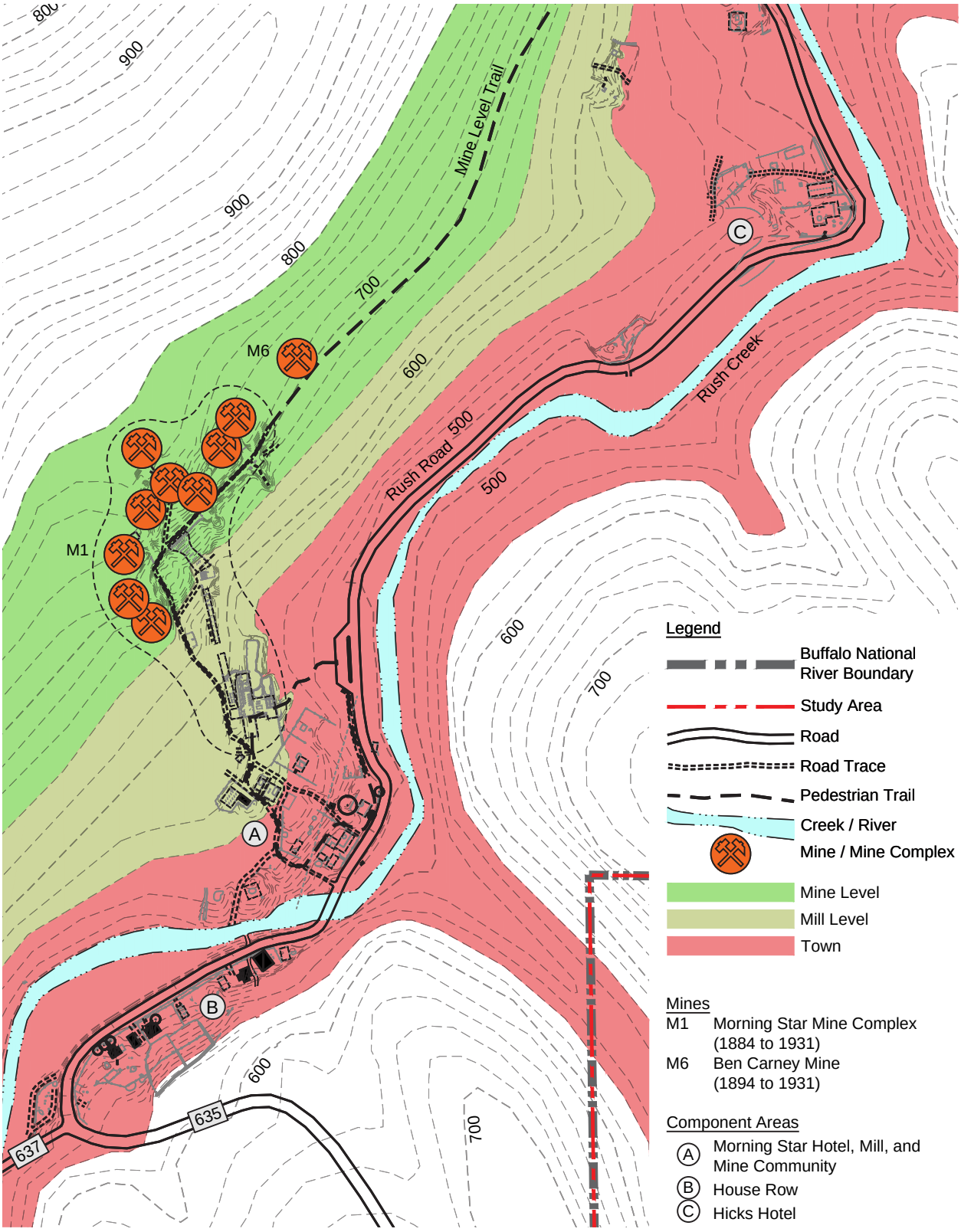
Figure 3-87. Ashe's juniper glade near Morning Star Mine (M1). (Mundus Bishop 2017)



Figure 3-88. Successional forest near Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12). (Mundus Bishop 2017)



Figure 3-89. Several large oak and hickory trees are extant from the period of significance, located near extant buildings and ruins. (Mundus Bishop 2017)



(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS, Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Figure 3-90. Morning Star Community landscape character area is set in the valley of Rush Creek. The town was developed on relatively flat bottomland, with Morning Star Mill set on a terrace on Rush Mountain. The mines were located further up the hill. The area includes standing buildings including the Rush Smelter, Taylor-Medley General Store, Rush Blacksmith Shop, and numerous ruins including the Morning Star Mill ruins, and Hicks General Store ruins.

Morning Star Community Landscape Character Area

Morning Star Community landscape character area represents the most intensely developed area in Rush Historic District. Built primarily between the late 1880s and 1930s, the community developed due to the prosperous Morning Star Mine (M1). Major features include Morning Star Mine, the Morning Star Mill, Rush Blacksmith Shop, Rush Smelter, buildings at House Row, Hicks Hotel, and Hicks General Store.

This section describes the existing condition of the Morning Star Community landscape character area, and analyzes its integrity. It is organized to describe the entire landscape character area as a whole, followed by descriptions of three component areas.

- Morning Star Hotel, Mill, and Mine Community
- House Row
- Hicks Hotel

Spatial organization, circulation, and vegetation is described for the Morning Star Community landscape character area as a whole, and is presented first. The three component areas are described separately and are presented last.

Spatial Organization

Morning Star Community landscape character area is set in the valley floor of Rush Creek with steep hillsides to the north and south. Rush Creek and Rush Road define a central spine through the community from which buildings and developments are offset. The Morning Star Community landscape character area consists of House Row to the east, Morning Star Hotel, Mill, and Mine Community in the middle, and Hicks Hotel on the west.

House Row is situated on the east side of Rush Creek, set parallel to Rush Road. Structures face the road in an open area framed by dense forest. House Row is distinct from the remainder of the Morning Star Community landscape character area, separated by Rush Creek and dense vegetation.

Morning Star Hotel, Mill, and Mine are on a terrace and hillside of Rush Mountain. An open lawn is in front of, and surrounding, the extant Rush Smelter and foundation of the non-extant Morning Star Livery Barn. Forest vegetation covers the sites of the Post Office ruins, Courthouse site, Barn Ruins, Doctor's/ maxey House Ruins, Morning Star Hotel ruins, Lyons House Ruins, Warehouse ruins, Chase and Mulholland Store ruins, and Morning Star Mine Office ruins. Morning Star Mill ruins are set on a level terrace above the rest of these structures.

Hicks Hotel is on the east side of the landscape character area, set on an elevated terrace above a bend in Rush Road. It is physically distinct from the other component areas, separated by topography.

Assessment of Integrity
Historically the three component areas were visually and physically connected. Forest vegetation was kept to a minimum during the period of significance and open pastures and yard spaces allowed for lines of sight and views across the landscape. Circulation routes physically connected the Morning Star Community landscape character area, including Rush Road and other vehicular routes through the Morning Star Hotel, Mill, and Mine Community.

Few changes have been made to the spatial organization since the end of the period



Figure 3-91. House Row contains the highest number of extant buildings in the study area. It is situated on the east side of Rush Creek, set parallel to Rush Road. An open lawn area surrounds the five extant buildings, framed by dense forest and shade trees that date to the period of significance. Former yard and pasture areas were located behind the buildings. (Mundus Bishop 2017)



Figure 3-92. Morning Star Trail at the Rush Blacksmith Shop and site of the Morning Star Mine Office ruins. (Mundus Bishop 2017)

of significance, except for loss of visual connections. Vegetation growth has resulted in loss of connections between spaces. The spatial organization of Morning Star Community landscape character area retains integrity and is a contributing feature of the study area.

Circulation

M within the Morning Star Community landscape character area includes Rush Road as the main vehicular route, abandoned roads to Morning Star Mill, and Hicks Hill Road Trace. Pedestrian circulation includes Morning Star Trail that connects to the Mine Level Trail (described previously under Study Area).

Rush Road is the central spine of the landscape, and is the only circulation route for House Row, where it is wide enough for parallel parking adjacent the structures. Slight grade changes between some of the houses indicate former driveways.

At Morning Star Hotel, Mill, and Mine Community, Rush Road is the only vehicular route. Two road traces connect to Rush Road on either side of the Morning Star Hotel ruins. These routes are separated from Rush Road by a change in grade and are mostly overgrown with vegetation. The route furthest east continues north, uphill towards Morning Star Mine Office ruins. The west route continues north uphill where it connects to an east-west route below Chase and Mulholland Store Ruins. Based on historic maps, this road once crossed Rush Creek, further north and west of the existing crossing. This portion of the route was not verified during field investigations. The network of roads at Morning Star Hotel, Mill, and Mine Community form a grid, connecting Rush Road with buildings on the hillside and the mine. These routes are overgrown with young vegetation but are legible as former routes.

Vehicular circulation at Hicks Hotel is provided by Rush Road and a road trace to the east of Hicks General Store ruins. This route is not legible at the intersection with Rush Road, but becomes more evident as it ascends the hillside north of the store. Although overgrown with young trees it is visible as a slight trace.

Pedestrian circulation includes Morning Star Trail. This trail makes a loop through Morning Star Hotel, Mill, and Mine Community. It begins at the parking at Rush Road, below Morning Star Mill ruins. The trail follows the remnant historic roads for a portion of its length. It crosses behind Morning Star Hotel ruins, and at Morning Star Mill ruins it becomes a new route across the historic retaining wall to descend the hillside.

Morning Star Trail connects to the longer Mine Level Trail on the hillside above the Morning Star Hotel, Mill, and Mine Community on Rush Mountain. The Mine Level Trail follows the alignment of the former trail and tramway that led to Morning Star Mine (M1), used by miners during the period of significance.

Assessment of Integrity
The current vehicular circulation within Morning Star Community landscape character area follows the same configuration as during the period of significance. Historically, pedestrian circulation took place on roadways. The Morning Star Trail provides visitor access and waysides convey interpretive information, but they both disrupt historic spatial patterns and are not contributing features.

All vehicular routes retain integrity and contribute to the cultural landscape. Rush



Figure 3-93. The opening in the woodland vegetation marks the foundation of Morning Star Livery Barn and provides a view from Rush Road into the formerly developed area. (Mundus Bishop 2017)



Figure 3-94. Morning Star Mill ruins include a series of concrete and stone piers, a stone retaining wall at the northern slope, a concrete platform for the engine, and a stone and brick boiler room. The mill is set on a level terrace above the remainder of Morning Star Hotel, Mill, and Mine Community. (Mundus Bishop 2017)

Road retains the original alignment and remains the major route through Morning Star Community landscape character area. A newer parking lot below Morning Star Mill ruins was established by the NPS in 1988 and does not contribute to the cultural landscape. Mining Company roads are in fair to poor condition but retain original alignments and integrity. Since the end of the period of significance, roads other than Rush Road have been closed off and are in various states of deterioration.

Vegetation

Morning Star Community landscape character area's vegetation consists of oak hickory forest on the hillsides of Rush Mountain, and cleared areas around building clusters. Grasses are mown around the structures at House Row, and Rush Smelter and the Morning Star Livery Barn ruins. A row of trees lines Rush Road at House Row. Evidence of historic gardens and perennial plantings is extant including iris, daffodils and roses at House Row. Historic trees, evidenced by their large size, are near the former Courthouse site and Morning Star Livery Barn ruins. Ornamental plantings including daffodils, daylilies, and flowering quince, are extant at Hicks Hotel. Other historic plantings may include roses, lilac, grape hyacinths, forsythia, Russian olive, and mimosa.[3.23]

Assessment of Integrity
During the period of significance, vegetation was maintained around buildings and structures. Forest vegetation was cleared on the hillsides, and gardens, lawns, and shade trees were planted and maintained as residential landscapes.

Through the 1930s, vegetation was kept low and to a minimum within Morning Star Community landscape character area. Overall vegetation was much sparser than it is today, particularly the forests. By the 1950s and 1960s, hillsides reforested naturally making Morning Star Community landscape character area overgrown with trees and underbrush. Extant large trees that date from the period of significance, ornamental vegetation, and open lawn areas around House Row and Rush Smelter assist in maintaining the historic character of the landscape character area. These latter vegetation patterns retain integrity and contribute to the cultural landscape.

3.23 *Botanical Survey of 67 Acres and Recommendations.*

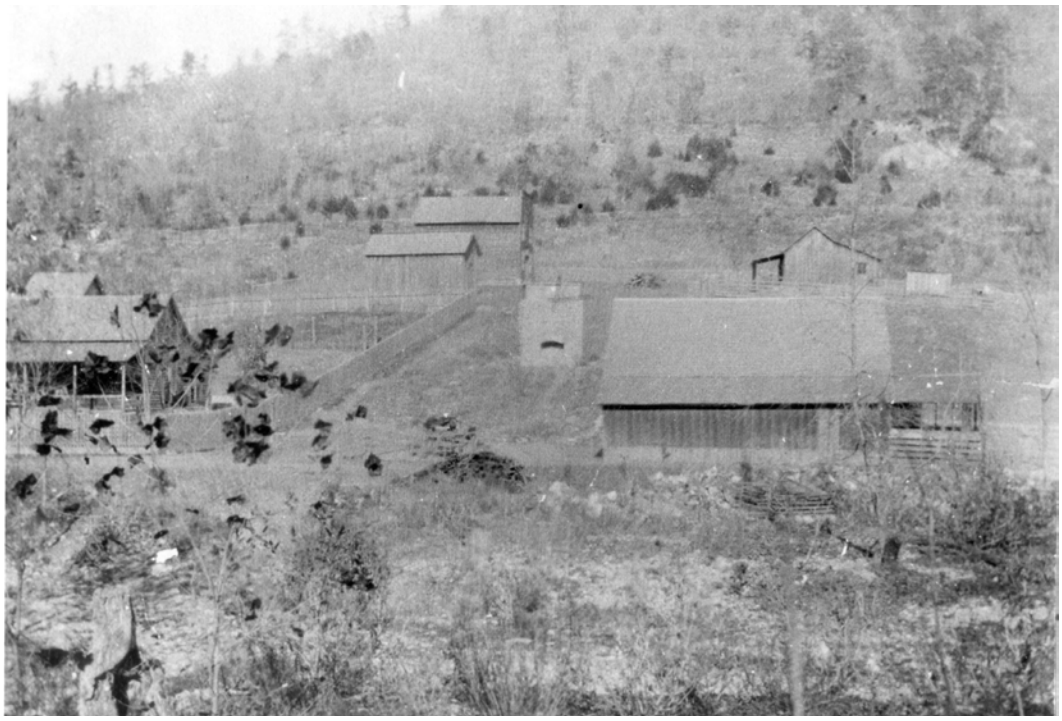
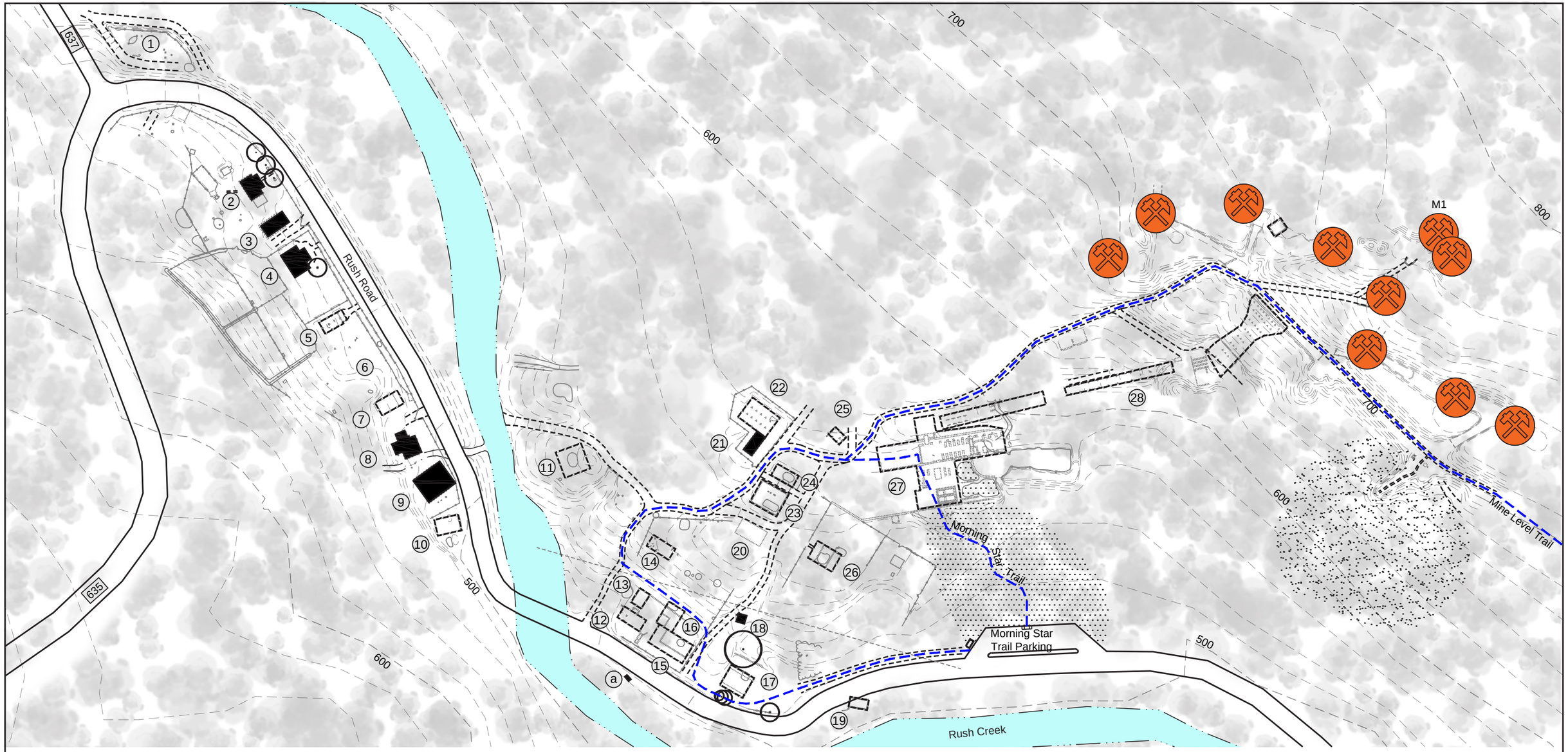


Figure 3-95. Morning Star Hotel, Mill, and Mine Community includes the ruins of several buildings and structures. Left to right, Morning Star Hotel, Chase and Mulholland Store, Morning Star Mine Office, Rush Smelter, Morning Star Livery Barn, and Smith House. (BUFF Archives)



Figure 3-96. Extant trees and ornamental vegetation at Hicks Hotel assist in maintaining the historic character of the landscape character area. (Mundus Bishop 2017)



Buildings and Structures

1. Mulholland Buildings Site (c 1900 to 1920)
2. Bundy House (c 1899)
3. Wash House (c 1899)
4. Kastning House (c 1899)
5. Brantley House (c 1899)
6. Gotley House Site (c 1899)
7. Raby House (c 1899)
8. Storekeeper's House (c 1899)
9. Taylor - Medley General Store (c 1899)
10. Store Site (date unk)
11. Courthouse Site (c 1916)
12. Post Office Ruins (c 1890)
13. Barn Ruins (1902)
14. Doctor's / Maxey House Ruins (c 1916)
15. Morning Star Hotel Ruins (c 1900)
16. Lyons House Ruins (c 1925)
17. Morning Star Livery Barn Ruins (c 1899)
18. Rush Smelter (1886)
19. Morning Star Mill Pumphouse Ruins (1926)
20. Unknown Building (Unknown Date)
21. Rush Blacksmith Shop (1925)
22. Warehouse Ruins (1927)
23. Chase and Mulholland Store Ruins (c 1899)
24. Morning Star Mine Office Ruins (c 1911)
25. Oil Storage House Ruins (c 1911)
26. Smith House Ruins (c 1899)
27. Morning Star Mill Ruins (c 1898)
28. Tramway Ruins (c 1898)

Circulation

a. Footbridge Pillar (c 1915)

Legend

- Road
- Pedestrian Trail
- Creek / River
- Mine / Mine Complex
- Extant Building
- Building Ruins
- Road Trace
- Remnant Feature
- Morning Star Mine Waste Rock Pile
- Morning Star Mill Tailings Pile

Mines

M1 Morning Star Mine Complex (1884 to 1931)

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

N W E S

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1" = 120'

NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
ARKANSAS

173/141247

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 3-2.

TITLE OF DRAWING
EXISTING CONDITION - MORNING STAR HOTEL, MILL, AND MINE COMMUNITY, AND HOUSE ROW

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Morning Star Hotel, Mill, and Mine Community

Spatial Organization

Morning Star Hotel, Mill, and Mine Community is set on the north side of Rush Creek on the slope of Rush Mountain. The ruins of the Morning Star Hotel, Post Office, Courthouse, and Morning Star Livery Barn are located closest to Rush Road. Uphill and in a small cleared area is the extant Rush Blacksmith Shop, and the ruins of the Morning Star Mine Office, Chase and Mulholland Store, and Warehouse. The Morning Star Mill ruins are on a level terrace west and uphill of the Morning Star Mine Office ruins. Morning Star Mine (M1) is located further uphill of Morning Star Mill ruins.

An open lawn surrounds the extant Rush Smelter. This opening in the woodland vegetation marks the foundation of Morning Star Livery Barn ruins and provides a view from Rush Road into the formerly developed area. Forest vegetation covers the ruins of Morning Star Hotel, Courthouse, and Post Office.

The extant Rush Blacksmith Shop and ruins of the Warehouse, Chase and Mulholland Store, and Morning Star Mine Office are separated by dense vegetation and topography from Morning Star Hotel ruins.

Morning Star Mill is set on a level terrace slightly uphill and east of Morning Star Mine Office. Mill ruins are oriented parallel to the hillside contours. Above the mill is Morning Star Mine (M1). Directly to the south and downhill is the mill's tailings pile that is sparsely vegetated and extends to Rush Road.

Assessment of Integrity
Few changes have been made to the spatial organization since the end of the period of significance. In 1988 the NPS added the Morning Star Trail that forms a loop through the Morning Star Hotel and Mill. The trail crosses Morning Star Mill ruins and Morning Star Mill Stone Retaining Wall, dividing the space. This diminishes the sense of the size of the terrace and mill operation. In another location, the trail crosses a former yard space behind Morning Star Hotel ruins. Together, the trail and dense vegetation diminish the historic spatial relationships.

The growth of vegetation over time has diminished the setting and feeling as it obscures the scale of the historic mining operations. The extent of the community is no longer evident due to the loss of buildings and overgrown vegetation. This acts to visually separate the mill ruins from the adjacent community.

Buildings and Structures/Ruins

The only standing buildings and structures are the Rush Blacksmith Shop and Rush Smelter. These date from the period of significance and retain integrity. Most buildings and structures are ruins, including Morning Star Hotel, Morning Star Mine Office, Morning Star Livery Barn, Post Office, Courthouse, Chase and Mulholland Store, and Warehouse. In some cases, foundations, footings, chimneys, and other evidence of buildings are visible on the surface. Other resources likely remain below-grade.

After the period of significance buildings were abandoned. Some were dismantled by the Morning Star Mine Company, i.e., the Chase and Mulholland Store and Morning Star Mine Office that was demolished in the 1960s. Others either collapsed or burned later. Overgrown vegetation growth obscures many building locations, making it difficult to discern the mass, scale and extent of the



Figure 3-97. Morning Star Hotel, date unknown. (BUFF Archives)



Figure 3-98. Stone retaining wall rubble near Morning Star Hotel ruins, Lyons House ruins, Post Office ruins, and Barn ruins area. (Mundus Bishop 2017)

historic development of Morning Star Hotel, Mill, and Mine Community.

Morning Star Mill

Morning Star Mill was built in 1898 and was connected to Morning Star Mine (M1), Ben Carney Mine, and Capps Mine (M11) by an elevated tramway. Today mill ruins include a series of parallel concrete and stone piers, a stone retaining wall at the northern slope, a concrete platform for the engine and a stone and brick boiler room. A stone retaining wall extends east to west along the hillside providing level space for mill building and operations. A large retention basin is extant to the south, excavated into the earth and fed by a small natural drainage from Rush Mountain. Tailings piles are to the south and downhill of the mill. The mass and scale of this building and its relationship to other mine features is not discernible today due to overgrown vegetation.

Assessment of Integrity
The Rush Blacksmith Shop and Rush Smelter retain historic integrity and contribute to the cultural landscape. Non-extant buildings from the period of significance are evident as ruins. Their absence diminishes the integrity of the study area.

Mines

Morning Star Mine (M1) (1884 to 1935)
Morning Star Mine (M1) was active from 1884 to 1935. It was the first and most famous mine in Rush Historic District.

A portion of the Morning Star Mine (M1) consists of an open-pit mine – a long narrow open cut, approximately 400 feet long, 100 feet wide and 50 feet deep. The open cut is the most obvious feature of the mine, although it is not readily visible from the Mine Level Trail. Rock fall within a portion of the open cut conceals its full length. Morning Star Mine also includes at least 6 adits at the same elevation that extend into the rock face west of the open cut. The overhang on most portals are cracked and some are collapsed. Additional adits extend into the hillside above with no obvious portal. Morning Star Mine open cut and adits are revegetated. The mines are not easily seen from the Mine Level Trail due to the overgrown vegetation. Chainlink fencing secures the main entrance into Morning Star Mine open cut and adits. Portals also have metal grates. An enormous spoils pile extends south downhill from Morning Star Mine to the edge of Rush Road. Today the spoils pile is covered with trees, making it difficult to discern its immense size.

Assessment of Integrity
The Morning Star Mine (M1) retains historic integrity and contributes to the cultural landscape.

Small Scale Features

Contributing small scale features include stone retaining walls, a concrete pier possibly for a footbridge adjacent Rush Creek, a scale pit, cellar depressions, and trash pits. A dry-stacked stone retaining wall extends at the edge of the tramway, varying in height at the lower edge of the tramway. This dates from the period of significance. The scale pit is between the former Chase and Mulholland Store and Morning Star Mine Office. The scale pit was used to weigh the ore once it left the mill. Today the pit is visible as a clear depression between the two building foundations.

Historic photographs indicate that during the period of significance small scale features were limited to fences, retaining walls, garbage pits, and the scale pit. Fences appear to have been wood post with horizontal wood rails. These are not extant.



Figure 3-99. Morning Star Livery Barn, 1926. (BUFF Archives)



Figure 3-100. Morning Star Livery Barn ruins. (Mundus Bishop 2017)

Assessment of Integrity
Since the period of significance features have deteriorated and it is likely that many have been lost, or exist as archeological remains. Additions made after the period of significance include contemporary fences, signs, and benches. These features are non-contributing.

Vegetation

Vegetation at Morning Star Hotel, Mill, and Mine Community includes oak hickory forest and grasses are around buildings. Mown grasses are at the Rush Smelter and Morning Star Livery Barn ruins. Grasses and low shrubs occur at the Morning Star Mine Office ruins, obscuring the foundation. Vegetation at Morning Star Mill ruins is limited to young trees, grasses, and smaller shrubs including smooth sumac (*Rhus glabra*). Groves of eastern red cedar grow over the mill boiler room, engine room, retaining walls, and retention basins.

Extant historic trees are near the former Courthouse site and Morning Star Livery Barn ruins. These include large oak, hickory, and catalpa trees. Dense vegetation covers the sites of the Morning Star Hotel ruins, Post Office ruins, Courthouse site, Smith House ruins, and Oil Storage House ruins.

Assessment of Integrity
During the period of significance, the area was largely cleared of trees except for a few that provided shade at buildings. Historic photos from the 1900s indicate a fenced lawn at the Morning Star Hotel, encompassing the hotel, post office, and barn. A fenced lawn was also at the Smith House. Shade trees edged the perimeter of the lawn and at building entrances. A fenced pasture surrounded the Morning Star Livery Barn. Trees had been cut on the slope around the mill and mines.

By the 1960s, after buildings were abandoned, this area reforested naturally and the once sparsely vegetated area became overgrown with trees and understory species. This vegetation does not contribute to the study area and due to the dense vegetation it is difficult to discern the community spaces.

Extant large trees near the former Courthouse site and Morning Star Livery Barn ruins date from the period of significance and contribute to the cultural landscape. The open area of mown grasses at the Rush Smelter also contributes to the study area, as this area has historically grassed with few trees.



Figure 3-101. Oil Storage House ruins. (Mundus Bishop 2017)



Figure 3-102. Stone retaining wall at Chase and Mulholland Store. (Mundus Bishop 2017)

Matrix 3-12. Morning Star Hotel, Mill, and Mine Community - Buildings and Structures				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Rush Smelter	1886	Standing structure. Square in plan and constructed of stone and mortar with small openings on two sides. Building narrows at two locations from grade to the top, with stone ledges at these locations. Plants and moss are growing on both ledges.	Fair	Contributing
Rush Blacksmith Shop	1935	Standing Building. One story structure, rectangular in plan with a gable roof. Two doors on the main elevation lead to two separate interior spaces - the workshop and the living area. Roofing is corrugated metal with a round metal exhaust pipe that extends above it. Pieces of wood framing mounted to the building are all that remain from the awning over the workshop door. Exterior walls have vertical board and batten siding. The wood is deteriorated in places and many of the battens are broken and missing. Foundation is poured in place concrete which is cracked in places. No windows or doors are extant but trim remains at some openings. The concrete and brick forge is extant in the southwest corner of the workroom. Though the hood is missing, the metal exhaust duct remains but it is rusted in places. The interior dividing wall has a vertical wood board finish. No other finishes are evident in the workshop but there are wood shelves mounted to the wall framing. In the living area, the interior finishes are in poor condition - wood flooring at the main level, built in shelves on the walls attached to the framing. A loft spans the full room with a small opening in the wood flooring for access to the upper space.	Fair	Contributing
Morning Star Hotel Ruins	c 1900	Scattered Stones, no foundation visible. No evidence of cellar depression.	Poor	Contributing
Lyons House Ruins	c 1925	Scattered stone rubble, no visible foundation.	Poor	Contributing
Post Office Ruins	c 1890	Concrete foundation piers, 12”x 6”x12”	Poor	Contributing
Morning Star Livery Barn Ruins	c 1899	Scatter of stones, retaining wall at Hillside, 8’ long, 2.5’ height maximum, Dry stacked retaining wall	Poor	Contributing
Smith House Ruins	c 1899	Concrete chimney base; shallow depression for cellar		Contributing



Figure 3-103. Rush Smelter, 1900. Note the road to the left of the Smelter and lack of vegetation, providing a view to Morning Star Mine Office, rear left. (BUFF Archives)



Figure 3-104. Similar view as above, note vegetation that has grown over the road to the Morning Star Mine Office. (Mundus Bishop 2017)

Matrix 3-12. Morning Star Hotel, Mill, and Mine Community - Buildings and Structures				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Chase and Mulholland Store Ruins	c 1899	Dry Stacked stone foundation - 2' to 18" height across width of foundation. Most of the foundation is covered by soil and vegetation. Depression with trash (metal), 6'x12'x3' deep at center of stone space. Store footprint legible as raised plinth above roadway edges.	Poor	Contributing
Morning Star Mine Office Ruins	c 1911	Concrete curb around foundation, 6" wide, height varies 6". Collapsed brick chimney.	Fair	Contributing
Warehouse Ruins	1927	Series of 18 concrete piers 18"x18" varying height 3" to 2', some square and some pyramidal with flat tops. Poured concrete perimeter, 6" wide, not consistent. Large concrete Pier, irregular Shape, 4' height. Low grasses and forbs grow within foundation	Fair	Contributing
Oil Storage House Ruins	c 1911	Poured concrete piers, pyramidal with flat top, 4 sided 2.5' height varies. Area is overgrown, hard to see, across Rush Road from Morning Star Mine Office ruins, larger trees and dense brush	Fair/Poor	Contributing
Morning Star Mill Ruins	1898	Concrete piers, 4' height typical, gray angular coarse aggregate with integral stones and concrete in board framed courses	Fair	Contributing
		Foundation Floor - heaved, gravel with small trees, concrete foundation and edge/threshold 6"-9" wide	Fair	
		Engine Room - Concrete and stone engine mount, 2' height with bolts, covered with moss and little trees. Concrete piers and foundation block with bolts and concrete footers	Fair	
		Boiler Room - Stone exterior, mortared and stacked, brick interior, 18" wide, 7'-8' height, 2 rooms, center wall 2.5' Some portions of the brick wall are collapsed	Fair/Poor	
		Foundation - Concrete edge 9" wide at perimeter of boiler room +/- 6" height.	Poor	
		Boiler Smokestack - Metal debris, 36" diameter	Poor	
		Stone Retaining Wall - Uphill side of Mill. Stone and mortar cantilevered/battered, set in two courses, width varies 24" height to 8-12'height.	Fair	

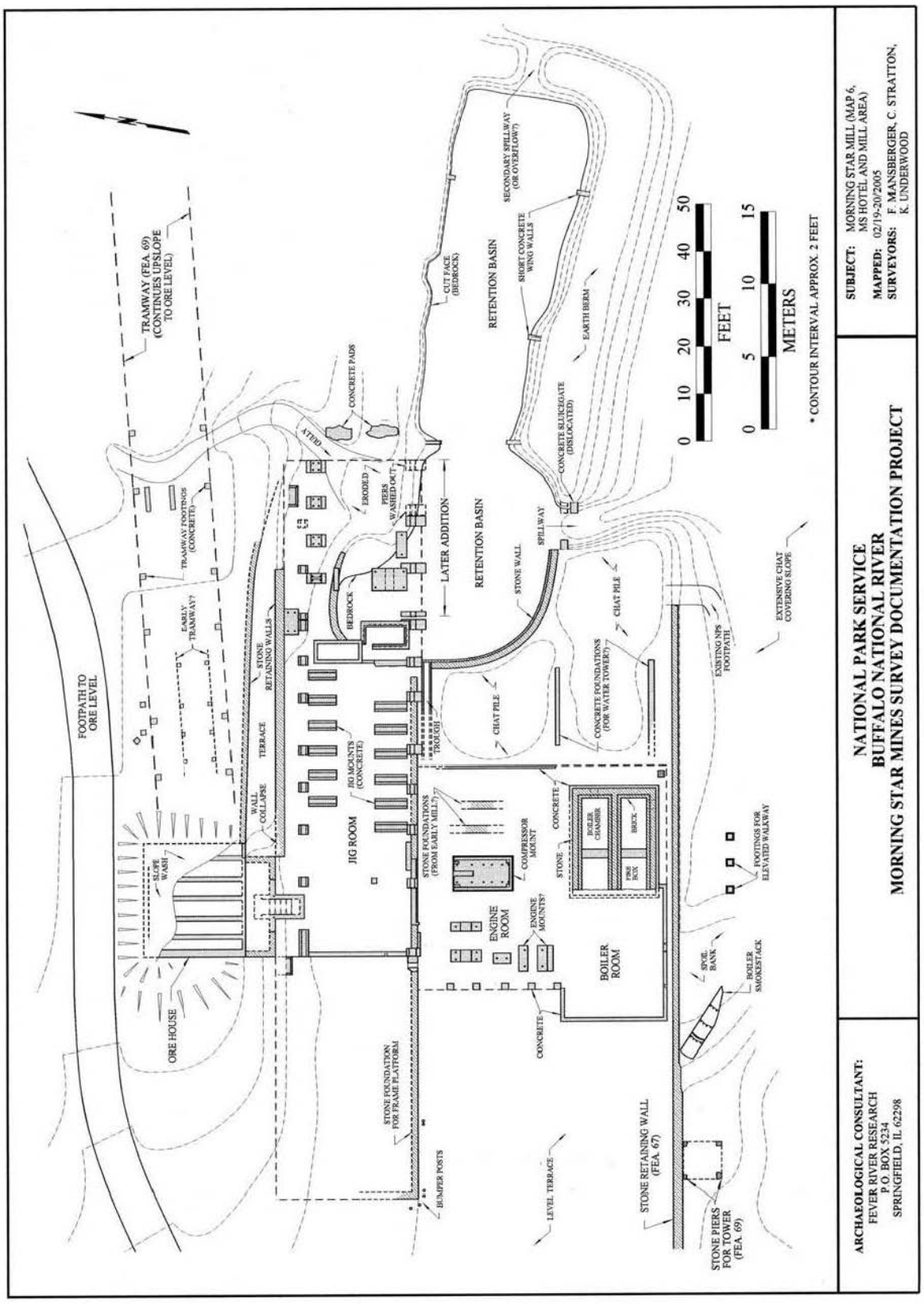


Figure 196. Map 6 of Area "B" of the Morning Star Site, showing the remains of the Morning Star Mill (FRR 2004).

Figure 3-105. Map 6 or Area "B" of the Morning Star Site, showing remains of Morning Star Mill. ((FRR 2004) Rogers et al, Historic Resource Documentation, Morning Star Mines Interpretive Area)

Matrix 3-12. Morning Star Hotel, Mill, and Mine Community - Buildings and Structures				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
		Ore House - Level square area built into hillside, concrete perimeter foundation above level of mill piers	Poor	
		Tailings - fine material, gravel/sand. Unvegetated but a few grasses (Big Bluestem). Extends from mill to Rush Road	Good	
		Retention Basin East - Natural rock face on north side, 5' height, south side, stone and earthen berm, 5-6' eight, level interior basin. Connects to other retention basin at narrow opening with concrete gate. Fed by natural drainage diverted to retention basins. Drainage is approximately 6' wide and 2-3' depth	Good/Fair	
		Retention Basin West - Level basin with mortared stone retaining wall on two sides, 5' height, level top, upper sides to concrete basins and into mill. South by southeast side with earthen berm.	Fair	
		Spillway - concrete will 4' height by 18" width both sides	Fair	
Morning Star Mill Stone Retaining Wall		Extends south side of Mill, from tailings, boiler room, and tower. Dry stacked, 6" height and 24" wide stones and approximately 12-18" depth, height varies, 3' to 8' height	Fair	Contributing
Morning Star Mill Stone Tower Ruins		No surface ruins visible	Poor	Contributing
Tramway Ruins		*Concrete Piers* - flat-top concrete piers at hillside 24" height	Poor	Contributing
Barn Ruins	c 1902	No surface ruins visible	Poor	Contributing
Courthouse Site	c 1916	No surface ruins visible	Poor	Contributing
Hopper House Ruins		No surface ruins visible	Poor	Contributing
Morning Star Shelter		Contemporary wood shelter, 12'x10' on concrete pad. Interior wood benches and interpretive panel	Good	Non-Contributing



Figure 3-106. Chase and Mulholland Store and Morning Star Mine Office with Rush Blacksmith Shop and Warehouse in the background. The scale pit was between the store and the office, date unknown. (BUFF Archives)



Figure 3-107. The same view as above. The only remains of the Chase and Mulholland Store and Morning Star Mine Office are concrete foundations, a collapsed brick chimney and depressions. (Mundus Bishop 2017)



Figure 3-108. Rush Blacksmith Shop, 1925. (BUFF Archives)



Figure 3-109. Rush Blacksmith Shop and Warehouse, date unknown. (S. Rogers, BUFF Archives)



Figure 3-110. Rush Blacksmith Shop. (Mundus Bishop 2017)



Figure 3-111. Warehouse piers and foundations. (Mundus Bishop 2017)

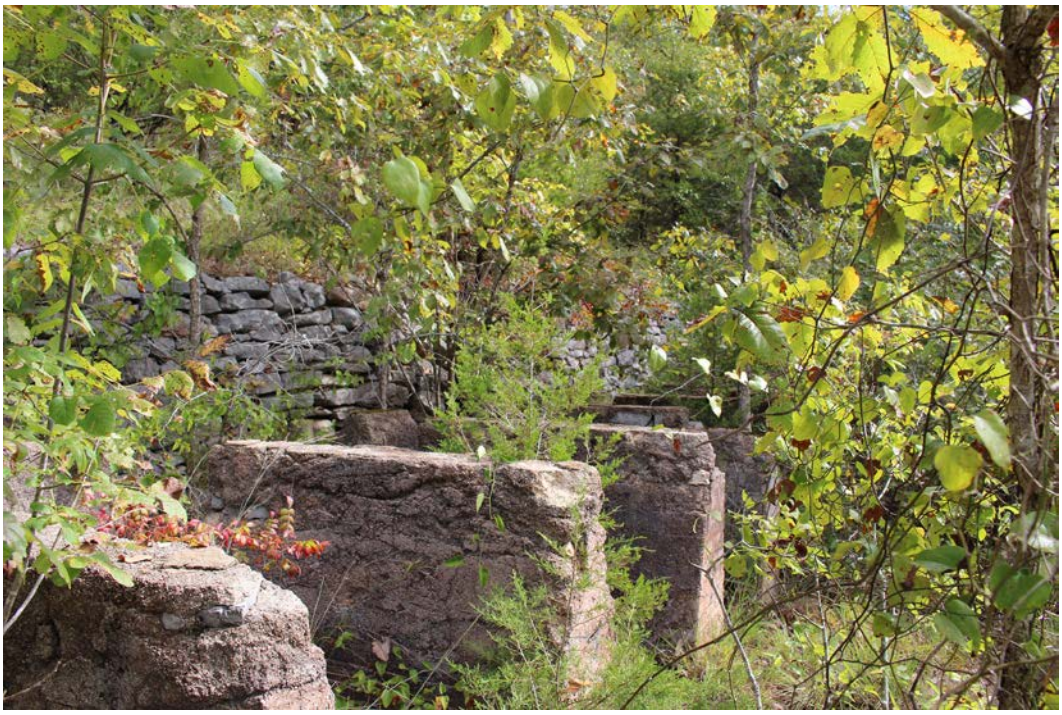


Figure 3-112. Stone and concrete piers, and stone retaining wall (rear) at Morning Star Mill ruins. (Mundus Bishop 2017)



Figure 3-113. Tailings pile at Morning Star Mill ruins. (Mundus Bishop 2017)



Figure 3-114. Portion of retaining wall at Morning Star Mill ruins, 1984. (S. Rogers, BUFF Archives)



Figure 3-115. Morning Star Mill Stone Retaining Wall, near Boiler Room. (Mundus Bishop 2017)



Figure 3-116. Morning Star Mill ruins Boiler Room. (Mundus Bishop 2017)



Figure 3-117. Stone retaining wall and concrete pier. (Mundus Bishop 2017)

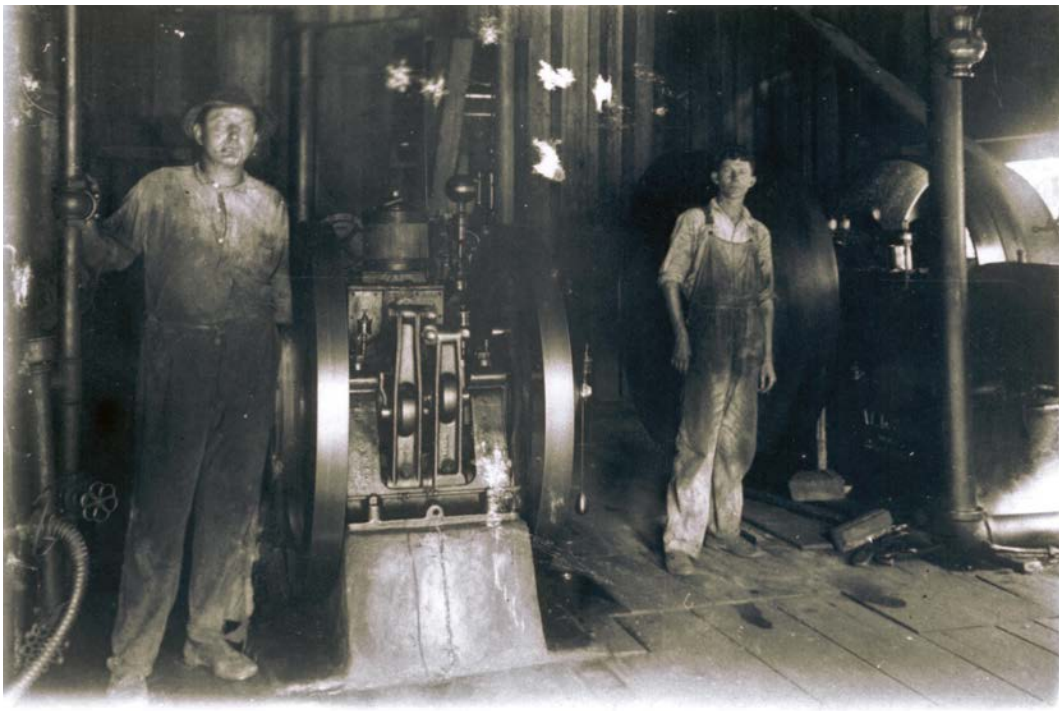


Figure 3-118. Machinery at Morning Star Mill, date unknown. (BUFF Archives)

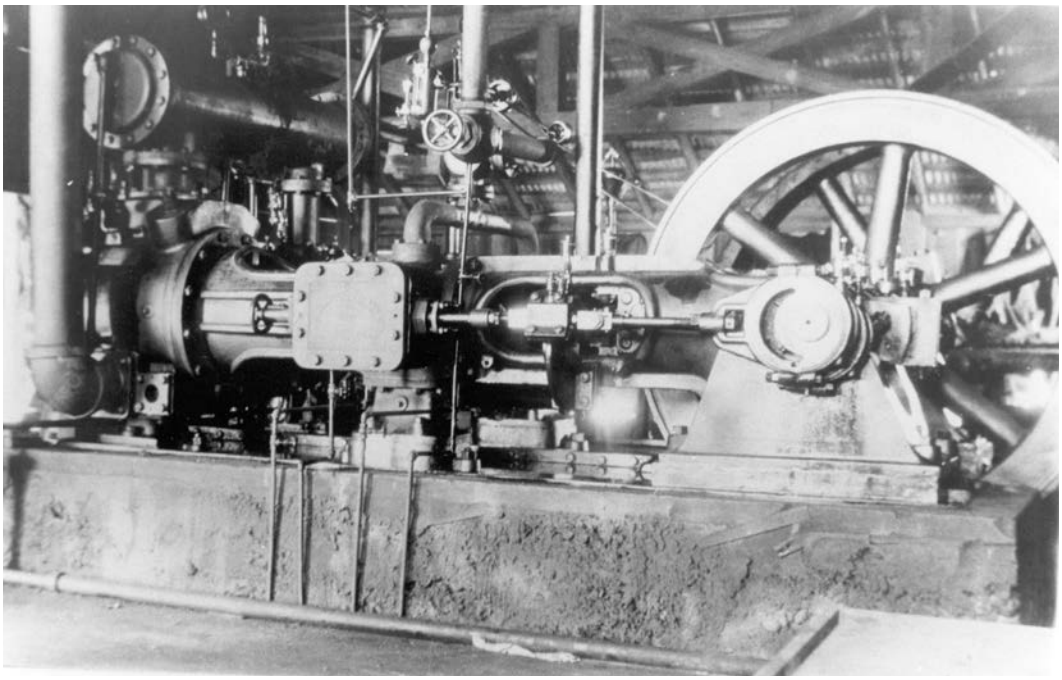


Figure 3-119. Air compressor at Morning Star Mill, 1927. (BUFF Archives)



Figure 3-120. Concrete engine mount at Morning Star Mill ruins. (Mundus Bishop 2017)



Figure 3-121. Concrete engine mount at Morning Star Mill ruins. (Mundus Bishop 2017)



Figure 3-122. Morning Star Mill retention basin concrete spillway, c 1980s. (BUFF Archives)



Figure 3-123. Morning Star Mill retention basin concrete spillway, same view as above. (Mundus Bishop 2017)



Figure 3-124. Morning Star Mill retention basin, c 1980s. (BUFF Archives)



Figure 3-125. Morning Star Mill retention basin. (Mundus Bishop 2017)

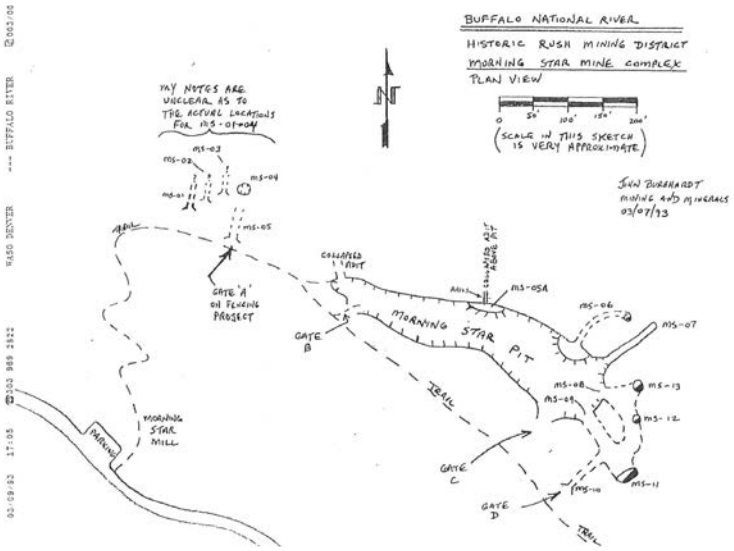


Figure 3-126. Morning Star Mine (M1) closure estimate sketch, 1993. (BUFF Archives)

Matrix 3-13. Morning Star Hotel, Mill, and Mine - Morning Star Mine (M1)				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Building Site		Dry-stack 4' height to grade 12' width	Fair/Poor	Contributing
Morning Star Drift Mine A		Short, excavated into hill side no evident opening/shaft filled in or surface excavated	Fair	Contributing
Morning Star Drift Mine B		Short, excavated into hillside no evident opening/shaft filled in or surface excavated, young dense cedars	Fair	Contributing
Morning Star Drift Mine C		Stone faced 7'x7'x7' room long cut from road	Fair	Contributing
Morning Star Loading Platform		Stone, dry-stacked 10' width x 2.5' height obscured by dirt and vegetation	Fair	Contributing
Morning Star Mine Opening 1		*Opening 1* - Single opening (near Open Cut) 8' width x 5.5' height, metal grate fence, cliff face 15' height, 5' overhang		Contributing
		Opening 2 - Single opening 5' width x 4' height, metal grate fence, cliff face, 15' height overhang 3' wide		
		Opening 3 - Single opening shaft mine, metal grate fence both vertical and horizontal 3-4' height, 15' width opening caved in, cliff face 15', no overhang		
Morning Star Shaft		20' diameter x 15' depth with dark unfenced 3' hole at bottom	Fair	Contributing
Morning Star Mine Open Cut		Narrow cut at opening with 20' side walls. Interior of cut mostly level, some rock fall and pines. Chainlink fence at entrance	Good/Fair	Contributing
Morning Star Mine Spoils Pile			Fair	Contributing

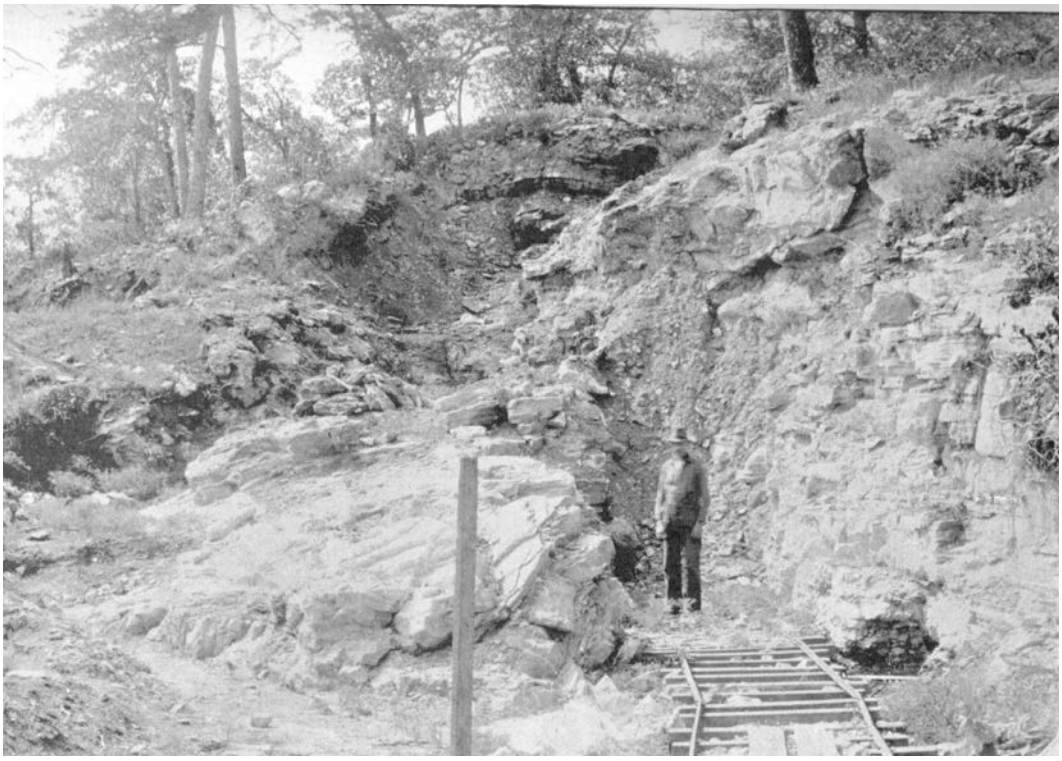


Figure 3-127. Morning Star Mine (M1) open cut, date unknown. (BUFF Archives)



Figure 3-128. Morning Star Mine (M1) open cut. (Mundus Bishop 2017)



Figure 3-129. Morning Star Mine (M1) open cut entrance. (Mundus Bishop 2017)



Figure 3-130. Morning Star Mine (M1) opening 1. (Mundus Bishop 2017)

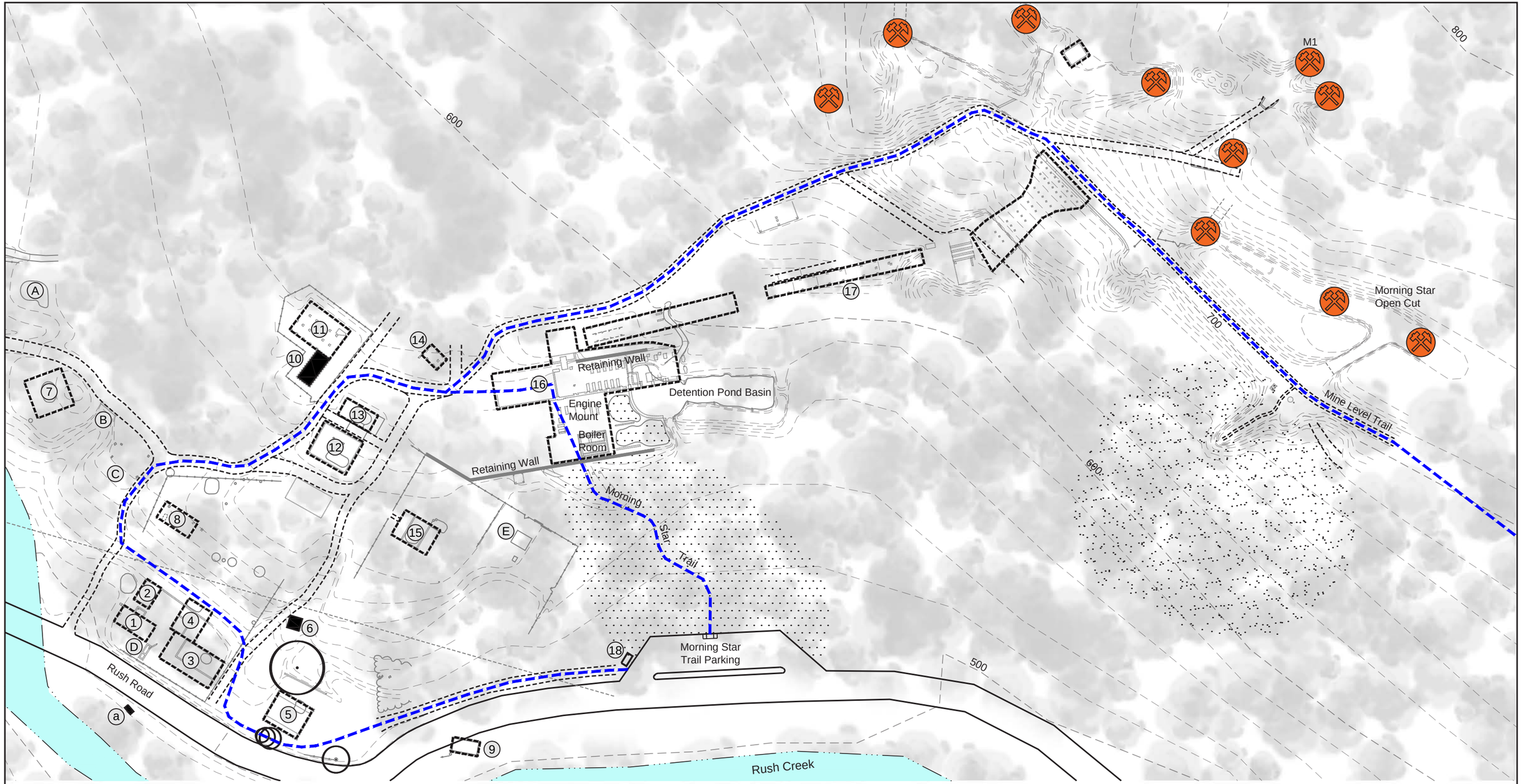


Figure 3-131. Morning Star Mine (M1) opening 2. (Mundus Bishop 2017)



Figure 3-132. Morning Star Mine (M1) opening 3. (Mundus Bishop 2017)

Matrix 3-14. Morning Star Hotel, Mill, and Mine Community - Small Scale Features				
Feature		**Description**	**Condition**	**Contributing/ Non-Contributing**
Stone Retaining Wall at Chase Mulholland Store		10' long, 18" to 2' height, dry stacked stone at upper edge of hill, 12" to 18" wide. At Chase Mulholland Store ruins	Poor	Contributing
Scale Pit		Poured concrete pit and concrete pad on road, filled in with small trees/shrubs and dirt	Fair	Contributing
Stone Retaining Wall - at Tramway		Wall at tramway, rubble stone (not stacked) at side of walk/trail/tramway, 6' to 8' at concrete piers	Fair	Contributing
Footbridge Pillar	c 1915	At Rush Creek. Concrete pillar 9' high on 3" base; anchor bolts at top. c 1915	Fair	Contributing
Rush Blacksmith Shop Fence		Surrounds Rush Blacksmith Shop and Warehouse ruins	Good	Non-Contributing
Wood Fence		Log post fence at overlook to Morning Star Mill ruins	Good	Non-Contributing
Interpretive Panels		Contemporary, metal stands, approximately 30" high	Good/Fair	Non-Contributing
Benches		Contemporary, wood post and slats; 5' length	Good	Non-Contributing



Buildings and Structures

1. Post Office Ruins (c 1890)
2. Barn Ruins (1902)
3. Morning Star Hotel Ruins (c 1900)
4. Lyons House Ruins (c 1925)
5. Morning Star Livery Barn Ruins (c 1899)
6. Rush Smelter (1886)
7. Courthouse Site (c 1916)
8. Doctor's / Maxey House Ruins (c 1916)
9. Morning Star Mill Pumphouse Ruins (1926)
10. Rush Blacksmith Shop (1925)
11. Warehouse Ruins (1927)
12. Chase and Mulholland Store Ruins (c 1899)
13. Morning Star Mine Office Ruins (c 1911)
14. Oil Storage House Ruins (c 1911)
15. Smith House Ruins (c 1899)
16. Morning Star Mill Ruins (c 1898)
17. Tramway Ruins (c 1898)
18. NPS Interpretive Shelter

Mines

M1 Morning Star Mine Complex (1884 to 1931)

Circulation

a. Footbridge Pillars (c 1915)

Small Scale Features

A. Artifact Scatter
B. Stone Retaining Wall
C. Stone Scatter Pier Falls
D. Septic Tank
E. Concrete Pad for Outhouse

Legend

- Road
- Road Trace
- Pedestrian Trail
- Creek / River
- Mine / Mine Complex
- Extant Building
- Building Ruins
- Remnant Feature
- Morning Star Mine Waste Rock Pile
- Morning Star Mill Tailings Pile

N W E S

0 80

1" = 80'

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
ARKANSAS

173/141247

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 3-3.

TITLE OF DRAWING
EXISTING CONDITION - MORNING STAR HOTEL, MILL, AND MINE COMMUNITY

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

House Row

Spatial Organization

House Row is at the west edge of the study area. Five extant buildings mark this row of former houses and businesses. All are aligned along Rush Road and set above the roadway. Buildings are aligned along a consistent set-back. Front porches and building entrances face Rush Road, and support structures are located behind and uphill. Open mown areas surround each building, which are framed by native and some ornamental vegetation. A fence separates the buildings from the road. Narrow driveways are visible as slight depressions between buildings. Deciduous shade trees line the front yards, set in a mown grass understory. Behind the buildings, vegetation is unmaintained and dense creating a vegetated backdrop for the buildings. An intermittent stream is between Taylor-Medley General Store and the Storekeeper's house.

Assessment of Integrity
Historically, three businesses and seven houses comprised House Row, which faced Rush Road and had views to Rush Creek, Morning Star Hotel, Mill, and Mine Community, and the mines on Rush Mountain. Over time vegetation has regrown and obscured spatial relationships between buildings, yards and support spaces (barns, gardens, pastures) behind the homes, and has removed views to Rush Creek and Rush Mountain. Several buildings and structures are ruins with physical remains obscured by vegetation. Open mown areas around the buildings reflect the historic spatial organization, and contribute to the cultural landscape.

Buildings and Structures/Ruins

House Row includes five extant buildings, the sites of two former buildings, and ruins of two buildings, evidenced by foundation stones. Historically, there were three businesses and seven houses at House Row.

Buildings within House Row are generally wood framed, and one or one and a half stories in height with gable or shed roofs. Most have corrugated metal roofing and wood siding oriented either horizontally or vertically. Stacked stone pier foundations are typical, although a few buildings have poured in place concrete foundations. Some buildings have intact window sashes but most windows and doors are missing. Interior finishes are damaged or missing with wood flooring, wall, and ceiling finishes deteriorated in many places. Remnants of wall paper are visible on walls and ceilings of some buildings. Sections of deteriorated flooring, possibly linoleum, are visible in a few structures.

Assessment of Integrity
Buildings retain integrity of location, design, feeling, setting, materials, workmanship and association, especially when considered as a whole community. As buildings continue to deteriorate, the integrity of materials and workmanship will be reduced. Further deterioration may affect other aspects of integrity, especially if additional buildings are lost to collapse or arson.

Small Scale Features

Small scale features within House Row include a wire fence (non-contributing), and features that reflect domestic life at Rush. These include cellar pits, trash piles, stone rubble/stone walls, and wire fencing.

Outbuildings and structures historically associated with House Row were located

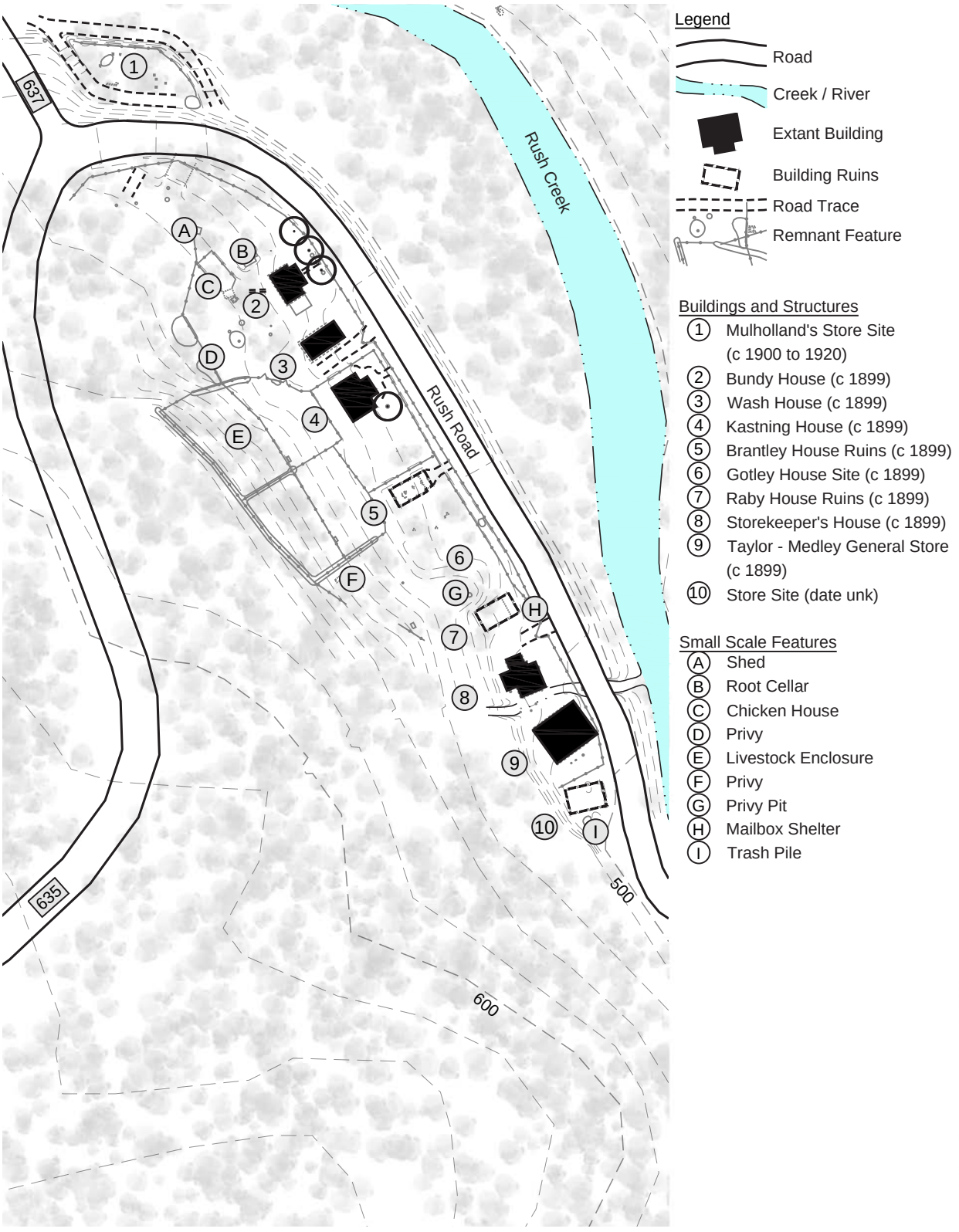


Figure 3-133. Historically there were three businesses and seven houses at House Row, which had views to Rush Creek , Morning Star Hotel, Mill, and Mine Community, and the mines on Rush Mountain. Smaller features of the domestic landscape, including fencing, pastures, chicken houses, and other outbuildings are either non-extant or are not readily apparent today.

(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

behind and uphill of the buildings. These included a chicken coop, goose house, privies, and sheds. Some are visible as ruins, and others are depressions in the ground. Below-grade features likely exist.

Assessment of Integrity
Most extant small scale features contribute to the cultural landscape. Many are obscured by vegetation and are not readily visible. This diminishes the integrity of the setting as it is difficult to discern the extent of the activities that occurred historically in association with domestic life.

Vegetation

Vegetation at House Row consists of a cleared area of mown grasses around the buildings, surrounded by a dense native oak-hickory forest. A row of catalpa and hickory trees lines House Row set between the buildings and Rush Road. Some perennial plantings are extant including iris, daffodils and roses.

Assessment of Integrity
During the period of significance, vegetation was maintained around buildings and structures. Native vegetation was cleared for livestock use and gardens behind the buildings, and shade trees occupied front yards.

Historic photographs convey minimal ornamental vegetation growing at House Row. Through the 1930s vegetation was kept low and to a minimum. After the buildings were abandoned, vegetation reforested naturally obscuring the once open areas behind and around the buildings, which diminishes historic integrity. Extant ornamental vegetation at House Row retains integrity and contributes to the cultural landscape.

Matrix 3-15. House Row - Buildings and Structures/Ruins

Feature	Date	Description	Condition	Contributing/ Non-Contributing
Mulholland Building Site		Non extant - No surface ruins visible	Poor	Contributing
Bundy House	c 1899	Building. One story structure, rectangular in plan with an addition on the south and a porch on the east. Original building has a hipped roof and the addition and porch have shed roofs. Roofing is corrugated metal which is rusting and bent in places. Wood siding is vertical board and batten with broken and missing pieces and deterioration at grade. Foundation is stone and wood piers. Windows and doors are missing though trim is generally intact at openings. Interior finishes - wood flooring, walls and ceiling - are damaged and missing in many places. Wallpaper remnants are visible on the walls and ceiling. In some rooms, significantly deteriorated flooring, possibly linoleum, is visible in places.	Fair	Contributing



Figure 3-134. House Row, date unknown. (BUFF Archives)



Figure 3-135. House Row and line of extant shade trees. (Mundus Bishop 2017)

Matrix 3-15. House Row - Buildings and Structures/Ruins				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Wash House	c 1899	Building. One story structure, rectangular in plan with a porch on the east elevation. Both building and porch have a gable roof with corrugated metal roofing that is bent and rusted in places. A brick chimney extents above the roofing at approximately the center of the roof. Siding is vertical board and batten which has broken and missing boards in places. Foundation is stacked stone and wood piers. No windows or doors are extant but trim remains at some openings. Interior finishes - wood flooring, walls and ceiling - are damaged and missing in many places. There are wallpaper remnants on the walls and ceiling. On the west side of the building, significantly deteriorated flooring, possibly linoleum, is visible in places.	Fair	Contributing
Kastning House	c 1899	Building. One story structure, rectangular in plan with an addition on the west and porch on the east. The main building has a gable roof and the addition and porch have shed roofs. Roofing is corrugated metal that is rusting and bent in places. Original structure has a symmetrical front elevation with two front doors and horizontal painted wood siding. The addition has vertical wood siding. Foundation is stacked stone piers. Windows were wood, double hung and pieces of some windows and trim remain. No doors remain but wood trim is intact at some openings. Interior finishes - wood flooring, walls and ceiling - are damaged and missing in many places. There are wallpaper remnants in the living room and sections of newspapers intact on the walls of the addition.	Fair	Contributing
Brantley House Ruins	c 1899	Ruins. Stone pier foundations.	Poor	Contributing
Gotley House Site	c 1899	Non extant - No surface ruins visible	Poor	Contributing
Raby House Ruins	c 1899	Ruins. Some of the stone foundation piers are partially intact.	Poor	Contributing



Figure 3-136. Bundy House, 1984. (S. Rogers, BUFF Archives)



Figure 3-137. Bundy House. (Mundus Bishop 2017)

Matrix 3-15. House Row - Buildings and Structures/Ruins				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Storekeeper's House	c 1899	Building. One and a half story structure, rectangular in plan with an addition on the west and porches on the north and east. House has a gable roof and the addition and porches have shed roofs. Roofing is corrugated metal which is rusting and loose in places. Wood framed structure with horizontal wood siding installed over vertical boards at the main portion of the building and vertical board siding on the west addition. Wood has deteriorated in places, generally near grade, and paint has mostly worn off the siding. Foundation is stacked stone and wood piers. Windows and doors are all missing, though some frame and trim elements remain. Interior finishes are in varying condition. Generally the wood flooring, wall and ceiling finishes are intact though the wood is deteriorated in places. Portions of built ins are intact and scraps of wall paper are visible in places.	Fair	Contributing
Taylor-Medley General Store	c 1899	Building. One story, symmetrical structure, rectangular in plan with a gable roof and an open porch covered by a shed roof on the front elevation. A faux storefront above the porch conceals the gable roof on the primary elevation. Roofing is corrugated metal which is rusting through in places. It is a wood framed structure with vertical wood board cladding attached directly to the frame. Cladding is missing in places and where it remains, it is typically deteriorated at grade. A structural stabilization project in 2011 installed concrete piers and an internal wood frame to keep the building standing. No windows or doors are extant but trim remains at a few openings. Interior finishes are no longer extant or are severely damaged, with large portions of the wood flooring, wall and ceiling finishes missing.	Poor	Contributing
Store Site		No visible surface remains	Poor	Contributing



Figure 3-138. Wash House, 1984. (S. Rogers, BUFF Archives)



Figure 3-139. Wash House. (Mundus Bishop, 2017)



Figure 3-140. Kastning House, date unknown. (BUFF Archives)



Figure 3-141. Kastning House. (Mundus Bishop, 2017)



Figure 3-142. Brantley House, 1984. (S. Rogers, BUFF Archives)



Figure 3-143. Brantley House Ruins. (Mundus Bishop 2017)



Figure 3-144. Collapsed Raby House, 1984. (S. Rogers, BUFF Archives)



Figure 3-145. Raby House Ruins. (Mundus Bishop, 2017)



Figure 3-146. Taylor-Medley General Store and Storekeeper's House, date unknown. ((FRR 2004) Rogers et al, Historic Resource Documentation, Morning Star Mines Interpretive Area)



Figure 3-147. Taylor-Medley General Store and Storekeeper's House. (Mundus Bishop 2017)



Figure 3-148. Taylor-Medley General Store, Date Unknown. (BUFF Archives)



Figure 3-149. Taylor-Medley General Store. (Mundus Bishop 2017)

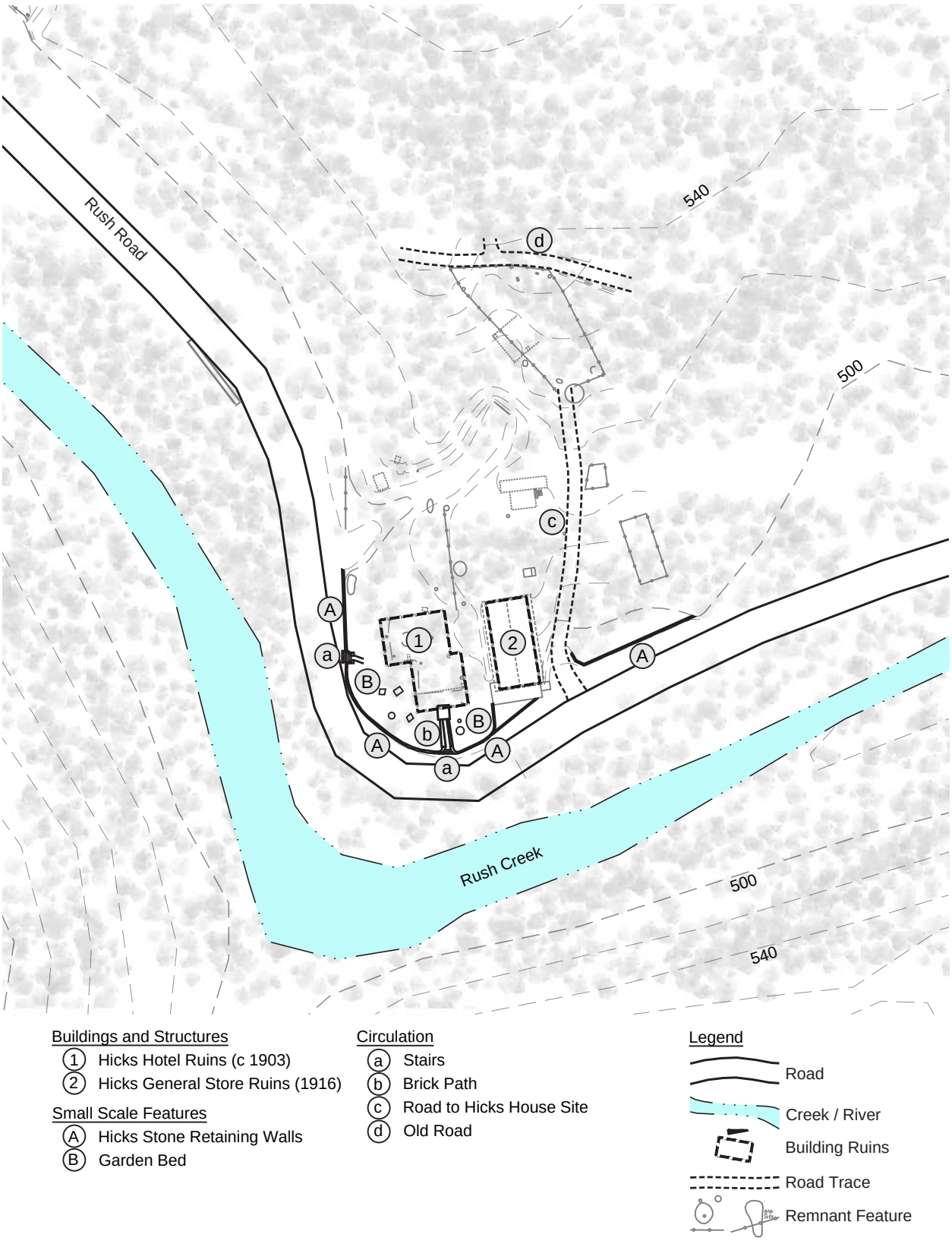


Figure 3-150. Chicken House. (Mundus Bishop 2017)



Figure 3-151. Wire Fence. (Mundus Bishop 2017)

Matrix 3-16. House Row - Small Scale Features				
Feature	**Date**	**Description**	**Condition**	**Contributing/ Non-Contributing**
Shed		Wood post and siding; corrugated metal roof, collapsed structure, 4' height. Set in small clearing	Poor	Contributing
Root Cellar		Square depression, 4' deep; corrugated metal roof, wood door – collapsed into pit	Poor	Contributing
Chicken House		Corrugated metal roof at-grade, collapsed structure	Poor	Contributing
Goose House		Board siding, corrugated metal roof, collapsed structure, approx. 18" height	Poor	Contributing
Privy		Stone base/foundation corners, slight depression at center (filled-in)	Poor	Contributing
Trash Piles		Cobble berm with remnant fencing, metal trash at surface. Remnant sheet metal at surface.	Fair	Contributing
Privy		12" square depression in ground, no foundation	Poor	Contributing
Mailbox Shelter		Collapsed wood structure, corrugated metal roof; 4' height	Poor	Contributing
NPS Fencing		Wood post, woven wire fence; 4' height. Between Rush Road and houses	Good	Non-Contributing
NPS Signage		Regulatory signs, wood post and metal "Historic Structure Unlawful to Enter" approx. 2.5' height. Interpretive sign, wood post and metal, 6' height	Good	Non-Contributing



(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Figure 3-152. Hicks Hotel includes the Hicks Hotel ruins and Hicks General Store ruins, with building footprints and surroundings elevated above Rush Road. Hicks Wall frames the edge of the space, and creates a level area with remnant ornamental vegetation, paths, and flower beds.

Hicks Hotel

Spatial Organization

Hicks Hotel is east of the Morning Star Hotel, Mill, and Mine Community, set on an elevated terrace above a bend in Rush Road. Hicks Hotel and Hicks General Store are building ruins, with building footprints and surroundings oriented to the south, facing and elevated above Rush Road. A stone retaining wall frames the edge of the space, which is four feet above the roadway. The interior of this elevated space is covered with dense vegetation. The north edge of Hicks Hotel slopes upwards towards the mines. A drive on the east side of Hicks General Store ruins frames the uphill side. The stone wall and elevated terrace are what remains of the former hotel site. A set of concrete steps ascend the hill and access the ruin of Hicks General Store.

Assessment of Integrity
Over time vegetation has regrown and obscured spatial relationships between buildings. Historically, a maintained lawn with shade trees and ornamental plantings surrounded Hicks Hotel and Hicks General Store. The lawn extended to the edge of the stone wall, providing a park-like setting for the hotel. A small garden was behind the hotel, as evidenced today with extant fencing. The store setting was more open than today with less vegetation and shade trees surrounding the building. The spatial organization at Hicks Hotel has diminished integrity.

Buildings and Structures/Ruins

The buildings and structures of Hicks Hotel are mostly ruins. The foundation and standing stone retaining walls are extant of the Hicks General Store. A set of mortared stone steps leads to a concrete porch at the south entrance into the store. Hicks Hotel is non-extant, although portions of the foundation are visible on the surface. Other outbuildings occurred behind the store including privies, a barn/shed, and other small structures.

Assessment of Integrity
Hicks General Store ruins with its standing walls expresses the original mass and presence of the building. The store was originally a two-story structure built in 1916. It was remodeled in the 1960s and again in 1978. It was destroyed by arson in 2004. Several non-historic structures were located behind the store and were removed in 1989.[3.24] Hicks Hotel was established in 1903 as a two-story structure with porch and entrances on the south and east sides.

Small Scale Features

Small scale features include Hicks Wall, a mortared stone retaining wall, and stone flower beds in the front yard of Hicks Hotel. Hicks Wall extends approximately 300' around the foundation of Hicks Hotel. The wall has two sets of concrete stairs, each flanked by stone columns. Two stone construction techniques of this wall indicate separate construction periods for the wall. One is cobblestone and the other is coursed ashlar stone. The NPS repaired the wall in 2000.

Stone flower beds are near the hotel foundation. They are raised above adjacent grade, built of mortared cobblestones arranged in diamond, round, and rectangular shapes. Two rectangular cobblestone flower beds edge the main brick walkway to the hotel.

Assessment of Integrity
Hicks Wall and stone flower beds date from

3.24 *Special Use Study,* 32.

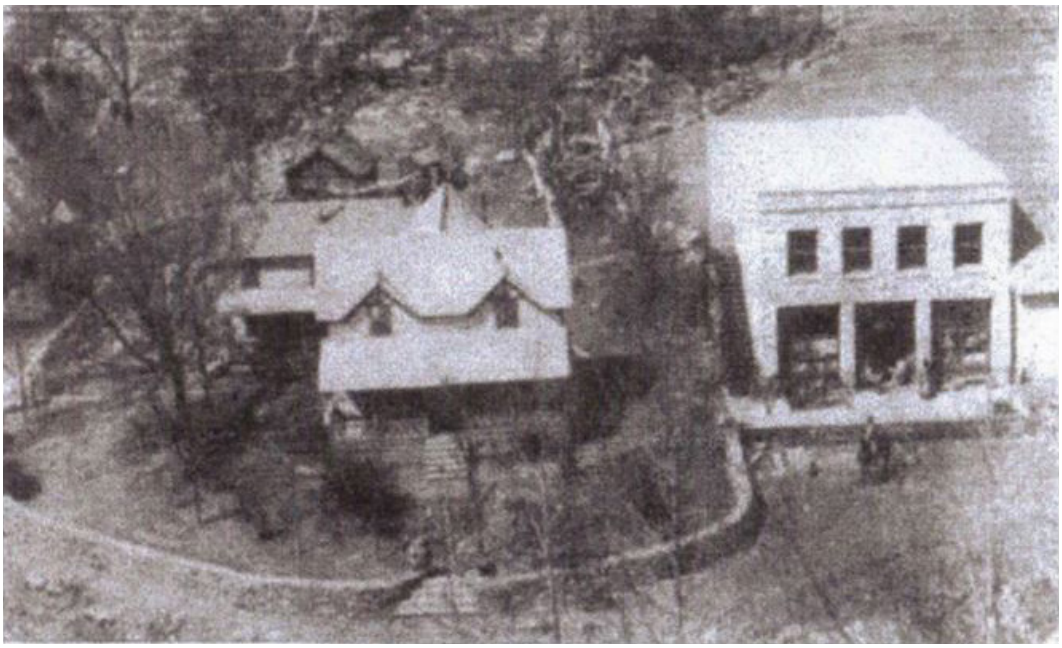


Figure 3-153. Hicks Hotel and Hicks General Store, c 1918. (Kastning 1999, http://uark.maps.arcgis.com/apps/MapJournal/index.html?appid=c513b4f4e17b475092eac332ee5c9d59)

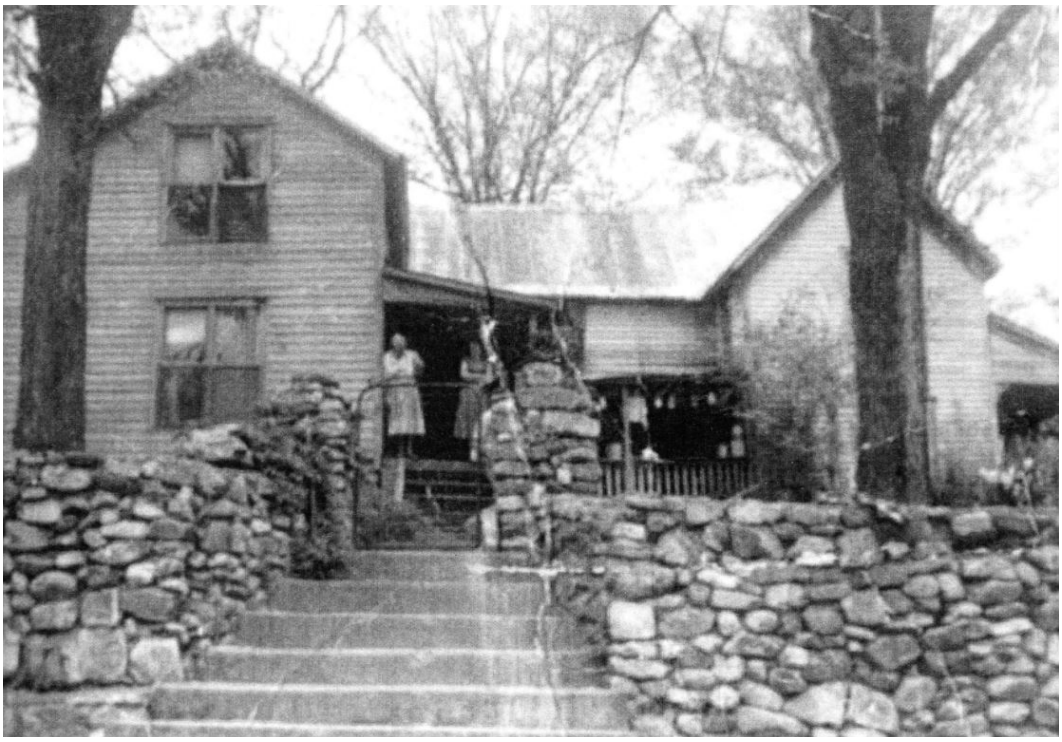


Figure 3-154. West facade of Hicks Hotel, with Hicks Wall in foreground, c 1930s. (Ott 2010, page 28)

the period of significance, and are extant features built to beautify the landscape. Few changes have been made to these features since the 1930s. They retain integrity and contribute to the cultural landscape.

Vegetation

The vegetation at Hicks Hotel consists of an oak hickory forest. Perennial plantings are extant including daffodils in the stone flower beds. Ornamental plantings including daffodils, daylilies, and flowering quince are extant adjacent to Hicks Hotel.[3.25] Anecdotal evidence from the Hicks family suggests that a vegetable garden was associated with Hicks Hotel, located behind the hotel.[3.26]

Assessment of Integrity
During the period of significance, vegetation was maintained around Hicks Hotel as a mown lawn with shade trees, perennials, and gardens. By the 1960s, hillsides reforested naturally and the once sparsely vegetated area became overgrown with trees. The lawn, perennial plantings, and garden were no longer maintained. Hicks Hotel was cleared for interpretation in the 1980s, but has since regrown. The vegetation at Hicks Hotel has diminished integrity.

3.25 Botanical Survey of 67 Acres and Recommendations.

3.26 Botanical Survey of 67 Acres and Recommendations.

Matrix 3-17. Hicks Hotel - Buildings and Structures/Ruins

Feature	Date	Description	Condition	Contributing/ Non-Contributing
Hicks General Store Ruins	1916	Mortared stone exterior walls with concrete cap and a slab on grade concrete floor remain. Remnants of burned wood can been seen in certain locations. Areas of plaster are intact in a few locations. Mortar is failing in places and rocks are loose and have fallen out of the walls. Plants are growing up the outside of the walls and through cracks in the concrete floor.	Poor	Contributing
Hicks Hotel Ruins	1903	Stacked stone stair and possibly a chimney base, along with a few stacked stone piers remain within the overgrown vegetation.	Poor	Contributing

Matrix 3-18. Hicks Hotel - Small Scale Features

Feature	Date	Description	Condition	Contributing/ Non-Contributing
Hicks Wall		3 to 4' Height, varies by location. Cobblestone construction east end; coursed ashlar west end. Concrete steps with cobblestone columns, 2 locations. Concrete steps and porch at entrance to Hicks General Store.	Good/Fair	Contributing
Stone Flower Beds		Raised mortared cobblestone, in diamond, round, and rectangular shapes. Raised approx. 6" above adjacent grade	Fair	Contributing
Brick Walkway			Good/Fair	Contributing



Figure 3-155. Group in front of Hicks Hotel, 1920s. (BUFF Archives)



Figure 3-156. Hicks Wall, cobblestone columns and concrete stairs. (Mundus Bishop 2017)



Figure 3-157. Hicks General Store, after renovation into NPS staff housing, 1984. (S. Rogers, BUFF Archives)



Figure 3-158. Hicks General Store ruins interior. (Mundus Bishop 2017)



Figure 3-159. Stone flower bed with extant ornamental vegetation. (Mundus Bishop 2017)



Figure 3-160. Concrete stairs at Hicks Hotel ruins. (Mundus Bishop 2017)

Affected Environment

This section describes potential resource impacts resulting from implementing the treatment alternatives. It is organized by impact topics that were derived from internal and external scoping. The existing setting or baseline conditions (i.e. affected environment) of each resource within the study area is described. The information is meant to provide overall background and context of the resources and will be used to compare the effects of the proposed treatment alternatives against the current conditions of the project area in the Environmental Consequences chapter.

More detailed information on resources described in this CLR/EA may be found in documents referred to in the text and cited in the Bibliography. Where applicable, links to documents available on the internet are provided in the bibliography.

Cultural Landscapes, Historic Structures, Archeological Resources

The following is a summary of the cultural landscape, historic structures, and archeological resources in the study area. These resources, their historic context, and the overall cultural history of Buffalo National River are fully described in Chapter 2.

Standing structures and ruins are the most visible parts of the overall Buffalo National River cultural landscape and are scattered throughout its boundary. Settlement occurred along the river's length, in fertile tributary valleys, and along forested slopes. Structures or other remains are virtually everywhere, whether still in use as part of active farms or long abandoned.

Rush Historic District is a 1,300-acre former zinc mining district located on the Buffalo National River and two of its tributaries, Rush and Clabber creeks, roughly thirty miles upstream from Buffalo River's confluence with White River. The study area is accessible to automobiles by an unpaved road that connects to County Road 635 and Arkansas Highway 14, and it also features a boat landing on Buffalo River. It is a remnant industrial landscape containing the remains of open-pit and underground zinc mines, concentrating mills, worker housing, and other commercial establishments, in addition to numerous small-scale features that reflect mining community life. The study area's contributing resources have been listed on or determined eligible for the National Register of Historic Places. A variety of historic structures in Rush Historic District are still visible above ground, including foundations, ruins, and standing buildings. Roads and the zinc mines are also contributing resources. In addition to visible above ground resources, buried historic resources occur throughout the study area.

The archeological resources at Buffalo National River encompass 12,000 years of human activity and include numerous prehistoric and historic archeological sites, including in the study area.[3.27] A common occurrence at Buffalo National River is the overlay of historic structure upon historic archeological site upon prehistoric archeological site. Site condition varies from good to destroyed, with impact levels varying from low to severe. In the study area, the Dirst site is a well-documented prehistoric archeological site located along the Buffalo River at its confluences with Rush and

3.27 Theodore Catton. *Life, Leisure, and Hardship Along the Buffalo Historic Resources Study Buffalo National River*. (Omaha: Department of the Interior, National Park Service, Midwest Region, 2008).

Clabber creeks.[3.28] Recovered artifacts from stratified deposits date from Early Archaic to Early Mississippian, suggesting various series of use and occupation of the Dirst site from as early as 10,500 years ago to as recently as 840 years ago.[3.29] It appears that intact living surfaces and housing remains were preserved at the site. The site is significant because it is one of less than a dozen excavated multicomponent stream terrace sites in the Ozark Highland region.[3.30] The site is co-located with currently used areas including the road to the boat ramp, the campground, and the road to Clabber Creek. The stratified deposits - including a midden zone—in which artifacts were found representing the Mississippi, Woodland, and possibly the Late Archaic periods. It further appeared that intact living surfaces and occupational features, including house remains, were preserved in buried contexts. In addition to artifacts, buried sediments at this site contained charcoal, animal bone, mussel shell, and possibly other indicators of prehistoric lifeways and environments. Historic mining, particularly the White Eagle Mine Complex (M2), was also located in or near the Dirst site. Management recommendations for the site focus on minimizing and controlling potential adverse effects and protecting the most sensitive aspects of the site.[3.31]

Vegetation

Many northern and southern ecosystems converge in Buffalo National River, as do some western and eastern species. This convergence results in around 56 vegetation association types,[3.32] including some rare or uncommon types, in Buffalo National River. For this reason, vegetation management and preservation are priorities of Buffalo National River. Unless otherwise noted, vegetation community descriptions are based on research completed in Buffalo National River under the NPS vegetation inventory program.[3.33]

Plant communities in Buffalo National River are dominated by hardwood forests that range from dry to mesic and consist mostly of oaks and hickories. Dry-xeric oak forests, with post oak and blackjack oak and dry-mesic oak-hardwood forests with white oak, red oak, and hickories are typical of the region. These oak-hardwood forests are the dominant forests at Buffalo National River. Chinkapin oak tends to range from dry-mesic to xeric. Mesic oak-hardwood forests consist of red oak and sugar maple. Conifer forests and woodlands consist of shortleaf pine and/or eastern red-cedar; conifer glade woodlands consist of red-cedar and Ashe's juniper. Many forests and woodlands are also a mix of the conifers and oak-hardwoods discussed above. Both oak-hardwood and conifer woodlands are speckled throughout the landscape on dry-xeric sites. Forests beginning to become established in open or disturbed areas are typically not oak dominant but rather consist of sweetgum, black walnut, honeylocust, black locust, and/or a variety of other hardwood trees common to disturbance sites. The riparian hardwood forests along Buffalo River and its tributaries, whether large or small, consist mostly of silver maple, American sycamore, green ash, and/or American elm. Riparian shrub wetlands are common along Buffalo River, intermingled with the margins of the riparian hardwood forests.

3.28 George Sabo III et al., *Archeological Investigations at 3MR80-Area D in the Rush Development Area, Buffalo National River, Arkansas. Southwest Cultural Resources Center Professional Papers No. 38*. (Santa Fe: U.S. Department of the Interior, National Park Service Southwest Region, 1990).
3.29 George Sabo III et al., *Archeological Investigations at 3MR80-Area D*.
3.30 George Sabo III et al., *Archeological Investigations at 3MR80-Area D*.
3.31 George Sabo III et al., *Archeological Investigations at 3MR80-Area D*.
3.32 Hop et al., *Vegetation inventory Buffalo National River*.
3.33 Hop et al., *Vegetation inventory Buffalo National River*.

Vegetation communities in the study area closely reflect those in the remainder of Buffalo National River, with the oak-dominated communities being most prevalent (see Table 3-1). Coniferous and mixed-coniferous forest and woodland communities are concentrated on south-facing slopes in the Rush Creek and Buffalo River valleys (see Figure 3-84). Communities along Rush Creek and Buffalo River include Bottomland Hardwood Forest, Bottomland Shrubland, and Gravel Bar Sparse Vegetation (see Figure 3-84). Most of the vegetation communities in the study area are common throughout Buffalo National River and elsewhere, although one of the Conifer Woodland sub-types, Ozark Ashe's Juniper Woodland, is considered globally rare but locally more common.[3.34]

The land in Buffalo National River had been used for various activities such as grazing, farming, logging, mining, and settlement. These activities are sources of disturbance that affect native plant communities to various intensities and extents. These disturbances have altered many native vegetation communities, which provides opportunities for invasions by non-native species. At least 21 plant species are known to be invasive at Buffalo National River including tree of heaven, Chinese privet, European privet, mimosa, kudzu, lespedeza, Johnson grass, and autumn olive.[3.35] Garlic mustard and common mullein are found at many homesites in the park. In the study area, non-native species are most likely to be found in or adjacent to disturbed areas such as roads, parking lots, trails, fallow or abandoned agricultural fields, structures, and mined areas.

Table 3-1. Study Area Cover Types

Cover Type	Acres	Percent Cover
Vegetation Communities		
Oak - (Hardwood) Forest	586.30	50%
Oak - (Hardwood) Woodland	158.34	12%
Conifer Woodland	98.47	8%
Conifer - Hardwood Forest	97.33	8%
Successional Forest	89.34	8%
Bottomland Hardwood Forest	51.94	5%
Mesic Hardwood Forest	21.06	2%
Bottomland Shrubland	14.78	1%
Gravel Bar Sparse Vegetation	6.41	1%
Conifer - Hardwood Woodland	4.76	<0.1%
Conifer Forest	2.97	<0.1%
Herbaceous Field	2.91	<0.1%
Successional Shrubland	1.89	<0.1%
Herbaceous Glade	1.36	<0.1%
Unvegetated Areas		
Cultural	17.63	1%
Open Water	44.59	4%
Total	1181.63	100%

Source: Mundus Bishop 2018, Adapted from NPS Vegetation of the Buffalo National River.

3.34 Hop et al., *Vegetation inventory Buffalo National River*.

3.35 U.S. Department of the Interior, National Park Service. "Invasive Plants." *Buffalo National River*. 2017a. https://www.nps.gov/buff/learn/nature/invasive-plants.htm (accessed October 25, 2017).

Water Resources

The enabling legislation for Buffalo National River (16 U.S.C. § 460m-8 (1972)) describes the purpose of Buffalo National River as "conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations…" The Arkansas Department of Environmental Quality has designated Buffalo National River as "Extraordinary National Resource Waters."[3.36] In keeping with the enabling legislation and state designation, maintaining Buffalo National River's ecological functions and values, including high water quality, is a primary influence on how NPS manages Buffalo National River and evaluates proposed activities that may affect the river.

The Buffalo River watershed drains 1,338 square miles, starting from the Boston Mountains in the west to White River in the east.[3.37] The length of Buffalo National River includes 135 miles of the 151-mile-long Buffalo River. Numerous tributaries, including Rush and Clabber creeks, enter the river. The geology and hydrology of the Buffalo River watershed is unique because of a combination of factors such as karst geomorphology, steep topography, shallow soils and highly integrated ground/surface water.[3.38]

The water quality of the river has remained relatively high due to the large amount of forested land, few point source pollution sources, and a relatively sparse population within the watershed. Recently though, while still higher than many rivers in the region, Buffalo National River's water quality is threatened by the rapid rate of land conversion from forest to cattle grazing and confined feeding operations.[3.39] Water quality problems are related to high fecal coliform bacteria levels, sediment loading, and nutrient enrichment from a variety of animal operations, inadequate rural septic systems, and runoff from bare ground. Based on 25 years of water quality monitoring data, the water quality along the middle portion of Buffalo River is declining, exemplified by elevated levels of nutrients (nitrate, nitrite, and phosphorous), fecal coliform bacteria, and sediment loading.[3.40]

In general, water quality monitoring results for Buffalo River at Rush Landing and Rush and Clabber creeks indicate water quality remains high and has not degraded to the degree seen in middle Buffalo River.[3.41]

Of concern in the study area is the potential to affect water quality through sediment loading and turbidity associated with runoff from road and trail surfaces, ditches, mine spoils, and soils exposed by ground-disturbing activities. Within the steep terrain of the study area, stormwater runoff from unpaved roads and cleared land carries both fine and coarse sediments to Buffalo National River. Increased turbidity results in an unnatural decrease in stream channel stability, increase in eroding stream banks, and degradation of aquatic habitat.

3.36 Arkansas Pollution Control and Ecology Commission. *Regulation No. 2 Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas.* (Little Rock, 2011).
3.37 D. Mott, J. Laurans. *Water Resources Management Plan.* (Harrison: U.S. Department of Interior, National Park Service, Buffalo National Park, 2004).
3.38 Mott and Laurans. *Water Resources Management Plan*.
3.39 Mott and Laurans. *Water Resources Management Plan*.
3.40 Watershed Conservation Resource Center. *Surface-Water Quality in the Buffalo National River (1985-2011). (Little Rock, 2017).*
3.41 Mott and Laurans. *Water Resources Management Plan,* and Watershed Conservation Resource Center. *Surface-Water Quality in the Buffalo National River (1985-2011).*

Special Status Species

The Endangered Species Act of 1973 requires examination of potential effects from activities on federally listed threatened and endangered species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the Management Policies 2006 and Director's Order-77 Natural Resources Management Guidelines require the NPS to examine the effects on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species.[3.42] To determine the potential for special status species to occur in the study area, Buffalo National River requested from the USFWS a list of federally-listed threatened and endangered species that may occur in the study area (see Appendix B Correspondence).[3.43] Additionally, a list of Arkansas species of concern for Marion County was obtained from the Arkansas Natural Heritage Commission (ANHC) rare species search engine website.[3.44] ANHC works to conserve Arkansas biodiversity by tracking the location and status of almost 900 species of animals and plants. Tracked species are categorized as state threatened or endangered or as inventory elements. Inventory elements are considered of conservation concerns because they may be rare, peripheral, or of undetermined status in the state.

Table 3-2. Federal and state-listed threatened and endangered species known, or with potential, to occur in the study area or be affected by activities in the study area.

Common Name (*Scientific Name*)	Federal Status	State Status
Invertebrates		
Hell Creek Cave crayfish (*Cambarus zophonastes*)	LE*	SE
Rabbitsfoot (*Quadrula cylindrica cylindrica*)	LT	SE
Snuffbox (*Epioblasma triquetra*)	LE	SE
Western fanshell (*Cyprogenia aberti*)	UR	INV
Vertebrates		
Gray bat (*Myotis grisescens*)	LE	SE
Haliaeetus leucocephalus (*Bald Eagle*)	BGEPA	INV
Indiana bat (*Myotis sodalis*)	LE	SE
Northern long-eared bat (*Myotis septentrionalis*)	LT	SE
Ozark big-eared bat (*Corynorhinus townsendii ingens*)	LE	SE
Tricolored bat (*Perimyotis subflavus*)	UR	-
Plants		
Alabama snow-wreath (*Neviusia alabamensis*)	-	ST
False gaura (*Stenosiphon linifolius*)	-	ST
Royal catchfly (*Silene regia*)	-	ST

*Not included on the USFWS species list for the study area.
BGEPA = Bald and Golden Eagle Protection Act; INV = State inventory element; LE = Federally listed endangered; LT = Federally listed threatened; UR = Under review; SE = State listed endangered; ST = State listed threatened

3.42 *Management Policies.* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 2006).
3.43 *Official Species List.* (Conway: U.S. Department of the Interior, Fish and Wildlife Service, Arkansas Ecological Services Field Office, 2017).
3.44 Arkansas Natural Heritage Commission, "Research & Data, Rare Species Search (Marion County)." 2010. http://www.naturalheritage.com/research-data/rarespecies-search.aspx.

The USFWS listed six threatened or endangered species as potentially occurring in, or being affected by projects in, the study area (USFWS 2017). The status under the Endangered Species Act of two additional species are under review to determine if their listing as threatened or endangered is warranted. The ANHC lists the same six federally listed species and three additional plant species as state threatened and occurring in Marion County (ANHC 2017). The ANHC lists one of the federal species under review as an inventory element, but not threatened or endangered, and does not list the second species under review. No solely state-listed endangered species were included for Marion County. A complete list, including those not protected, but listed as inventory elements, by the Arkansas Natural Heritage for Marion County, is presented in Appendix C.

Federal and State Threated and Endangered Species

Summaries of the overall range, habitat requirements, threats to species, and the potential to be present in the study area for federally and state listed threated and endangered species and species under federal review follow below.

Hell Creek Cave Crayfish

The Hell Creek Cave crayfish is an obligate cave crayfish endemic to the White River Basin in north-central Arkansas.[3.45] Hell Creek Cave, about 30 miles southeast of the study area, was the only known location for this species until a 2005 determination verified its presence at Nesbitt Spring, about 34 miles southeast of the study area.[3.46] In 2009, a preliminary genetic analysis suggested the species' presence at a groundwater upwelling in the Town Branch in Yellville, about nine miles north of the study area. The Hell Creek Cave crayfish is found in caves with abundant mud and passages that are flooded during storms and wet seasons.[3.47] The primary threat to the species is groundwater contamination, although its limited range and apparently small number of individuals makes it vulnerable to habitat disturbance and disease.

Although the ANHC lists the Hell Creek Cave crayfish as an occurrence in Marion County, the USFWS did not list the species as potentially being in the study area and the NPSpecies database does not show it present in Buffalo National River.[3.48] Hell Creek Cave crayfish has never been discovered in the Buffalo River watershed, but the species could be present in suitable habitat.[3.49]

Rabbitsfoot Mussel

The rabbitsfoot is a medium to large fresh water mussel that inhabits small to medium sized rivers of moderate current with clear, relatively shallow water and a mixture of sand and gravel substrates.[3.50] During its larval stage, the species is parasitic and relies

3.45 J. Stewart. *Endangered and threatened wildlife and plants: Determination of endangered status for Cambarus zophonastes*. Federal Register 52(66): 11170-11172. (Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service, 1987).

3.46 *Hell Creek Cave Crayfish (Cambarus zophonastes) 5-Year Review: Summary and Evaluation.* (Conway: U.S. Department of the Interior, Fish and Wildlife Service, Southeast Region, Arkansas Ecological Services Field Office, 2007a).

3.47 Stewart. *Determination of endangered status for Cambarus zophonastes.*

3.48 U.S. Department of the Interior, National Park Service. *The National Park Service biodiversity database*. IRMA Portal. 2017b.

3.49 Charles Bitting. Personal communication of Charles Bitting, Geologist and Terrestrial Team Leader, Buffalo National River, to Mary L. Powell, CORVUS Environmental Consulting. February 15, 2018.

3.50 Kevin Roe. *Conservation Assessment - The Snuffbox, Epioblasma triquetra*. (Saint Louis: U.S. Department of Agriculture, National Forest Service, Eastern Region, Undated).

on fish hosts to survive. Several species of minnows have been determined to be suitable larval host for the species. The decline of rabbitsfoot, and freshwater bivalves in general, has resulted from habitat destruction by creating impoundments, siltation, gravel mining, and channel modification; pollution; and the introduction of non-native species such as the Asiatic clam and the Zebra Mussel. Rabbitsfoot is known to occur on about 70 miles of the Buffalo National River, including at the study area. The USFWS has designated the Buffalo River from downstream of the Town of Erbie, Arkansas as critical habitat for rabbitsfoot.

Snuffbox Mussel

Snuffbox mussel is a small triangular freshwater mussel found in small to medium sized, swiftly flowing rivers in shallow riffles with silt-free rubble and gravel substrates.[3.51] During its larval stage, the species is parasitic and relies on several fish hosts to survive. The long-term survival of this species is dependent upon healthy populations of host fishes and the presence of suitable habitat. Factors considered detrimental to the persistence of this species are pollution, siltation, and habitat perturbation such as gravel mining or the construction of new impoundments. Snuffbox has only been found in Buffalo National River near the confluence of the Buffalo and White rivers, although several fish host species are common throughout Buffalo National River. A functioning mussel bed has been present in the first deep pool downstream from Rush Landing and, for the purposes of analysis in this EA, snuffbox mussels are assumed to be present.

Western Fanshell

The western fanshell is a freshwater mussel native to the Arkansas River system in Arkansas and is known only from approximately 20 localities in Big Piney Creek and Point Remove Creek. Western fanshell is found in gravel and soft mud bottoms in medium sized rivers with flowing water. It is generally confined to shallow riffles and runs in predominantly clean, moderately compacted gravel-sand substrata. The species is threatened by impoundments and channelization, gravel mining, agricultural practices (resulting in siltation and organic inputs), and the spread of the Zebra Mussel (*Dreissena polymorpha*) which now occurs in the Arkansas River drainage.[3.52] While not known to be present in Rush Historic District, potentially suitable habitat is likely present.

Gray Bat

According to the gray bat recovery plan, the gray bat occupies a limited geographic range in limestone karst areas of the southeastern United States.[3.53] They roost and hibernate in caves and mines where they form few, but large, colonies of 5,000 to 250,000 or more individuals. The small number and large size of the colonies makes the species vulnerable to disturbance and disease. In winter, gray bats hibernate in deep, vertical caves with large rooms. In summer, gray bat caves are generally near streams or other water bodies such as reservoirs where they forage on insect hatches. Gray bat population declines are attributed primarily to habitat disturbance in the form of forest conversion to agriculture, destruction of riparian forest,

3.51 Roe. *Conservation Assessment - The Snuffbox, Epioblasma triquetra*.

3.52 K. Cummings and J. Cordeiro. 2012. Cyprogenia aberti. The IUCN Red List of Threatened Species 2012: e.T6182A3107987. http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T6182A3107987.en. Downloaded on 12 April 2018.

3.53 J. Brady et al. Gray Bat Recovery Plan. (Denver: U.S. Department of the Interior, Fish Wildlife Service, 1982).

river impoundment, pesticides, river siltation, and roost disturbance.[3.54] Gray bats are also vulnerable to white-nose syndrome, a fungal infection that affects hibernating bats.

All of Buffalo National River is in the range of gray bat. Research has identified caves and abandoned mines known to support gray bats during some part of each year at Buffalo National River.[3.55] Although they are potentially present in other mines and caves in the study area, Capps Mine (M11) has a winter colony of gray bat and Morning Star Mine (M1) has a transient summer colony.[3.56] It is likely that the study area is also a foraging area for gray bat colonies outside of the study area.

Ozark Big-eared Bat

Ozark big-eared bats roost in caves and mines year-round. Colonies are small, generally under 1,000 individuals. They tend to roost near the entrances of caves and mines and have been found roosting in rock overhangs, talus piles, and other fairly exposed locations.[3.57] These are large bats which prefer to forage in open forests or on the edge of forests.[3.58] Ozark big-eared bats forage over fields, streams, forest edges, mountain slopes, cliff faces, and in clearings. They feed primarily on small moths, though they will also catch and eat beetles.[3.59] Their summer roost requirements are variable. They may roost in caves, or in fractures in limestone or sandstone bluffs. In winter they require a cave which will act as a cold trap and maintain a consistent temperature.[3.60] The major threats to the species are human disturbance at maternity and hibernation sites, loss of habitat, and white-nose syndrome. In 2011, the total population of Ozark big-eared bats was estimated at 1,800 individuals.[3.61]

A number of caves and mines within Buffalo National River have been known to house one or two individuals of this species over the past fifteen years. Winter roosts are also known to have been within four miles of Rush Landing.[3.62] Within the study area, Ben Carney Mine (M6) has contained one Ozark big-eared bat and Ozark big-eared bat in the region may use the study area for summer roosting and foraging.[3.63]

Indiana Bat

The Indiana bat is a temperate, insectivorous, migratory bat that hibernates in mines and caves in the winter and summers in wooded areas. Indiana bats roost in caves during the winter in colonies of up to 100,000 individuals. In the summer they tend to roost and raise their young under the sloughing bark of snags and under the bark of shortleaf pine, white oak, hickory, and other trees with large loose bark plates.[3.64] One study found that male Indiana bats in the Ozark highlands exhibited flexibility in roost tree selection, although they generally

3.54 Brady. *Gray Bat Recovery Plan*.
3.55 U.S. Department of the Interior, National Park Service, Buffalo National River. *Facilities Improvements Environmental Assessment*. (Harrison: 2010).
3.56 Charles Bitting. Personal communication with Mary L. Powell. February 15, 2018.
3.57 Steve Hensley and Charles Scott. *Ozark Big-Eared Bat Revised Recovery Plan*. (Tulsa: U.S. Department of Interior, Fish and Wildlife Service, Oklahoma Ecological Services Field Office, 1995).
3.58 Hensley and Scott. *Ozark Big-Eared Bat Revised Recovery Plan.*
3.59 Hensley and Scott. *Ozark Big-Eared Bat Revised Recovery Plan.*
3.60 Hensley and Scott. *Ozark Big-Eared Bat Revised Recovery Plan.*
3.61 U.S. Department of the Interior, Fish and Wildlife Service, Oklahoma Ecological Service Field Office. "Ozark Big-Eared Bat." 2011. https://www.fws.gov/southwest/es/Oklahoma/Documents/TE_Species/Species%20Profiles/Ozark%20Big%20Eared%20Bat.pdf (accessed October 25, 2017).
3.62 NPS. *Facilities Improvements Environmental Assessment*.
3.63 Charles Bitting. Personal communication with Mary L. Powell. February 15, 2018.
3.64 *Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision*. (Fort Snelling: U.S. Department of the Interior, Fish and Wildlife Service, 2007b).

selected pine snags and trees.[3.65] The summer roosts for males and females tend to be in lowland habitats near water, with direct sun exposure for half the day or more.[3.66] The maternity roosts are usually found in larger diameter trees. Threats to the Indiana bat include modifications to caves, mines, and surrounding areas that change airflow and alter microclimate in the hibernacula; human disturbance and vandalism; natural catastrophes that can have a significant effect because of the concentration of individuals in relatively few sites, habitat degradation, and white-nose syndrome. USFWS estimates that the 2017 range-wide population of Indiana bat was 530,705, of which 1,722 were estimated to reside in Arkansas.[3.67]

Indiana bats are found in four hibernacula at Buffalo National River, two of which are within five miles of Rush Landing. Although Indiana bat has not been captured at Buffalo National River in the summer months and there are no confirmed maternity colonies in Arkansas, the presence of suitable habitat and potential roost trees for this species throughout the study area provides a reasonable likelihood that Indian bat is present in the study area during the summer.[3.68]

Northern Long-eared Bat

The northern long-eared bat is a federally threatened species and Arkansas endangered species.[3.69] This species occurs in forested habitat across much of the eastern and north-central United States; occupying habitat in 37 states and all Canadian provinces.[3.70] As with other bats, white-nose syndrome has recently reduced the number of northern long-eared bat significantly enough that the species was listed as threatened under the ESA in 2015.[3.71] During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees.[3.72] They only occasionally roost in human structures.[3.73] Males and nonreproductive females may also roost in cooler places like caves and mines. They appear to be opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices.[3.74] In winter, they hibernate in small crevices or cracks within caves and mines.[3.75] The primary threat to northern long-eared bat is white-nose syndrome, which is exacerbated by human disturbance during hibernation. To prevent the spread of white-nose syndrome and reduce human disturbance, grates have been installed over many cave openings in Buffalo National River and elsewhere. At least three hibernacula are within three to six miles of the study area and northern long-eared bat roosts and forages in the study area during the summer.[3.76]

3.65 Roger W. Perry, S.C. Brandebura, T.S. Risch. "Selection of Tree Roosts by Male Indiana Bats During the Autumn Swarm in the Ozark Highlands, USA". *Wildlife Society Bulletin* 40(1) (2016):78–87.

3.66 *Indiana Bat (Myotis sodalis) Draft Recovery Plan.*

3.67 U.S. Department of the Interior, Fish and Wildlife Service, Indiana Field Office. "2017 Indiana Bat (Myotis sodalis) Population Status Update". https://www.fws.gov/Midwest/Endangered/mammals/inba/pdf/2017IBatPopEstimate5July2017.pdf (accessed October 26, 2017).

3.68 NPS. *Facilities Improvements Environmental Assessment,* and Charles Bitting. Personal communication with Mary L. Powell. February 15, 2018.

3.69 *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species*. Federal Register 78(191): 61046-61080. (Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service, 2013).

3.70 *Endangered and Threatened Wildlife and Plants; 4(d) Rule for the Northern Long-Eared Bat.* Federal Register 81(9): 1900-1922. (Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service, 2016).

3.71 *4(d) Rule for the Northern Long-eared Bat.*

3.72 *Listing the Northern Long-eared Bat as an Endangered Species.*

3.73 *4(d) Rule for the Northern Long-eared Bat.*

3.74 *Listing the Northern Long-eared Bat as an Endangered Species.*

3.75 *Listing the Northern Long-eared Bat as an Endangered Species.*

3.76 *Facilities Improvements Environmental Assessment.*

Tricolored Bat

The tricolored bat is relatively small compared to other North American bats and is the smallest bat found throughout the eastern and Midwestern states.[3.77] The tricolored bat ranges across most of eastern North America and into eastern Central America, and it occurs over much of the Midwestern United States. It is known to occur throughout the year in northwestern Arkansas, including in the study area.[3.78] As with other cave bats, the availability of suitable hibernacula for tricolored bat apparently influences, and limits, the species' geographic range. The species has been considered a relatively short-distance migrant, with summer roosting areas generally within 100 km of hibernacula.[3.79] The tricolored bat tends to occupy the deepest part of caves where temperature is highest and least variable, the walls of the cave are warmer, and humidity levels are higher. The advent of white-nose syndrome has precipitated a dramatic drop in tricolored bat populations throughout much of its range.

State Threatened Species

In addition to species that are both federally and state-listed as threatened or endangered, the ANHC documents three state-only threatened plant species that occur on Marion County - Alabama snow-wreath (*Neviusia alabamensis*), false gaura (*Stenosiphon linifolius*), and royal catchfly (*Silene regia*). Species descriptions are from NatureServe Explorer.[3.80]

Alabama snow-wreath is a 3- to 4-foot tall, deciduous, thicket-forming shrub with bright green leaves and is considered critically imperiled in Arkansas. It is typically found on forested bluffs, talus slopes, and streambanks on a variety of geologic substrates, soil types, and aspects, and under open- to completely closed-canopy conditions. Most typical habitat may be within forested areas on thin soil over limestone that is moist for part of the year (seasonal streambeds, margins of sinkholes, riverbluffs). According to the NPS, although the species is not documented to occur in Buffalo National River, it is probably present.[3.81] Areas with characteristics of suitable habitat for Alabama snow-wreath are present in the study area.

Royal catchfly is a perennial herb with a scarlet-crimson flower. In Arkansas, royal catchfly is found in prairies and on rock outcrops and along roadsides and railroad rights-of-way in cherty, well-drained soils. ANHC documents the species as occurring in three counties in the state, including Marion County. According to the NPS, although the species is not documented to occur in Buffalo National River, it is probably present.[3.82] Little to no suitable habitat for royal catchfly in the study area exists.

False gaura is a tall, slender, perennial herb that is found on rocky limestone glades in Arkansas. While documented by ANHC in Marion County, the species is not known to occur in Buffalo National River.[3.83] The presence of limestone glade habitat in the study area leaves the possibility that false gaura may be present.[3.84]

3.77 Center for Biological Diversity and Defenders of Wildlife. Petition to List the Tricolored Bat *Perimyotis Subflavus* as Threatened or Endangered Under the Endangered Species Act. June 14, 2016.
3.78 *The National Park Service biodiversity database,* and Charles Bitting. Personal communication with Mary L. Powell. February 15, 2018.
3.79 Center for Biological Diversity and Defenders of Wildlife. Petition to List the Tricolored Bat.
3.80 NatureServe. "NatureServe Explorer: An online encyclopedia of life [web application]." Version 7.1. *NatureServe*. Available http://explorer.natureserve.org. (accessed: October 26, 2017).
3.81 *The National Park Service biodiversity database.*
3.82 *The National Park Service biodiversity database.*
3.83 *The National Park Service biodiversity database.*
3.84 Charles Bitting. Personal communication with Mary L. Powell. February 15, 2018.

In general, because little to no suitable habitat in the study area for the species exists, it is unlikely Alabama snow-wreath and royal catchfly are present in the study area. Although not known to be present, false gaura may be present in suitable limestone glade habitat in the study area.

State Inventory Elements

Aside from species listed as threatened or endangered, ANHC lists numerous Inventory Elements as occurring in Marion County, many of which occur or are likely occur in Buffalo National River and some of which may occur in the study area. Swainson's warbler is an Inventory Element found in small numbers using canebrake and other riparian habitat in Buffalo National River and may use a small area of canebrake along Buffalo River in the study area.[3.85] A survey performed for proposed facility improvements at Rush Landing identified one small population of Ozark cornsalad in one location near the powerline right-of-way to Clabber Creek.[3.86] Any Inventory Element species could be affected by activities such as trail construction, maintenance, and habitat loss.

Other Protected Species

While no longer federally listed under the ESA, bald eagle is protected under the Bald and Golden Eagle Protection Act. Bald eagles occur throughout the year as migrants and winter residents at Buffalo National River and at least two nests are present along the river.[3.87] At present no bald eagle nests or winter roosts are known to occur in the study area, although it is likely bald eagle move through, forage in, and perch in the study area at any time of the year.

Migratory birds, their eggs, and nests are protected under the Migratory Bird Treaty Act (MBTA). Most wild birds commonly found in the United States are protected by the MBTA, with exception of introduced species such as house sparrow (species), rock dove (or common pigeon), common starling, and Eurasian collared dove. Species that are not typically thought of as migratory and are present throughout the year, including great horned owl, black-billed magpie, and American crow are also protected by the MBTA. Abundant nest substrate (trees, tree cavities, shrubs, etc.) is present in the study area and a corresponding abundance of birds and active bird nests are present as well. While sensitivity to the proximity and intensity of disturbance varies by species, all birds are sensitive to the presence of humans, vehicles, noise, and night lighting and will change their breeding, nesting, foraging, and resting behaviors in response.

3.85 *Facilities Improvements Environmental Assessment.*
3.86 *Facilities Improvements Environmental Assessment.*
3.87 Charles Bitting. Personal communication with Mary L. Powell. February 15, 2018.

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Cultural Landscape Report - Part II

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Chapter 4. Treatment Alternatives

Introduction

This chapter presents treatment alternatives for the repair, protection and stewardship of the cultural landscape of Rush Historic District. These treatment alternatives were developed during the Alternatives Work Session in February 2018.

This chapter describes the three treatment alternatives considered. These include a no action alternative and two action alternatives. All alternatives would preserve archeological and historic features, provide management strategies to better articulate the historic mining setting, and improve visitor experience.

The no action alternative is a basis for comparison with the action alternatives. The two action alternatives would address protection of resources, provide additional repair of historic spaces and features, and improve visitor experience and access. A summary of the alternatives is presented as a matrix (Matrix 4-1). The agency preferred alternative is action alternative 1. Detailed treatment recommendations are presented in Chapter 6 – Treatment.

Action alternative 1 would focus on preserving contributing features and rehabilitating the historic setting. This would provide an immersive visitor experience to improve understanding of the scale of the historic mining operations and the community that supported it. The broad extent of the historic mining landscape, primarily within Morning Star Community landscape character area would be revealed, including spaces and features of the mining industry and associated community.

This alternative would stabilize extant buildings. Extant ruins and foundations would be preserved. Circulation features and patterns, small scale features, and vegetation patterns would be repaired. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) would be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils and tailings piles, and within some domestic spaces would be completed to repair spatial organization. Domestic spaces in House Row and at Rush Smelter and Morning Star Livery Barn ruins would be repaired. Mine adits, portals, and entrances would be secured. Select locations at portals would be cleared of vegetation and interpretation would be provided.

Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements would be made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Action alternative 2 would focus on repairing contributing features and rehabilitating the historic setting to the greatest extent possible. This alternative would reveal the broadest extent of the historic mining industry and associated community. As more of the historic mining landscape is revealed, more opportunities would be created to fully immerse visitors in the historic mining operations and community.

Building ruins would be cleared of vegetation, stabilized, and marked. Extant ruins and foundations would be preserved. Taylor-Medley General Store would be rehabilitated, and the front porch improved for access onto the porch only . Work would include rehabilitation of the exterior façade including the roofing, wood siding, windows and doors.

Structural work would stabilize the porch foundation and roof. Footprints of most non-extant buildings and structures, of which some foundations remain, would be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils piles, and within domestic spaces would assist in repairing spatial qualities. Mine adits, portals, and entrances would be secured. Many would be cleared of vegetation and repaired for limited visitor interpretation.

Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Treatment Approaches

Four distinct approaches to the treatment of the cultural landscape were considered. Brief descriptions of each treatment approach considered follows.

The treatment approaches evaluated for Rush Historic District include a preservation approach for the no action alternative. Action alternatives 1 and 2 would follow a rehabilitation approach. Defining the recommended treatment approach is dependent on several factors including the desired future condition, proposed use, and significance of the property.

Preservation is an appropriate treatment approach for a cultural landscape with a continuity of use and few modifications. This approach is suited for a property where distinctive materials, features, and spaces are intact and for which extensive modifications or additions are not required. A preservation approach allows contributing features to be preserved, restored or repaired. The no action alternative follows this approach.

Rehabilitation is an appropriate treatment approach for a cultural landscape with a long period of significance, which has undergone few modifications and has integrity in one or more characteristics (location, setting, materials, workmanship, feeling, and association). Rehabilitation is appropriate for a property where new additions are contemplated. A rehabilitation approach allows for features to be preserved, rehabilitated, reconstructed or restored. Action alternatives 1 and 2 follow this approach.

Reconstruction is an appropriate treatment approach for a cultural landscape with a vast amount of documentation that would allow the form, features and detailing of non-surviving features to be replicated to their appearance at a specific period and in an historic location. This approach would rely upon new construction to replicate these features.

Restoration is an appropriate treatment for a cultural landscape with documentation to accurately depict the form, features, and character of a landscape as it appeared during a period by removing features from other periods in history and reconstructing missing features from the restoration period.

Treatment Goals

A series of treatment goals provide guidance in determining the desired future condition, and proposed use and interpretation for Rush Historic District. They also assist in providing appropriate stewardship guidance for preserving the study area's historic character and contributing features.

- Preservation and rehabilitation actions will preserve Rush Historic District's cultural landscape, including its historic character and buildings as these

contribute to its significance and reinforce its importance.

- Cultural resources will be protected through accepted preservation practices including preservation, rehabilitation, reconstruction, and restoration. The cultural landscape will be protected by stabilizing features and rehabilitating patterns and restoring select missing historic features.

- Known, potential, and unknown archeological resources will be protected. Opportunities for further research and investigation will be identified, including archeological investigations and other documentary needs.

- Treatments for securing mine entrances while allowing limited visitor interaction and interpretation will be addressed.

- The tolerance for non-native plant species will be identified and the character for vegetation will be depicted.

Common to All Alternatives

Several treatment recommendations would be considered in all alternatives including the no action and action alternatives. These treatment recommendations are summarized in this section.

Archeological Sites

Archeological sites would be preserved, and further study and additional research would be conducted. This work would include investigations to confirm and document the extent of below-grade extant features related to zinc mining and its associated community, and to further document prehistoric archeological sites.

- Archeological investigations and excavations of any type within Rush Historic District would occur only in consultation with the park archeologist and others where appropriate (MWAC, SHPO or federally recognized tribes).

- Additional study and archeological research, investigations, and surveys would be conducted in association with any recommended vegetation thinning, pruning or removal or repair to any contributing features, spaces or remnants.

- Pre-historic and historic archeological sites would be preserved, and further research and documentation would be conducted. Measures to protect archeological sites would be taken. These could include clearing vegetation at extant ruins or sites to protect below-grade features if vegetation threatens the integrity of the feature.

ABAAS Compliance

Universal access would be provided for mobility impaired users at existing facilities. This would include improvements to non-contributing trails and facilities to ensure universal accessibility.

- An ABAAS pedestrian route and parking would be provided to access the existing comfort station and shelter at Rush Landing.

- An ABAAS pedestrian route and parking would be provided from Morning Star Trail parking west to Morning Star Livery Barn ruins and Morning Star Hotel ruins.

Lower Buffalo Wilderness

Lower Buffalo Wilderness would be protected by not allowing vehicular access or vegetation

thinning, pruning, or removal within wilderness boundaries.

- No new pedestrian access would be added within the wilderness boundary.

- No visual or physical access would be allowed to Red Cloud Mine Complex (M3), Lonnie Boy Mine (M5), and Silver Hollow Mine (M9), location within the wilderness boundary.

Ruins

Ruins would be preserved. Stabilization and repairs would be dependent on each feature's existing condition. A series of approaches to ruin stabilization were identified including stabilization, protection, arrested decay, and buried ruins.

- Measures to protect features from further damage could include techniques to prevent damage from water or weather.

- Basic stabilization and repair would be completed for ruins where elongating the lifespan of the ruin is desired. These ruins would not be fully repaired or restored for use.

- Buried ruins and below grade features and remnants would be protected. Markings and other means of identifying building or structure footprints at the surface could be undertaken to better discern the patterns of a site or place. Exposing a ruin (or part of a ruin) and protecting and maintaining them alone or as part of another strategy could be accomplished as well.

- Measures for interpretation could include revealing extant foundations, walls or other elements of a contributing feature, and/or marking the feature's footprint or space. Interpretive signage or identification of a feature could be included with a stabilization strategy. These could include narrative and/ or historic photographs to assist in understanding the historic condition and significance.

Mines and Mine Complexes

Mines and mine complexes would be secured to protect mining resources and provide visitor safety while allowing for some enhanced interpretation.

- All mines would be closed. No physical access would be allowed.

- Mine adits, portals, and entrances would continue to be secured by existing metal grates. Most would be obscured with vegetation. These grates would remain as they also provide bat habitat.

- Select mines would be allowed to be visible to Mine Level Trail users. For these, vegetation would be cleared, and a low barrier added, set outside the angle of repose from the face of the adit or opening. Interpretive and regulatory signage would be included to warn visitors of hazards.

- Red Cloud Mine Complex (M3), Lonnie Boy Mine (M5), and Silver Hollow Mine (M9) on the east side of Buffalo River would be obscured, and no visual or physical access would be allowed.

- Extant spoils and tailings piles would be preserved.

Visitor Facilities and Amenities

Visitor facilities and amenities would remain. These non-contributing features include

comfort stations, kiosks, shelter(s), waysides, and benches. They are located at Morning Star Trail, Rush Landing, and Rush Campground.

Vegetation Management

Vegetation management could be sustained over time through regular thinning and maintenance activities, augmented by specialized methods such controlled burns.

- Areas to remain open within the study area but outside the wilderness boundary could be managed through mechanical means and burn methods.

- Managing exotic species through mechanical and physical removals would be part of vegetation thinning or removal. Measures would be taken to ensure seed banks in dormant soils do not become an issue during growing seasons.

- The Cherokee Medicine Keepers plant gathering group would be allowed access to the study area to document, and possibly collect plants of medicinal, economic, or spiritual value. They would be allowed access to these vegetation communities, but locations of their findings would not be publicized to protect plant communities.

No Action Alternative

The *no action alternative* would include actions that the park would undertake as part of regular operations and current planned work. Under the no action alternative, the park's present level of use, management, interpretation, and maintenance and operations would continue. Preservation and maintenance of contributing features would continue as would stabilization of extant buildings. The park's current projects and those planned for the foreseeable future would be included.

The no action alternative would follow a preservation approach. This approach would include actions already identified and/or in-progress to stabilize and repair contributing features and essential spaces for improved visitor contact and wayfinding.

This section describes actions that would be undertaken for the study area in its entirety including those for Morning Star Community landscape character area. Actions are described by landscape characteristic and include cluster arrangement, topography and spatial organization, circulation, buildings and structures/ruins, mines and mine complexes, small scale features and vegetation. Natural systems and features, land use, and archeological sites are described under Common to All Alternatives.

Cluster Arrangement, Topography, and Spatial Organization

Rush Historic District's distinct pattern of development of mines and mine complexes and associated communities would be preserved.

- The arrangement of buildings, roads, ruins, and vegetation at House Row would be preserved as the residential/commercial community that existed historically.

- The setting of the Morning Star Mill ruins would be preserved by protecting extant contributing features and by clearing vegetation from mill ruins and features.

- The setting of the Hicks Hotel and Hicks General Store ruins would be preserved by clearing vegetation from ruins and features.

Circulation

Rush Historic District's contributing roads and trails would be preserved and would function as they do currently. Minor modifications would be made to provide universal accessibility to visitor facilities and to improve visitor experience.

- Contributing roads and trails would be preserved in alignment, width, scale and materials. Roads would continue to provide shared vehicular and pedestrian access as occurs currently. Roads would not be widened or extensively modified. Pedestrian only trails would continue to be for pedestrian use.

- Mine Level Trail would be preserved along its current alignment. Repairs would be made as needed.

- An ABAAS pedestrian route and parking would be added for universal accessibility to the existing comfort station and shelter at Rush Landing.

- The existing boat ramp and parking adjacent to Buffalo River would remain and continue to provide river access for visitors.

- A new trail, Rush Mountain Trail, would be built to provide a loop route for pedestrians on Rush Mountain. The trail would connect Monte Cristo Mine (M10) with Morning Star Mine Complex (M1).

- One ABAAS parking space, set parallel to Rush Road, would be provided along House Row. Associated interpretive information would be provided.

Buildings and Structures/Ruins

Buildings and structures/ruins include those in the study area, Morning Star Hotel, Mill, and Mine Community, House Row, and Hicks Hotel. Extant contributing buildings would be preserved and repaired, but no visitor access would be provided. Structures and ruins would be preserved and protected through some stabilization but would not be repaired for use or access.

- Contributing buildings within the Morning Star Hotel, Mill, and Mine Community—Rush Smelter and Rush Blacksmith Shop—would be preserved and stabilized. Buildings would be structurally stabilized and exterior finishes (i.e. roofing and wood siding) would be repaired/replaced to provide a weatherproof enclosure.

- Drainage would be rerouted away from Buildings and Structures/Ruins. The intermittent stream would be rerouted away from the buildings and structures on House Row to protect extant contributing features.

- Building ruins, including concrete foundations and walls of Hicks Hotel, other building foundations, chimneys and other masonry elements and other remnants, would have basic stabilization and repair work completed in-situ to elongate the lifespan of the feature. These structures would not be fully rehabilitated or restored.

Small Scale Features

Contributing small scale features would be preserved, Small scale features needed for visitor wayfinding and interpretation would be added in select locations.

- Extant contributing small scale features, the ore cart, remnant fencing, and stone retaining wall, would be preserved. Minor repairs would be completed as budgets allow.

- Extant stone retaining walls would be preserved and repaired. Stones would be reset, missing stones added, mortar repointed, and vegetation removed if it threatens the stability of the wall.

- Extant walls and foundations at Hicks Hotel, including Hicks Wall, would be stabilized. Overgrown vegetation would be removed to protect the contributing wall and steps.

- The existing non-contributing fence at House Row would be repaired to discourage visitor access into the repaired domestic spaces and the stabilized buildings.

Vegetation

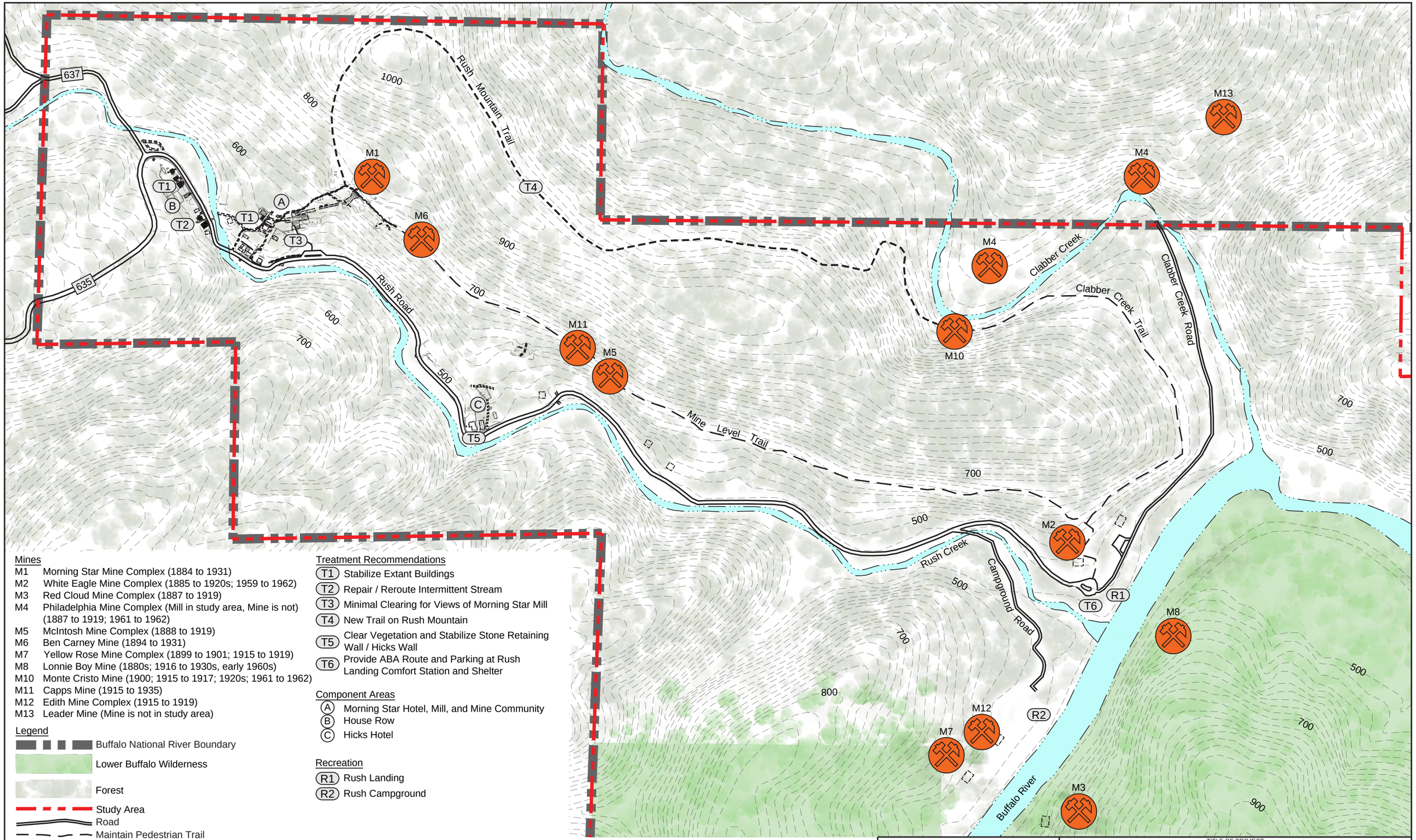
Some vegetation management would be completed to open some historic spaces and views now currently obscured by overgrown vegetation. Vegetation thinning, clearing and pruning would assist in illustrating Rush Historic District's pattern of historic mining use and development.

- Vegetation would be cleared and thinned in select locations to reveal historic spaces associated with Morning Star Hotel, Mill, and Mine Community, House Row, and Hicks Hotel.

- Existing open spaces would be maintained free of extensive trees. These spaces include the open field adjacent to Rush Smelter and Morning Star Livery Barn ruins. Open lawns and shade trees would be retained at House Row.

- Minimal vegetation clearing would be completed to define selected views towards Morning Star Mill.

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Mines

- M1 Morning Star Mine Complex (1884 to 1931)
- M2 White Eagle Mine Complex (1885 to 1920s; 1959 to 1962)
- M3 Red Cloud Mine Complex (1887 to 1919)
- M4 Philadelphia Mine Complex (Mill in study area, Mine is not) (1887 to 1919; 1961 to 1962)
- M5 McIntosh Mine Complex (1888 to 1919)
- M6 Ben Carney Mine (1894 to 1931)
- M7 Yellow Rose Mine Complex (1899 to 1901; 1915 to 1919)
- M8 Lonnie Boy Mine (1880s; 1916 to 1930s, early 1960s)
- M10 Monte Cristo Mine (1900; 1915 to 1917; 1920s; 1961 to 1962)
- M11 Capps Mine (1915 to 1935)
- M12 Edith Mine Complex (1915 to 1919)
- M13 Leader Mine (Mine is not in study area)

Legend

- Buffalo National River Boundary
- Lower Buffalo Wilderness
- Forest
- Study Area
- Road
- Maintain Pedestrian Trail
- New Pedestrian Trail
- Creek / River
- Mine / Mine Complex

Treatment Recommendations

- T1 Stabilize Extant Buildings
- T2 Repair / Reroute Intermittent Stream
- T3 Minimal Clearing for Views of Morning Star Mill
- T4 New Trail on Rush Mountain
- T5 Clear Vegetation and Stabilize Stone Retaining Wall / Hicks Wall
- T6 Provide ABA Route and Parking at Rush Landing Comfort Station and Shelter

Component Areas

- A Morning Star Hotel, Mill, and Mine Community
- B House Row
- C Hicks Hotel

Recreation

- R1 Rush Landing
- R2 Rush Campground

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

N W E S

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NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
ARKANSAS

173/141248

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 4-1.

TITLE OF DRAWING
NO ACTION ALTERNATIVE - STUDY AREA

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Action Alternative 1

Action alternative 1 would preserve contributing features and rehabilitate Rush Historic District's mining setting. This alternative would provide an immersive visitor experience to improve understanding of the scale of the historic mining operations and the community that supported them. The broad extent of the historic mining landscape, primarily within Morning Star Community landscape character area would be revealed, including spaces and features of the mining industry and associated community.

This alternative would stabilize extant buildings. Circulation features and patterns, small scale features, and vegetation patterns would be repaired. Extant ruins and foundations would be preserved. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) would be cleared of vegetation and marked. Vegetation clearing, thinning, and pruning would be completed along roads, at some spoils and tailings piles, and within some domestic spaces to assist in repairing spatial organization. Domestic spaces include those in House Row and at Morning Star Hotel, Mill, and Mine Community, Mine adits, portals, and entrances would be secured. Select locations at portals would be cleared of vegetation and repaired for limited visitor interpretation.

Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements made to day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Action alternative 1 would follow a rehabilitation approach. Repair and improvement projects identified by the no action alternative would be included. Additional actions would be undertaken to more fully rehabilitate the historic mining setting, particularly in Morning Star Community landscape character area.

This section describes actions that would be undertaken for the study area first, followed by actions that would relate to Morning Star Community landscape character area. Actions are described by landscape characteristic and include cluster arrangement and topography, circulation, mines and mines complexes, small scale features, vegetation, and buildings and structures. Archeological sites, and ABAAS compliance are described under common to all alternatives.

Study Area

<u>Cluster Arrangement, Topography, and Spatial Organization</u>

Rush Historic District's distinct pattern of development of mines and mine complexes and associated communities would be preserved. Measures would be taken to more fully reveal, and mark selected spaces.

- The historic development pattern of Rush Historic District would be preserved by protecting extant contributing features and by removing vegetation from historically open spaces.
- Spaces associated with Morning Star Community landscape character area would be repaired through vegetation thinning or removal to better articulate the mass and scale of each historic space, and to reestablish historic views or relationships.
- Mines and mine complexes on the east side of Buffalo River would be protected. Features associated Red Cloud Mine

Complex (M3), Lonnie Boy Mine (M5), and Silver Hollow Mine (M9) would be obscured. No visual or physical access would be allowed.

Circulation

Rush Historic District's contributing roads and trails would be preserved and would function as they do currently. Modifications would be made to improve visitor access and experience at Rush Landing, Clabber Creek Road and Trail, New White Eagle Mill and Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12). Improvements would include universal accessibility to existing visitor facilities, and to selected areas where views of mill ruins would be visible.

- Contributing roads and trails would be preserved in alignment, width, scale and material. Roads would continue to provide shared vehicular and pedestrian access as occurs currently. Roads would not be widened or extensively modified. Pedestrian only trails would continue to be for pedestrian use.

- Mine Level Trail would be preserved along its current alignment. Repairs would be made as needed.

- An ABAAS pedestrian route and parking would be added for universal accessibility to the existing comfort station and shelter at Rush Landing.

- A new pedestrian trail to Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12) would be built to provide an ABAAS compliant route.

- The existing boat ramp and parking at Buffalo River would remain and continue to provide river access for visitors.

- A new trail would be built as Rush Mountain Trail to provide a loop route for pedestrians on Rush Mountain. The new trail would connect Monte Cristo Mine (M10) with Morning Star Mine (M1).

- Parking and access would be improved at New White Eagle Mill for additional day use. A new trail would be added to connect improved visitor parking to Mine Level Trail.

- Clabber Creek Road would be improved for day use, which occurs informally now. Parking and a vehicular turn-around with a gate would be added near the confluence of Clabber Creek and Buffalo River, along with picnicking and day use. Clabber Creek Road north of the gate would be modified to become Clabber Creek Road Trail, a pedestrian only trail from the improved parking to the connection with Clabber Creek Trail.

Mines and Mine Complexes

Actions related to mines and mine complexes are described under common to all alternatives. These actions would include ensuring all are closed with no physical access; adits, portals, and entrances with metal grates would remain and select mines would be allowed to be visible as determined by the park. Measure to protect mining resources including spoils and tailings piles, and measures to protect visitors would be included. Mines and mine complexes on the east side of Buffalo River in the Lower Buffalo Wilderness would be obscured, and no visual or physical access would be allowed.

- Select mines would be allowed to be visible to Mine Level Trail users. This would include Morning Star Mine open cut. For these, vegetation would be thinned or cleared.

- At an adit, portal, or entrance, a low barrier would be added, set outside the angle of repose from the face of the adit or opening. Interpretive and regulatory signage would be included to warn visitors of hazards.

- At the Morning Star Mine open cut, an interpretive wayside would be added to view the full extent of the mining operation.

Small Scale Features

Contributing small scale features would be preserved, small scale features needed for visitor wayfinding and interpretation would be added in select locations.

- Extant contributing small scale features, the ore cart, remnant fencing, and stone retaining wall, would be preserved and repaired.

Vegetation

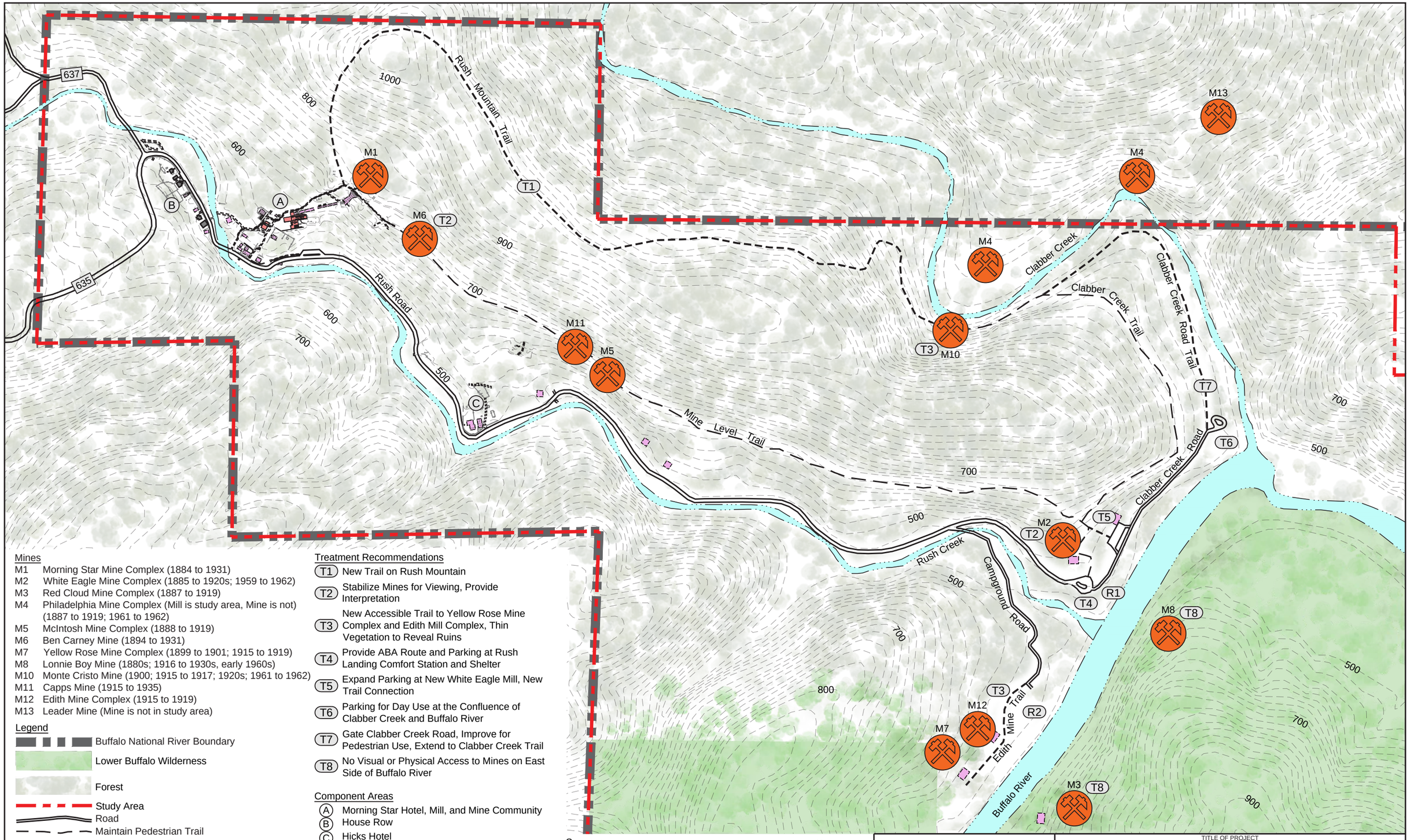
Vegetation management would be completed to open and reveal selected historic spaces and views now currently obscured by overgrown vegetation. Vegetation thinning, clearing and pruning would be completed to enhance visitor understanding of the historic mining landscape. This would also assist in repair and preservation of contributing spaces and features.

- Vegetation would be pruned or thinned with some removal in selected locations to enhance visitor understanding of the historic patterns of the mining landscape, particularly the once open spaces of some mines and mine complexes and associated community development.

- Vegetation would be thinned in the areas of Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12) to reveal contributing features, i.e., concrete pier foundations, spaces, views, and relationships between mining, access and residential living. These mine complexes are located near the Lower Buffalo Wilderness boundary, any vegetation clearing would be mindful of the boundary.

- No vegetation clearing across the river in the Lower Buffalo Wilderness.

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Mines

M1 Morning Star Mine Complex (1884 to 1931)
M2 White Eagle Mine Complex (1885 to 1920s; 1959 to 1962)
M3 Red Cloud Mine Complex (1887 to 1919)
M4 Philadelphia Mine Complex (Mill is study area, Mine is not) (1887 to 1919; 1961 to 1962)
M5 McIntosh Mine Complex (1888 to 1919)
M6 Ben Carney Mine (1894 to 1931)
M7 Yellow Rose Mine Complex (1899 to 1901; 1915 to 1919)
M8 Lonnie Boy Mine (1880s; 1916 to 1930s, early 1960s)
M10 Monte Cristo Mine (1900; 1915 to 1917; 1920s; 1961 to 1962)
M11 Capps Mine (1915 to 1935)
M12 Edith Mine Complex (1915 to 1919)
M13 Leader Mine (Mine is not in study area)

Legend

- Buffalo National River Boundary
- Lower Buffalo Wilderness
- Forest
- Study Area
- Road
- Maintain Pedestrian Trail
- New Pedestrian Trail
- Creek / River
- Mine / Mine Complex

Treatment Recommendations

T1 New Trail on Rush Mountain
T2 Stabilize Mines for Viewing, Provide Interpretation
T3 New Accessible Trail to Yellow Rose Mine Complex and Edith Mill Complex, Thin Vegetation to Reveal Ruins
T4 Provide ABA Route and Parking at Rush Landing Comfort Station and Shelter
T5 Expand Parking at New White Eagle Mill, New Trail Connection
T6 Parking for Day Use at the Confluence of Clabber Creek and Buffalo River
T7 Gate Clabber Creek Road, Improve for Pedestrian Use, Extend to Clabber Creek Trail
T8 No Visual or Physical Access to Mines on East Side of Buffalo River

Component Areas

A Morning Star Hotel, Mill, and Mine Community
B House Row
C Hicks Hotel

Recreation

R1 Rush Landing
R2 Rush Campground

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

N W E S
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1" = 600'

NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUFFALO NATIONAL RIVER
ARKANSAS

173/141248

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 4-2.

TITLE OF DRAWING
ACTION ALTERNATIVE 1 - STUDY AREA

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Morning Star Community Landscape Character Area

This landscape character area was historically the most intensely developed portion of Rush Historic District. It is comprised of the component areas of Morning Star Hotel, Mill, and Mine Community, House Row, and Hicks Hotel. Collectively, they include the study area's most prominent features related to zinc mining and its associated community development. Morning Star Community landscape character area is also the most easily accessible to visitors.

This action alternative would provide measures to reveal the broad extent of mining related uses and activities within Morning Star Community landscape character area. Measures would include preservation and repair of contributing features and spaces, and techniques to mark and define these.

Prominent features of the Morning Star Hotel, Mill, and Mine Community—the ruins of the Morning Star Mill, Morning Star Mine Office, and Chase and Mulholland Store—would be preserved and marked. Rush Blacksmith Shop and Rush Smelter, the only extant buildings in this area, would be preserved and stabilized. All other ruins, foundations, or lesser traces would be preserved.

Circulation

Morning Star Community landscape character area's circulation pattern and features would be preserved. Repairs would be made to reestablish historic alignments, materials and character.

- The Morning Star Trail would be relocated to avoid contributing features, ruins, and spaces (Morning Star Mill ruins and Morning Star Mill Retaining Wall). The portion of the Morning Star Trail along Rush Road will be improved to provide better pedestrian access between parking and the Rush Smelter and Morning Star Livery Barn ruins.

- One ABAAS parking space, set parallel to Rush Road, would be provided along House Row. Associated interpretive information would be provided.

- Vegetation would be removed from contributing roads, and roads repaired to original width and material to function as pedestrian trails. These are currently overgrown with trees and understory. Roads would be soft-surfaced and maintained for pedestrian use only.

- A wayside or overlook for pedestrians would be provided at the top of the Morning Star Mine Complex spoils.

Morning Star Hotel, Mill, and Mine Community

This component area includes the most prominent buildings, features and ruins of Rush Historic District. Morning Star Mill, Morning Star Mine Office, and Morning Star Hotel remain as foundations, ruins and traces. Rush Blacksmith Shop and Rush Smelter are the only extant buildings.

Spatial Organization

- The setting of the Morning Star Mill would be repaired and interpreted. Vegetation would be cleared from mill and tramway ruins and some historic building spaces would be identified. Measures could include defining the building footprint by revealing extant foundations or ruins or by marking the footprint with new compatible materials.

- The setting of the Morning Star Hotel would be repaired and interpreted.



Figure 4-1. For action alternative 1, spaces associated with Morning Star Hotel, Mill, and Mine Community would be repaired through vegetation thinning or removal to better articulate the mass and scale of each historic space, and to reestablish historic views or relationships. (Mundus Bishop 2018)

Vegetation would be cleared from building ruins and the historic building spaces identified. The foundations of the non-extant buildings would be marked by revealing extant foundations or by using new compatible materials. Vegetation would be removed from portions of the pasture around the Morning Star Livery Barn ruins and the barn foundation would be marked.

- A new interpretive wayside would be added at the Morning Star Trail parking to view Morning Star Mill ruins and spaces from below. Mill ruins and tailings pile would be preserved.

Buildings and Structures/Ruins

- Rush Smelter and Rush Blacksmith Shop would be preserved. Both buildings would be structurally stabilized and exterior finishes would be repaired/replaced to provide a weatherproof enclosure. Work on the exterior facades would include roofing, exterior wall finishes, windows and doors.

- Vegetation would be removed at Morning Star Office ruins and Chase & Mulholland Store ruins. The historic space would be repaired through vegetation removal and repair of contributing features including the scale pit.

Mines and Mine Complexes

Actions related to mines and mine complexes are described under common to all alternatives. These actions would include ensuring all are closed with no physical access; adits, portals, and entrances with metal grates would remain and select mines would be allowed to be visible as determined by the park. Measures to protect mining resources including spoils and tailings piles, and measures to protect visitors would be included. Mines and mine complexes on the east side of Buffalo River would be obscured, and no visual or physical access would be allowed.

- Select mines would be allowed to be visible to Mine Level Trail users. This would include providing views into the Morning Star Mine open cut.

- At an adit, portal, or entrance, vegetation would be thinned or cleared and a low barrier would be added, set outside the angle of repose from the face of the adit or opening. Interpretive and regulatory signage would be included to warn visitors of hazards.

- At the Morning Star Mine open cut, vegetation would be thinned or cleared and an interpretive wayside/viewing platform would be added for visitors to view the full extent of the mining operation.

Small Scale Features

- Contributing small scale features would be preserved and repaired. Repair for contributing stone walls could include mortar repair, resetting stones or removing vegetation if it threatens the wall's stability.

- Non-contributing small scale features, i.e., regulatory or interpretive signs, benches, kiosk, would remain.

Vegetation

- The open field adjacent to Rush Smelter and Morning Star Livery Barn ruins would be repaired. Vegetation would be removed to identify a portion of field as it appeared historically.

- Vegetation would be removed from the Morning Star Mill ruins.

- Vegetation would be pruned, thinned and possibly removed between Morning Star Trail and Morning Star Mill ruins to reestablish the historic spatial relationship and for a better view of the mill from the trail.

- Vegetation would be pruned, thinned and possibly removed at the site of a new overlook for pedestrians at the top of Morning Star Mine spoils pile. This would provide a view of the valley below and reestablish historic spatial relationships.

House Row

House Row represents a community that supported mining operations within Rush Historic District. Its five extant buildings, multiple building and structure ruins, and domestic spaces provide the best and most easily accessed historic mining community within the study area.

Spatial Organization
- The arrangement of buildings, structures, roads and vegetation within House Row would be preserved.

- Buildings would be repaired, structures stabilized, and vegetation managed within domestic spaces to reestablish the spatial arrangement and relationships that existed historically.

Circulation
- One ABAAS parking space, set parallel to Rush Road, would be provided along House Row. Associated interpretive information would be provided.

Buildings and Structures/Ruins
- The five extant buildings within House Row would be preserved and stabilized. Buildings would be structurally stabilized and roofing and exterior finishes would be repaired/replaced to provide a weatherproof enclosure. Exterior facade work would include rehabilitation of the windows and doors. No physical access will be allowed into the interior of any of the structures.

- Building ruins would have basic stabilization and repair work completed in-situ to elongate the lifespan of the feature. These structures would not be fully rehabilitated or restored.

- The existing intermittent stream would be rerouted away from buildings and structures on House Row. All other drainage patterns would be routed away from contributing features.

Small Scale Features
- Contributing small scale features would be preserved and repaired. These features include a shed, root cellar, chicken house, goose house, multiple privy ruins, trash piles, and a mailbox shelter.

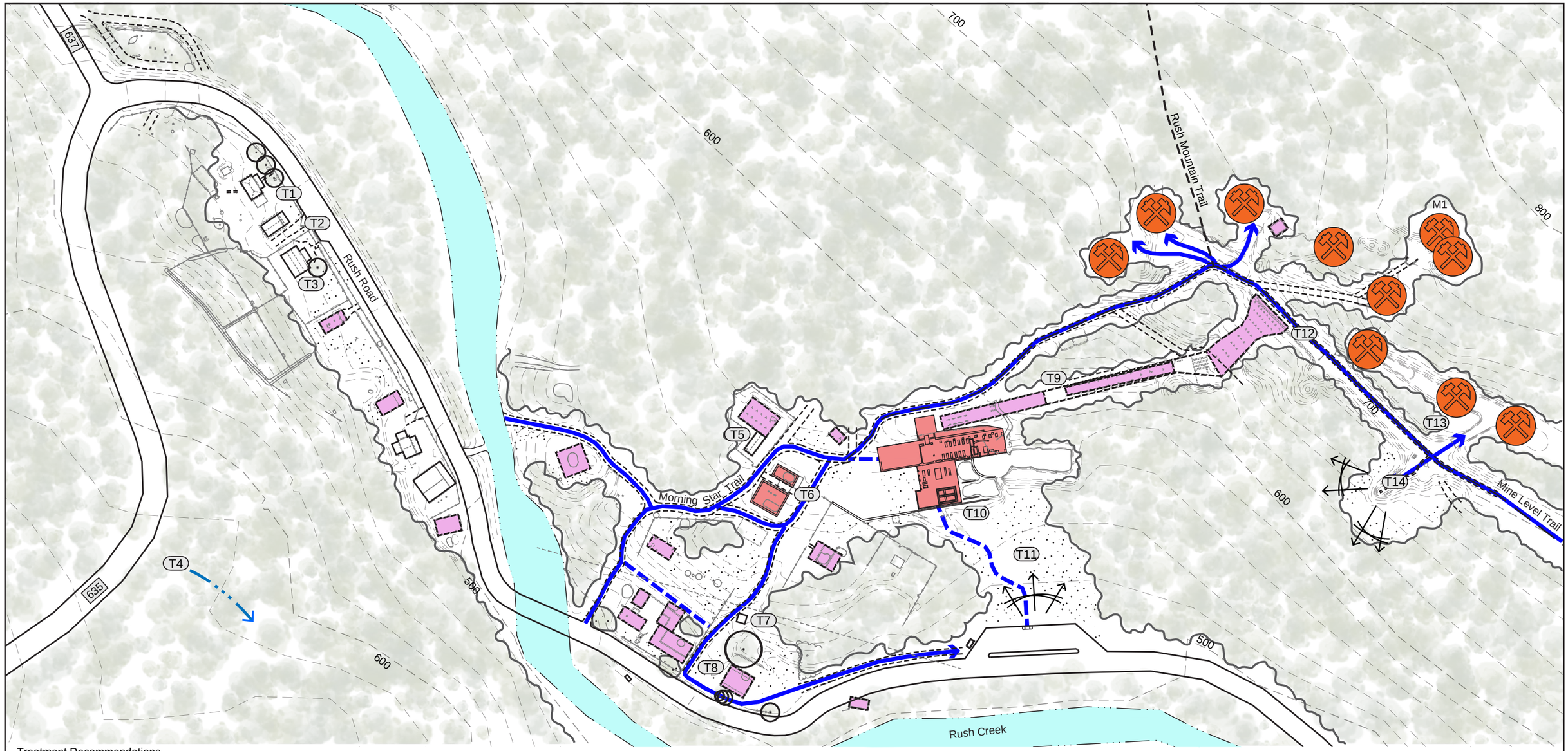
- Non-contributing small scale features, i.e., regulatory or interpretive signs, benches, kiosk, would remain.

- A new compatible fence or low barrier would replace the current non-contributing fence to discourage visitor access into the repaired domestic spaces and the stabilized buildings.

Vegetation
- House Row's characteristic open lawns with shade trees would be preserved. Vegetation would be removed where it obscures building and structure foundations and ruins. Extant ornamental plants would be preserved and maintained.

- The domestic setting of House Row would be repaired through vegetation management. Historic patterns of open domestic spaces where residents planted gardens and pastures and keep animals would be repaired. Vegetation would be removed behind buildings and structures, up to the toe of the existing slope, to reveal these historic spaces. Vegetation would be removed from building and structure foundations.

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Treatment Recommendations

- T1 Preserve Lawn and Shade Trees
- T2 Accessible Parking
- T3 Stabilize / Rehabilitate Structures at House Row
- T4 Stabilize / Reroute Intermittent Stream
- T5 Stabilize Blacksmith Shop
- T6 Reveal Morning Star Mine Office and Chase and Mulholland Store Ruins and Rehabilitate Scale Pit
- T7 Stabilize Smelter
- T8 Thin Vegetation to Re-Establish Pasture / Domestic / Yard Space
- T9 Mark Tramway
- T10 Stabilize / Repair Stone Walls
- T11 Preserve Tailings Pile for View of Mill
- T12 Preserve Route of Mine Level Trail
- T13 Thin Vegetation and Provide Viewing Platform to View Morning Star Mine Open Cut
- T14 Thin Vegetation at Spoils Pile for Overlook

Legend

- Road
- Pedestrian Trail
- Pedestrian Trail to Remove
- Creek / River
- Mine / Mine Complex
- Extant Building to Stabilize
- Building Ruins to Preserve/ Stabilize/Repair
- Building Ruins to Mark
- Road Trace to Preserve
- Remnant Feature
- Edge of Forest

Mines

M1 Morning Star Mine Complex (1884 to 1931)

N W E S

0 120

1" = 120'

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

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TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 4-3.

TITLE OF DRAWING
ACTION ALTERNATIVE 1 - MORNING STAR HOTEL, MILL, AND MINE COMMUNITY, AND HOUSE ROW

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Hicks Hotel

The site of Hicks Hotel and Hicks General Store would be preserved and repaired. The site includes building ruins, extant small scale features, and ornamental vegetation.

Spatial Organization

- The setting of Hicks Hotel and Hicks General Store ruins would be preserved and repaired by removing by vegetation from building ruins.

- Ornamental vegetation associated with Hicks Hotel would be preserved and augmented with new plantings to maintain the historic character. Vegetation not associated with the garden would be removed.

Buildings and Structures/Ruins

- Building ruins would have basic stabilization and repair work completed in-situ to elongate the lifespan of the extant ruin. These features would not be fully rehabilitated or restored.

Small Scale Features

- Contributing features including the Stone Flower Bed, and Hicks Wall would be preserved and repaired.

Vegetation

- Vegetation would be removed to reveal historic buildings spaces and contributing features including ruins, foundations, and the historic garden.



Figure 4-2. For action alternative 1, the site of Hicks Hotel and Hicks General Store would be preserved and repaired. The site includes building ruins, extant small scale features, and ornamental vegetation. (Mundus Bishop 2018)

(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

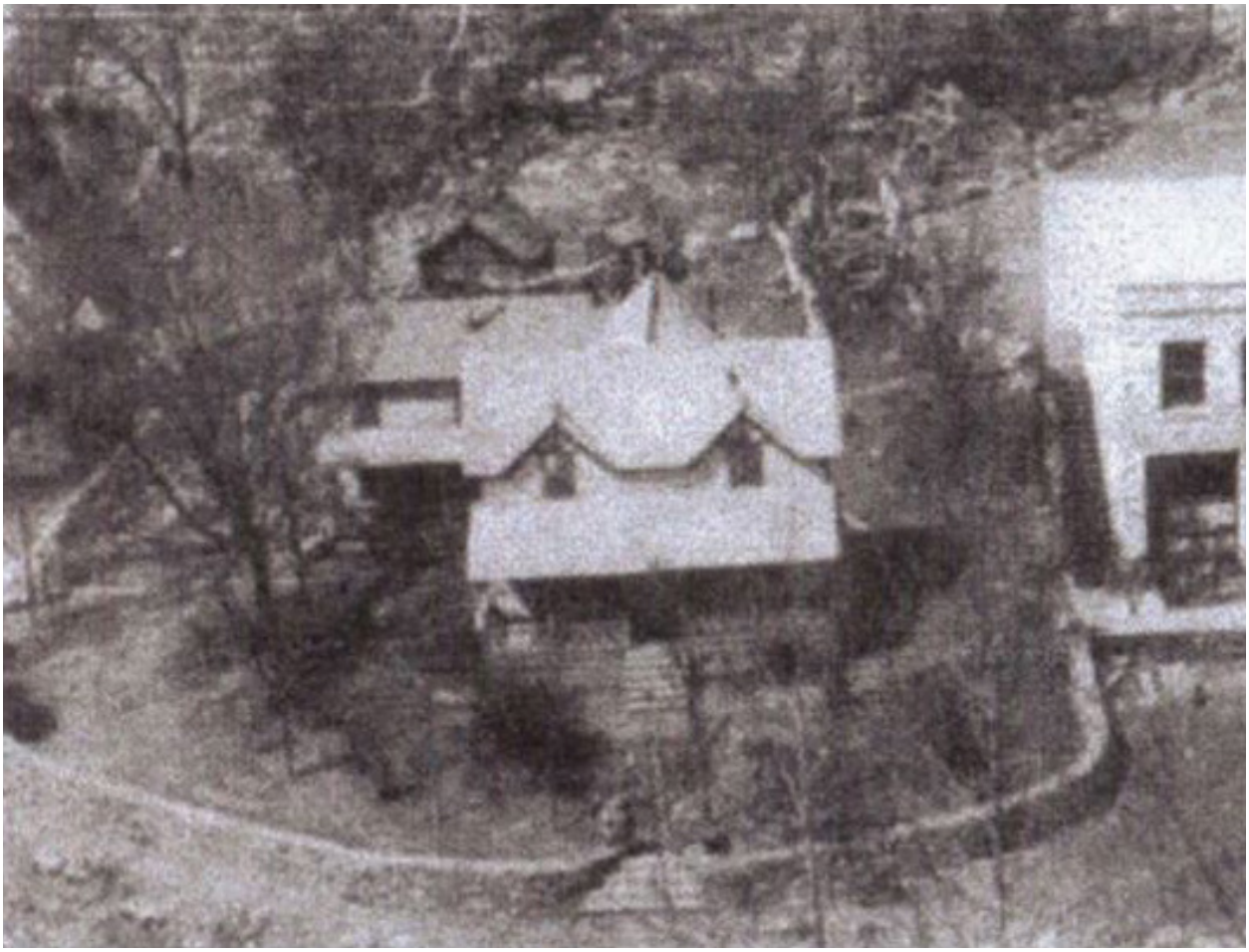


Figure 4-3. Vegetation will be removed to reveal the historic garden setting at Hicks Hotel. (Kastning 1999, http://uark.maps.arcgis.com/apps/MapJournal/index.tml?appid= c513b4f4e17b475092eac332ee5c9d59)

Action Alternative 2

Action alternative 2 would repair contributing features and the historic setting to the greatest extent possible. This alternative would reveal the broadest extent of the historic mining industry and associated community encompassing the entire study area. As more of the historic mining landscape is revealed, more opportunities would be created to fully immerse visitors in the entirety of historic mining operations and the community.

Building ruins would be cleared of vegetation, stabilized and marked. Taylor-Medley General Store would be repaired, and the front porch improved for visitor access onto the porch only. Footprints of most non-extant buildings and structures, of which some foundations remain, would be cleared of vegetation and marked. Extant ruins and foundations would be preserved and repaired. Additional vegetation would be removed, thinned or pruned along roads, at spoils and tailings piles, and within domestic spaces. Mine adits, portals, and entrances would be secured with many cleared of vegetation for limited visitor interpretation.

Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Action alternative 2 would follow a rehabilitation approach. It would include repair and improvement projects identified by the no action alternative and would provide additional actions to rehabilitate the historic mining setting to the greatest extent possible. Modifications to existing conditions would be the most extensive in this alternative.

This section describes actions that would be undertaken for the study area first, followed by actions that would relate to Morning Star Community landscape character area. Actions are described by landscape characteristic and include cluster arrangement and topography, circulation, buildings and structures/ruins, mines and mine complexes, small scale features and vegetation. Natural systems and features, land use, and archeological sites are described under common to all alternatives.

Study Area

Cluster Arrangement, Topography, and Spatial Organization

Rush Historic District's distinct pattern of development of mines and mine complexes and associated communities would be preserved. Measures would be taken to fully reveal and mark historic features and spaces.

- The historic development pattern of Rush Historic District would be preserved by protecting extant contributing features and by removing vegetation from historically open spaces.

- Spaces associated with mines and mine complexes would be repaired through vegetation thinning or removal to better articulate the mass and scale of each historic space, and to reestablish historic views or relationships.

Circulation

Rush Historic District's contributing roads and trails would be preserved and would function as they do currently. Modifications would be made to improve visitor access and experience at Rush Landing, Clabber Creek Road and Trail, New White Eagle Mill, and Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12). Improvements would

include universal accessibility to existing visitor facilities, and to selected areas where views of mill ruins would be visible.

- Contributing roads and trails would be preserved in alignment, width, scale and material. Roads would continue to provide shared vehicular and pedestrian access as occurs currently. Roads would not be widened or extensively modified. Pedestrian trails would continue to be for pedestrian use only.

- Mine Level Trail would be preserved along its current alignment. Repairs would be made as needed. The trail at selected mine portals would be improved and interpretive and regulatory signage added.

- An ABAAS pedestrian route and parking would be added for universal accessibility to the existing comfort station and shelter at Rush Landing.

- A new pedestrian trail to Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12) would provide a route with very little elevation change to be as accessible as possible. Due to frequent flood events a fully ABAAS compliant route may not be possible..

- The existing boat ramp and parking at Buffalo River would remain and continue to provide river access for visitors.

- A new trail would be built as Rush Mountain Trail to provide a loop route for pedestrians on Rush Mountain. The new trail would connect Monte Cristo Mine (M10) with Morning Star Mine (M1).

- Parking and access would be improved at New White Eagle Mill for additional day use. A new trail would be added to connect visitor parking to Mine Level Trail.

- Clabber Creek Road would be improved for day use, which occurs informally now. Parking with a vehicular turn-around / gate would be added near the Clabber Creek and Buffalo River confluence, along with picnicking and day use. Clabber Creek Road north of the gate would be a pedestrian only trail from here to the connection with Clabber Creek Trail. Improvements would be limited due to frequent flooding.

- An accessible trail would be added for pedestrian use from the campground to Edith Mill ruins and Yellow Rose Mill ruins. A small footbridge would be added to cross an intermittent creek. This route would provide and equitable experience for all visitors to view the mill ruins and historic mining landscape. This route would more easily access the mill ruins, then other mills.

Mines and Mine Complexes

Actions related to mines and mine complexes are described under common to all alternatives. These actions would include ensuring all mine entrances are closed with no physical access; adits, portals, and entrances with metal grates would remain and select mine would be allowed to be visible as determined by the park. Measures to protect mining resources including spoils and tailings piles, and measures to protect visitors would be included. Mines and mine complexes on the east side of Buffalo River would be obscured, and no visual or physical access would be allowed.

- Select mines would be allowed to be visible to Mine Level Trail users, including Morning Star Mine open cut.

- At an adit, portal, or entrance, vegetation would be thinned or cleared and a low barrier would be added, set outside the angle of repose from the face of the adit or opening. Interpretive and regulatory signage would be included to warn visitors of hazards.

Small Scale Features

Contributing small scale features would be preserved, small scale features needed for visitor wayfinding and interpretation would be added in select locations.

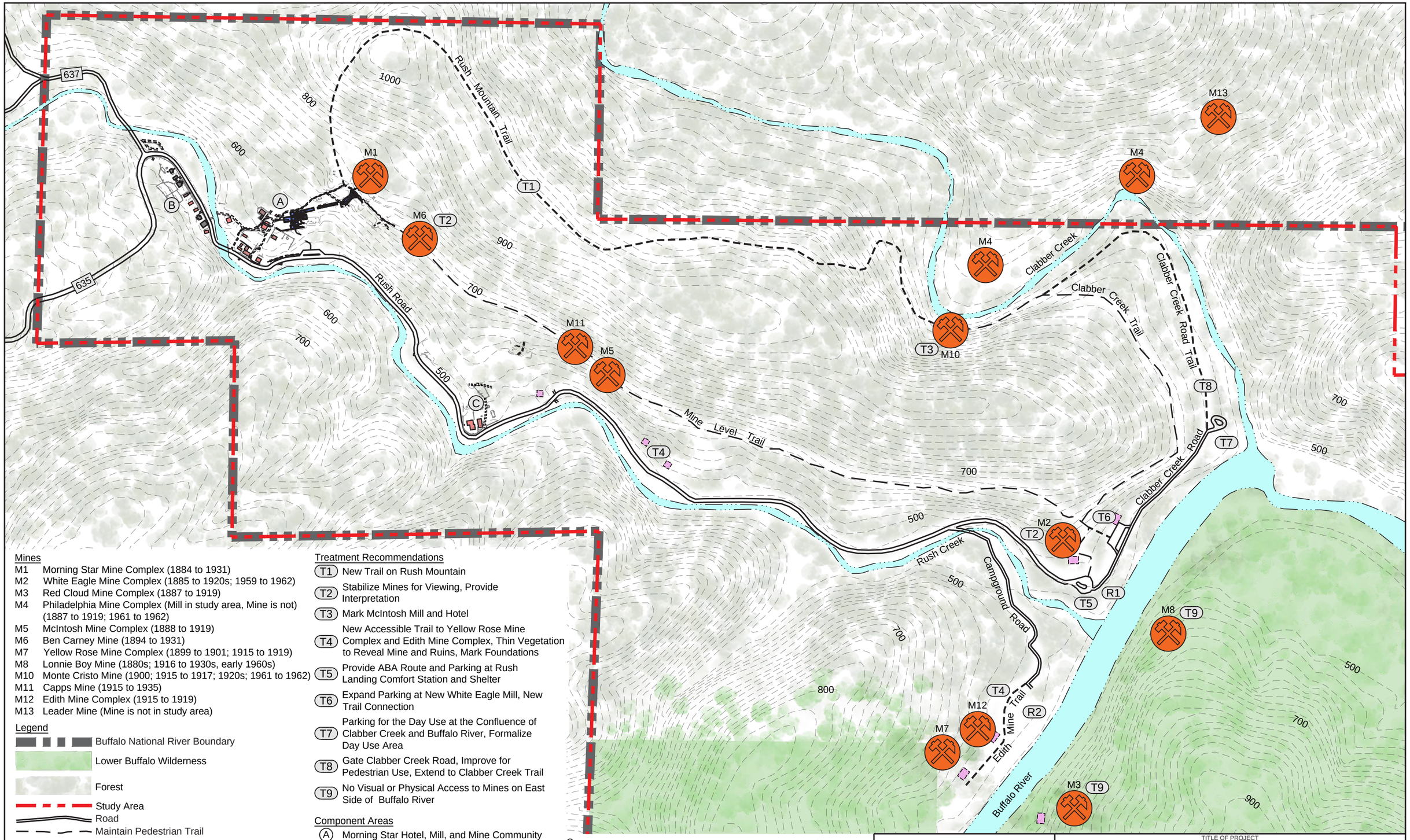
- Extant contributing small scale features, the ore cart, remnant fencing, and stone retaining wall, would be preserved.

Vegetation

Vegetation management would be completed to open and reveal historic spaces and views now currently obscured by overgrown vegetation. Vegetation thinning, clearing and pruning would be completed to enhance visitor understanding of the entirety of the historic mining landscape. This would assist in repair and preservation of contributing spaces and features.

- Vegetation would be pruned or thinned with some removal in historically open spaces to enhance visitor understanding of the mining landscape's historic patterns. The once open spaces of mines and mine complexes would be repaired through vegetation management as would the historic spaces of the associated community.

- Vegetation would be thinned to reveal contributing features, i.e., foundations, ruins and spaces, and views and relationships between mining, access, and residential living.



Mines

M1 Morning Star Mine Complex (1884 to 1931)
M2 White Eagle Mine Complex (1885 to 1920s; 1959 to 1962)
M3 Red Cloud Mine Complex (1887 to 1919)
M4 Philadelphia Mine Complex (Mill in study area, Mine is not) (1887 to 1919; 1961 to 1962)
M5 McIntosh Mine Complex (1888 to 1919)
M6 Ben Carney Mine (1894 to 1931)
M7 Yellow Rose Mine Complex (1899 to 1901; 1915 to 1919)
M8 Lonnie Boy Mine (1880s; 1916 to 1930s, early 1960s)
M10 Monte Cristo Mine (1900; 1915 to 1917; 1920s; 1961 to 1962)
M11 Capps Mine (1915 to 1935)
M12 Edith Mine Complex (1915 to 1919)
M13 Leader Mine (Mine is not in study area)

Legend

- Buffalo National River Boundary
- Lower Buffalo Wilderness
- Forest
- Study Area
- Road
- Maintain Pedestrian Trail
- New Pedestrian Trail
- Creek / River
- Mine / Mine Complex

Treatment Recommendations

- T1 New Trail on Rush Mountain
- T2 Stabilize Mines for Viewing, Provide Interpretation
- T3 Mark McIntosh Mill and Hotel
- T4 New Accessible Trail to Yellow Rose Mine Complex and Edith Mine Complex, Thin Vegetation to Reveal Mine and Ruins, Mark Foundations
- T5 Provide ABA Route and Parking at Rush Landing Comfort Station and Shelter
- T6 Expand Parking at New White Eagle Mill, New Trail Connection
- T7 Parking for the Day Use at the Confluence of Clabber Creek and Buffalo River, Formalize Day Use Area
- T8 Gate Clabber Creek Road, Improve for Pedestrian Use, Extend to Clabber Creek Trail
- T9 No Visual or Physical Access to Mines on East Side of Buffalo River

Component Areas

- A Morning Star Hotel, Mill, and Mine Community
- B House Row
- C Hicks Hotel

Recreation

- R1 Rush Landing
- R2 Rush Campground

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

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TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 4-4.

TITLE OF DRAWING
ACTION ALTERNATIVE 2 - STUDY AREA

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Morning Star Community Landscape Character Area

This action alternative would provide measures to reveal the full extent of mining related uses and activities within Morning Star Community landscape character area. Measures would include preservation and repair of contributing features and spaces, and techniques to mark and define these.

Prominent features of the Morning Star Hotel, Mill, and Mine Community—the ruins of the Post Office, Barn, Morning Star Hotel, Lyons House, Morning Star Livery Barn, Courthouse Site, Doctor's/Maxey House, Morning Star Mill Pumphouse Ruins, Warehouse, Chase and Mulholland Store, Morning Star Mine Office Ruins, Oil Storage House, Smith House Ruins Morning Star Mill and Tramway—would be preserved and marked. Rush Blacksmith Shop and Rush Smelter, the only extant buildings, would be preserved and stabilized.

Circulation

Morning Star Community landscape character area's circulation pattern and features would be preserved. Repairs would be made to reestablish historic alignments, materials and character.

- The Morning Star Trail would be relocated to avoid contributing features, ruins, and spaces (Morning Star Mill ruins and Morning Star Mill Retaining Wall). The portion of the Morning Star Trail along Rush Road will be improved to provide better pedestrian access between parking and the Rush Smelter and Morning Star Livery Barn ruins.

- Vegetation would be removed from contributing roads, and roads repaired to original width and material to function as pedestrian trails. These are currently overgrown with trees and understory. Roads would be soft-surfaced and maintained for pedestrian use only.

- A wayside or overlook for pedestrians would be provided at the top of the spoils pile at the Morning Star Mine Complex (M1).

- Parking would be added at Hicks Hotel.

Morning Star Hotel, Mill, and Mine Community

This component area includes the most prominent buildings, features, and ruins of Rush Historic District. The Post Office, Barn, Morning Star Hotel, Lyons House, Morning Star Livery Barn, Courthouse Site, Doctor's/Maxey House, Morning Star Mill Pumphouse Ruins, Warehouse, Chase and Mulholland Store, Morning Star Mine Office Ruins, Oil Storage House, Smith House Ruins Morning Star Mill and Tramway would be preserved in-situ as foundations, ruins and traces. Rush Blacksmith Shop and Rush Smelter are the only extant buildings.

Spatial Organization

- The setting of the Morning Star Mill would be repaired and interpreted. Vegetation would be cleared from mill and tramway ruins and historic building spaces would be identified. Measures could include defining the building footprint by revealing extant foundations or ruins or by marking the footprint with new compatible materials. A 3-dimensional frame could be built of simple, compatible materials to mark the mass, scale and frame of the non-extant mill building and tramway.

- The setting of the Morning Star Hotel would be repaired and interpreted. Vegetation would be cleared from

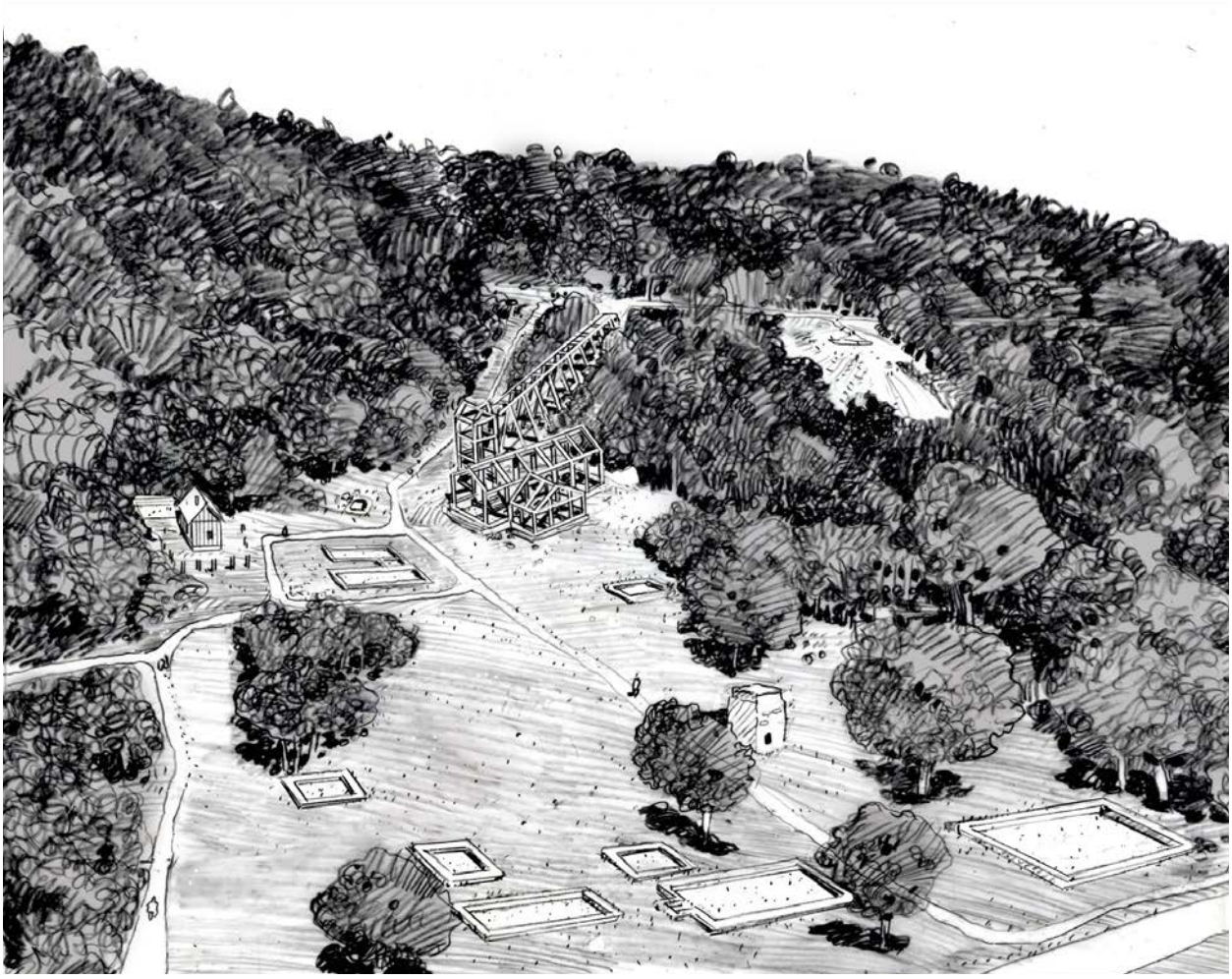


Figure 4-4. For action alternative 2, the setting of the Morning Star Hotel would be repaired and interpreted. Vegetation would be cleared from building ruins and the historic building space identified. The foundations of the non-extant building would be marked by revealing extant foundations or by using new compatible materials. (Mundus Bishop 2018)

building ruins and the historic building spaces identified. The foundations of non-extant buildings would be marked by revealing extant foundations or by using new compatible materials.

- Vegetation would be removed from the pasture around Morning Star Livery Barn ruins. The barn foundation would be marked.

- A new interpretive wayside would be added at the Morning Star Trail parking to view Morning Star Mill ruins and spaces from below. Mill ruins and tailings pile would be preserved.

- All historically open areas including non-extant buildings and structures, pastures or mines and mine complexes would be cleared of most vegetation.

Buildings and Structures/Ruins

- Rush Smelter and Rush Blacksmith Shop would be preserved. Preservation of the masonry smelter would address the plant growth on the structure and areas of deteriorated mortar and damaged stone. Work on Rush Blacksmith Shop would structurally stabilize the building and repair the roofing and exterior finishes to create a waterproof enclosure. Windows and doors at Rush Blacksmith Shop would also be rehabilitated.

- Vegetation would be removed at Morning Star Office ruins and Chase & Mulholland Store ruins. The historic building spaces of each would be repaired through this vegetation removal and through repair of contributing features including the pit.

- The building foundations of McIntosh Mill and Hotel and all non-extant buildings would be stabilized and marked.

Mines and Mine Complexes

- Select mines would be allowed to be visible to Mine Level Trail users. This would include providing views into the Morning Star Mine open cut.

- At an adit, portal, or entrance, vegetation would be thinned or cleared and a low barrier would be added, set outside the angle of repose from the face of the adit or opening. Interpretive and regulatory signage would be included to warn visitors of hazards.

- At the Morning Star Mine open cut, vegetation would be thinned or cleared and an interpretive wayside/viewing platform would be added for visitors to view the full extent of the mining operation.

Small Scale Features

- Contributing small scale features would be preserved and repaired. Repair for contributing stone walls could include mortar repair, resetting stones or removing vegetation if it threatens the wall's stability.

- Non-contributing small scale features, i.e., regulatory or interpretive signs, benches, kiosk, would remain.

Vegetation

- The open field adjacent to Rush Smelter and Morning Star Livery Barn ruins would be repaired. Vegetation would be removed to fully identify the scale and size of the field as it appeared historically.

- Vegetation would be removed from the Morning Star Mill ruins and the tramway, and from the ruins in the Morning Star Hotel, Mill, and Mine Community to reveal the full extent of extant features and to mark historic foundations.

- Vegetation would be removed at Morning Star Office ruins and Chase & Mulholland Store ruins to re-establish it as a building space. The scale pit would be repaired.

- Vegetation would be pruned, thinned and possibly removed between Morning Star Trail and Morning Star Mill ruins to reestablish the historic spatial relationship and for a better view of the mill from the trail.

- Vegetation would be pruned, thinned and possibly removed at the site of a new overlook for pedestrians at the top of Morning Star Mine spoils pile. This would provide a view of the valley below and reestablish historic spatial relationships.

House Row

House Row represents the most intact buildings, structures and spaces of the communities that once supported mining operations within Rush Historic District. Its five extant buildings, multiple building and structure ruins, and domestic spaces provide the best and most easily accessed historic mining community within the study area.

Spatial Organization
- The arrangement of buildings, structures, roads and vegetation within House Row would be preserved and repaired to greatest extent possible.

- Buildings would be repaired, structures stabilized, and vegetation removed and managed within domestic spaces to reestablish the full extent of the spatial arrangement and relationships that existed historically.

Circulation
- One ABAAS parking space, would be provided along House Row. Associated interpretive information would be provided.

- A universally accessible pedestrian trail would be added to access the front porch of the Taylor-Medley General Store from the new accessible parking space. Stable surface treatment and a ramp to access the porch would be added.

Buildings and Structures/Ruins
- The five extant buildings within House Row would be preserved and stabilized. Buildings would be structurally stabilized and the roofing and exterior finishes would be repaired/replaced to provide a weatherproof enclosure. Exterior facade work would include rehabilitation of the windows and doors.

- Taylor-Medley General Store would be repaired to allow visitor access onto the front porch. The porch foundation and roof would be structural stabilized and exterior façade repairs would allow for views into the building interior through the rehabilitated windows and doors. A universally accessible route would be provided to access the front porch from the front yard.

- Structures would have basic stabilization and repair work completed in-situ to elongate the lifespan of the feature. These structures would not be fully rehabilitated or restored.

- The existing intermittent stream would be rerouted away from buildings and structures on House Row. All other drainage patterns would be routed away from contributing features.

Small Scale Features
- Contributing small scale features would be preserved and repaired. These features

include a shed, root cellar, chicken house, goose house, multiple privy ruins, trash piles, and a mailbox shelter.

- Non-contributing small scale features, i.e., regulatory or interpretive signs, benches, kiosk, would remain.

- A new compatible fence or low barrier would replace the current non-contributing fence to discourage visitor access into the repaired domestic spaces and the stabilized buildings.

Vegetation

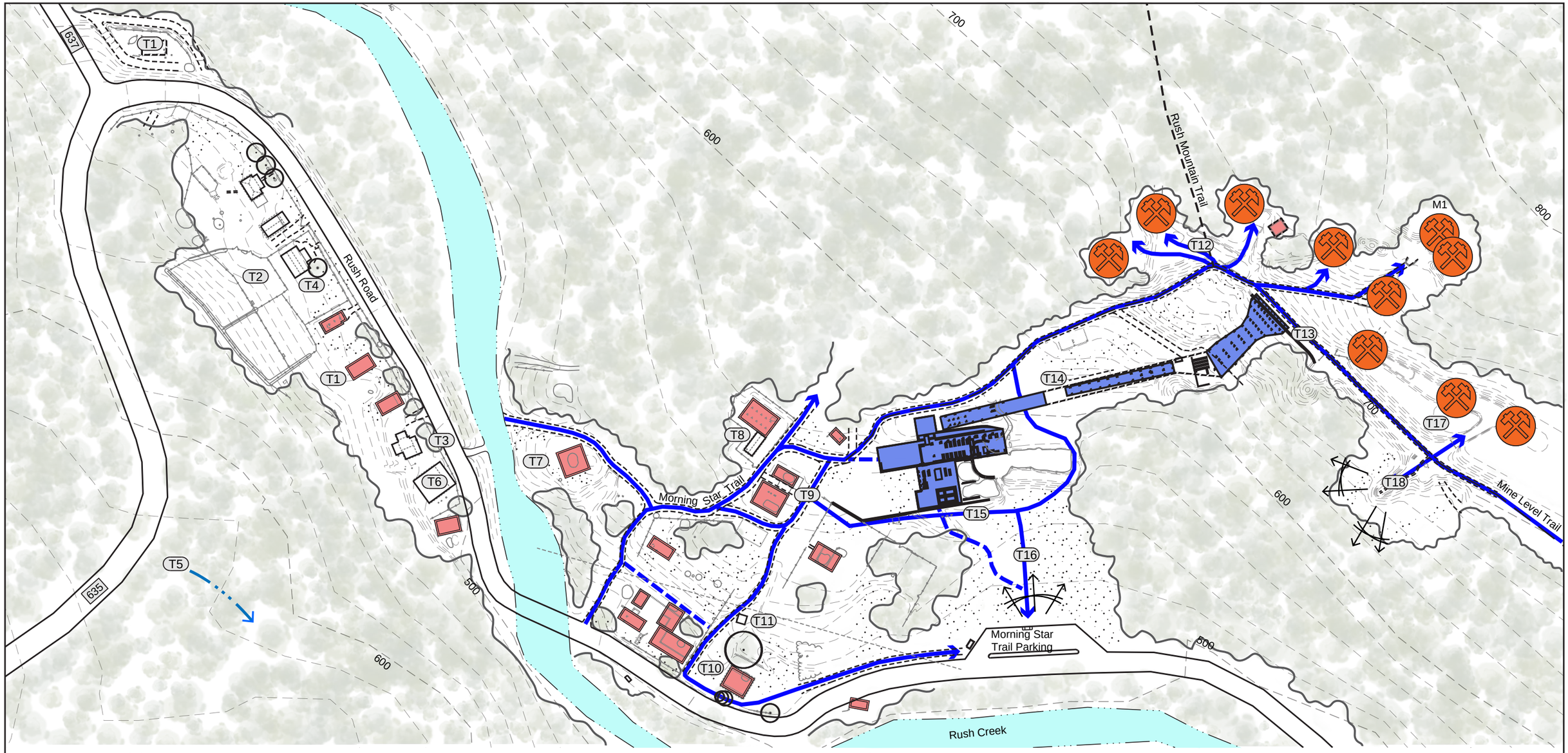
- House Row's characteristic open lawns with shade trees would be preserved.

- Vegetation would be removed where it obscures building and structure foundations and ruins.

- Extant ornamental plants would be preserved and maintained. Additional research and documentation would be undertaken to confirm extant ornamental plantings, including documenting locations and species.

- The domestic setting of House Row would be repaired through vegetation management. Historic patterns of open domestic spaces where residents planted gardens and pastures and kept animals would be repaired. Vegetation would be removed behind buildings and structures to reveal the full extent of these historic spaces. Vegetation would be removed from building and structure foundations.

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Treatment Recommendations

- T1 Mark all Non-Extant Buildings
- T2 Rehabilitate Yards / Livestock Space to Slope
- T3 Accessible Parking / Overlook
- T4 Stabilize / Rehabilitate Structures at House Row
- T5 Repair / Reroute Intermittent Stream
- T6 Rehabilitate Taylor Medley Store
- T7 Re-Establish Clearings in all Historically Open Areas
- T8 Stabilize Blacksmith Shop
- T9 Reveal Morning Star Mine Office and Chase and Mulholland Store Ruins and Rehabilitate Scale Pit
- T10 Re-Establish Pasture to Full Extent
- T11 Stabilize Smelter
- T12 Formalize / Rehabilitate Trails at All Mine Portals
- T13 Preserve Route of Mine Level Trail
- T14 Mark Mill and Tramway
- T15 Stabilize / Repair Stone Walls
- T16 Preserve Tailings Pile for View of Mill
- T17 Thin Vegetation and Provide Viewing Platform to View Morning Star Mine Open Cut
- T18 Thin Vegetation at Spoils Pile for Overlook

Legend

- Road
- Pedestrian Trail
- Pedestrian Trail to Remove
- Creek / River
- Mine / Mine Complex
- Extant Building to Stabilize
- Building Ruins to Mark
- Building Ruins to Mark with 3D Frame
- Road Trace to Preserve
- Remnant Feature
- Edge of Forest

Mines

M1 Morning Star Mine Complex (1884 to 1931)

N W E S

0 120

1" = 120'

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
ARKANSAS

173/141248

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 4-5.

TITLE OF DRAWING
ACTION ALTERNATIVE 2 - MORNING STAR HOTEL, MILL, AND MINE COMMUNITY, AND HOUSE ROW

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Hicks Hotel

The site of Hicks Hotel and Hicks General Store would be preserved and repaired. The site includes building ruins, extant small scale features, and ornamental vegetation.

Spatial Organization

- The setting of Hicks Hotel and Hicks General Store ruins would be preserved and repaired by removing by vegetation from building ruins.

- Ornamental vegetation associated with Hicks Hotel would be preserved and augmented with new plantings to maintain the historic character. Vegetation not associated with the garden would be removed

Buildings and Structures/Ruins

- Building ruins would have basic stabilization and repair work completed in-situ to elongate the lifespan of the extant ruin. These features would not be fully rehabilitated or restored.

- The foundation of Hicks Hotel would be marked.

Small Scale Features

- Contributing features including the Stone Flower Bed, and Hicks Wall would be preserved and repaired.

Vegetation

- Vegetation would be removed to reveal historic buildings spaces and contributing features including ruins, foundations, and the historic garden.



(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Figure 4-5. For action alternative 2, the site of Hicks Hotel and Hicks General Store would be preserved and repaired. Vegetation would be removed to a larger extent to reveal historic buildings spaces and contributing features. (Mundus Bishop 2018)

Mitigation Measures

The NPS places strong emphasis on protecting resources against potentially adverse impacts. Mitigation is used to avoid, prevent, or minimize adverse impacts during implementation of projects. The following mitigation measures would be implemented as part of whichever treatment alternative is selected. The NPS may need to obtain federal and state environmental permits and, as part of that process, additional mitigation measures could be required by other agencies. The NPS would implement an appropriate level of monitoring throughout project activities to ensure that protective measures are being properly implemented and are achieving their intended results.

General Measures

- The work area limits would be clearly defined, fenced, flagged, and delineated to keep ground disturbance to a minimum. No disturbance would occur beyond these limits other than protection measures for erosion/sediment control.
- All contractor employees and subcontractors would attend an orientation session(s) regarding park regulations focused on minimizing impacts on resources, human health and safety, and appropriate housekeeping.
- All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project area upon project completion. Construction debris would be hauled from the park to an appropriate disposal location.
- Staging, materials, and equipment would be in developed areas such as existing parking lots to the extent possible.

Water Resources

- If minor earthwork is necessary, standard erosion-control measures such as silt fencing would be used to minimize erosion and the introduction of sediments to aquatic habitat during and after construction.
- All vehicle and equipment fueling would occur more than 100 feet from any surface water in a location where a fuel spill would not be able to enter the water.
- A spill prevention and response plan that regulates the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment, would be prepared.
- Disturbed areas would be reseeded as quickly as possible following the work.

Wildlife and Species of Concern (Conservation Measures)

- Construction personnel would be instructed on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage, and other attractants.
- Pre-project surveys would be performed to identify sensitive plant species, vegetation communities, and wildlife habitat. Treatment alternatives would be revised, if necessary, to avoid more than minimal impacts on wildlife and to avoid adverse effects on species of concern. Project plans would identify areas to avoid.
- Areas would be designated for stockpiling slash material.

- To reduce noise disturbance and limit impacts on breeding avian and mammalian species, all tree and shrub thinning and removal would be conducted from October 1 to March 1, where feasible.

- If tree and shrub thinning and removal must occur between March 1 and October 1, field surveys for migratory bird nests and cavities and bat roosts and nurseries would be conducted prior to vegetation-disturbing activities. Where active nests or nurseries are present, vegetation removal would not occur until after the young have fledged, and ground-disturbing activities would not occur within 100 feet until the young have fledged.

Native Vegetation and Non-native Ornamental and Invasive, Exotic Species

- Non-invasive ornamental tree and shrub species would be used in cultural landscape treatments.

- Disturbance to vegetation would be avoided as much as possible and contained to as small a footprint as possible.

- Temporary barriers may be provided to protect existing trees, plants, and root zones not proposed for removal or thinning. Trees or other plants would not be removed, injured, or destroyed without prior approval.

- All equipment entering the park would be cleaned and pressure washed to remove foreign soil, vegetation, and other materials that may contain nonnative seeds or vegetation.

- All disturbed areas would be revegetated with native species. Revegetation plantings, if necessary, would use native species from genetic stocks originating in the park, if possible. Revegetation efforts would focus on recreating the natural spacing, abundance, and diversity of native plant species. All disturbed areas would be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed.

- To minimize introduction of exotic plant species, no hay bales would be used for mulch. Hay often contains seed of undesirable or harmful invasive exotic plant species. Therefore, on a case-by-case basis, the following materials may be used for any erosion control that may be necessary: rice straw, straws determined by the NPS to be weed-free (e.g., barley straw or winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.

- Non-native and invasive exotic plant infestations in restored areas would be treated on a yearly basis for a minimum of three years following project completion.

Cultural Landscapes, Historic Structures, and Archaeological Resources

- Unless they are part of the project, known historic sites and isolated occurrences would be avoided during construction.

- NPS cultural resources staff would be available during implementation to advise or take appropriate actions should any archeological resources be uncovered during implementation. Should any archeological resources be uncovered during implementation, as appropriate, work would be halted in the area and a NPS archeologist, SHPO, and

appropriate Native American tribes would be contacted for further consultation in accordance with 36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.

- The park would ensure that all personnel who work on the project are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Personnel would also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic would be minimized in the site. Equipment and materials staging areas would also avoid known archeological resources.

Public Health and Safety

- Signs, press releases, or other communication methods would be used to inform visitors about construction and any building or area closures or detours during construction.

- Appropriate barriers and barricades would be used to clearly delineate work areas and provide for safe visitor travel near construction areas.

- Emergency response protocols would be developed for implementation during construction. Construction activities would be conducted in accordance with established safety protocols.

Summary of Environmental Consequences

A summary of potential environmental effects for the alternatives is presented in Table 4-1.

Table 4-1. Potential Effects of Alternatives

Impact Topic	No Action	Action Alternative 1	Action Alternative 2
Cultural Landscapes, Historic Structures, and Archaeological Resources	Overall, the no action alternative would have no effect on cultural landscapes, historic structures, or archaeological resources.	Activities proposed under action alternative 1 would result in modest beneficial effects on cultural landscapes, small beneficial effects on historic structures, and no effect on archaeological resources. There would be no cumulative effects.	Activities proposed under action alternative 2 would result in modest beneficial effects on cultural landscapes, small beneficial effects on historic structures, and no effect on archaeological resources. There would be no cumulative effects.
Vegetation	The no action alternative, when combined with the cumulative effects of invasive and noxious species management and fire management, would have barely discernible, localized adverse effects and somewhat noticeable beneficial effects on vegetation in the study area.	Action alternative 1 would include permanently modifying about 10.84 acres of vegetation. When combined with the cumulative effects of invasive and noxious species management and fire management, action alternative 1 would have small, localized adverse effects and somewhat noticeable beneficial effects on vegetation in the study area.	Because action alternative 2 would include permanently modifying about 16.55 acres of vegetation, its effects would be modest and adverse. Cumulative effects would be modest and adverse and small and beneficial.
Water Resources	Overall, the no action alternative would have no discernible effect on water resource	Overall, action alternative 1 would have no discernible effect on water resources.	Overall, action alternative 2 would have no discernible effect on water resources.
Special Status Species	Overall, the no action alternative would have no effect on special status species.	By implementing mitigation measures/conservation measures as part of action alternative 1, action alternative 1 would have no effect on special status species of invertebrates, plants, or birds. The alternative may affect, but would not be likely to adversely affect special status species of bats. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions.	By implementing mitigation measures/conservation measures as part of action alternative 2, action alternative 2 would have no effect on special status species of invertebrates, plants, or birds. The alternative may affect, but would not be likely to adversely affect special status species of bats. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions.

NPS Preferred Alternative

Following an alternatives workshop, the NPS selected action alternative 1 as the preferred alternative after considering how well each alternative met the project objectives and consideration of the potential environmental consequences. The preferred alternative presents NPS's preferred management action and defines the rationale for the action in terms of natural and cultural resource protection and management; visitor use, operations, and cost; and other applicable factors. While action alternative 2 would meet the project goals to a certain degree, the preferred alternative has the best overall combination of features to meet the project objectives.

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Chapter 5. Environmental Consequences

Assessment of Impacts

This section provides an analysis of potential impacts of the alternatives on resource topics that were carried forward for further evaluation and considers how the condition of the resources would change, either negatively or positively, because of implementing each of the alternatives. The analysis determined if the proposed alternatives, including applied mitigation measures, have the potential for significant adverse impacts. Overall, NPS based these impact analyses and conclusions on the review of existing literature and park studies and on information provided by experts within the park, tribal partners, other agencies, and public input. Both direct impacts (occur at the same time and place as the action) and indirect impacts (foreseeably caused by the action and occur later or farther away) were considered in the analysis. The impact analysis also considers the context in which the impacts occur, in this case Rush Historic District on a small scale and the park on a large scale. The impacts were quantified wherever possible to convey the intensity of impacts, which is the degree to which a resource is affected. No significant impacts were identified in this assessment.

Cumulative Impacts

Cumulative impacts are defined as "the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually small, but collectively significant, actions taking place over time.

Cumulative impacts are determined by combining the impacts of each alternative with other past, present, and reasonably foreseeable future actions. The geographic scope for this analysis was limited to Rush Historic District. Past actions include activities that influenced and affected the current conditions of the environment of Rush Historic District and are reflected in Chapter 3. Ongoing or reasonably foreseeable future projects at Rush Historic District, where overlapping resource impacts are possible, were considered in the analysis. The following ongoing and reasonably foreseeable actions are relevant to the analysis of the effects on resources that would result from the alternatives.

Invasive, exotic species, particularly plant species, have spread to various degrees throughout Rush Historic District due to past disturbance and visitor activities. NPS has managed, and continues to manage, invasive and exotic plant species at Rush Historic District and these management activities will continue in the future. Fuel reduction and vegetation management activities associated with implementing the Buffalo National River Fire Management Plan have also been on-going and will continue in the future. The park has no other current or planned projects at Rush Historic District and NPS is not aware of on-going or reasonably foreseeable actions by others outside of NPS with potential environmental impacts on Rush Historic District.

Cultural Landscapes, Historic Structures, and Archaeological Resources

No Action Alternative

Under the no action alternative, the park would continue current levels of cultural landscape management, including preserving existing small-scale features, doing minimal vegetation thinning to maintain existing cleared areas, stabilizing the small drainage through House Row, and repairing stone retaining walls such as Hicks Wall. The addition of universal access to the Rush Landing Comfort Station and Shelter would occur in an area that already has non-contributing visitor facilities and so would not affect the historic integrity of the cultural landscape. Although it would include vegetation clearing, the alignment is far enough removed from contributing elements that constructing the Rush Mountain Trail would not noticeably change the character of cultural landscapes of the mines and mine complexes. Under the no action alternative, the existing extent of clearing at the mines and mine complexes would be maintained and the historic and visual character of the cultural landscape would continue to not be fully conveyed. Thus, although the no action alternative would maintain the somewhat compromised integrity of the cultural landscape, there would be no noticeable new adverse effects.

The no action alternative also includes continuing existing park management and maintenance approaches and uses of the Rush Historic District structures, particularly those in the House Row. In most cases, existing conditions would be maintained through stabilization, ongoing maintenance, and repair of historic materials and features. Activities anticipated under the no action alternative include maintaining roofs and siding of House Row structures to protect against water damage and other general stabilization of ruins. Without an identified treatment approach like those of the action alternatives, needed maintenance may be deferred or incompatible features and inappropriate materials may be unintentionally incorporated into the buildings. Over time, these changes may slightly diminish the overall integrity of the resources; although under past and current practices, the structures retain a high enough degree of historic integrity to be listed on the NRHP. Overall, potential adverse effects would not be noticeable.

Under the no action alternative, NPS does not anticipate adverse effects on archaeological resources. The alignment for the Rush Mountain Trail would be surveyed for historic and archaeological resources and realigned to avoid adverse effects and the universal access to the Rush Landing Comfort Station and Shelter would be in a previously disturbed area.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid adverse effects on cultural landscapes, historic structures, and archaeological resources, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

Continued management and maintenance of the cultural landscape and historic structures under the no action alternative would have no

new adverse effects on the cultural landscape or historic structures. By implementing preconstruction surveys, there would also be no adverse effects on archaeological resources. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, the no action alternative would have no effect on cultural landscapes, historic structures, or archaeological resources.

Action Alternative 1

In addition to ongoing management and maintenance and other activities described under the no action alternative, action alternative 1 focuses on reestablishing cultural landscape features and spaces with vegetation management and on improving visitor access and use of the site. Some views that are currently obscured and spaces around in the mining complexes would be reestablished to some extent by thinning about 10.84 acres of trees and shrubs. Visitor use would be improved by adding parking at various locations, formalizing and adding trails, closing Clabber Creek Road to vehicles and formalizing its day use area, and improving fencing and interpretation at certain mine entrances. Treatments for historic structures would include rehabilitating the scale pit, marking former building locations with 3D representations, and rehabilitating ornamental plantings at House Row.

The proposed treatments under action alternative 1 would have modest beneficial effects on the cultural landscape by reestablishing relationships between roads and buildings visible during the period of significance. Effects on historic structures would be small and beneficial, and less noticeable than cultural landscape changes. The additional parking, trails, fences and interpretation at mine entrances, and other visitor use improvements have been sited to avoid adverse effects on cultural resources and historic structures and would have no effect on the historic integrity of Rush Historic District.

Under action alternative 1, NPS does not anticipate adverse effects on archaeological resources. Areas receiving treatment activities would be surveyed for historic and archaeological resources and activities would be modified to avoid adverse effects. Adverse effects to the Dirst Site would particularly be avoided.

Cumulative Impacts

Cumulative effects under action alternative 1 would be the same as those under the no action alternative, so there would be no incremental cumulative effects on cultural landscapes, historic structures, or archaeological resources from past, present, and reasonably foreseeable actions.

Conclusion

Activities proposed under action alternative 1 would result in modest beneficial effects on cultural landscapes, small beneficial effects on historic structures, and no effect on archaeological resources. There would be no cumulative effects.

Action Alternative 2

In addition to activities described under the no action alternative and action alternative 1, action alternative 2 includes larger areas of vegetation management (16.55 acres), additional parking at the Hicks Hotel, marking more former building sites, formalizing trails at selected mine portals, and other slight variations from the other alternatives.

As with action alternative 1, the proposed treatments under action alternative 2 would have modest beneficial effects on the cultural landscape, small beneficial effects on historic structures, no effect on the historic integrity of Rush Historic District, and no adverse effects on archaeological resources.

Cumulative Impacts

Cumulative effects under action alternative 2 would be the same as those under the no action alternative and action alternative 1, so there would be no incremental cumulative effects on cultural landscapes, historic structures, or archaeological resources from past, present, and reasonably foreseeable actions.

Conclusion

Activities proposed under action alternative 2 would result in modest beneficial effects on cultural landscapes, small beneficial effects on historic structures, and no effect on archaeological resources. There would be no cumulative effects.

Vegetation

No Action Alternative

Under the no action alternative, NPS would continue ongoing maintenance and management of vegetation in the mine complexes, which would not include new ground-disturbing activities and or restoration of native vegetation. Visitor use and management activities, with their associated effects on native vegetation, would continue at current levels. While most activities under the no action alternative would have no new effects on vegetation, constructing the Rush Mountain Trail would result in about 1.43 acre of vegetation removal and ground disturbance (see Table 5-1), with associated potential to introduce invasive or exotic plant species. The 1.43 acre of vegetation removal represents 0.12% of the 1,176 acres of vegetation in the Rush Historic District. For this reason, the no action alternative would have barely discernible, localized adverse effects on vegetation.

Cumulative Impacts

Past, present, and reasonably foreseeable actions for invasive and noxious species management and fire management would have somewhat noticeable beneficial effects on native vegetation throughout Rush Historic District.

Conclusion

The no action alternative, when combined with the cumulative effects of invasive and noxious species management and fire management, would have barely discernible, localized adverse effects and somewhat noticeable beneficial effects on vegetation in the study area.

Action Alternative 1

Action alternative 1 would include select vegetation thinning of trees and shrubs on about 10.84 acres of vegetation that has encroached into historically cleared areas (see Table 5-2), which would represent about 0.92% of vegetation in Rush Historic District. In addition to areas in which vegetation would be removed or managed, there would be small areas of disturbance associated with other treatment elements, including repairing or stabilizing buildings and other structures, trail construction, and 3D representations of structures. Temporarily disturbed areas would be revegetated with native species.

In addition to direct impacts associated with vegetation management in the mine complexes, ground-disturbing activities and vegetation management could result in the establishment or spread of invasive exotic species and nonnative vegetation because many of these species outcompete native vegetation on disturbed sites, reducing resource values and uses. Invasive exotic species have the highest potential to establish in areas disturbed by thinning or clearing trees and shrubs. While most areas of vegetation management would not be cleared of vegetation, foot traffic and slash removal may create areas of loosened or bare soil. With successful implementation of the mitigation measures, including reseeding disturbed with a native seed mix and monitoring for and controlling undesirable species, the adverse effects of invasive, exotic plant species would be unnoticeable.

Cumulative Impacts

As described in the no action alternative, past, present, and reasonably foreseeable future projects would have a somewhat noticeable beneficial effect on native vegetation. Those effects, in combination with the small adverse effects of action alternative 1, would result in small beneficial and small adverse cumulative impacts.

Conclusion

Because action alternative 1 would include permanently modifying about 10.84 acres of vegetation, its effects would be small at the local level and adverse. On a district-wide level, the adverse effects would be barely discernible. When combined with the cumulative effects of invasive and noxious species management and fire management, action alternative 1 would have small, localized adverse effects and somewhat noticeable beneficial effects on vegetation in the study area.

Action Alternative 2

Treatment recommendations and effects under action alternative 2 are similar to those under action alternative 1, although the extent of vegetation management and potential for the establishment and spread of invasive, exotic plant species is greater. Action alternative 2 would include thinning trees and shrubs on about 16.55 acres of vegetation that has encroached into historically cleared areas (see Table 5-3). This would represent 1.41% of the estimated 1,194 acres of vegetation in Rush Historic District.

With the mitigation measures that would be included, adverse effects on native vegetation would be modest and slightly more noticeable than under action alternative 1.

Cumulative Impacts

As described in the no action alternative, past, present, and reasonably foreseeable future projects would have a somewhat noticeable beneficial effect on native vegetation. Those effects, in combination with the modest adverse effects of action alternative 2, would result in small beneficial and modest adverse cumulative impacts.

Conclusion

Because action alternative 2 would include permanently modifying about 16.55 acres of vegetation, its effects would be modest and adverse. Cumulative effects would be modest and adverse and small and beneficial.

Table 5-1. No Action Alternative Vegetation Impacts (in acres).

Vegetation Community Type	Acres of Impact
Oak – (Hardwood) Forest	0.98
Oak – (Hardwood) Woodland	0.30
Conifer Woodland	0.11
Mesic Hardwood Forest	0.04
Total	**1.43**

Table 5-2. Action Alternative 1 Vegetation Impacts (in acres).

Vegetation Community Type	Acres of Impact
Oak – (Hardwood) Forest	1.54
Oak – (Hardwood) Woodland	0.52
Conifer Woodland	2.86
Successional Forest	4.56
Mesic Hardwood Forest	0.04
Bottomland Shrubland	0.90
Successional Shrubland	0.28
Herbaceous Glade	0.13
Total	**10.84**

Table 5-3. Action Alternative 2 Vegetation Impacts (in acres).

Vegetation Community Type	Acres of Impact
Oak – (Hardwood) Forest	2.28
Oak – (Hardwood) Woodland	0.95
Conifer Woodland	4.98
Successional Forest	5.31
Mesic Hardwood Forest	0.04
Bottomland Shrubland	0.90
Successional Shrubland	01.89
Herbaceous Glade	0.20
Total	**16.55**

Source: Mundus Bishop 2018, Adapted from NPS Vegetation of the Buffalo National River.

Water Resources

No Action Alternative

Under the no action alternative, there would be no discernible changes in sediment loads or water quality in surface water or ground water from current conditions. Whatever effects current management and maintenance activities are having would continue at the same levels. Any ground disturbing activities, including constructing the Rush Mountain Trail, would include implementing best management practices to minimize soil erosion and sediment transport to surface waters. Best management practices, including those described as mitigation measures, would include installing silt fences and reseeding disturbed areas as soon as possible following the work. With best management practices and mitigation measures, the no action alternative would have no discernible effect on water resources.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid more than minor adverse effects on water resources, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

Continued management and maintenance of Rush Historic District under the no action alternative would have no new adverse effects on water resources. By implementing best management practices and mitigation measures during and after ground disturbing activities, there would also be no discernible adverse effects on water resources. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, the no action alternative would have no discernible effect on water resources.

Action Alternative 1

Under action alternative 1, some activities could expose soils to erosion and subsequent transport to surface waters. Any ground disturbing activities would include implementing best management practices to minimize soil erosion and sediment transport to surface waters. Best management practices, including those described as mitigation measures, such as installing silt fences and reseeding disturbed areas as soon as possible following the work, would be implemented. With best management practices and mitigation measures, action alternative 1 would have no discernible effect on water resources.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid more than minor adverse effects on water resources, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

By implementing best management practices and mitigation measures during and after ground disturbing activities, there would also be no discernible adverse effects on water resources. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, action alternative 1 would have no discernible effect on water resources.

Action Alternative 2

Potential effects under action alternative 2 are the same as those under action alternative 1, although there would be a greater extent of ground disturbance. Ground disturbing activities would include implementing best management practices to minimize soil erosion and sediment transport to surface waters. Best management practices, including those described as mitigation measures, such as installing silt fences and reseeding disturbed areas as soon as possible following the work, would be implemented. With best management practices and mitigation measures, action alternative 2 would have no discernible effect on water resources.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid more than minor adverse effects on water resources, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

By implementing best management practices and mitigation measures during and after ground disturbing activities, there would also be no discernible adverse effects on water resources. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, action alternative 2 would have no discernible effect on water resources.

Special Status Species

No Action Alternative

Under the no action alternative, there would be no discernible changes in habitat for special status species or in effects on individuals of special status species. Whatever effects current management and maintenance activities are having would continue at the same levels. Any ground or vegetation disturbing activities, including constructing the Rush Mountain Trail, would include implementing mitigation measures/conservation measures to avoid adverse effects on special status species. With mitigation measures/conservation measures, the no action alternative would have no effect on special status species.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid adverse effects on sensitive species, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

Continued management and maintenance of Rush Historic District under the no action alternative would have no new adverse effects on special status species. By implementing mitigation measures/conservation measures during and after ground disturbing activities, there would also be no adverse effects on special status species from constructing the Rush Mountain Trail. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, the no action alternative would have no effect on special status species.

Action Alternative 1

Under action alternative 1, vegetation management changes in habitat for special status species or in effects on individuals of special status species. Any ground disturbing activities, including constructing the Rush Mountain Trail, would include implementing mitigation measures/conservation measures to avoid adverse effects on special status species, particularly federally and state listed threatened and endangered species. With mitigation measures/conservation measures, action alternative 1 would have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, Alabama snow-wreath, false gaura, royal catch fly, or bald eagle.

Although the activities under action alternative 1, including mitigation measures/conservation measures, would not directly affect trees with active bat roosts or nurseries, entrance grates to mines, or hibernacula in mines, removing trees and shrubs around the mine complexes would modify foraging areas and reduce the number of potential roost and maternity trees. These changes would be small on a local scale and would occur in areas of visitor use. Additionally, abundant foraging, roosting, and nursery habitat would still be available in the rest of Rush Historic District. For these reasons, NPS has determined that action alternative 1 may affect, but would not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, or tricolored bat.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid adverse effects on special status species, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

By implementing mitigation measures/conservation measures as part of action alternative 1, action alternative 1 would have no effect on special status species of invertebrates, plants, or birds. The alternative may affect, but would not be likely to adversely affect special status species of bats. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, the effects of action alternative 1 on special status species would be either no effect or may affect, but would not likely adversely affect.

Action Alternative 2

Even though action alternative 2 would disturb more vegetation that action alternative 1, the effects of Action alternative 2 on special status species would be the same as those under action alternative 1. The larger area of disturbance under action alternative 2 is still small when compared to Rush Historic District overall. For this reason, with mitigation measures/conservation measures, NPS has determined that action alternative 2 would have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, Alabama snow-wreath, false gaura, royal catch fly, or bald eagle. NPS has further determined that action alternative 1 may affect, but would not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, or tricolored bat.

Cumulative Impacts

The invasive and noxious species and fire management plans include measures to avoid adverse effects on sensitive species, so NPS does not anticipate incremental contributions to adverse effects from associated past, present, and reasonably foreseeable actions.

Conclusion

By implementing mitigation measures/ conservation measures as part of action alternative 2, action alternative 2 would have no effect on special status species of invertebrates, plants, or birds. The alternative may affect, but would not be likely to adversely affect special status species of bats. There would be no incremental contribution to cumulative effects from past, present, or reasonably foreseeable actions. Overall, the effects of action alternative 2 on special status species would be either no effect or may affect, but would not likely adversely affect.

Chapter 6. Treatment Plan and Implementation

Introduction

This chapter presents the treatment plan for the rehabilitation and stewardship of Rush Historic District. The treatment plan and implementation are based on the evaluation of three alternatives conducted by NPS staff during a work session in February 2018. This resulted in selection of a preferred alternative and treatment approach representing the NPS' preferred management action.

This treatment plan describes Rush Historic District's desired future condition, and identifies actions needed to implement the plan. The treatment plan is presented in narrative and graphic form to illustrate intended actions.

The focus of the treatment plan is to preserve Rush Historic District's archeological and historic features, and guide stabilization and repair of contributing features, spaces and patterns. An emphasis is placed on actions within Morning Star Community landscape character area. This will provide a comprehensive visitor experience to improve understanding of the broad scale and extent of historic mining operations and the associated mining community.

Specific actions include stabilization of extant contributing features, and preservation of extant contributing ruins and foundations. Repairs for circulation features and patterns, small scale features, and vegetation patterns are included. Within Morning Star Community landscape character area, vegetation removed from footprints of some non-extant buildings and structures and markings will reveal historic spaces and relationships. Additional vegetation thinning, pruning, and some removal along roads, at spoils and tailings piles, and within some domestic spaces will repair spatial organization. Repair of domestic spaces include those in House Row and at Morning Star Hotel, Mill, and Mine Community. Mine adits, portals, and entrances will continue to be secured. Vegetation will be cleared at select locations at portals and interpretation provided.

Existing visitor facilities will remain and be improved for universal accessibility. A trail extension will be added on Rush Mountain—Rush Mountain Trail. Improvements will be made to the campground, day use facilities and parking including those at the confluences of Clabber and Rush creeks with Buffalo River.

Treatment Approach

The treatment plan follows a rehabilitation approach. This provides for long-term management of the historic mining landscape. Actions focus on stabilizing contributing features and repairing extant contributing buildings. Measures to reveal selected contributing spaces and vegetation patterns are included. The rehabilitation approach will provide an immersive visitor experience within the historic mining setting reflective of its period of significance of 1885 to 1931.

The treatment plan is presented in two sections: Study Area and Morning Star Community landscape character area. An overall description of treatment recommendations for the study area is presented first. Detailed treatment recommendations for Morning Star Community landscape character area and its three component areas are presented in the second section.



Figure 6-1. The riparian corridors of Buffalo River (above) and Rush and Clabber creeks (below) will be preserved and repaired. (Mundus Bishop, 2017)

Treatment Plan - Study Area

Treatment recommendations for the study area guide the repair, preservation and stewardship of Rush Historic District cultural landscape as a whole. The recommendations are presented for nine landscape characteristics: Natural Systems and Features; Archeological Site; Land Use; Cluster Arrangement, Topography, and Spatial Organization; Circulation; Buildings and Structures; Mines and Mine Complexes; Small Scale Features; and Vegetation.

Natural Systems and Features

The natural systems and features of Rush Historic District, located with the Ozark Plateau, will be preserved. The steep hills and river valleys of Buffalo River and its two tributaries—Rush and Clabber creeks—will be protected. The study area's karst geology that spurred extraction of the country's highest grade zinc ore during late 19th century and early 20th century will be protected. The study area's native ecology of geological and biological features including plants and wildlife habitat will be protected. Features resulting from natural processes, i.e., sinkholes, caves or springs, will be monitored and protected. Modifications to landforms or features made during the period of significance will be preserved.

- Sinkholes, caves, or springs resulting from natural processes or from man-made modifications associated with zinc mining and occurring within the period of significance will be monitored and protected.

- Contributing features such as the landforms of the spoils and tailings piles will be stabilized where needed for safety or to retain the feature.
  - Ore extraction and milling resulted in massive spoils and tailings piles that remain. Vegetation removal, thinning and pruning will be done to assist in revealing the extent and scale of these features, and to distinguish them from native hills.
  - Erosion control and soil stabilization may be required to stabilize these as contributing features and to minimize run-off and erosion.

- Native vegetation and habitat will be preserved, and further study and research conducted.
  - Measures to provide and protect bat habitat at mines will continue. Metal grates will remain where they exist today, but no new grates will be added to mines, i.e., Red Cloud Mine, where mine adits, portals, and entrances are currently open.
  - Removal, thinning or pruning of native vegetation will be allowed within areas of cultural significance, as recommended by this treatment plan.
  - The Cherokee Medicine Keepers plant gathering group will be allowed access to the study area to document, and possibly collect plants of medicinal, economic or spiritual value. They will be allowed access to these vegetation communities, but locations of their findings will not be publicized to protect plant communities.

- The riparian corridors of Buffalo River and its two tributaries, Rush and Clabber

creeks, will be preserved. Riparian vegetation will be repaired. Damage from erosion, pollution, man-made features, and invasive species will be repaired.

- Lower Buffalo Wilderness will be preserved. No vehicular access, new pedestrian access, or vegetation thinning, pruning or removal will be allowed within the wilderness boundary.

- Existing natural drainage patterns will remain. Natural drainages will be protected from erosion or damage.

Archeological Sites

Prehistoric and historic archeological sites within Rush Historic District will be protected. Further study, additional research, and archeological investigations will be conducted to determine the extent and location of resources associated with the historic mining landscape. Similar actions will be taken to identify and protect prehistoric archeological sites. The study area's many ruins will be preserved, stabilized, and repaired as needed to retain these as the last vestiges of mining related structures, features, and buildings that are no longer extant.

- Known prehistoric and historic archeological sites will remain and be preserved. Further research, surveys, investigations, and documentation will be conducted as independent work or as part of other projects.

  - Measures to identify historic archeological sites associated with mining will be undertaken to more fully document the extent and location of below grade resources. Measures may include non-invasive techniques such as LIDAR or magnetic surveys.

- Archeological investigations and excavations of any type within Rush Historic District will occur in consultation with the park archeologist. Where appropriate, other agencies (MWAC, SHPO or federally recognized tribes) will be included in consultations.

- Prehistoric archeological sites have not been completely investigated within the study area, and other sites are likely to be identified. All likely contain intact, buried archeological deposits that have the ability to provide additional information on prehistoric lifeways and adaptations to the Ozark Highlands.

- Identification of prehistoric and historic archeological sites, features, and ruins will be completed prior to vegetation thinning, pruning, removal, or repair within or near contributing features, spaces, or remnants.

  - Measures may include monitoring by the park archeologist or by conducting additional research, investigations, and surveys.

- Ruins will be preserved. Stabilization and repairs will be undertaken dependent on each feature's existing condition.

  - Measures to protect ruins from further damage from water or weather will be taken.

  - Stabilization or repair of a ruin will be completed where possible to extend the lifespan of the ruin. Full repair or restoration to represent the ruin's historic condition is not recommended.

- Physical markings or other measures to interpret ruins or below grade resources

associated with the historic mining landscape may be undertaken.

  - Markings or other means of identifying building or structure footprints at the surface may be used to illustrate the historic patterns of a site or place.

  - Revealing extant foundations or walls or exposing ruins and protecting and maintaining them alone or as part of another strategy may be accomplished as well.

  - Interpretive signage or identification of a feature may be part of a stabilization strategy. Narrative text and/or historic photographs can assist in understanding the historical condition and significance.

Land Use

Rush Historic District is a component of Buffalo National River with a current land use as a national park. A portion of the study area is a designated wilderness area—Lower Buffalo Wilderness. As a NRHP district, the study area's historic land uses are significant to its management and interpretation. Historic land use including mining, resource extraction, milling operations, housing, retail, and lodging will be preserved.

- The study area's historic land use patterns and features will be preserved. Repair of features, spaces and patterns that express historic land use will be undertaken.

- New recreational or interpretive features will be designed and located to avoid or minimize disruption to historic land use patterns and features.

Cluster Arrangement, Topography, and Spatial Organization

Rush Historic District's distinct pattern of development, along with built features, spaces, and patterns associated with the historic zinc mining industry, will be protected. Historic patterns and relationships between mines and mine complexes and between mining operations and community life will be preserved. Views between some will be repaired. Interpretive measures will assist visitors to "see what can't be seen."[5.1]

- The historic development pattern of Rush Historic District will be preserved by protecting extant contributing features, and through measures that will reveal the study area's historic arrangement, topography, and spatial relationships.

- Selected views will be repaired through vegetation thinning and pruning. This will restore historic spatial relationships between mines and mine complexes, community life, and between extant contributing features, i.e., spoils and tailings piles. Selected views will repair relationships between mines set high on the hillsides (at the same or consistent elevation) with mills located below, and community life set lower in the relatively flatter bottomlands of the river and creek valleys.

- Interpretation measures related to "virtual access through digital, cross-platform 3-D media will be included to allow audiences to "see what can't be seen."[5.2] Interpretive information will assist in understanding the relationship between the mining, milling, and transport processes, and the study area's

5.1 *LRIP*, 41.
5.2 *LRIP*, 41



Figure 6-2. Interpretive information will assist in understanding the relationship between the mining, milling, and transport processes, and the study area. With limited cell service, an application or program may needed to be downloaded or provided at the visitor center. (Mundus Bishop 2018)

topography as well as how the community functioned. With limited cell service,an application or program may needed to be downloaded or provided at the visitor center.

- Measures to mark selected non-extant spaces, building footprints, and features will assist in preservation of features. Markings can assist in revealing the broad extent and complexity of the historic zinc mining industry. Most markings will be within Morning Star Community landscape character area.

- Natural features and contributing features will be preserved. Mining-related man-made modifications to the natural topography, such as spoils piles, will be preserved. Preservation of below-grade archeological features and sites, along with stabilization and repair of contributing features will be undertaken.

- Mines and mine complexes on the east side of Buffalo River will be protected. Features associated with Red Cloud Mine Complex (M3), Lonnie Boy Mine (M5), and Silver Hollow Mine (M9) will be obscured. No visual or physical access would be allowed.

Circulation

Rush Historic District's contributing roads and trails will be preserved, stabilized, and repaired to function as they do currently. Modifications will be undertaken to improve visitor access and experience at Rush Landing, Clabber Creek Road and Trail, New White Eagle Mill, and Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12). Roads will not be widened or extensively modified. Pedestrian only trails will continue to be for pedestrian use only. Improvements include universal accessibility to existing visitor facilities, and to selected areas where views of mill ruins would be visible.

- Rush Road will be preserved along its historic alignment. Where appropriate, the road surface will be narrowed to historic widths, and repaired using a soft surface (gravel) material. Rush Road will continue to be a shared vehicular and pedestrian route as it was historically, and as occurs currently.

- Clabber Creek Road will be preserved along its historic alignment. The road surface will be repaired to adequately provide vehicular access to an improved day use area at the confluence of Clabber Creek and Buffalo River. A soft surfaced (gravel) parking and vehicular turn-around with a gate will be built to improve picnicking and day uses. Clabber Creek Road north of the gate will be narrowed and resurfaced to become a pedestrian only trail from the parking to connection with Clabber Creek Trail (Clabber Creek Road Trail).

- Pedestrian only trails will continue to be for pedestrian use only. Mine Level Trail will be preserved along its current alignment. Repairs to pedestrian trails will be made as needed.

- A new trail—Rush Mountain Trail—will provide a loop route for pedestrians on Rush Mountain. This new trail will be of a similar width and surfacing as existing pedestrian trails. Rush Mountain Trail will connect Monte Cristo Mine (M10) with Morning Star Mine (M1).

- Universal access would be provided for mobility impaired visitors at existing facilities. This will include improvements to non-contributing trails and facilities to ensure universal accessibility.



Figure 6-3. A new pedestrian trail to Yellow Rose Mine Complex (M7) (above) and Edith Mine Complex (M12) (below) will provide an ABAAS compliant route. (Mundus Bishop, 2017)

  - An ABAAS pedestrian route and parking will provide universal accessibility to the existing comfort station and shelter at Rush Landing.

  - A new pedestrian trail to Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12) will provide an ABAAS compliant route.

- The existing boat ramp and parking at Rush Landing at Buffalo River will remain to provide river access for visitors.

- Parking and vehicular access will be improved at New White Eagle Mill for additional day use. A new trail will be built to connect visitor parking to Mine Level Trail.

Buildings and Structures

The study area's buildings and structures are NPS built features that provide visitor amenities and facilities. These features support recreational activities associated with the Rush Landing, Rush Campground, and trails. All will remain.

- Visitor facilities and amenities will remain and improvements made where needed. These non-contributing features include two comfort stations, kiosks, and a shelter. These are generally located at Morning Star Trail parking, Rush Landing, and Rush Campground.

- The many buildings and structures built during the period of significance remain predominantly as ruins. These will be preserved in situ, and stabilized and repaired according to their condition.

Mines and Mine Complexes

Mines and mine complexes associated with the study area's ten mining companies and fourteen zinc mines (eleven of which are in the study area), which operated between 1885 and 1962, will be preserved. Measures to protect mining resources, including spoils and tailings piles will be taken. Actions to provide visitor safety while allowing for some enhanced interpretation will be included. Mines and mine complexes on the east side of Buffalo River will be obscured, and no visual or physical access allowed.

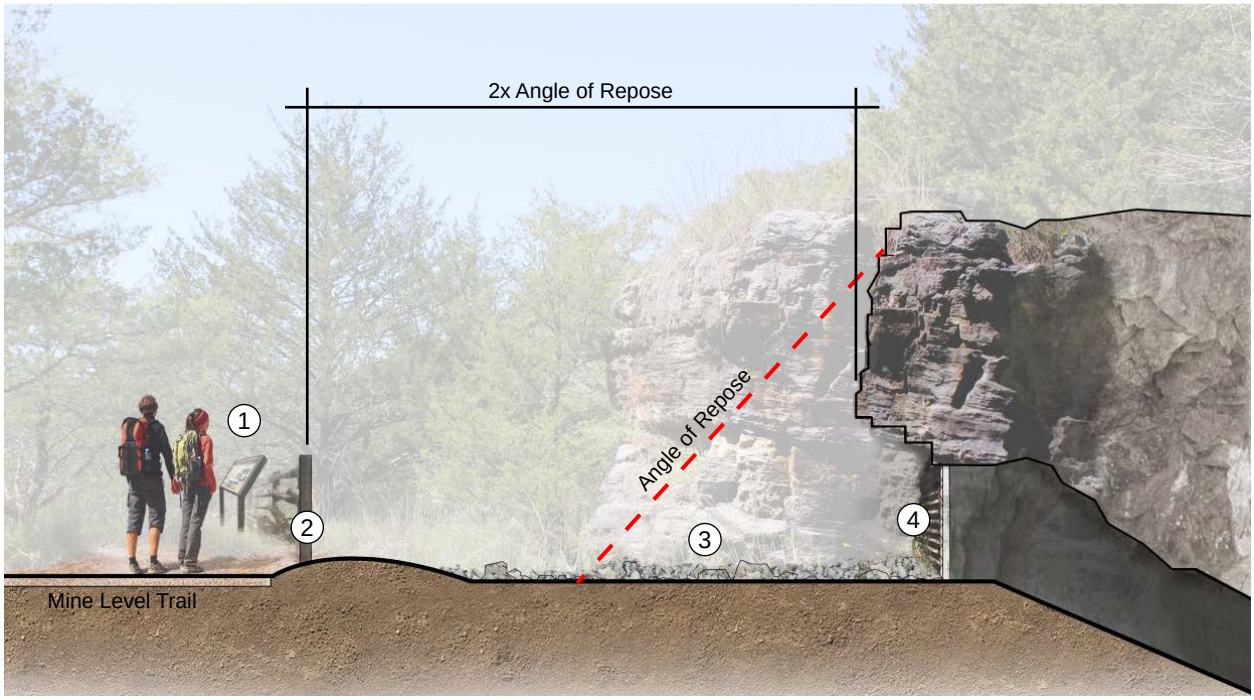
- Mines will be preserved and protected. This includes all types of mine development within the study area—horizontal, vertical, and open-pit mines. Features, such as stone portals associated with room-and-pillar construction, vertical shafts associated with vertical construction, and spoils piles associated with open-pit mines, will be preserved in situ. All mines will be closed. No physical access will be allowed.

- Mine adits, portals and entrances will continue to be secured by existing metal grates. Most will be obscured with vegetation. These grates will remain as they also provide bat habitat.

- Deep holes, sink holes, and depressions associated with vertical mines will be monitored and secured where needed. These are generally outside visitor areas. Measures will be taken to orient visitors away from known and potential features.

- Specific mines, as determined by park staff, will be allowed to be visible to Mine Level Trail users.

  - At adits, portals, or entrances, vegetation will be cleared and a low



Legend

1. Interpretive and Regulatory Signage
2. Low Barrier
3. Vegetation Management
4. Existing Metal Grate

Figure 6-4. At adits, portals, or entrances, vegetation will be cleared and a low barrier added, set outside the angle of repose from the face of the opening. Interpretive and regulatory signage will warn visitors of hazards. (Mundus Bishop, 2018)

barrier added, set outside the angle of repose from the face of the opening. Interpretive and regulatory signage will warn visitors of hazards.

  - At the Morning Star Mine (M1) open cut, the extant spoils pile will be preserved. An interpretive wayside will be added to view this type of historic zinc mining.

- Mines and mine complexes on the east side of Buffalo River—Red Cloud Mine Complex (M3), Lonnie Boy Mine (M5), and Silver Hollow Mine (M9)—will be obscured. No visual or physical access will be allowed.

- Ruins and spaces associated with the study area's seven zinc concentrating mills will be preserved. Stabilization and repair will be done at specific mills or for selected features, as determined by park staff. These measures will reveal the extent of development of mills, the largest and most prominent buildings and structures due to their elevated position and lack of surrounding trees. Concentrating mills were associated with Morning Star Mine (M1), White Eagle Mine (M2), Red Cloud Mine (M3), McIntosh Mine (M5), Yellow Rose Mine (M7), and Edith Mine (M12). Philadelphia Mine (M4) included a non-extant mill located across Clabber Creek from Monte Cristo Mine, the Mill is in study area, Philadelphia mine is not.

  - Ruins associated with concentrating mills such as McIntosh Mill will be preserved.

  - Selected ruins, i.e., Edith Mill's massive pyramidal concrete pier foundations and others as determined by park staff, will be stabilized and repaired.

  - Mill ruins to be stabilized and repaired are Morning Star Mill, Yellow Rose Mill, and Edith Mill.

  - Spaces associated with mines and mine complexes will be repaired and interpreted. Most of this work will be in Morning Star Community landscape character area.

- Further study, additional research, and investigations will be conducted to protect mines and mine complexes and to determine the extent and location of contributing resources.

Small Scale Features

The study area's contributing small scale features will be preserved. Selected features will be repaired and stabilized. Others will be allowed to decay. Non-contributing small scale features for visitor safety, wayfinding, and interpretation will remain.

- Contributing small scale features, the ore cart on the Mine Level Trail, adjacent to Capps Mine (M11), remnant fencing, and stone retaining wall, would be preserved and monitored.

- Some contributing small scale features will be stabilized, depending on condition and location. Stabilization may be associated other repair measures, or with other markings and vegetation management. If the condition of a feature becomes critical or very poor, it may be allowed to be documented and then removed.

  - For example, many fencing remnants on hillsides and around non-extant structures have deteriorated with decayed wood posts and wire fencing on the ground.

- Stone walls associated with building ruins, including those associated with a mill will be stabilized and repaired, depending on location and condition.

- New small scale features, such as those that assist in wayfinding or visitor safety, will be designed to be compatible with the historic mining landscape.

- Non-contributing features, such as chainlink fencing, will be removed and replaced with new features in a style and character compatible with the historic mining landscape.

Vegetation

Vegetation management will reveal selected contributing spaces, features, views, and relationships currently obscured by overgrown vegetation. This vegetation has primarily grown in since the end of the period of significance. Vegetation thinning, pruning, and some removal will be completed to preserve and repair selected contributing spaces, building ruins and features. This will also enhance visitor understanding of the historic mining landscape.

- Overgrown vegetation will be pruned or thinned, with some removal, in selected locations to repair historic patterns. This will be primarily at the once open spaces of selected mines and mine complexes, along contributing roads repurposed as pedestrian only trails, and where the community developed historically.

  - Vegetation management will primarily remove trees and understory shrubs from contributing building ruins, i.e., foundations, ruins (structures and features), tailings and spoils piles, and where vegetation obscures selected views of some contributing features.

  - Low growing grasses and herbaceous species will be planted and maintained in cleared areas to minimize erosion, and to reveal spaces and features.

  - Invasive non-native species will be removed to the extent possible, using biologically safe methods.

- Vegetation will be thinned at Yellow Rose Mill ruins, and Edith Mill ruins to reveal contributing features, i.e., concrete pier foundations, and spaces. Views and relationships between these mills and associated mining operations and residential living will be opened up by vegetation management.

- Vegetation management on the east side of Buffalo River and within Lower Buffalo Wilderness will follow the park's best practices. No physical access will be allowed, including vegetation removal.

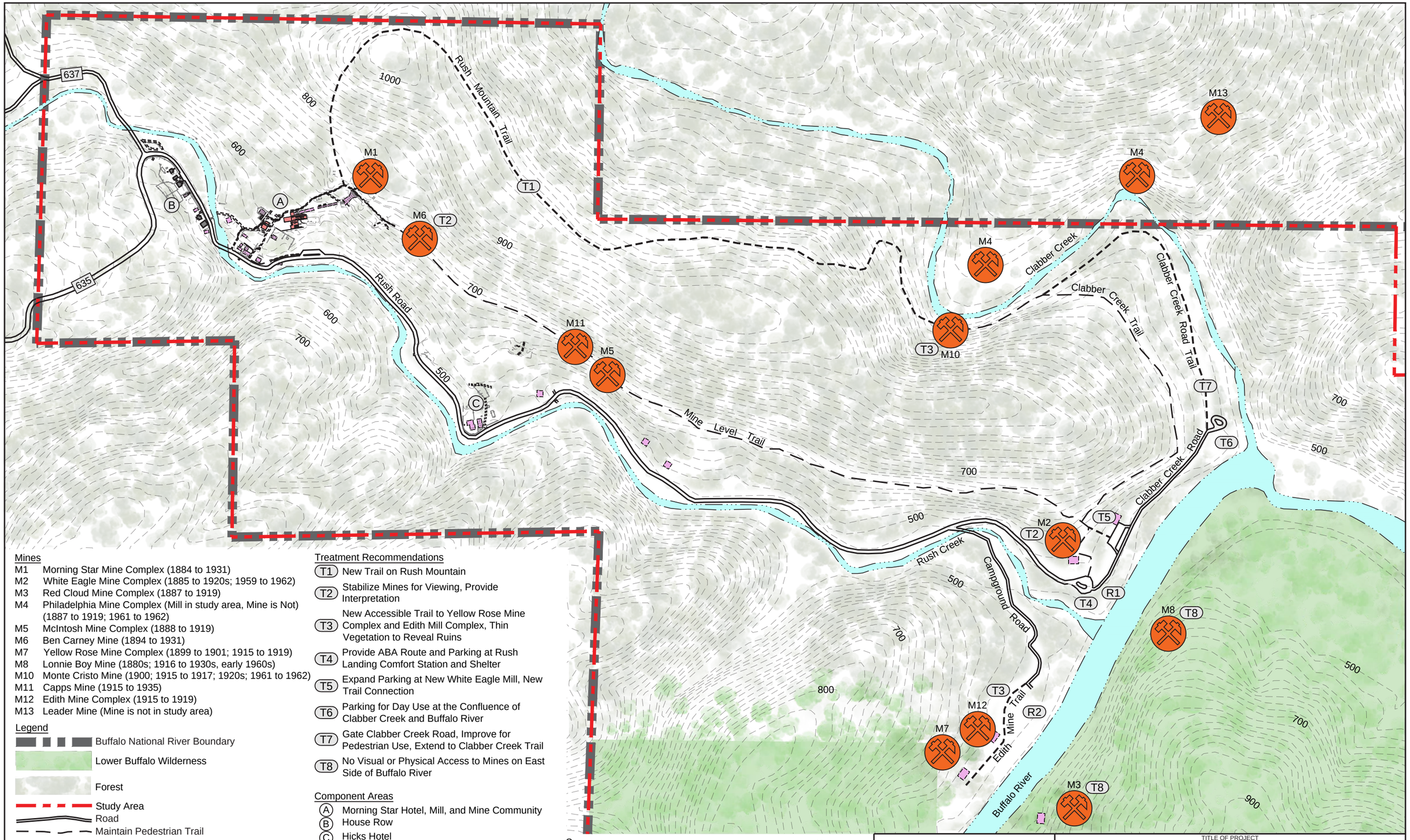
- Vegetation management could be sustained over time through regular thinning and maintenance, augmented by specialized methods such as controlled burns.

  - Areas recommended to remain open, within the study area but outside the wilderness boundary, may be managed through mechanical methods, fire suppression, and prescribed burns methods.

  - Managing exotic species through mechanical and physical removals will be included in any vegetation thinning or removal. Measures will be taken to ensure seed banks in dormant soils do not become an issue during growing seasons.

- The Cherokee Medicine Keepers plant gathering group will be allowed access to the study area to document, and possibly collect plants of medicinal, economic or spiritual value. They will be allowed access to these vegetation communities, but locations of their findings will not be publicized to protect plant communities.

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Mines

M1 Morning Star Mine Complex (1884 to 1931)
M2 White Eagle Mine Complex (1885 to 1920s; 1959 to 1962)
M3 Red Cloud Mine Complex (1887 to 1919)
M4 Philadelphia Mine Complex (Mill in study area, Mine is Not) (1887 to 1919; 1961 to 1962)
M5 McIntosh Mine Complex (1888 to 1919)
M6 Ben Carney Mine (1894 to 1931)
M7 Yellow Rose Mine Complex (1899 to 1901; 1915 to 1919)
M8 Lonnie Boy Mine (1880s; 1916 to 1930s, early 1960s)
M10 Monte Cristo Mine (1900; 1915 to 1917; 1920s; 1961 to 1962)
M11 Capps Mine (1915 to 1935)
M12 Edith Mine Complex (1915 to 1919)
M13 Leader Mine (Mine is not in study area)

Legend

- Buffalo National River Boundary
- Lower Buffalo Wilderness
- Forest
- Study Area
- Road
- Maintain Pedestrian Trail
- New Pedestrian Trail
- Creek / River
- Mine / Mine Complex

Treatment Recommendations

T1 New Trail on Rush Mountain
T2 Stabilize Mines for Viewing, Provide Interpretation
T3 New Accessible Trail to Yellow Rose Mine Complex and Edith Mill Complex, Thin Vegetation to Reveal Ruins
T4 Provide ABA Route and Parking at Rush Landing Comfort Station and Shelter
T5 Expand Parking at New White Eagle Mill, New Trail Connection
T6 Parking for Day Use at the Confluence of Clabber Creek and Buffalo River
T7 Gate Clabber Creek Road, Improve for Pedestrian Use, Extend to Clabber Creek Trail
T8 No Visual or Physical Access to Mines on East Side of Buffalo River

Component Areas

A Morning Star Hotel, Mill, and Mine Community
B House Row
C Hicks Hotel

Recreation

R1 Rush Landing
R2 Rush Campground

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

N W E S
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NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUFFALO NATIONAL RIVER
ARKANSAS

173/141248

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT

Illustration 6-1.

TITLE OF DRAWING
TREATMENT PLAN - STUDY AREA

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION: MIDWEST
COUNTY: MARION
STATE: ARKANSAS

Treatment Plan - Morning Star Community Landscape Character Area

This landscape character area was historically the most intensely developed portion of Rush Historic District. It is described according to three component areas: Morning Star Hotel, Mill, and Mine Community, House Row, and Hicks Hotel. Collectively, they include the study area's greatest amount of extant resources, and all of its standing buildings.

Morning Star Community landscape character area is most easily accessed to visitors. As such, it offers a great opportunity to reveal and understand the broad scale and extent of mining operations and the mining community that existed at Rush Historic District.

The treatment plan emphasizes actions that will preserve and repair contributing patterns, features, and relationships of Morning Star Community landscape character area. Prominent features of the Morning Star Hotel, Mill, and Mine Community would be marked and interpreted—ruins of Morning Star Mill, Morning Star Mine Office, Chase and Mulholland Store, and scale pit. Extant buildings will be preserved and stabilized. Other building ruins, ruins (structures or features, traces, and below grade features will be preserved.

Cluster Arrangement, Topography, and Spatial Organization

Morning Star Community landscape character area's pattern of development, and its contributing features and spaces will be protected. Historic patterns and relationships between mines and mine complexes and between mining operations and community life will be repaired. Interpretive measures will assist visitors in visualizing the historic mining landscape.[5.3]

- Spaces associated with Morning Star Mine Complex (M1) will be repaired to better articulate the mass and scale of each historic space, and to reestablish historic views or relationships.

Circulation

The landscape character area's circulation patterns and features will be preserved. Repairs will be made to reestablish historic alignments, materials, and character. Rush Road, the main vehicular route, abandoned roads in the Morning Star Hotel, Mill, and Mine Community, Hicks Hill Road Trace, and Morning Star Trail will be preserved and repaired as contributing features.

- Rush Road will be preserved along its historic alignment. Where appropriate, the road surface will be narrowed to historic widths, and repaired using a soft surface (gravel) material.
  - —Rush Road will continue to be a shared vehicular and pedestrian route as it was historically.
  - —Connections to other contributing features will be preserved and repaired, i.e., driveways at House Row and abandoned roads.
- Pedestrian only trails will continue to be for pedestrian use only.
  - —Mine Level Trail will be preserved along its current alignment. Repairs will be made as needed.
  - —Morning Star Trail will be realigned to avoid crossing contributing features, ruins, and spaces—Morning Star Mill

5.3 *LRIP*, 41.

ruins and Morning Star Mill Stone Retaining Wall. A new trail alignment will provide pedestrian access between parking and Morning Star Mill.

  - An ABAAS compliant pedestrian route and parking will connect Morning Star Trail parking west to Morning Star Livery Barn ruins and Morning Star Hotel ruins.

- Selected contributing roads will be repurposed as pedestrian only trails. These include abandoned roads to Morning Star Mill and Hicks Road Trace. Roads will be repaired to historic widths, and vegetation will be removed. Materials will be repaired to be soft surfacing in compatible or historic materials.

- A wayside or overlook for pedestrians will be added at the top of the Morning Star Mine spoils pile, and accessed from Mine Level Trail.

Vegetation

This landscape character area's oak hickory forest on the hillsides of Rush Mountain will remain, and in general be managed according to the park's best practices. Overgrown vegetation that obscures selected contributing spaces, features, views, or relationships will be thinned, pruned or removed.

- Vegetation that contributes to Rush Historic District's historic character including historic trees, and evidence of gardens and perennial plantings, will be preserved.

  - Contributing trees near the former Courthouse site and Morning Star Livery Barn ruins will be protected.

  - Contributing ornamental plantings including daffodils, daylilies, and flowering quince at House Row and Hicks Hotel will be preserved.

  - Further research will be done to identify other historic plantings that may have included roses, lilac, grape hyacinths, forsythia, Russian olive, and mimosa.[5.4]

- Trees and understory vegetation will be removed from contributing buildings, building ruins, ruins, and where vegetation obscures selected views of some contributing features.

- Overgrown vegetation will be pruned or thinned, with some removal, in selected locations. These include once open spaces, along contributing roads, and where the community developed historically.

- Vegetation will be managed to protect contributing features, reveal contributing spaces and building footprints, and in historic vegetation patterns.

  - Low growing grasses and herbaceous species will be planted and maintained in cleared areas to minimize erosion, and to reveal spaces and features.

  - Invasive non-native species will be removed to the extent possible, using only biologically safe methods.

- Citrus trees at Clabber Creek Road will be documented and maintained.

5.4 *Botanical Survey of 67 Acres and Recommendations.*

Treatment Plan - Morning Star Hotel, Mill, and Mine Community

Morning Star Hotel, Mill, and Mine Community will be preserved. Its historic patterns and relationships and contributing spaces will be repaired. Contributing features, the most within the Rush Historic District, will be stabilized and repaired.

Spatial Organization

The setting and relationships of Morning Star Hotel, Mill, and Mine Community, on the south slope of Rush Mountain, will be preserved. This setting will be repaired to more fully reveal the quintessential relationships of Rush Historic District.

Building ruins and spaces near Rush Road are related to community life, i.e., Morning Star Hotel ruins, Lyons House ruins, Post Office ruins, Morning Star Livery Barn ruins, and Courthouse site. Uphill are mill related uses including Rush Blacksmith Shop, Morning Star Mine Office ruins, Chase and Mulholland Store ruins, and Warehouse ruins. East, and uphill of Morning Star Mine Office ruins, is Morning Star Mill ruins set on a level terrace. Further uphill is Morning Star Mine (M1).

- The setting of Morning Star Mill, on a level terrace slightly uphill and east of Morning Star Mine Office and oriented parallel to hillside contours, will be preserved. Spatial relationships between the mill above, the mill's tailings piles (south and downhill), and with the community below will be repaired.

- Vegetation will be cleared from mill and tramway ruins. Historic building spaces will be identified. Measures will include defining footprint's of building ruins by revealing extant features or by marking the footprint with new compatible materials.

- Interpretation of the Morning Star Mine Complex (M1) may include virtual access through digital, cross-platform 3-D media to allow visitors to visualize the historic setting, the scale and mass of the mill and mine operations, and relationships between uses.[5.5]

- A simple 3-dimensional marking, built of simple compatible materials may mark building corners, spaces or features to further express the mass, scale and frame of the non-extant mill building and tramway.

- The setting of the Morning Star Hotel ruins will be repaired and interpreted.

  — Vegetation will be cleared from building ruins and historic building spaces identified. Foundations of non-extant buildings will be marked by revealing extant foundations or by using new compatible materials.

  — Vegetation will be removed from portions of the pasture around Morning Star Livery Barn ruins.

- A new interpretive wayside will be added at the existing parking to view Morning Star Mill ruins and spaces from below. Mill ruins and tailings pile would be preserved.

5.5 *LRIP*, 41.



Figure 6-5. This 2012 image of the Chase and Mulholland Store ruins illustrates the removal of vegetation from building footprints and managing the space with features revealed and a cover of low growing grasses. (CLI, Jackson/NPS 2012, BUFF Archives)

Buildings and Structures/Ruins

Contributing buildings, structures, and ruins will be preserved. Standing buildings will be stabilized and repaired to be weatherproof. Building ruins will be stabilized and repaired. Building footprints and associated spaces will be repaired. Other resources likely remain below-grade.

- Rush Smelter and Rush Blacksmith Shop will be preserved. Both buildings will be structurally stabilized and exterior finishes repaired/replaced to provide a weatherproof enclosure. Exterior facade repair will include roofing, exterior wall finishes, windows and doors.

- Building ruins, i.e., foundations, footings, chimneys, and other visible evidence on the surface, will be stabilized and repaired.

  - Building ruins include Morning Star Hotel ruins, Lyons House ruins, Post Office ruins, Morning Star Livery Barn ruins, Smith House ruins, Warehouse ruins, Oil Storage House ruins, Barn ruins, and Hopper House ruins.

  - The ruins of Morning Star Mine Office, Chase and Mulholland Store, and scale pit—will be marked and interpreted. Vegetation will be removed at building ruins. Building footprints will be repaired from vegetation removal and footprints marked.

  - Selected spaces associated with building ruins will be repaired, including domestic and livestock spaces associated with Morning Star Livery Barn.

- Ruins are remnants of structures and features, traces, and spaces associated with Morning Star Mill, built in 1898. Most will be stabilized and contributing spaces will be repaired.

  - Ruins associated with the elevated tramway that connected the mill with the mine will be preserved and stabilized.

  - Ruins associated with Morning Star Mill will be preserved and stabilized. These include Morning Star Mill Stone Retaining Wall that extends east to west along the hillside, and assists in creating the level space for the mill building and operations. Vegetation will be removed from the interior of this space and it will be marked to reveal its historic mass and form.

  - Extant tailings, south and downhill of the mill, and the large retention basin and associated features such as its wall and spillway will be preserved. This earthen basin is fed by a small natural drainage from Rush Mountain that will also be protected.

  - Other ruins will be preserved and stabilized, these include a series of parallel concrete and stone piers, stone retaining wall at the northern slope, concrete platform for the engine and stone and brick boiler room.



Legend

1. Rush Blacksmith Shop and Warehouse Ruins
2. Tramway Ruins
3. Morning Star Mill Ruins
4. Chase and Mullholland Store Ruins, Morning Star Mine Office Ruins, and Scale Pit ruins
5. Smith House Ruins
6. Doctor's / Maxey House Ruins and Barn Ruins
7. Post Office Ruins
8. Rush Smelter
9. Morning Star Hotel Ruins
10. Morning Star Livery Barn Ruins
11. Morning Star Mine Spoils Pile

Figure 6-6. Spaces associated with Morning Star Hotel, Mill, and Mine Community will be repaired through vegetation thinning or removal to better articulate the mass and scale of each historic space, and to reestablish historic views or relationships. Selected building ruins, i.e. the Morning Stare Mine Office, the Chase and Mulholland Store and the scale pit between them, will be marked and interpreted. (Mundus Bishop 2018)

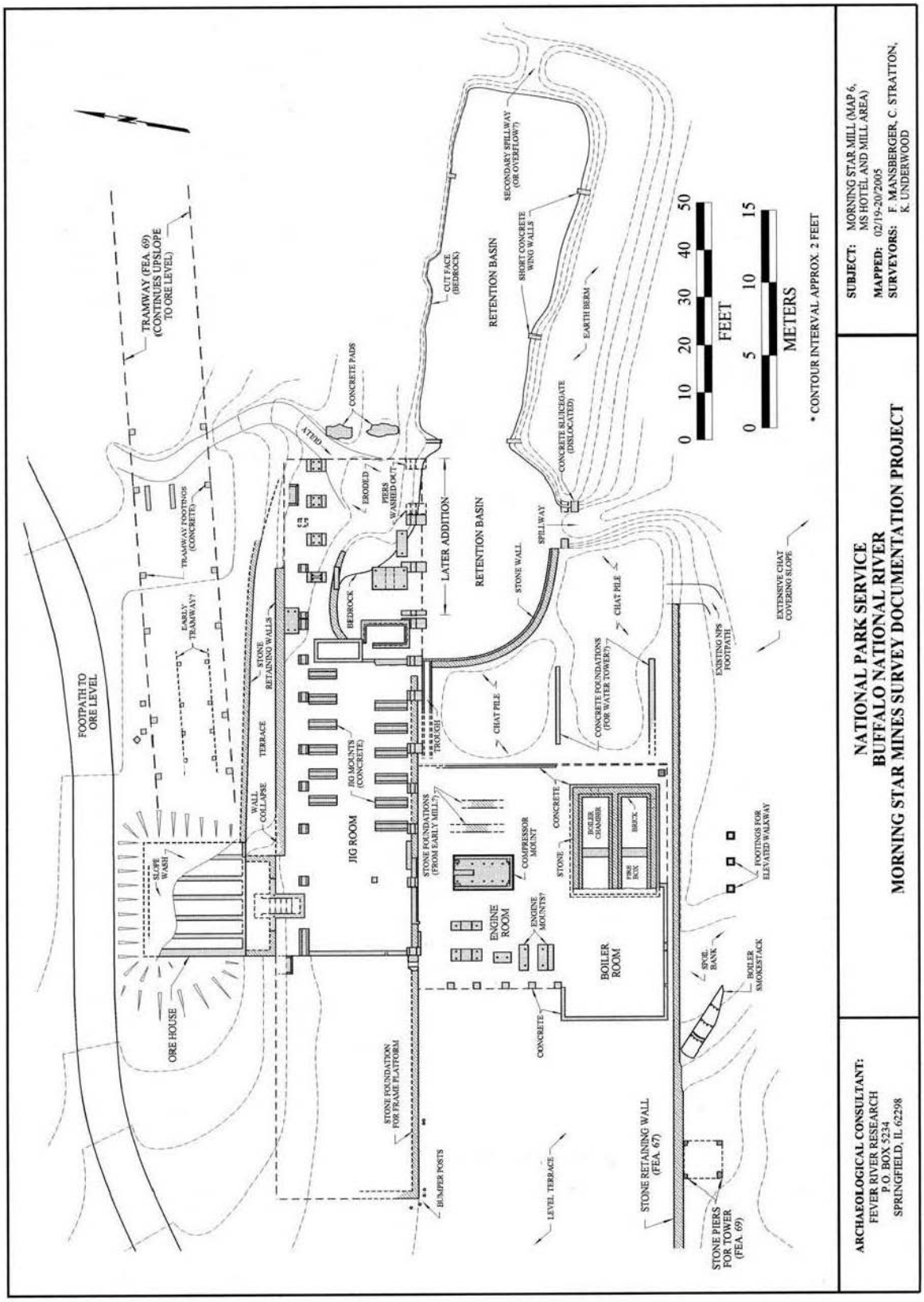


Figure 196. Map 6 of Area "B" of the Morning Star Site, showing the remains of the Morning Star Mill (FRR 2004).

Figure 6-7. Vegetation will be removed from the Morning Star Mill ruins to reveal the ruins of the mill and its associated features. ((FRR 2004) Rogers et al, Historic Resource Documentation, Morning Star Mines Interpretive Area)

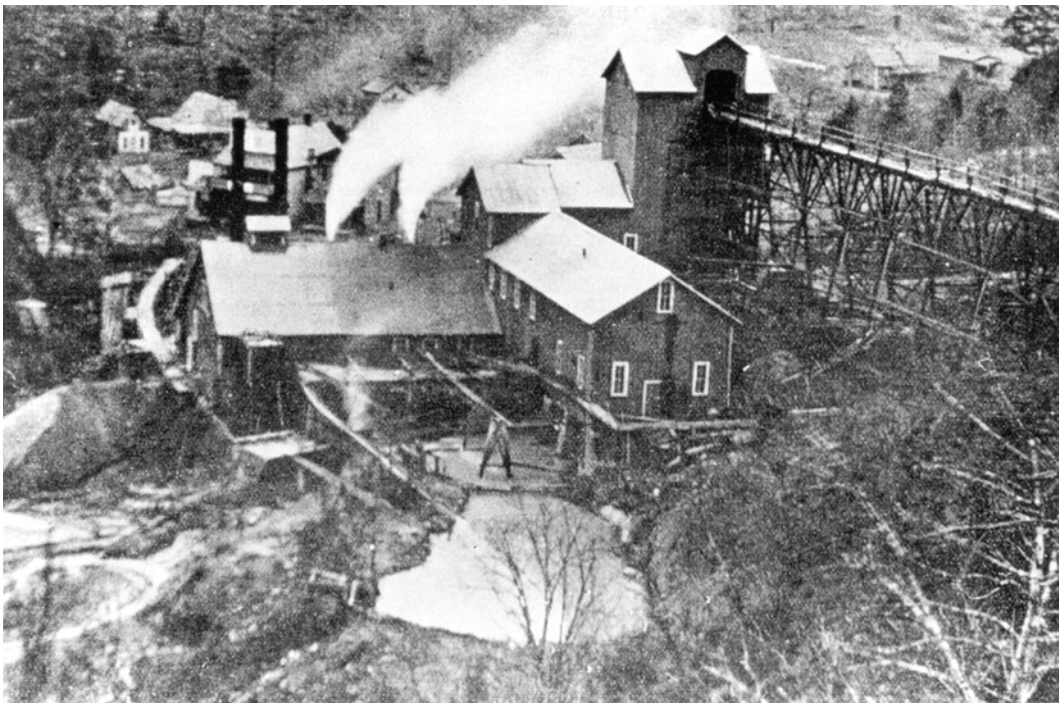


Figure 6-8. Views will be restored from the Morning Star Mine spoils pile towards Morning Star Hotel, Mill, and Mine Community. (BUFF Archives)



Figure 6-9. Vegetation will be removed from the Morning Star Mill to reveal the mill foundations and features. (BUFF Archives)

Morning Star Mine Complex (M1)

The study area's first and most famous mine complex—Morning Star Mine Complex (M1) that was active from 1884 to 1935—will be preserved. All mining resources will remain closed and will be protected including the open cut mine, drift mines, shafts, and spoils pile. Selected mining resources will be visible, as determined by the park, and measures taken for visitor interpretation and safety.

- All mining resources will be protected including the Morning Star Mine Open Cut, Morning Star Mine spoils pile, and Morning Star Mines' most obvious feature, its adits, openings and portals, and associated spoils.

- No physical access will be allowed to Morning Star Mine Open Cut (the long narrow open cut that is approximately 400 feet long, 100 feet wide and 50 feet deep), or to the rock fall that conceals a portion of it.

  - Vegetation will be thinned or cleared from Morning Star Mine Open Cut.

  - An interpretive wayside/viewing platform will be added for visitors to view the full extent of the mining operation. This will be accessed by pedestrians from Mine Level Trail.

- Extant spoils and tailings piles will be preserved. These include Morning Star Mine spoils pile that extends from Morning Star Mine (M1) downhill to Rush Road.

  - Existing vegetation covering the spoils pile will remain and be monitored.

  - Vegetation may be removed in the future to reveal the immense size of the spoils pile or to aid in its preservation.

  - An interpretive wayside will be added to view this historic zinc mining resource at Mine Level Trail.

- No physical access will be allowed to adits (at least 6 are known that extend into the rock face west of the Morning Star Mine Open Cut), portals, or openings.

  - Selected adits, portals, or entrances, as determined by park staff, will be visible to visitors from the Mine Level Trail.

  - Vegetation will be thinned and a low barrier added, set outside the angle of repose from the face of the opening. Interpretive and regulatory signage will warn visitors of hazards.

  - Existing openings with metal grates will remain. These will be monitored, including those with cracked or collapsing portals or features, and protected.

  - Most mine resources are not readily visible from Mine Level Trail due to overgrown vegetation. Existing non-contributing fencing will be removed, as budgets allow, and replaced with a simple wood/metal fence in a design and material compatible with the historic mining landscape. Signage warning visitors of hazards will be included.

- Vegetation will be thinned in the retention basin, drainage and tailings, particularly near extant contributing ruins and features.



Figure 6-10. The rubble stone wall of the non-extant tramway will be stabilized. Vegetation will be thinned or removed. (Mundus Bishop, 2017)



Figure 6-11. Vegetation will be removed from contributing features, including the Tramway piers. (CLI, Jackson/NPS 2012, BUFF Archives)

Small Scale Features

Contributing small scale features will be preserved, and some stabilized. These include the scale pit, and ruins such as remnants of stone walls and a footbridge pillar. Others will be allowed to decay. Non-contributing small scale features for visitor safety, wayfinding, and interpretation will remain, and some new compatible features added.

- Contributing small scale features will be preserved and monitored. Selected ruins and features will be stabilized with some minor repair.
    - The rubble stone wall of the non-extant tramway will be stabilized. Vegetation will be thinned or removed. Repair could include mortar repair, resetting stones, or removing additional vegetation if it threatens the wall's stability.
    - Vegetation will be removed from contributing features including the tramway piers, footbridge pillar, and scale pit.
- Non-contributing small scale features, i.e., regulatory or interpretive signs, benches, kiosk, will remain.
    - Non-contributing fencing will be removed. It will be replaced, as budgets allow, with a simple wood/metal fence in a design and material compatible with the historic mining landscape.

Vegetation

Morning Star Hotel, Mill, and Mine Community offers the best opportunity to provide a holistic visitor experience and preserve mining resources. Vegetation will be modified and managed to reveal the broad extent and scale of the Morning Star Mine Complex's (M1) operations, community life, and relationships between them.

- The oak hickory forest that surround these spaces will remain and be managed according to the park's best practices.
- The open field adjacent to Rush Smelter and Morning Star Livery Barn ruins will be repaired. Vegetation will be removed to identify a portion of the field as it appeared historically.
- Vegetation will be removed from Morning Star Mill ruins as noted above.
- Vegetation will be pruned, thinned and possibly removed between Morning Star Trail and Morning Star Mill ruins to repair the historic spatial relationship between them, and to provide a clear view of the mill from the trail.
- Vegetation will be pruned, thinned, and possibly removed at the site of a new overlook for pedestrians at the top of Morning Star Mine spoils pile. This will provide a view of the valley below and repair historic spatial relationships.
- Selected large trees will be protected.
- Smith House lawn will be repaired and managed as an open lawn with low growing grasses.



Figure 6-12. Building ruins, i.e., stone pier foundations, and other visible evidence on the surface will be stabilized and repaired. The foundation ruin of Brantley House was cleared and vegetation maintained in 2012. (CLI, Jackson/NPS 2012, BUFF Archives)

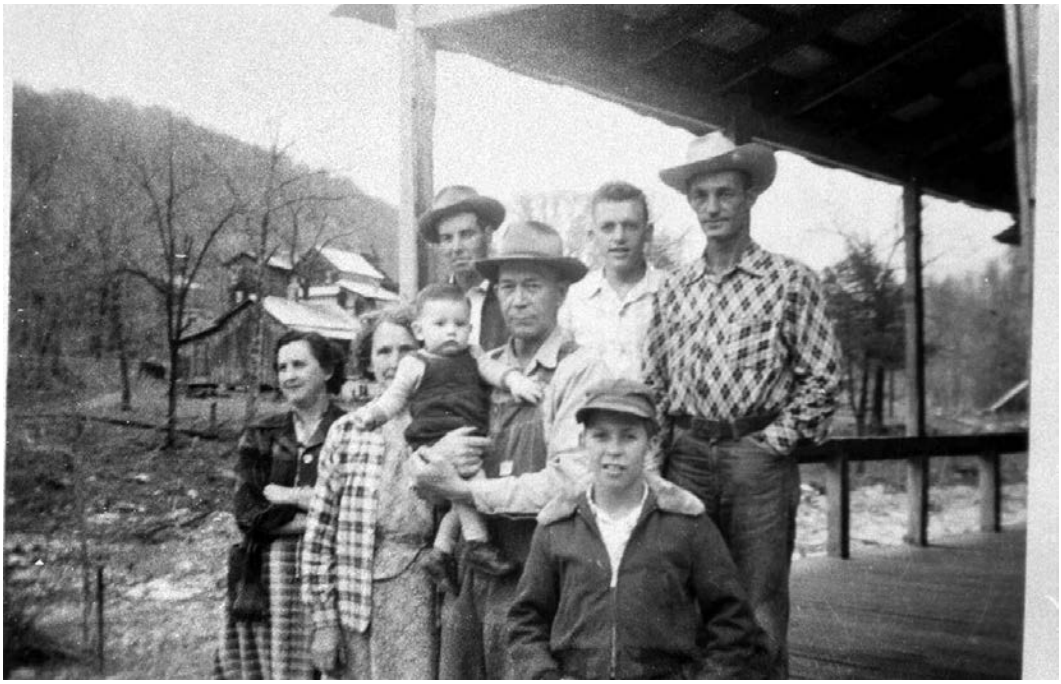


Figure 6-13. Lee Medley and others on the Taylor-Medley General Store porch. Views to the Morning Star Hotel, Mill, and Mine Community will be repaired to reveal spatial arrangement and relationships that existed historically. (BUFF Archives)

Treatment Plan - House Row

House Row represents a portion of larger community that existed within Rush Historic District during the period of significance. Its five extant buildings, building ruins, multiple ruins, setting along Rush Road, and domestic spaces, provide the best and most easily accessed resources for visitors to experience. Buildings will be repaired, structures stabilized, and vegetation removed and managed within domestic spaces to reestablish the full extent of the spatial arrangement and relationships that existed historically.

Spatial Organization

House Row's arrangement of buildings, structures, roads, and vegetation will be repaired to reveal the spatial arrangement and relationships that existed historically. This consisted of buildings set on open lawns oriented to Rush Road with domestic and livestock spaces to the rear.

- Contributing features will be preserved. Rush Road and extant buildings repaired, and ruins will be stabilized.

- Vegetation will be managed to reveal contributing spaces and features, and to repair spatial relationships between House Row and Morning Star Hotel, Mill, and Mine Community.

- Selected spaces associated with buildings and building ruins will be repaired, including domestic and livestock spaces and those along Rush Road.

- The domestic setting of House Row will be repaired through vegetation management. Historic patterns of open domestic spaces where residents planted gardens and pastures, and kept animals will be repaired. Vegetation will be removed behind buildings and structures to reveal the full extent of these historic spaces.

Circulation

- Rush Road will be preserved and repaired as the spine, and only route, into House Row. It will continue to be a shared vehicular and pedestrian route as it was historically.

  - Rush Road will be preserved along its historic alignment.

  - Where appropriate, the road surface will be narrowed to historic widths, and repaired using a soft surface (gravel) material.

  - The relationship between Rush Road and House Row's narrow driveways, including the grade change, will be preserved.

- One ABAAS parking space, set parallel to Rush Road, will be provided with associated interpretive information.

- House Row's narrow driveways will be preserved with minor repairs provided as needed.

Buildings and Structures/Ruins

- The five extant buildings within House Row will be preserved and stabilized. These are Bundy House, Wash House, Kastning House, Storekeeper's House, and Taylor-Medley General Store,

  - All will be structurally stabilized. Roofing and exterior finishes will be repaired/replaced to provide a weatherproof enclosure.



Figure 6-14. The existing intermittent stream will be rerouted away from contributing buildings, building ruins, ruins, and features. (Mundus Bishop, 2017)



Figure 6-15. The spatial organization that contributes to the historic character of House Row will be preserved. Deciduous shade trees, and evidence of gardens and perennial plantings, will be preserved. (Mundus Bishop, 2017)

Exterior facade work will include rehabilitation of windows and doors.

- Building ruins, i.e., stone pier foundations, and other visible evidence on the surface, will be stabilized and repaired. These include Brantley House ruins and Raby House ruins.
  - Basic stabilization and repair work will be completed in-situ to elongate the lifespan of these building ruins. They will not be rehabilitated or restored.
- House Row will be managed as mown grasses. Overgrown vegetation will be thinned or removed within spaces associated with both extant and non-extant buildings.
  - Vegetation will be removed at building ruins.
  - Areas of known non-extant buildings will be managed as low growing grasses. These include Gotley House site and Store site that do not have visible surface ruins or traces.
  - Below grade resources likely remain, and will be protected. Further research, investigations, and documentation will be conducted.
- The existing intermittent stream will be rerouted away from contributing buildings, building ruins, ruins, and features. New drainage patterns will be routed away from contributing features.

Small Scale Features

Small scale features will be preserved, and some will be stabilized. Selected features associated with House Row's domestic and livestock spaces will be repaired.

- Contributing small features will be preserved. These are primarily ruins that include a shed, root cellar, chicken house, goose house, privies, trash piles, and a mailbox shelter.
  - Some are visible as ruins, and others are depressions in the ground. Below-grade features likely exist and will be protected.
- Portions of domestic and livestock spaces will be repaired. These spaces were historically associated with outbuildings and structures, and are located behind and uphill of the buildings. A portion of this area behind standing buildings and building ruins will be repaired to the toe of the slope.
- A new compatible fence or low barrier will replace the non-contributing fence to discourage visitor access into the repaired domestic spaces and stabilized buildings. New regulatory and interpretive signs will be added for visitor safety and education.

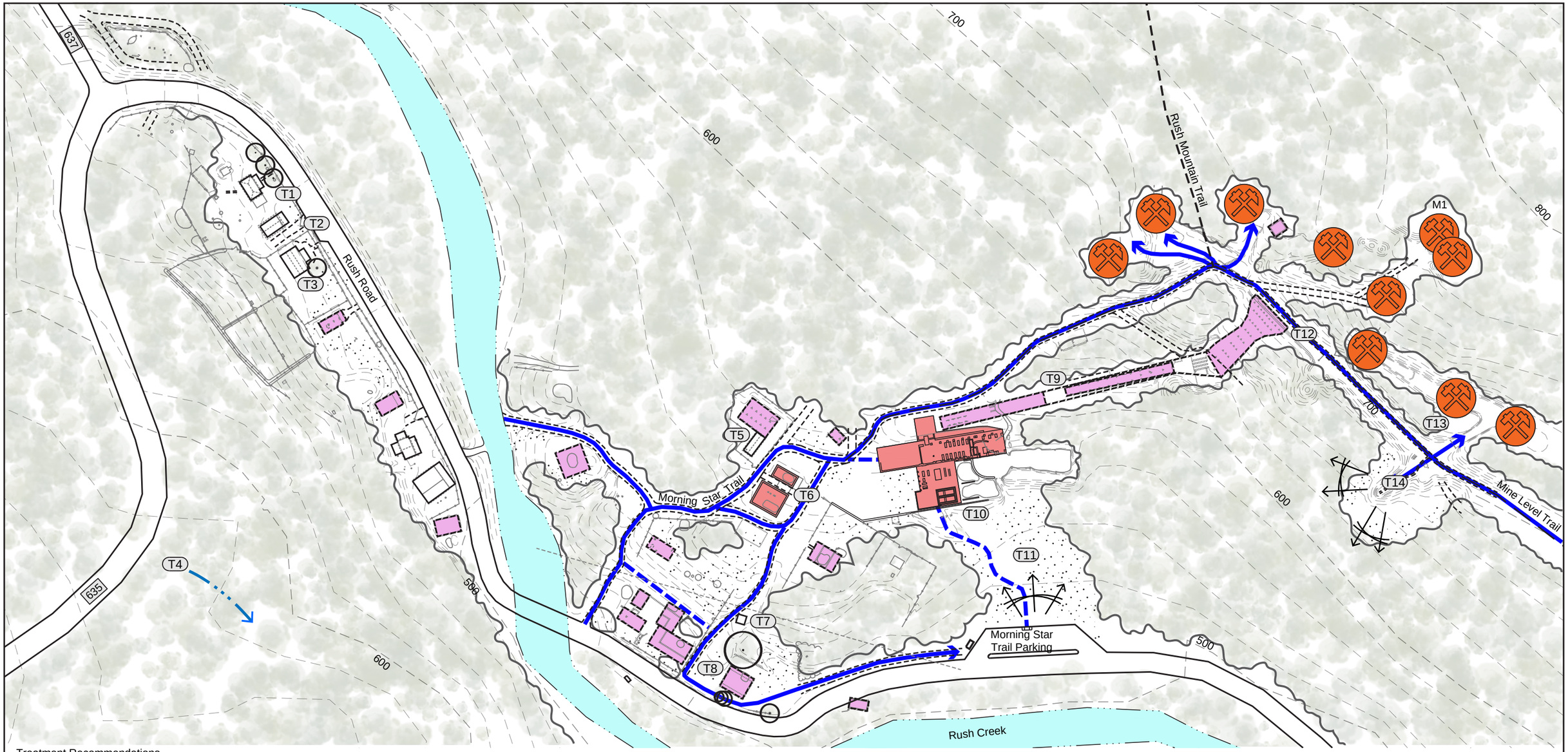
Vegetation

Vegetation that contributes to the historic character of House Row will be preserved. Deciduous shade trees, and evidence of gardens and perennial plantings, will be preserved. Further research will be completed to document the extent of historic plantings including extant iris, daffodils and roses.

- House Row's characteristic mown lawns with deciduous shade trees will be preserved. Extant ornamental plants will be preserved and maintained.
- Vegetation will be removed where it obscures building and structure foundations and ruins. Non-contributing vegetation will be removed.

- Vegetation management will assist in repairing the domestic setting of House Row. Historic patterns of open domestic spaces where residents planted gardens and pastures and keep animals will be repaired.

- Vegetation will be removed behind buildings and structures, up to the toe of the existing slope, to reveal these historic spaces.



Treatment Recommendations

- T1 Preserve Lawn and Shade Trees
- T2 Accessible Parking
- T3 Stabilize / Rehabilitate Structures at House Row
- T4 Stabilize / Reroute Intermittent Stream
- T5 Stabilize Blacksmith Shop
- T6 Reveal Morning Star Mine Office and Chase and Mulholland Store Ruins and Rehabilitate Scale Pit
- T7 Stabilize Smelter
- T8 Thin Vegetation to Re-Establish Pasture / Domestic / Yard Space
- T9 Mark Tramway
- T10 Stabilize / Repair Stone Walls
- T11 Preserve Tailings Pile for View of Mill
- T12 Preserve Route of Mine Level Trail
- T13 Thin Vegetation and Provide Viewing Platform to View Morning Star Mine Open Cut
- T14 Thin Vegetation at Spoils Pile for Overlook

Legend

- Road
- Pedestrian Trail
- Pedestrian Trail to Remove
- Creek / River
- Mine / Mine Complex
- Extant Building to Stabilize
- Building Ruins to Preserve/ Stabilize/Repair
- Building Ruins to Mark
- Road Trace to Preserve
- Remnant Feature
- Edge of Forest

Mines

M1 Morning Star Mine Complex (1884 to 1931)

N W E S

0 120

1" = 120'

Sources:
USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
ARKANSAS

173/141248

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

Illustration 6-2.

TITLE OF DRAWING
TREATMENT PLAN - MORNING STAR HOTEL, MILL, AND MINE COMMUNITY, AND HOUSE ROW

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

Treatment Plan - Hicks Hotel

The site of Hicks Hotel and Hicks General Store will be preserved and repaired. The site includes contributing building ruins, small scale features, and ornamental vegetation.

Spatial Organization

The setting of Hicks Hotel and Hicks General Store ruins will be preserved and repaired by removing by vegetation from building ruins, repairing the garden setting of Hicks Hotel, and reestablishing views into the setting.

- Vegetation will be removed from the building ruins of Hicks Hotel, and Hicks General Store.

- The spatial relationship of Hicks Hotel and Hicks General Store with Rush Road will be repaired. Vegetation will be thinned and removed to repair views between these spaces.

- The historic garden setting of Hicks Hotel will be preserved, and repaired to reveal this hotel set within a garden.

Buildings, and Structures and Building Ruins

The building ruins of Hicks Hotel and Hicks General Store will be preserved and stabilized. Some features will be repaired to express the historic mass and scale of the buildings. Building footprints and associated spaces will be repaired. In some cases, foundations, footings, chimneys, and other evidence of buildings are visible on the surface. Other resources likely remain below-grade.

- Hicks Hotel's building foundations, visible at the surface, will be preserved, stabilized and repaired. Vegetation will be removed from the building footprint and this space will be repaired to express the historic mass and scale of the hotel.

- Hicks General Store's foundation and standing stone walls, the remaining building ruins of Hicks General Store, will be preserved, stabilized and repaired. The mortared stone steps that lead to the extant concrete porch at the south entrance into the store will be preserved, stabilized and repaired. Vegetation will be removed from the building footprint and this space will be repaired to express the historic mass and scale of Hicks General Store.

Small Scale Features

The setting of Hicks Hotel, which includes a garden as its front yard, will be preserved. Contributing small scale features will be preserved, stabilized, and repaired.

- Hicks Wall, a mortared stone retaining wall, defines the extent of Hicks Hotel Garden. The approximately 300' long wall and two sets of concrete stairs and stone columns will be preserved and repaired as needed. Repairs will preserve the wall's variety of stone construction techniques (cobblestone and coursed ashlar stone).

- Hick Hotel's contributing small scale features create its garden setting. These include stone flower beds and a brick walkway to the hotel entrance. The raised mortared cobblestones flower beds, arranged in diamond and rectangular shapes, will be preserved and repaired. The brick walkway will be preserved and repaired.

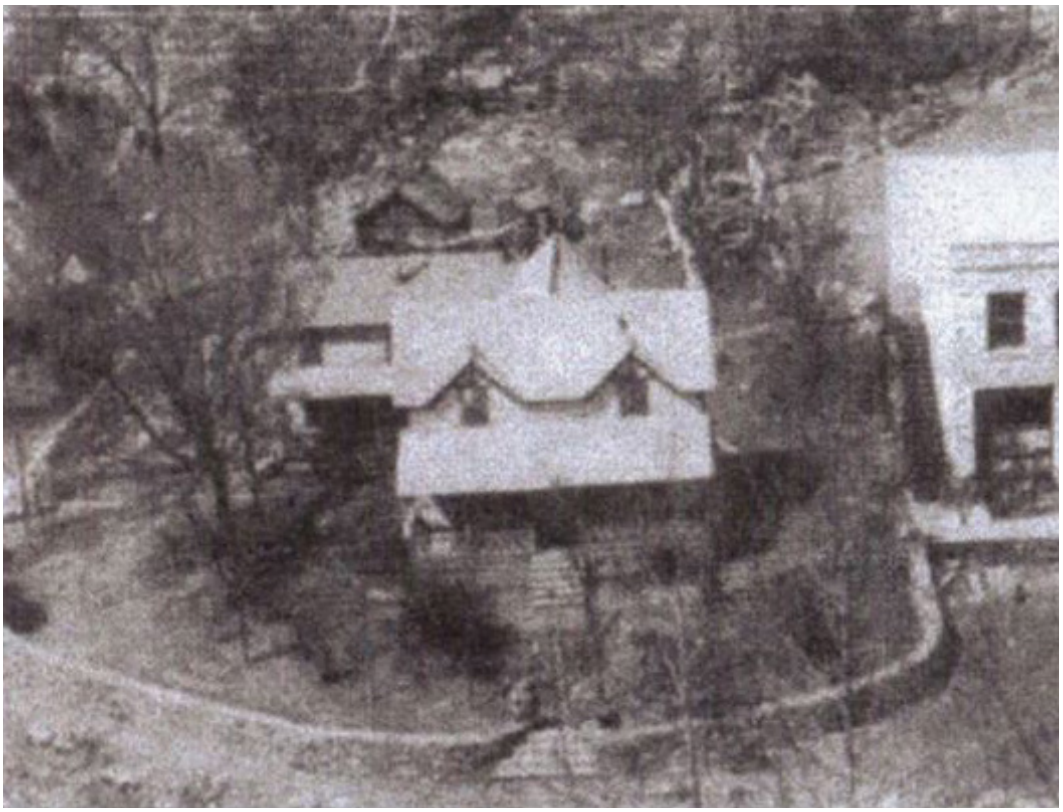


Figure 6-16. Vegetation will be removed to reveal the historic garden setting at Hicks Hotel. (Kastning 1999, http://uark.maps.arcgis.com/apps/MapJournal/index.tml?appid=c513b4f4e17b475092eac332ee5c9d59)

Vegetation

Ornamental vegetation associated with Hicks Hotel will be preserved and augmented with new plantings to maintain the historic character. Non-contributing vegetation will be removed to reveal historic building footprints, Hicks Hotel's garden setting, and contributing features.

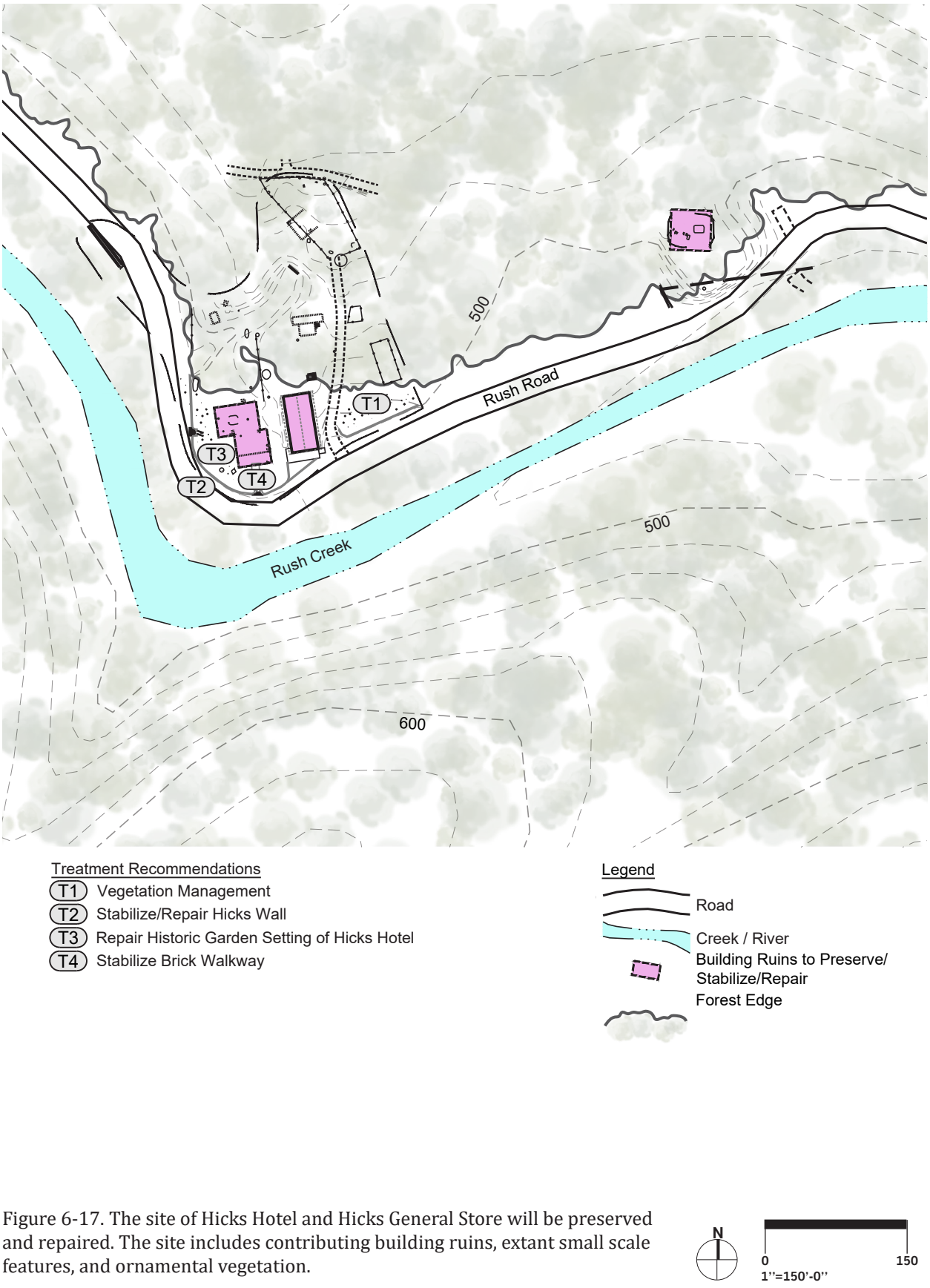
- Vegetation will be removed from contributing features including building ruins, foundations, and the historic garden setting.

- Vegetation will be removed within Hicks Hotel and Hicks General Store building footprints to assist in revealing the mass and form of these contributing building ruins.

- Ornamental vegetation associated with the garden setting of Hicks Hotel will be preserved. New planting of similar or in-kind species will be planted, as budgets allow. Non-contributing vegetation not associated with the garden setting will be removed.

- Further research will be conducted to document the extent of extant ornamental plantings, which include daffodils, daylilies, and flowering quince within the garden setting and adjacent to Hicks Hotel. Other historic plantings could include roses, lilac, grape hyacinths, forsythia, Russian olive, and mimosa.[5.6]

5.6 *Botanical Survey of 67 Acres and Recommendations.*



(Mundus Bishop 2017, USGS 2013 - National Geographic Society, Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012)

Figure 6-17. The site of Hicks Hotel and Hicks General Store will be preserved and repaired. The site includes contributing building ruins, extant small scale features, and ornamental vegetation.



Figure 6-18. Repairs will preserve the Hicks Wall's variety of stone construction techniques (cobblestone and coursed ashlar stone). (Mundus Bishop, 2017)



Figure 6-19. Non-aggressive ornamental vegetation associated with the garden setting of Hicks Hotel will be preserved. (Mundus Bishop, 2017)

Implementation

This section provides guidance for implementing the treatment plan. The following summarizes the treatment recommendations and organizes them into tasks with phases and priorities. Tasks are presented by Study Area first, followed by tasks for Morning Star Community landscape character area and its three components.

Table 6-1. Implementation by Task and Phase

CLR Treatment Recommendation	**CLR Task Component**	**Phase / Priority (Low, Medium or High)**
Study Area		
Task 1. Protect mining resources	Task 1.1 Monitor mining resources, i.e., sink holes, caves, openings, etc. Task 1.2 Provide erosion control measures and soil stabilization to protect contributing features	All Phases
Task 2. Protect Bat Habitat	Task 2.1 Monitor openings with metal grates to ensure bat habitat is protected	All Phases
Task 3. Allow the Cherokee Medicine Keepers to access selected vegetation communities	Task 3.1 Allow documentation, and possibly collection, of plants of medicinal, economic or spiritual value	Phase 1 / High
Task 4. Protect Buffalo River, and Rush and Clabber creeks	Task 4.1 Provide measures to mitigate damage from erosion, pollution, or man-made intrusions, and allow removal of invasive species	All Phases
Task 5. Protect prehistoric and historic archeological sites	Task 5.1 Protect known sites and document/identify Task 5.2 Document historic archeological sites (mining related) and below grade resources	Phase 1 All Phases
Task 6. Repair study area's historic patterns and relationships	Task 6.1 Repair selected views through vegetation thinning, pruning, and some removal Task 6.2 Provide virtual access through digital, 3-D media	Phase 1 Phase 1
Task 7. Repair Rush Road	Task 7.1 Narrow to historic widths in select locations and repair surfacing	Phase 1
Task 8. Repair Clabber Creek Road	Task 8.1 Repair surfacing, and provide soft surfaced parking and vehicular turn-around with gate Task 8.2 Repair surfacing past gate for pedestrian use only	Phase 1 Phase 1

Table 6-1. Implementation by Task and Phase

CLR Treatment Recommendation	CLR Task Component	Phase / Priority (Low, Medium or High)
Study Area		
Task 9. Add new trails on Rush Mountain and to Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12)	Task 9.1 Add new trail, Rush Mountain Trail, for pedestrian use only to connect to Monte Cristo Mine (M10) to Morning Star Mine Complex (M1)	Phase 1
	Task 9.2 Add new pedestrian only trail to Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12)	Phase 2
Task 10. Improve accessibility to visitor facilities	Task 10.1 Provide ABAAS pedestrian route and parking to existing comfort station and shelter at Rush Landing	Phase 1
	Task 10.1 Provide ABAAS pedestrian trail to Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12)	Phase 2
Task 11. Improve parking and access at New White Eagle Mill for day use	Task 11.1 Improve park and vehicular access and add new pedestrian trail to connect visitor parking to Mine Level Trail	Phase 2
Task 12. Protect Mines and Mine Complexes	Task 12.1 Monitor and ensure openings are secured or not accessible	Phase 1 to Phase 3
	Task 12.2 Select adits, portals, or openings to be visible to visitors. Add low barrier and signage, and clear vegetation	Phase 2
	Task 12.3 Preserve ruins and spaces	Phase 1 to Phase 3
	Task 12.4 Stabilize selected ruins, i.e. Edith Mill's pyramidal piers	Phase 1 to Phase 3
	Task 12.5 Repair spaces associated with selected mills (primarily in Morning Star Community landscape character area)	Phase 1 and Phase 2
Task 13. Preserve contributing small scale features	Task 13.1 Preserve and monitor	Phase 1 to Phase 3
	Task 13.2 Stabilize selected features, i.e., stone walls, ore cart	Phase 2
Task 14. Manage vegetation to repair spaces and spatial relationships	Task 14.1 Prune or thin, with some removal, vegetation along Road, and along contributing roads repurposed as pedestrian only trails	Phase 1
	Task 14.2 Prune, thin or remove vegetation from contributing features at New White Eagle Mine, Yellow Rose Mine Complex (M7) and Edith Mine Complex (M12)	Phase 2

Table 6-1. Implementation by Task and Phase		
CLR Treatment Recommendation	**CLR Task Component**	**Phase / Priority (Low, Medium or High)**
Morning Star Mine Community Landscape Character Area		
Task 1. Repair Rush Road	Task 1.1 Narrow to historic widths in select locations and repair surfacing	Phase 1
Task 2. Modify pedestrian trails	Task 2.1 Realign Morning Star Trail to avoid contributing features with access between parking and mill	Phase 1
	Task 2.2 Add ABAAS pedestrian route between Morning Star Trail parking, west to Morning Star Livery Barn ruins, etc.	Phase 1
	Task 2.3 Modify contributing roads, i.e., abandoned roads to Morning Star Mill, for pedestrian use only	Phase 2
	Task 2.4 Add wayside or overlook for pedestrians above Morning Star Mine spoils pile	Phase 2
Task 3. Manage vegetation to protect contributing features and spaces	Task 3.1 Protect contributing vegetation: trees at the Courthouse site, Morning Star Livery Barn ruins, House Row, Hicks Hotel, etc.	Phase 1
	Task 3.2 Remove trees and understory vegetation from buildings, building ruins, ruins (structures and features), and where these obscure views	Phase 1
	Task 3.3 Manage building ruins and ruin spaces with a cover of low growing grasses and herbaceous plants	Phase 1 to Phase 3
Morning Star Hotel, Mill, and Mine Community		
Task 1. Repair the setting and spatial relationships of Morning Star Mill	Task 1.1 Remove vegetation from building ruins, ruins, and spaces	Phase 1
	Task 1.2 Stabilize contributing features	Phase 1
	Task 1.3 Repair views to the mill, between contributing features, and between the mill and tailings	Phase 1
	Task 1.4 Repair the space and vegetation of the pasture around Morning Star Livery Barn ruins	Phase 1
Task 2. Provide enhanced interpretation	Task 2.1 Provide virtual access through digital, 3-D media that depicts the historic setting of Morning Star Mill	Phase 2

Table 6-1. Implementation by Task and Phase

CLR Treatment Recommendation	**CLR Task Component**	**Phase / Priority (Low, Medium or High)**
Morning Star Hotel, Mill, and Mine Community		
Task 3. Protect contributing buildings, building ruins, ruins, and features of Morning Star Mill	Task 3.1 Repair Rush Smelter and Rush Blacksmith Shop (structurally stabilize and repair exteriors)	Phase 1
	Task 3.2 Stabilize building ruins for Morning Star Hotel, Morning Star Mine Office, Morning Star Livery Barn, Post Office, Courthouse, Chase and Mulholland Store and Warehouse and repair building spaces	Phase 1 and Phase 2
	Task 3.3 Remove trees and understory vegetation from building ruins	Phase 1
	Task 3.4 Stabilize ruins (tramway, stone retaining wall, etc.)	Phase 1
	Task 3.5 Preserve tailings, retention basin, and associated features	Phase 1
	Task 3.6 Mark building spaces	Phase 2
Task 4. Protect contributing buildings, building ruins, ruins, and features of Morning Star Mine	Task 4.1 Protect and monitor mining resources	All Phases
	Task 4.2 Preserve and stabilize Morning Stare Mine spoils piles	Phase 1
	Task 4.3 Determine adits, portals, or openings to remain closed or to have visual access	Phase 1
	Task 4.4 Thin vegetation, add low barrier and signage to adits, portals, or openings with visual access	Phase 1
	Task 4.5 Thin vegetation from retention basin, drainage, spoils pile, and contributing features	Phase 2
Task 5. Preserve contributing small scale features	Task 5.1 Stabilize rubble wall (tramway) and thin vegetation	Phase 1
	Task 5.2 Continue documentation of extant contributing features	Phase 1

Table 6-1. Implementation by Task and Phase		
CLR Treatment Recommendation	**CLR Task Component**	**Phase / Priority (Low, Medium or High)**
Morning Star Hotel, Mill, and Mine Community		
Task 6. Manage vegetation to protect contributing features and spaces	Task 6.1 Protect contributing trees at the former Courthouse site, and vegetation at Morning Star Livery Barn ruins	All Phases
	Task 6.2 Remove trees and understory vegetation from Morning Star Mill buildings, building ruins, ruins (structures and features), and where these obscure views	Phase 1
	Task 6.3 Manage Morning Star Mill building ruin and ruin spaces with a cover of low growing grasses and herbaceous plants	Phase 1
	Task 6.4 Thin vegetation from retention basin, drainage, spoils pile, and contributing features	Phase 2
	Task 6.5 Repair Smith House lawn as mown grasses	Phase 1
House Row		
Task 1. Repair the setting and spatial relationships of House Row	Task 1.1 Remove vegetation from buildings, building ruins, ruins, and spaces	Phase 1
	Task 1.2 Stabilize contributing features	Phase 1
	Task 1.3 Repair views to Morning Star Hotel, Mill, and Mine Community, and between contributing features	Phase 2
	Task 1.4 Repair the spaces of House Row including the front yards, and domestic and livestock spaces	Phase 1
Task 2. Provide enhanced interpretation	Task 2.1 Provide virtual access through digital, 3-D media that depicts the historic setting of House Row and the historic view between House Row and Morning Star Hotel, Mill, and Mine Community	Phase 2
Task 3. Repair Rush Road and provide universal accessibility	Task 3.1 Narrow to historic widths in select locations and repair surfacing	Phase 1
	Task 3.2 Provide one ABAAS compliant parallel parking space	Phase 1

Table 6-1. Implementation by Task and Phase		
CLR Treatment Recommendation	**CLR Task Component**	**Phase / Priority (Low, Medium or High)**
House Row		
Task 4. Protect contributing buildings, building ruins, ruins, and features of House Row	Task 4.1 Repair Wash House, Kastning House, Raby House, Storekeepers House, and Taylor-Medley General Store (structurally stabilize and repair exteriors)	Phase 1
	Task 4.2 Stabilize building ruins for Brantley House and Raby House and repair building spaces for these	Phase 1
	Task 4.3 Remove trees and understory vegetation from building ruins	Phase 1
	Task 4.4 Stabilize ruins	Phase 1
	Task 4.5 Mark building spaces of known missing buildings – Gotley House and Store site	Phase 1
Task 5. Preserve contributing small scale features	Task 5.1 Stabilize ruins (shed, root cellar, chicken house, goose house, privies, trash piles, and mailbox shelter)	Phase 1
	Task 5.2 Continue documentation of extant contributing features	All Phases
Task 6. Add low barrier to protect House Row	Task 6.1 Add new compatible low fence or barrier along the front yards of House Row with interpretive and regulatory signage	Phase 1
Task 7. Manage vegetation to protect contributing features and spaces	Task 7.1 Protect contributing deciduous shade trees and mown lawn at House Row	Phase 1
	Task 7.2 Remove trees and understory vegetation from House Row buildings, building ruins, ruins (structures and features), and where these obscure views	Phase 1
	Task 7.3 Manage building ruin and ruin spaces with a cover of low growing grasses and herbaceous plants	Phase 1
	Task 7.4 Thin vegetation from domestic and livestock spaces and contributing features	Phase 1

Table 6-1. Implementation by Task and Phase		
CLR Treatment Recommendation	**CLR Task Component**	**Phase / Priority (Low, Medium or High)**
Hicks Hotel		
Task 1. Repair the setting and spatial relationships of Hicks Hotel	Task 1.1 Remove vegetation from building footprints of Hicks Hotel and Hicks General Store	Phase 1
	Task 1.2 Repair the garden setting of Hicks Hotel including removal of non-contributing features	Phase 2
	Task 1.3 Stabilize contributing features and vegetation	Phase 1 and Phase 2
	Task 1.4 Repair views to Hicks Hotel and its garden setting	Phase 1
Task 2. Protect contributing buildings, building ruins, ruins, and features of House Row	Task 2.1 Repair building ruins of Hicks Hotel and Hicks General Store (structurally stabilize and repair extant walls, etc.)	Phase 1
	Task 2.2 Remove trees and understory vegetation from building footprints	Phase 1
	Task 2.3 Stabilize ruins associated with the buildings including stone steps	Phase 1
Task 3. Preserve contributing small scale features	Task 3.1 Stabilize extant contributing features including Hicks Wall	Phase 1
	Task 3.2 Stabilize extant contributing features of Hicks Hotel's garden setting – stone flower beds and brick way	Phase 1
	Task 3.3 Further documentation of extant contributing features and relationships of Hicks Hotel's setting	All Phases
Task 4. Manage vegetation to protect contributing features and spaces	Task 4.1 Protect contributing ornamental vegetation	All Phases
	Task 4.2 Remove non-contributing vegetation from garden setting	Phase 1 and Phase 2
	Task 4.3 Remove trees and understory vegetation from Hicks Hotel and Hicks General store building ruins	Phase 1
	Task 4.4 Remove vegetation from contributing ruins (structures and features), small scale features, and where these obscure views	Phase 1
	Task 4.5 Repair the garden setting with new plantings of similar or in-kind species	Phase 1 and Phase 1

Chapter 7. Consultation and Coordination

Scoping

An interdisciplinary team of professionals from the park and the NPS Midwest Regional Office met to conduct internal scoping from April 25 to 28, 2017 and discuss the purpose and need for the project, various alternatives, potential environmental impacts, impact topics to retain and dismiss, and reasonably foreseeable actions that may have cumulative effects. The team met again on from February 12 to 14, 2018 to more fully develop treatment alternatives and to identify a preferred alternative.

The park sent letters describing the proposed action and asking for comments to interested individuals; organizations; state, county, and local governments; and federal agencies. American Indian tribes also were sent an informational letter describing the project and asking for comments. See Appendix B, Consultation and Coordination for letters.

Agency Consultation

Section 106 of the National Historic Preservation Act

Agencies that have direct or indirect jurisdiction over historic properties are required by section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470, et seq.), to take into account the effect of any undertaking on properties listed in or eligible for listing in the national register. Compliance with section 106 of the NHPA is being conducted through ongoing consultation with the Arkansas SHPO and park-affiliated American Indian tribes. (See the "Consultation with American Indians" section below.)

To meet the requirements of section 106, on November 7, 2017, NPS sent the Arkansas SHPO a letter describing the proposed project and soliciting comment on the alternatives. NPS will continue to coordinate with SHPO to determine the effects of the action alternatives on historic resources and to develop mitigation for impacts on historical features, if any, from the preferred alternative.

Consultation with American Indians

As part of tribal consultation, scoping letters were sent to federally recognized tribes for consultation with BUFF on November 7, 2017, to determine if any ethnographic or other resources are in the project area and to inquire whether local tribes wanted to be involved in the environmental compliance process. NPS will forward this EA to the same American Indian tribes and tribal governments that are traditionally associated with the area now containing the park:

- Absentee Shawnee Tribe;
- Caddo Tribe of Oklahoma;
- Cherokee Nation of Oklahoma;
- Eastern Shawnee Tribe of Oklahoma;
- Osage Tribe of Oklahoma;
- Quapaw Tribe of Oklahoma,
- Shawnee Tribe;
- Tunica-Biloxi Tribe of Louisiana;
- United Keetoowah Band of the Cherokee Nation, and;
- Wichita and Affiliated Tribes.

None of the proposed actions being considered in this EA would impede, prevent, or in any way negate treaty rights. The options being proposed here would not affect the harvesting of plants or plant materials, hunting, fishing, or trapping rights.

To date, the American Indian tribes have expressed no concerns or provided additional information regarding ethnographic resources or traditional uses. American

Indian tribes traditionally associated with the lands of the park will have an opportunity to review and comment on this EA. Consultations with Native American tribes will continue throughout the planning process to ensure that tribal concerns are considered and identified resources are protected.

U.S. Fish and Wildlife Service, Section 7 Consultation

In accordance with section 7 of the Endangered Species Act, the park contacted USFWS in a letter dated November 7, 2017 to make them aware of the project and to solicit input on federally listed species or concern that may be affect by the proposed action. The park will continue to consult with the USFWS to determine the effects of the action alternatives on threatened and endangered species.

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Appendix B: Consultation Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480
http://www.fws.gov/arkansas-es

In Reply Refer To: August 18, 2017
Consultation Code: 04ER1000-2017-SLI-1197
Event Code: 04ER1000-2017-E-01749
Project Name: Rush Historic District CLR/EA

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

To Whom It May Concern:

The enclosed species list identifies endangered, threatened, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). **This letter only provides an official species list and technical assistance; if you determine that listed species and/or designated critical habitat may be affected in any way by the proposed project, even if the effect is wholly beneficial, consultation with the Service will be necessary.**

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found on our website.

Please visit our website at http://www.fws.gov/arkansas-es/IPaC/home.html for species-specific guidance to avoid and minimize adverse effects to federally endangered, threatened, proposed, and candidate species. Our web site also contains additional information on species life history and habitat requirements that may be useful in project planning.

If your project involves in-stream construction activities, oil and natural gas infrastructure, road construction, transmission lines, or communication towers, please review our project

specific guidance at http://www.fws.gov/arkansas-es/IPaC/ProjSpec.html.

The karst region of Arkansas is a unique region that covers the **northern third of Arkansas** and we have specific guidance to conserve sensitive cave-obligate and bat species. **Please visit http://www.fws.gov/arkansas-es/IPaC/Karst.html to determine if your project occurs in the karst region and to view karst specific-guidance.** Proper implementation and maintenance of best management practices specified in these guidance documents is necessary to avoid adverse effects to federally protected species and often avoids the more lengthy formal consultation process.

If your species list includes any mussels, Northern Long-eared Bat, Indiana Bat, Yellowcheek Darter, Red-cockaded Woodpecker, or American Burying Beetle, your project may require a presence/absence and/or habitat survey prior to commencing project activities. Please check the appropriate species-specific guidance on our website to determine if your project requires a survey. We strongly recommend that you contact the appropriate staff species lead biologist (see office directory or species page) prior to conducting presence/absence surveys to ensure the appropriate level of effort and methodology.

Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make “no effect” determinations. If you determine that your proposed action will have “no effect” on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take “after-the-fact.” For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

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

implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

Project Summary

Consultation Code: 04ER1000-2017-SLI-1197

Event Code: 04ER1000-2017-E-01749

Project Name: Rush Historic District CLR/EA

Project Type: ** OTHER **

Project Description: A Cultural Landscape Report and Environmental Assessment (CLR/EA) for the Rush Historic District at Buffalo National River ("the park" or "the study area") is needed to define an appropriate treatment strategy for managing the historic district and accommodating visitor use and access. The strategy will focus on interim and long term resource management, sustainable cyclic maintenance, and supporting educational programs/recreation. Recommendations from the selected alternative would be implemented over a number of years as budget and staffing allow. Treatment measures would likely include activities such as building stabilization, trail improvements, and vegetation management such as tree and shrub removal.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.12851562651305N92.55994319915771W



Counties: Marion, AR

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered

Clams

NAME	STATUS
Rabbitsfoot *Quadrula cylindrica cylindrica* There is a **final** critical habitat designated for this species. Your location overlaps the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165	Threatened
Snuffbox Mussel *Epioblasma triquetra* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4135	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Rabbitsfoot *Quadrula cylindrica cylindrica* https://ecos.fws.gov/ecp/species/5165#crithab	Final designated

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
1.A.2 (BUFF)
Rush Historic District CLR/EA

November 7, 2017

Mr. Melvin L. Tobin
Field Supervisor
U.S Fish and Wildlife Service
10 S. Amity Road, Suite 300
Conway, AR 72032

Reference: Consultation Code: 04ER1000-2017-SLI-1197
Event Code: 04ER1000-2017-E-01749
Project Name: Rush Historic District CLR/EA

Subject: Initiating Informal Endangered Species Act Section 7 Consultation

Dear Mr. Hicks;

A National Park Service (NPS) contractor is preparing a Cultural Landscape Report and associated Environmental Assessment (CLR/EA) to support management decisions on treatment and use of aboveground cultural resources for the Rush Historic District, Buffalo National River, Arkansas. Rush Historic District is a 1316-acre former zinc mining district located on the lower Buffalo River and two of its tributaries, Rush Creek and Clabber Creek, roughly thirty miles upstream from the Buffalo's confluence with the White River (see enclosed figures). The district's contributing resources have been listed on or determined eligible for the National Register of Historic Places. The period of significance covers the productive zinc-mining era of 1885-1931.

The goal of this project is to prepare critical planning and design documents to guide the ultimate treatment for the structures and cultural landscape. The CLR/EA will document the landscape's multi-faceted contributing resources, including building ruins, abandoned mines and rugged terrain. A portion of the landscape is in designated wilderness. Historic views, circulation networks, spatial relationships and mining ruins are obscured by encroaching vegetation. This treatment plan will outline a general treatment approach for the district, and develop character areas to focus specific areas for treatment. The end result will be cohesive treatment of the buildings and landscape that supports the operational and visitor use(s).

Although treatment alternatives have not yet been developed, projects with similar goals in other NPS parks have typically included action alternatives with a mix of rehabilitating and restoring existing buildings and the cultural landscape. The alternatives often include activities

that would disturb the ground and existing vegetation, including work on structures and trails and trimming and removing trees and shrubs to reestablish views and open areas representative of those during the period of significance.

Section 7 of the Endangered Species Act of 1973 requires that a federal agency consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service on any action that may affect endangered or threatened species or candidate species or that may result in adverse modification of critical habitat. This letter serves to initiate informal consultation with your office under section 7(c) of the Endangered Species Act for the referenced project.

As part of the EA analysis, NPS requested and received a list of threatened and endangered species that may occur in the study area through the U.S. Fish and Wildlife Service Environmental Conservation Online System – Information for Planning and Conservation (enclosed). Please confirm that the enclosed list is complete and that we do not need to add other species to our effects analysis. Several of the listed species are known to occur in or near Rush Historic District and the adjoining reach of the Buffalo River is designated critical habitat for one species. NPS anticipates including avoidance and minimization measures in the action alternatives developed and evaluated in the CLR/EA to result in no more that insignificant or discountable adverse effects.

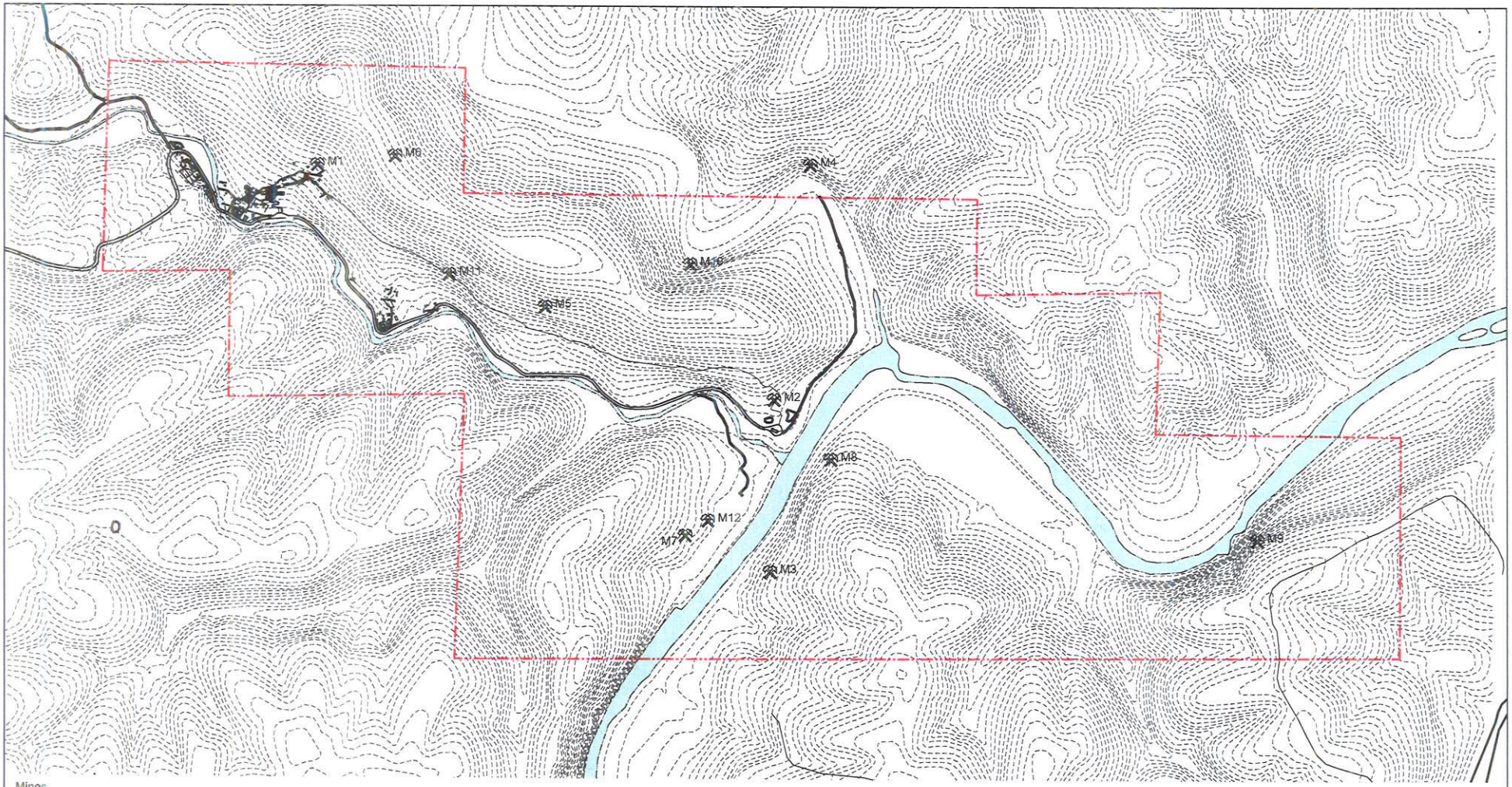
We look forward to your participation in this process and believe that it will help ensure you're your concerns are adequately considered and evaluated in the CLR/EA. As soon as the CLR/EA is complete, we will send it to you for review and comment. I have designated Dr. Caven Clark, Chief of Interpretation & Resource Management, to be the park's lead for this project. He can be reached at (870) 365-2792, or email at caven_clark@nps.gov. If you have any questions or concerns about this notice or if you require additional information, please contact Dr. Clark or myself. I look forward to hearing from you.

We appreciate your continuing assistance with National Park Service projects.

Sincerely,

for Kevin G. Cheri
Superintendent

Enclosures



Mines

M1 Morning Star Mines (1884)
M2 White Eagle Mines (1885-1920s; 1959-1962)
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Sources:
Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

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JULY 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR

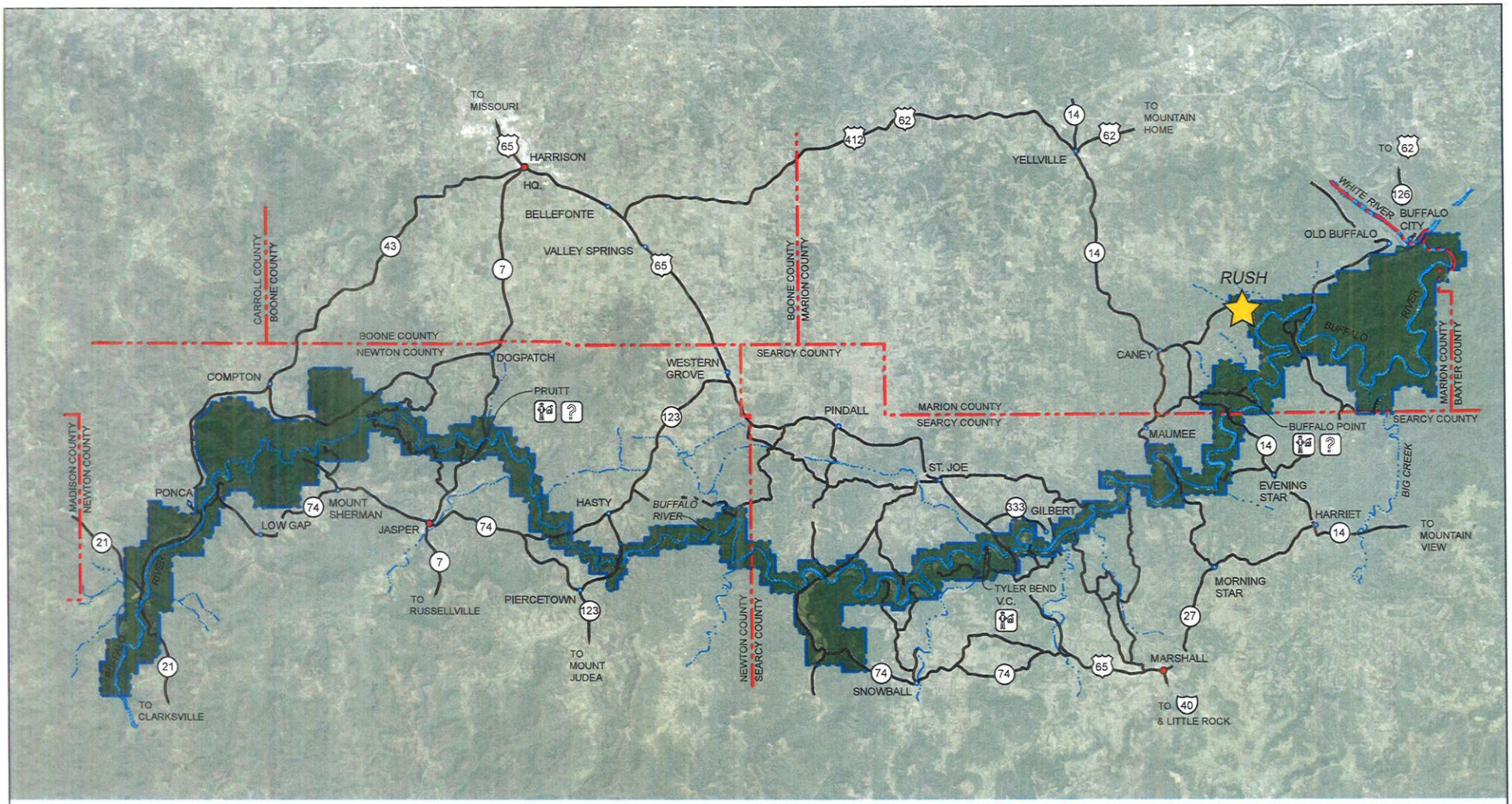
BUFFALO NATIONAL RIVER
ARKANSAS

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT

TITLE OF DRAWING
1885 TO 1893 - FIRST MINING PERIOD

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION: MIDWEST
COUNTY: MARION
STATE: ARKANSAS



Sources:
Adapted from nps.gov/dscw/cad-sheets.htm, Google Maps 2017

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1" = 4 MILES

AUGUST 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUFFALO NATIONAL RIVER
ARKANSAS

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT
TITLE OF DRAWING
CONTEXT MAP
NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480
http://www.fws.gov/arkansas-es

In Reply Refer To:
Consultation Code: 04ER1000-2017-SLI-1197
Event Code: 04ER1000-2017-E-01749
Project Name: Rush Historic District CLR/EA

August 18, 2017

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

To Whom It May Concern:

The enclosed species list identifies endangered, threatened, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). **This letter only provides an official species list and technical assistance; if you determine that listed species and/or designated critical habitat may be affected in any way by the proposed project, even if the effect is wholly beneficial, consultation with the Service will be necessary.**

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found on our website.

Please visit our website at http://www.fws.gov/arkansas-es/IPaC/home.html for species-specific guidance to avoid and minimize adverse effects to federally endangered, threatened, proposed, and candidate species. Our web site also contains additional information on species life history and habitat requirements that may be useful in project planning.

If your project involves in-stream construction activities, oil and natural gas infrastructure, road construction, transmission lines, or communication towers, please review our project

specific guidance at http://www.fws.gov/arkansas-es/IPaC/ProjSpec.html.

The karst region of Arkansas is a unique region that covers the **northern third of Arkansas** and we have specific guidance to conserve sensitive cave-obligate and bat species. **Please visit http://www.fws.gov/arkansas-es/IPaC/Karst.html to determine if your project occurs in the karst region and to view karst specific-guidance.** Proper implementation and maintenance of best management practices specified in these guidance documents is necessary to avoid adverse effects to federally protected species and often avoids the more lengthy formal consultation process.

If your species list includes any mussels, Northern Long-eared Bat, Indiana Bat, Yellowcheek Darter, Red-cockaded Woodpecker, or American Burying Beetle, your project may require a presence/absence and/or habitat survey prior to commencing project activities. Please check the appropriate species-specific guidance on our website to determine if your project requires a survey. We strongly recommend that you contact the appropriate staff species lead biologist (see office directory or species page) prior to conducting presence/absence surveys to ensure the appropriate level of effort and methodology.

Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

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

implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

Project Summary

Consultation Code: 04ER1000-2017-SLI-1197

Event Code: 04ER1000-2017-E-01749

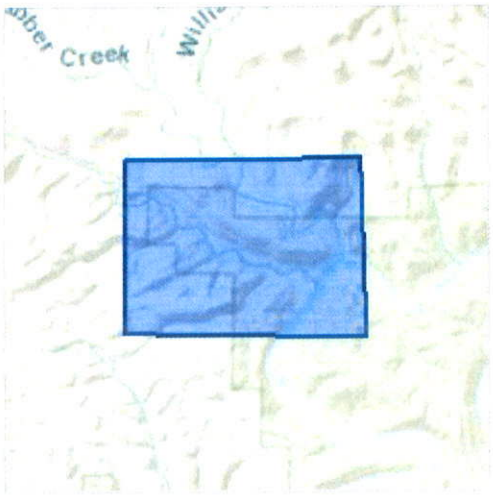
Project Name: Rush Historic District CLR/EA

Project Type: ** OTHER **

Project Description: A Cultural Landscape Report and Environmental Assessment (CLR/EA) for the Rush Historic District at Buffalo National River ("the park" or "the study area") is needed to define an appropriate treatment strategy for managing the historic district and accommodating visitor use and access. The strategy will focus on interim and long term resource management, sustainable cyclic maintenance, and supporting educational programs/recreation. Recommendations from the selected alternative would be implemented over a number of years as budget and staffing allow. Treatment measures would likely include activities such as building stabilization, trail improvements, and vegetation management such as tree and shrub removal.

Project Location:

Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/36.12851562651305N92.55994319915771W



Counties: Marion, AR

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered

Clams

NAME	STATUS
Rabbitsfoot *Quadrula cylindrica cylindrica* There is a **final** critical habitat designated for this species. Your location overlaps the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165	Threatened
Snuffbox Mussel *Epioblasma triquetra* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4135	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Rabbitsfoot *Quadrula cylindrica cylindrica* https://ecos.fws.gov/ecp/species/5165#crithab	Final designated

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
1.A.2 (BUFF)
Rush Historic District CLR/EA

November 7, 2017

Stacy Hurst
State Historic Preservation Officer
Arkansas Historic Preservation Program
1100 North Street
Little Rock, AR 72201

Reference: Buffalo National River, Rush Historic District Cultural Landscape Report and Environmental Assessment

Subject: Section 106 Consultation

Dear Ms. Hurst,

A National Park Service (NPS) contractor is preparing a Cultural Landscape Report and associated Environmental Assessment (CLR/EA) to support management decisions on treatment and use of aboveground cultural resources for the Rush Historic District, Buffalo National River, Arkansas. Rush Historic District is a 1316-acre former zinc mining district located on the lower Buffalo River and two of its tributaries, Rush Creek and Clabber Creek, roughly thirty miles upstream from the Buffalo's confluence with the White River (see enclosed figures). The district's contributing resources have been listed on or determined eligible for the National Register of Historic Places. The period of significance covers the productive zinc-mining era of 1885-1931.

The goal of this project is to prepare critical planning and design documents to guide the ultimate treatment for the structures and cultural landscape. The CLR/EA will document the landscape's multi-faceted contributing resources, including building ruins, abandoned mines and rugged terrain. A portion of the landscape is in designated wilderness. Historic views, circulation networks, spatial relationships and mining ruins are obscured by encroaching vegetation. This treatment plan will outline a general treatment approach for the district, and develop character areas to focus specific areas for treatment. The result will be cohesive treatment of the buildings and landscape that supports the operational and visitor use(s).

Although treatment alternatives have not yet been developed, projects with similar goals in other NPS parks have typically included action alternatives with a mix of rehabilitating and restoring existing buildings and the cultural landscape. The alternatives often include activities that would disturb the ground and existing vegetation, including work on structures and trails and trimming and removing trees and shrubs to reestablish views and open areas representative

of those during the period of significance.

In accordance with the Advisory Council on Historic Preservation regulations, 36 CFR Part 800: Protection of Historic Properties, the NPS is required to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. This scoping notice informs you of the CLR/EA process and invites your participation in identifying known and potential historic properties in analysis of potential environmental impacts from a variety of treatment alternatives.

Buffalo National River contains numerous prehistoric and historic archeological sites that span almost 10,000 years of human history and tribal uses continue today. For these reasons, NPS anticipates including measures in the action alternatives developed and evaluated in the CLR/EA to avoid and minimize adverse effects to archaeological and historic resources and to tribal uses.

In addition to informing you of the project and Section 106 process, I would also like to invite you to a contractor-facilitated design alternatives workshop at Buffalo National River. Your participation in the workshop would be extremely valuable as a way to gain from your knowledge of historic resources in the area and to inform the team of concerns or opportunities as treatment approaches are developed. I will provide you with details on the workshop location and agenda once they are set and hope you or a representative are able to attend.

We look forward to your participation in this process and believe that it will help ensure you're your concerns are adequately considered and evaluated in the CLR/EA. As soon as the CLR/EA is complete, we will send it to you for review and comment. I have designated Dr. Caven Clark, Chief of Interpretation & Resource Management, to be the park's lead for this project. He can be reached at (870) 365-2792, or email at caven_clark@nps.gov. If you have any questions or concerns about this notice or if you require additional information, please contact Dr. Clark or myself. I look forward to hearing from you.

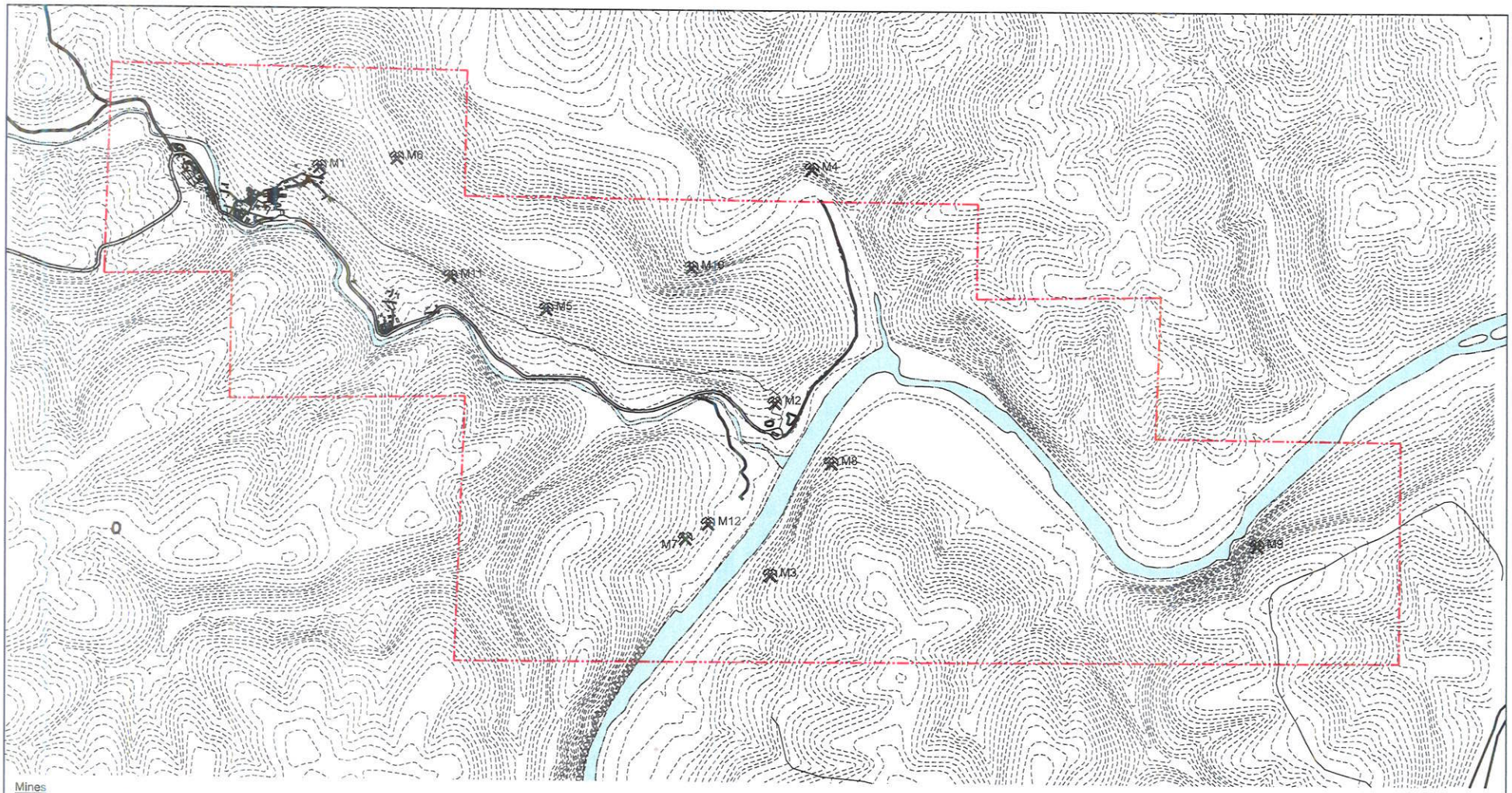
We appreciate your continuing assistance with National Park Service projects.

Sincerely,

for Kevin G. Cheri
Superintendent

Enclosure

Cc: Timothy Dodson, Section 106 Manager



Mines

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Sources:
Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

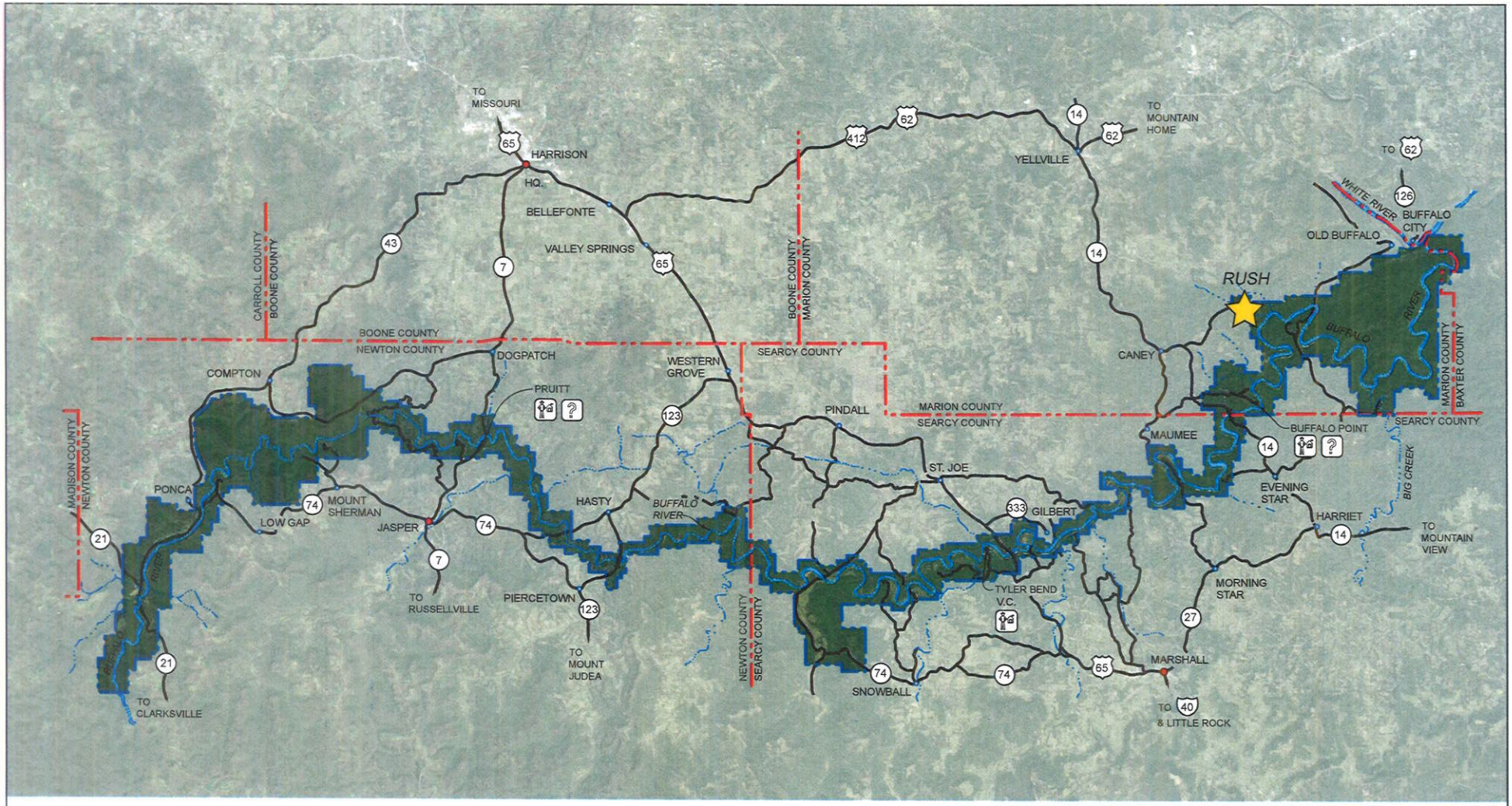
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JULY 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUFFALO NATIONAL RIVER
ARKANSAS

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT
TITLE OF DRAWING
1885 TO 1893 - FIRST MINING PERIOD
NAME OF PARK
RUSH HISTORIC DISTRICT

REGION	COUNTY	STATE
MIDWEST	MARION	ARKANSAS



Sources:
Adapted from nps.gov/dscw/cad-sheets.htm, Google Maps 2017

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AUGUST 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
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TITLE OF DRAWING
CONTEXT MAP

NAME OF PARK
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MIDWEST	MARION	ARKANSAS

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
1.A.2 (BUFF)
Rush Historic District CLR/EA

November 7, 2017

Absentee Shawnee Tribe
Edwina Butler-Wolf, Governor
2025 South Gordon Cooper Drive
Shawnee, OK 74801-9381

Reference: Buffalo National River, Rush Historic District Cultural Landscape Report and Environmental Assessment

Subject: Tribal Consultation

Dear Governor Butler-Wolf;

A National Park Service (NPS) contractor is preparing a Cultural Landscape Report and associated Environmental Assessment (CLR/EA) to support management decisions on treatment and use of aboveground cultural resources for the Rush Historic District, Buffalo National River, Arkansas. Rush Historic District is a 1316-acre former zinc mining district located on the lower Buffalo River and two of its tributaries, Rush Creek and Clabber Creek, roughly thirty miles upstream from the Buffalo's confluence with the White River (see enclosed figure). The district's contributing resources have been listed on or determined eligible for the National Register of Historic Places. The period of significance covers the productive zinc-mining era of 1885-1931.

The goal of this project is to prepare critical planning and design documents to guide the ultimate treatment for the structures and cultural landscape. The CLR/EA will document the landscape's multi-faceted contributing resources, including building ruins, abandoned mines and rugged terrain. A portion of the landscape is in designated wilderness. Historic views, circulation networks, spatial relationships and mining ruins are obscured by encroaching vegetation. This treatment plan will outline a general treatment approach for the district, and develop character areas to focus specific areas for treatment. The result will be cohesive treatment of the buildings and landscape that supports the operational and visitor use(s).

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of those during the period of significance.

In accordance with the Advisory Council on Historic Preservation regulations, 36 CFR Part 800: Protection of Historic Properties, the NPS is required to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. Additionally, according to Executive Order 13007 on "Indian Sacred Sites" (1996) the National Park Service will accommodate, to the extent practicable, access to and ceremonial use of Indian sacred sites by religious practitioners from recognized Native American and Alaska native tribes and would avoid adversely affecting the physical integrity of such sacred sites. This scoping notice informs you of the CLR/EA process and invites your participation in identifying tribal sites and uses of significance and in analysis of potential environmental impacts from a variety of treatment alternatives.

Buffalo National River contains numerous prehistoric and historic archeological sites that span almost 10,000 years of human history and tribal uses continue today. For these reasons, NPS anticipates including measures in the action alternatives developed and evaluated in the CLR/EA to avoid and minimize adverse effects to archaeological and historic resources and to tribal uses.

In addition to informing you of the project and Section 106 process, I would also like to invite you to a contractor-facilitated design alternatives workshop at Buffalo National River. Your participation in the workshop would be extremely valuable as a way to gain from your knowledge of tribal resources in the area and to inform the team of concerns or opportunities as treatment approaches are developed. I will provide you with details on the workshop location and agenda once they are set and hope you or a representative are able to attend.

We look forward to your participation in this process and believe that it will help ensure you're your concerns are adequately considered and evaluated in the CLR/EA. As soon as the CLR/EA is complete, we will send it to you for review and comment. I have designated Dr. Caven Clark, Chief of Interpretation & Resource Management, to be the park's lead for this project. He can be reached at (870) 365-2792, or email at caven_clark@nps.gov. If you have any questions or concerns about this notice or if you require additional information, please contact Dr. Clark or myself. I look forward to hearing from you.

We appreciate your continuing assistance with National Park Service projects.

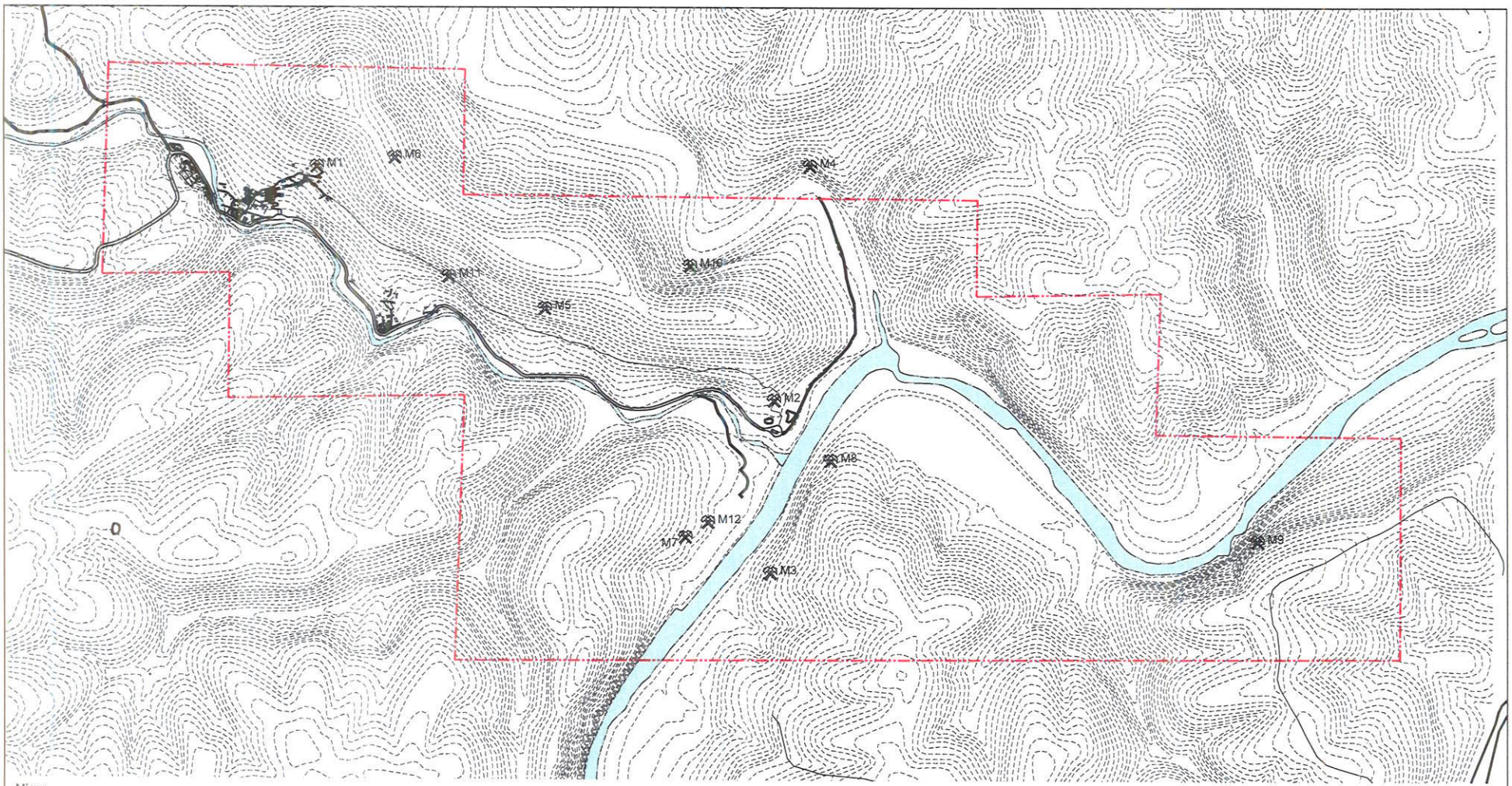
Sincerely,

Kevin G. Cheri
Superintendent

Enclosure

Cc: Erin Thompson, THPO, Chairperson, Caddo Nation of Oklahoma; Principal Chief, Cherokee Nation; Chief, Eastern Shawnee Tribe of Oklahoma; Principal Chief, The Osage

Nation; Chairperson, The Quapaw Tribe of Indians; Chief, Shawnee Tribe; Chairperson, Tunica-Biloxi Indian Tribe; Chief, United Keetoowah Band of Cherokee Indians in Oklahoma; President, Wichita And Affiliated Tribes.



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JULY 2017

UNITED STATES
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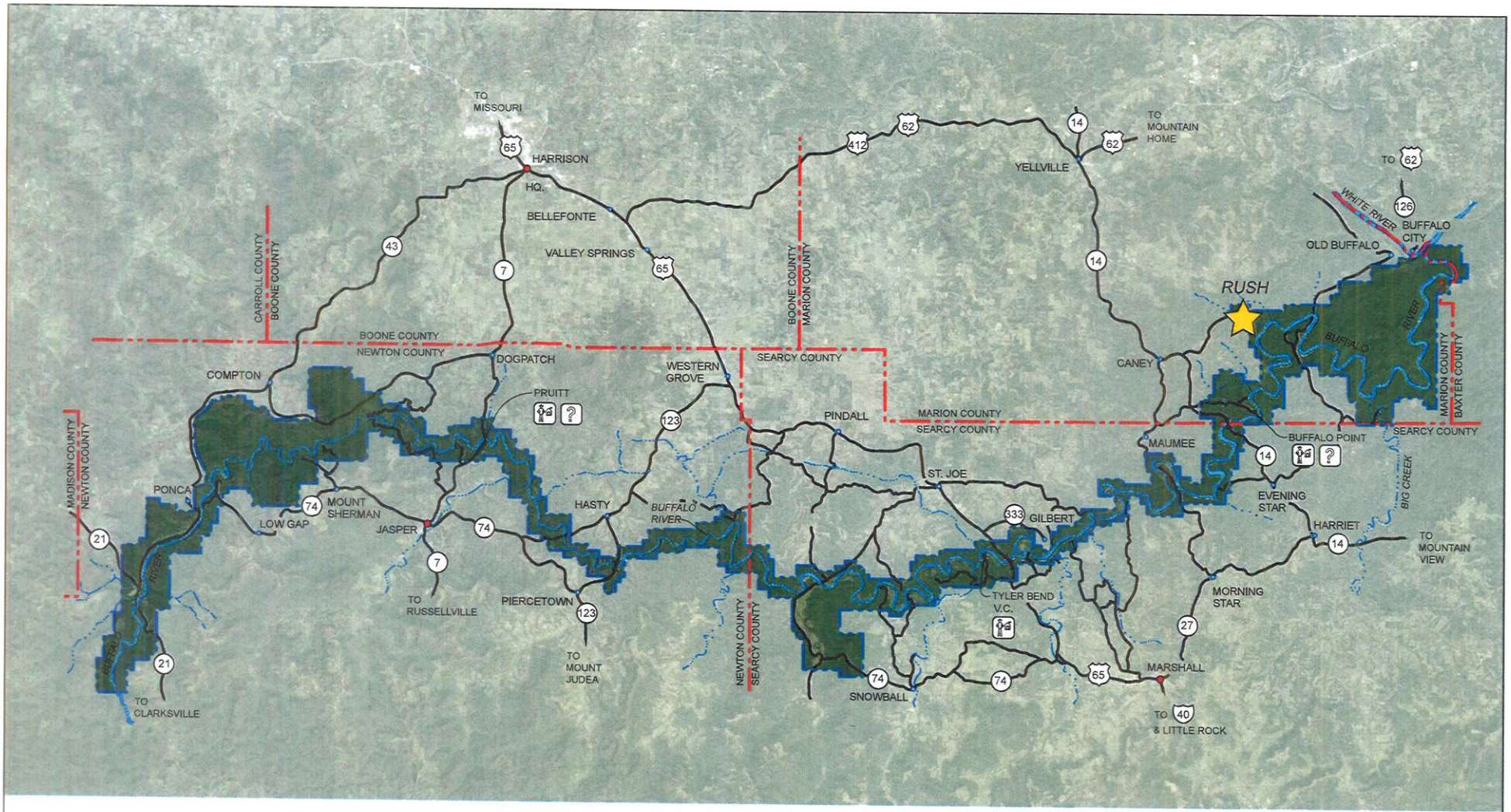
BUFFALO NATIONAL RIVER
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1885 TO 1893 - FIRST MINING PERIOD

NAME OF PARK
RUSH HISTORIC DISTRICT

REGION: MIDWEST
COUNTY: MARION
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Sources:
Adapted from nps.gov/dscw/cad-sheets.htm, Google Maps 2017

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AUGUST 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUFFALO NATIONAL RIVER
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RUSH HISTORIC DISTRICT

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MIDWEST	MARION	ARKANSAS

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:

1.A.2 (BUFF)

Rush Historic District CLR/EA

Mr. Melvin L. Tobin
Field Supervisor
U.S Fish and Wildlife Service
10 S. Amity Road, Suite 300
Conway, AR 72032

Dear Mr. Tobin,

Reference: Consultation Code: 04ER1000-2017-SLI-1197
Event Code: 04ER1000-2017-E-01749
Project Name: Rush Historic District CLR/EA

Subject: Rush Historic District CLR/EA Informal Endangered Species Act Section 7 Consultation

In a letter to you dated November 7, 2017, the National Park Service (NPS) initiated informal consultation with your office regarding the potential effects on species listed as threatened and endangered under the Endangered Species Act from alternatives being evaluated as part of a Cultural Landscape Report and associated Environmental Assessment (CLR/EA). The CLR/EA was undertaken to support management decisions on treatment and use of aboveground cultural resources for the Rush Historic District, Buffalo National River, Arkansas.

The CLR/EA has been completed and an alternative selected that NPS intends to implement over time as resources are available. This letter presents a summary of the selected alternative and NPS' determination that the selected alternative will have no effect on listed invertebrate species and may affect but would not likely adversely affect listed bat species. The selected alternative would also have no effect on bald eagle (*Haliaeetus leucocephalus*). Additional information is available in the CLR/EA, which will be provided at your request.

Background
Rush Historic District is a 1316-acre former zinc mining district located on the lower Buffalo River and two of its tributaries, Rush Creek and Clabber Creek, roughly thirty miles upstream from the Buffalo's confluence with the White River (see enclosed location figures). The district's contributing resources have been listed on or determined eligible for the National Register of Historic Places. The period of significance covers the productive zinc-mining era of 1885-1931.

The goal of the project was to prepare critical planning and design documents to guide the ultimate treatment for the structures and cultural landscape. The CLR/EA documents the landscape's multi-faceted contributing resources, including building ruins, abandoned mines and rugged terrain. A portion of the landscape is in designated wilderness. Historic views, circulation networks, spatial relationships and mining ruins are obscured by encroaching vegetation. The treatment plan outlines a general treatment approach for the district, and developed character areas to focus specific areas for treatment. The result is a cohesive treatment of the buildings and landscape that supports the operational and visitor use(s).

Selected Alternative

Based on the analysis presented in the CLR/EA, NPS selected the preservation treatment (Action Alternative 1) as the NPS selected alternative because it best meets the purpose and need for the project as well as the project goals.

The following highlights major elements of the selected alternative, while detailed description can be found in Chapter 6 of the CLR/EA.

The selected alternative focuses on preserving contributing features and rehabilitating the historic setting. This alternative would stabilize extant buildings. Extant ruins and foundations would be preserved in-situ and stabilized and repaired according to their condition. Circulation features and patterns, small scale features, and vegetation patterns would be repaired. In Morning Star Community landscape character area, footprints of some non-extant buildings and structures (some foundations remain) would be cleared of vegetation and marked. Additional vegetation clearing, thinning and pruning along roads, at spoils and tailings piles, and within some domestic spaces would be completed to repair spatial organization. Domestic spaces in House Row and at Rush Smelter and Morning Star Livery Barn ruins would be repaired. Mine adits, portals, and entrances would be secured. Select locations at portals would be cleared of vegetation and interpretation would be provided. Existing visitor facilities would remain and be improved for universal accessibility. A trail extension would be added on Rush Mountain (Rush Mountain Trail), and improvements would be made to the day use facilities and parking at the confluence of Clabber Creek with Buffalo River.

Potentially Affected Species

Section 7 of the Endangered Species Act of 1973 requires that a federal agency consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service on any action that may affect endangered or threatened species or candidate species or that may result in adverse modification of critical habitat. As part of the EA analysis, NPS requested and received a list of threatened and endangered species that may occur in the study area through the U.S. Fish and Wildlife Service Environmental Conservation Online System – Information for Planning and Conservation (see enclosed IPAC species list).

NPS determined the following threatened or endangered species may be present in or affected by activities in Rush Historic District for at least some part of the year: Hell Creek Cave crayfish (*Cambarus zophonastes*), rabbitsfoot (*Quadrula cylindrica cylindrica*), snuffbox (*Epioblasma triquetra*), western fanshell (*Cyprogenia aberti*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and tricolored bat (*Perimyotis subflavus*). Additionally, bald eagle may occur in Rush Historic District. Finally, designated critical habitat for rabbitsfoot is present along the Buffalo River at Rush Historic District.

Potential Effects

Under the selected alternative, vegetation management and securing mine entrances may result in changes in habitat for listed species or in effects on individuals of listed species. Any ground disturbing activities, including constructing the Rush Mountain Trail, would include implementing mitigation measures/conservation measures to avoid adverse effects on federally listed species (see enclosed mitigation measures/conservation measures). With mitigation measures/conservation measures, the selected alternative would have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, or bald eagle.

Although the activities under the selected alternative, including mitigation measures/conservation measures, would not directly affect trees with active bat roosts or nurseries, entrance grates to mines, or hibernacula in mines, removing trees and shrubs around the mine complexes would modify foraging areas and reduce the number of potential roost and maternity trees. These changes would be

small on a local scale and would occur in areas of visitor use. Additionally, abundant foraging, roosting, and nursery habitat would still be available in the rest of Rush Historic District.

Conclusion
Based on its evaluation of the likelihood of species being present and the seasonality, duration, and type of disturbance associated with the selected alternative, NPS determined that, with the mitigation and conservation measures described in the CLR/EA (enclosed), the selected alternative will have no effect on Hell Creek Cave crayfish, rabbitsfoot, snuffbox, western fanshell, or bald eagle nor will it affect designated critical habitat for any species. NPS has further determined that the selected alternative may affect, but will not likely adversely affect gray bat, Indiana bat, northern long-eared bat, Ozark big-eared bat, and tricolored bat.

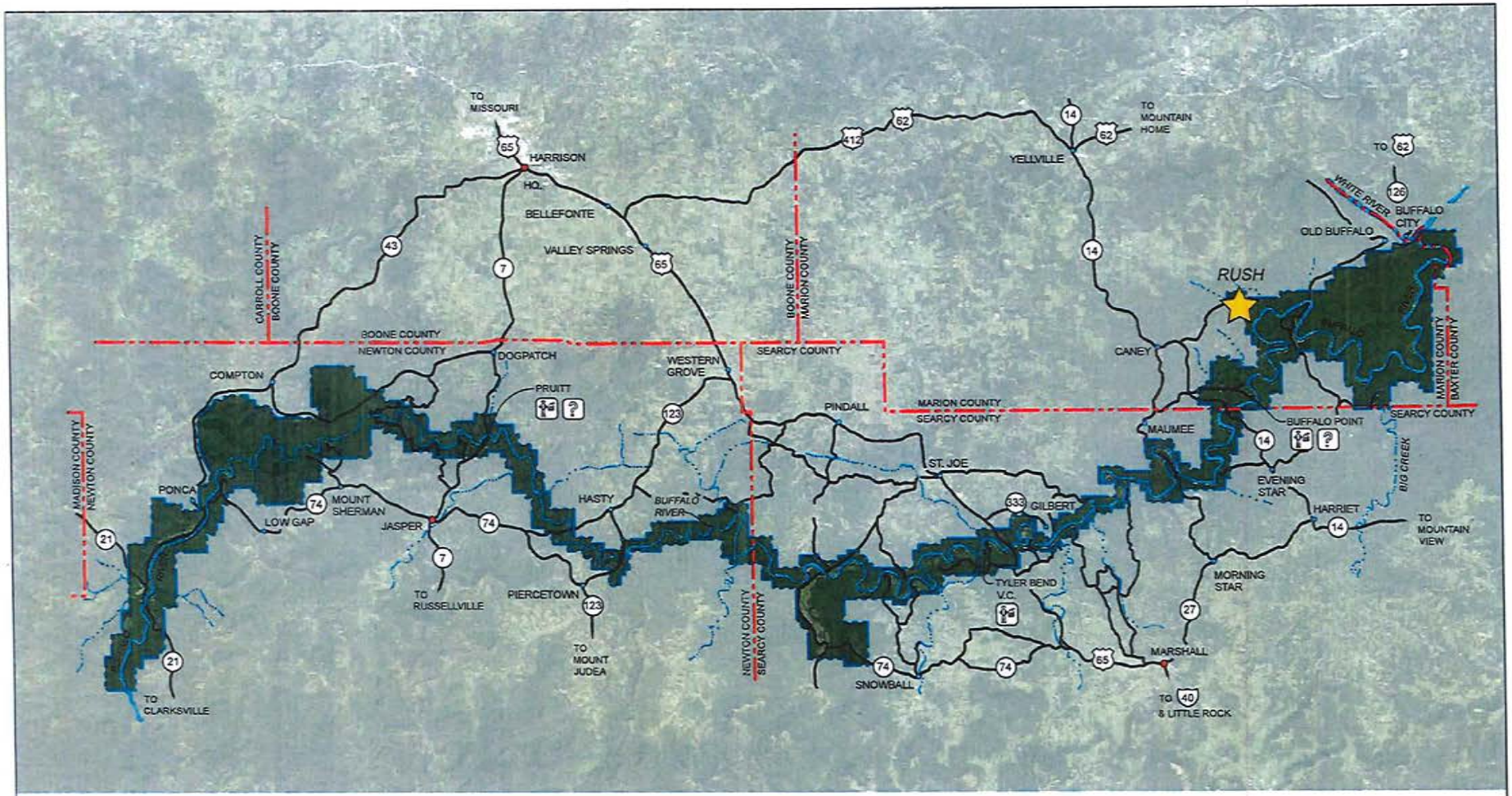
To conclude our informal Section 7 consultation with your office and complete our project-related compliance with the Endangered Species Act, I would appreciate your review of and concurrence with the findings of the CLR/EA. If you have any questions or concerns about this notice or if you require additional information, please do not hesitate to me. I look forward to your response.

As always, we appreciate your continuing assistance with NPS projects.

Sincerely,

Mark A. Foust,
Superintendent
Buffalo National River
Midwest Region

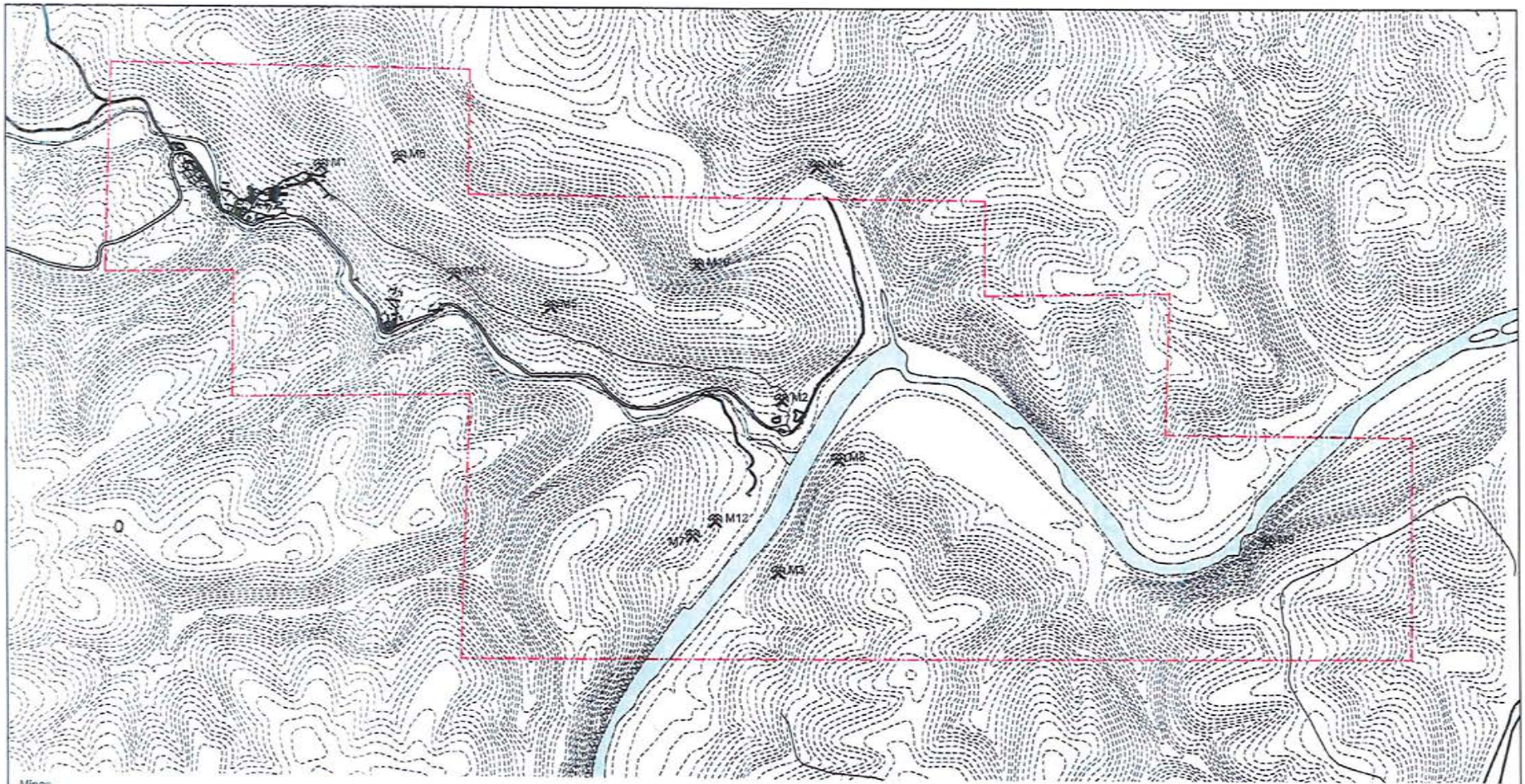
Enclosures:
IPAC Species List
Location Figures
Mitigation Measures/Conservation Measures



Sources:
Adapted from nps.gov/idscw/cad-sheets.htm, Google Maps 2017

0 4MI
1" = 4 MILES

AUGUST 2017	TITLE OF PROJECT: CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
UNITED STATES DEPARTMENT OF THE INTERIOR BUFFALO NATIONAL RIVER ARKANSAS	TITLE OF DRAWING: CONTEXT MAP
	NAME OF PARK: RUSH HISTORIC DISTRICT
	REGION: MIDWEST · COUNTY: MARION · STATE: ARKANSAS



Mines
M1 Morning Star Mines (1884)
M2 White Eagle Mines (1885-1920s; 1959-1962)
M3 Red Cloud Mine (1887-1919)
M4 Philadelphia Mine (1887-1919; 1961-1962)
M5 McIntosh Mine (1888-1919)
M6 Ben Carney Mine (1894-1931)
M7 Yellow Rose Mine (1899-1901; 1915-1919)
M8 Lonnie Boy Mine (1880s; 1916-1930s, early 1960s)
M9 Silver Hollow Mine (1892; 1904-1907; 1915-1919)
M10 Monte Cristo Mine(1900; 1915-1917; 1920s; 1961-1962)
M11 Capps Mine (1915-1935)
M12 Edith Mine (1915-1919)

Sources:
Arkansas GIS (https://gis.arkansas.gov/), Google Maps 2017, Historic Resource Documentation Morning Star Mines Interpretive Area, Cultural Landscapes Inventory 2012

0 1000
1" = 1000'

JULY 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUFFALO NATIONAL RIVER
ARKANSAS

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT
TITLE OF DRAWING
1885 TO 1893 - FIRST MINING PERIOD
NAME OF PARK
RUSH HISTORIC DISTRICT
REGION MIDWEST
COUNTY MARION
STATE ARKANSAS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480
http://www.fws.gov/arkansas-es

In Reply Refer To:
Consultation Code: 04ER1000-2017-SLI-1197
Event Code: 04ER1000-2017-E-01749
Project Name: Rush Historic District CLR/EA

August 18, 2017

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

To Whom It May Concern:

The enclosed species list identifies endangered, threatened, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). **This letter only provides an official species list and technical assistance; if you determine that listed species and/or designated critical habitat may be affected in any way by the proposed project, even if the effect is wholly beneficial, consultation with the Service will be necessary.**

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found on our website.

Please visit our website at http://www.fws.gov/arkansas-es/IPaC/home.html for species-specific guidance to avoid and minimize adverse effects to federally endangered, threatened, proposed, and candidate species. Our web site also contains additional information on species life history and habitat requirements that may be useful in project planning.

If your project involves in-stream construction activities, oil and natural gas infrastructure, road construction, transmission lines, or communication towers, please review our project

specific guidance at http://www.fws.gov/arkansas-es/IPaC/ProjSpec.html.

The karst region of Arkansas is a unique region that covers the **northern third of Arkansas** and we have specific guidance to conserve sensitive cave-obligate and bat species. **Please visit http://www.fws.gov/arkansas-es/IPaC/Karst.html to determine if your project occurs in the karst region and to view karst specific-guidance.** Proper implementation and maintenance of best management practices specified in these guidance documents is necessary to avoid adverse effects to federally protected species and often avoids the more lengthy formal consultation process.

If your species list includes any mussels, Northern Long-eared Bat, Indiana Bat, Yellowcheek Darter, Red-cockaded Woodpecker, or American Burying Beetle, your project may require a presence/absence and/or habitat survey prior to commencing project activities. Please check the appropriate species-specific guidance on our website to determine if your project requires a survey. We strongly recommend that you contact the appropriate staff species lead biologist (see office directory or species page) prior to conducting presence/absence surveys to ensure the appropriate level of effort and methodology.

Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

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

implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

Project Summary

Consultation Code: 04ER1000-2017-SLI-1197

Event Code: 04ER1000-2017-E-01749

Project Name: Rush Historic District CLR/EA

Project Type: ** OTHER **

Project Description: A Cultural Landscape Report and Environmental Assessment (CLR/EA) for the Rush Historic District at Buffalo National River ("the park" or "the study area") is needed to define an appropriate treatment strategy for managing the historic district and accommodating visitor use and access. The strategy will focus on interim and long term resource management, sustainable cyclic maintenance, and supporting educational programs/recreation. Recommendations from the selected alternative would be implemented over a number of years as budget and staffing allow. Treatment measures would likely include activities such as building stabilization, trail improvements, and vegetation management such as tree and shrub removal.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.12851562651305N92.55994319915771W



Counties: Marion, AR

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered

Clams

NAME	STATUS
Rabbitsfoot *Quadrula cylindrica cylindrica* There is a **final** critical habitat designated for this species. Your location overlaps the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165	Threatened
Snuffbox Mussel *Epioblasma triquetra* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4135	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Rabbitsfoot *Quadrula cylindrica cylindrica* https://ecos.fws.gov/ecp/species/5165#crithab	Final designated

Mitigation Measures/Conservation Measures

The NPS places strong emphasis on protecting resources against potentially adverse impacts. Mitigation is used to avoid, prevent, or minimize adverse impacts during implementation of projects. The following mitigation measures will be implemented as part of the selected alternative. The NPS may need to obtain federal and state environmental permits and, as part of that process, additional mitigation measures could be required by other agencies. The NPS will implement an appropriate level of monitoring throughout project activities to ensure that protective measures are being properly implemented and are achieving their intended results.

General Measures

- The work area limits will be clearly defined, fenced, flagged, and delineated to keep ground disturbance to a minimum. No disturbance will occur beyond these limits other than protection measures for erosion/sediment control.
- All contractor employees and subcontractors will attend an orientation session(s) regarding park regulations focused on minimizing impacts on resources, human health and safety, and appropriate housekeeping.
- All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project area upon project completion. Construction debris will be hauled from the park to an appropriate disposal location.
- Staging, materials, and equipment will be in developed areas such as existing parking lots to the extent possible.

Cultural Landscapes, Historic Structures, and Archaeological Resources

- Unless they are part of the project, known historic sites and isolated occurrences will be avoided during construction.
- NPS cultural resources staff will be available during implementation to advise or take appropriate actions should any archeological resources be uncovered during implementation. Should any archeological resources be uncovered during implementation, as appropriate, work will be halted in the area and a NPS archeologist, SHPO, and appropriate Native American tribes will be contacted for further consultation in accordance with 36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- The park will ensure that all personnel who work on the project are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Personnel will also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic will be minimized in the site. Equipment and materials staging areas will also avoid known archeological resources.

Water Resources

- If minor earthwork is necessary, standard erosion-control measures such as silt fencing will be used to minimize erosion and the introduction of sediments to aquatic habitat during and after construction.

- All vehicle and equipment fueling will occur more than 100 feet from any surface water in a location where a fuel spill will not be able to enter the water.
- A spill prevention and response plan that regulates the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment, will be prepared.
- Disturbed areas will be reseeded as quickly as possible following the work.

Native Vegetation and Non-native Ornamental and Invasive, Exotic Species

- Non-invasive ornamental tree and shrub species will be used in cultural landscape treatments.
- Disturbance to vegetation will be avoided as much as possible and contained to as small a footprint as possible.
- Temporary barriers may be provided to protect existing trees, plants, and root zones not proposed for removal or thinning. Trees or other plants will not be removed, injured, or destroyed without prior approval.
- All equipment entering the park will be cleaned and pressure washed to remove foreign soil, vegetation, and other materials that may contain nonnative seeds or vegetation.
- All disturbed areas will be revegetated with native species. Revegetation plantings, if necessary, will use native species from genetic stocks originating in the park, if possible. Revegetation efforts will focus on recreating the natural spacing, abundance, and diversity of native plant species. All disturbed areas will be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed.
- To minimize introduction of exotic plant species, no hay bales will be used for mulch. Hay often contains seed of undesirable or harmful invasive exotic plant species. Therefore, on a case-by-case basis, the following materials may be used for any erosion control that may be necessary: rice straw, straws determined by the NPS to be weed-free (e.g., barley straw or winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.
- Non-native and invasive exotic plant infestations in restored areas will be treated on a yearly basis for a minimum of three years following project completion.

Wildlife and Species of Concern (Conservation Measures)

- Construction personnel will be instructed on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage, and other attractants.
- Pre-project surveys will be performed to identify sensitive plant species, vegetation communities, and wildlife habitat. Treatment alternatives will be revised, if necessary, to avoid more than minimal impacts on wildlife and to avoid adverse effects on species of concern. Project plans will identify areas to avoid.
- Areas will be designated for stockpiling slash material.
- To reduce noise disturbance and limit impacts on breeding avian and mammalian species, all tree and shrub thinning and removal will be conducted from October 1 to March 1, where feasible.
- If tree and shrub thinning and removal must occur between March 1 and October 1, field surveys for migratory bird nests and cavities and bat roosts and nurseries will be conducted prior to vegetation-disturbing activities. Where active nests or nurseries are present, vegetation removal

will not occur until after the young have fledged, and ground-disturbing activities will not occur within 100 feet until the young have fledged.

Public Health and Safety

- Signs, press releases, or other communication methods will be used to inform visitors about construction and any building or area closures or detours during construction.
- Appropriate barriers and barricades will be used to clearly delineate work areas and provide for safe visitor travel near construction areas.
- Emergency response protocols will be developed for implementation during construction. Construction activities will be conducted in accordance with established safety protocols.

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Appendix C: Marion County Sensitive Species

Table C-3. Arkansas Natural Heritage Commission State-listed Species of Marion County, Arkansas		
Scientific Name **(Common Name)**	**Federal Status**	**State Status**
Invertebrates		
Alasmidonta marginata (Elktoe)	-	INV
Alasmidonta viridis **(Slippershell Mussel)**	-	INV
Amblyscirtes aesculapius **(Lace-winged Roadside-Skipper)**	-	INV
Amblyscirtes belli **(Bell's Roadside-Skipper)**	-	INV
Amblyscirtes carolina **(Carolina Roadside-Skipper)**	-	INV
Autochton cellus **(Golden Banded-Skipper)**	-	INV
Bactrurus speleopolis **(Cave City cave amphipod)**	-	INV
Caecidotea dimorpha **(an isopod)**	-	INV
Caecidotea stiladactyla **(an isopod)**	-	INV
Calephelis borealis **(Northern Metalmark)**	-	INV
Calephelis muticum **(Swamp Metalmark)**	-	INV
Cambarus zophonastes **(Hell Creek Cave Crayfish)**	LE	SE
Chlosyne gorgone **(Gorgone Checkerspot)**	-	INV
Cogia outis **(Outis Skipper)**	-	INV
Cyprogenia aberti **(Ozark Fanshell)**	-	INV
Daedalochila peregrina **(White Liptooth)**	-	INV
Derops divalis **(a beetle)**	-	INV
Epioblasma triquetra **(Snuffbox)**	LE	SE
Erynnis martialis **(Mottled Duskywing)**	-	INV
Fusconaia ozarkensis **(Ozark Pigtoe)**	-	INV
Hesperochernes occidentalis **(a pseudoscorpion)**	-	INV
Heterosternuta phoebeae **(a diving beetle)**	-	INV
Heterosternuta sulphuria **(Sulphur Springs diving beetle)**	-	INV
Pleurobema sintoxia **(Round Pigtoe)**	-	INV
Poanes yehl **(Yehl Skipper)**	-	INV
Problema byssus **(Byssus Skipper)**	-	INV
Ptychobranchus occidentalis **(Ouachita Kidneyshell)**	-	INV
Quadrula cylindrica cylindrica **(Rabbitsfoot)**	LT	SE
Stygobromus ozarkensis **(Ozark cave amphipod)**	-	INV
Toxolasma lividum **(Purple Lilliput)**	-	INV
Toxolasma parvum **(Lilliput)**	-	INV

Table C-3. Arkansas Natural Heritage Commission State-listed Species of Marion County, Arkansas		
Scientific Name **(Common Name)**	**Federal Status**	**State Status**
Venustaconcha pleasii **(Bleedingtooth Mussel)**	-	INV
Villosa iris **(Rainbow)**	-	INV
Villosa lienosa **(Little spectaclecase)**	-	INV
Vertebrates		
Ambystoma annulatum **(Ringed Salamander)**	-	INV
Carphophis amoenus **(Common Worm Snake)**	-	INV
Corynorhinus townsendii ingens **(Ozark big-eared Bat)**	LE	SE
Crotaphytus collaris **(Eastern Collared Lizard)**	-	INV
Eurycea spelaea **(Grotto Salamander, eastern clade)**	-	INV
Haliaeetus leucocephalus **(Bald Eagle)**	-	INV
Lampetra aepyptera **(Least Brook Lamprey)**	-	INV
Lethenteron appendix **(American Brook Lamprey)**	-	INV
Limnothlypis swainsonii **(Swainson's Warbler)**	-	INV
Lithobates sylvaticus **(Wood Frog)**	-	INV
Moxostoma anisurum **(Silver Redhorse)**	-	INV
Myotis grisescens **(Gray Bat)**	LE	SE
Myotis leibii **(Eastern Small-footed Bat)**	-	INV
Myotis septentrionalis **(Northern Long-eared Bat)**	LT	SE
Myotis sodalis **(Indiana Bat)**	LE	SE
Notropis ozarcanus **(Ozark Shiner)**	-	INV
Perimyotis subflavus **(Tricolored bat)**	UR	
Sonora semiannulata **(Western Groundsnake)**	-	INV
Plants		
Alisma triviale **(northern water-plantain)**	-	INV
Amorpha canescens **(lead-plant)**	-	INV
Arabis hirsuta var. adpressipilis **(hairy rockcress)**	-	INV
Argyrochosma dealbata **(powdery cloak fern)**	-	INV
Artemisia ludoviciana ssp. mexicana **(white sagebrush)**	-	INV
Asclepias incarnata ssp. incarnata **(swamp milkweed)**	-	INV
Asclepias stenophylla **(narrow-leaf milkweed)**	-	INV
Brickellia grandiflora **(tassel-flower)**	-	INV
Callirhoe bushii **(Bush's poppy-mallow)**	-	INV

Table C-3. Arkansas Natural Heritage Commission State-listed Species of Marion County, Arkansas		
Scientific Name **(Common Name)**	**Federal Status**	**State Status**
Carex careyana **(Carey's sedge)**	-	INV
Carex hitchcockiana **(Hitchcock's sedge)**	-	INV
Carex leptalea **(bristly-stalk sedge)**	-	INV
Carex pellita **(woolly sedge)**	-	INV
Carex reznicekii **(Reznicek's sedge)**	-	INV
Carex sparganioides **(bur-reed sedge)**	-	INV
Carex stricta **(tussock sedge)**	-	INV
Carex suberecta **(prairie straw sedge)**	-	INV
Carex timida **(timid sedge)**	-	INV
Coreopsis grandiflora var. saxicola **(large-flower tickseed)**	-	INV
Delphinium treleasei **(Trelease's larkspur)**	-	INV
Desmodium illinoense **(Illinois tick-trefoil)**	-	INV
Diaperia prolifera var. prolifera **(big-head rabbit-tobacco)**	-	INV
Elymus glaucus ssp. mackenzii **(Mackenzie's blue wild rye)**	-	INV
Erythronium mesochoreum **(prairie trout-lily)**	-	INV
Euonymus obovatus **(running strawberry-bush)**	-	INV
Gentiana alba **(pale gentian)**	-	INV
Gentiana puberulenta **(downy gentian)**	-	INV
Gillenia trifoliata **(Bowman's-root)**	-	INV
Juglans cinerea **(butternut)**	-	INV
Juncus subcaudatus **(fen rush)**	-	INV
Liatris scariosa var. nieuwlandii **(northern blazing-star)**	-	INV
Lipocarpha drummondii **(Drummond's halfchaff sedge)**	-	INV
Lithospermum incisum **(fringed puccoon)**	-	INV
Lysimachia hybrida **(lowland yellow-loosestrife)**	-	INV
Malvastrum hispidum **(yellow false mallow)**	-	INV
Nemastylis nuttallii **(Nuttall's pleat-leaf)**	-	INV
Neviusia alabamensis **(Alabama snow-wreath)**	-	ST
Pediomelum esculentum **(large Indian-breadroot)**	-	INV
Penstemon cobaea **(showy beardtongue)**	-	INV
Perideridia americana **(American squaw-root)**	-	INV
Philadelphus hirsutus **(hairy mock orange)**	-	INV

Table C-3. Arkansas Natural Heritage Commission State-listed Species of Marion County, Arkansas		
***Scientific Name* (Common Name)**	**Federal Status**	**State Status**
***Phlox bifida* (sand phlox)**	-	INV
***Poa wolfii* (Wolf's bluegrass)**	-	INV
***Prenanthes aspera* (prairie rattlesnake-root)**	-	INV
***Pycnanthemum virginianum* (Virginia mountain-mint)**	-	INV
***Rhynchospora capillacea* (capillary beaksedge)**	-	INV
***Ribes cynosbati* (prickly gooseberry)**	-	INV
***Salix eriocephala* (Missouri willow)**	-	INV
***Salvia reflexa* (Rocky Mountain sage)**	-	INV
***Schedonnardus paniculatus* (tumble grass)**	-	INV
***Silene regia* (royal catchfly)**	-	ST
***Solidago gattingeri* (Gattinger's goldenrod)**	-	INV
***Spiranthes lucida* (shining ladies'-tresses)**	-	INV
***Stenosiphon linifolius* (false gaura)**	-	ST
***Stylophorum diphyllum* (celandine-poppy)**	-	INV
***Symphyotrichum sericeum* (silvery aster)**	-	INV
***Tradescantia ozarkana* (Ozark spiderwort)**	-	INV
***Valerianella ozarkana* (Ozark cornsalad)**	-	INV
***Viola canadensis var. canadensis* (Canadian white violet)**	-	INV
***Vitis rupestris* (sand grape)**	-	INV
***Waldsteinia fragarioides* (barren-strawberry)**	-	INV

BGEPA = Bald and Golden Eagle Protection Act; INV = State inventory element; LE = Federally listed endangered; LT = Federally listed threatened; SE = State listed endangered; ST = State listed threatened; UR = Under review

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Appendix D: Terminology

Adit
: A horizontal or nearly horizontal entrance to an underground mine.

Aerial Tramway
: A type of aerial lift that uses ropes for support and propulsion.

Angle of Repose
: The maximum angle from horizontal at which a given material will rest on a given surface without sliding or rolling.[1.1]

Below-grade
: Features with no discernible topographic relief on LiDAR imagery or through visual observations.

Building
: A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity.

Built Environment
: Human-made spaces that provide setting for human activity, where people live, work and recreate on a day-to-day basis.

Contour
: An imaginary line that connects all points on a surface having the same elevation.[1.2]

Contributing Feature
: A feature that contributes to the significance of the archeological landscape.

Deposit
: Mineral deposit or ore deposit is used to designate a natural occurrence of a useful mineral, or an ore, in sufficient extent and degree of concentration to invite exploitation.[1.3]

Drift
: A horizontal passage underground. A drift follows the vein, as distinguished from a crosscut that intersects it, or a level or gallery, which may do either. [1.4]

Drift mine
: An underground mine in which the entry or access is above water level and generally on the slope of a hill, driven horizontally into a seam.[1.5]

1.1 http://www.coaleducation.org/glossary.htm
1.2 http://www.coaleducation.org/glossary.htm
1.3 http://www.coaleducation.org/glossary.htm
1.4 http://www.coaleducation.org/glossary.htm
1.5 http://www.coaleducation.org/glossary.htm

Extraction
: The process of mining and removal of coal or ore from a mine.[1.6]

Fall
: A mass of roof rock which has fallen in any part of a mine.[1.7]

Fault
: A slip-surface between two portions of the earth's surface that have moved relative to each other. A fault is a failure surface and is evidence of severe earth stresses.[1.8]

Free-flowing Stream
: A stream or a portion of a stream that is unmodified by the works of man or, if modified, still retains its natural scenic qualities and recreational opportunities.[1.9]

Gravity-fed Tramway
: An elevated set of rails that allowed for carts to move from the higher mines to the lower mills .

Historic Character
: The sum of all visual aspects, features, materials, and spaces associated with an archeological landscape's history, i.e. the original configuration together with losses and later changes. These qualities are often referred to as character-defining.

Integrity
: The authenticity of a property's historic identity, evinced by the survival of physical characteristics that existed during the property's historic or prehistoric period. The seven qualities of integrity as defined by the National Register Program are location, setting, feeling, association, design, workmanship, and materials.

Karst Topography
: A topography of dissolved soluble rocks, such as dolomite or limestone, with underground drainage systems with sinkholes and caves.

Mown Lawn
: Mown lawn includes turf grass species that are mown regularly.

Non-Contributing Feature
: A feature that does not contribute to the significance of the archeological landscape.

Open Pit Mine
: The technique of extracting minerals or rocks by removal from an open pit, rather than tunneling through the earth.

1.6 http://www.coaleducation.org/glossary.htm
1.7 http://www.coaleducation.org/glossary.htm
1.8 http://www.coaleducation.org/glossary.htm
1.9 http://www.ecologydictionary.org

Ore
: Rock or sediment from which a mineral or metal can be extracted.

Ore Cart
: A rolling cart that is used on a mine railway for the purpose of moving ore.

Ornamental Planting
: Ornamental planting areas may include trees, shrubs, perennials, and groundcovers. It generally includes non-native or introduced plant species. Ornamental planting areas may include trees, shrubs, perennials, and groundcovers.

Park Unit
: The NPS jurisdictional boundary, including inholdings.

Periphyton
: A complex mixture of algae, cyanobacteria, heterotrophic microbes, and detritus that is attached to submerged surfaces in most aquatic ecosystems.[1.10]

Portal
: The structure surrounding the immediate entrance to a mine; the mouth of an adit or tunnel.

Riparian
: Vegetation typical to floodplain forests and along rivers or streams. In the park units, the riparian community is dominated by a combination of silver maple (*Acer saccharinum*), sycamore (*Platanus occidentalis*), hackberry species (*Celtis spp.*), American elm (*Ulmus americana*), and green ash (*Fraxinus pennsylvanica*). Vines, including eastern poison ivy (*Toxicodendron radicans*) and creepers (*Parthenocissus spp.*) are often abundant. Most areas are under water for some period each spring, and microtopography is important for defining water regimes on a local scale.

Room-and-pillar Mine
: A type of mine where material is excavated leaving pillars of ore to support the rock above the mine cut.

Rock Face
: The bare exposure of a cliff or slope of natural rock.

Shaft
: A primary vertical or non-vertical opening through mine strata used for ventilation or drainage and/or for hoisting of personnel or materials; connects the surface with underground workings.[1.11]

1.10 https://en.wikipedia.org
1.11 http://www.coaleducation.org/glossary.htm

Shaft mine
: An underground mine in which the main entry or access is by means of a vertical shaft.[1.12]

Significance
: The meaning or value ascribed to a landscape based on the National Register criteria for evaluation. It normally stems from a combination of association and integrity.

Site
: A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure.

Spoils
: A pile of waste rock removed from a mine, usually deposited close to the extraction site.

Structure
: The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.

Tailings
: The finely ground waste rock created during the milling process, after separation of the valuable mineral or metal from the rock it is found in.

Treatment
: Work carried out to achieve a particular historic preservation goal.

Waste Rock
: That rock or mineral which must be removed from a mine to keep the mining scheme practical, but which has no value.

1.12 http://www.coaleducation.org/glossary.htm

Appendix E. Historic Resource Documentation, Morning Star Mines Interpretive Area, Rush Historic District

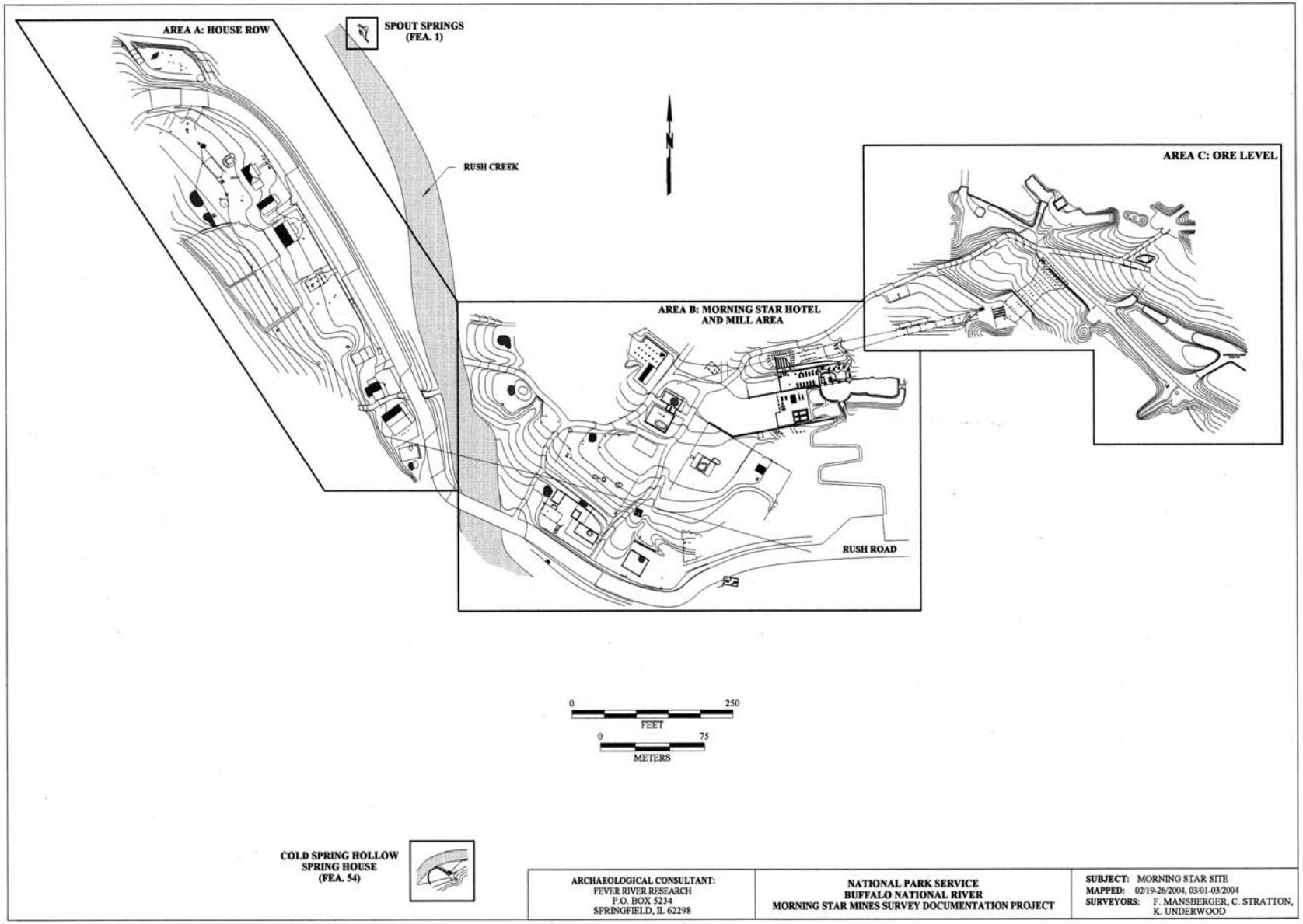


Figure 39. Map showing the sections of the Morning Star Site mapped in detail during the project (FRR 2004).

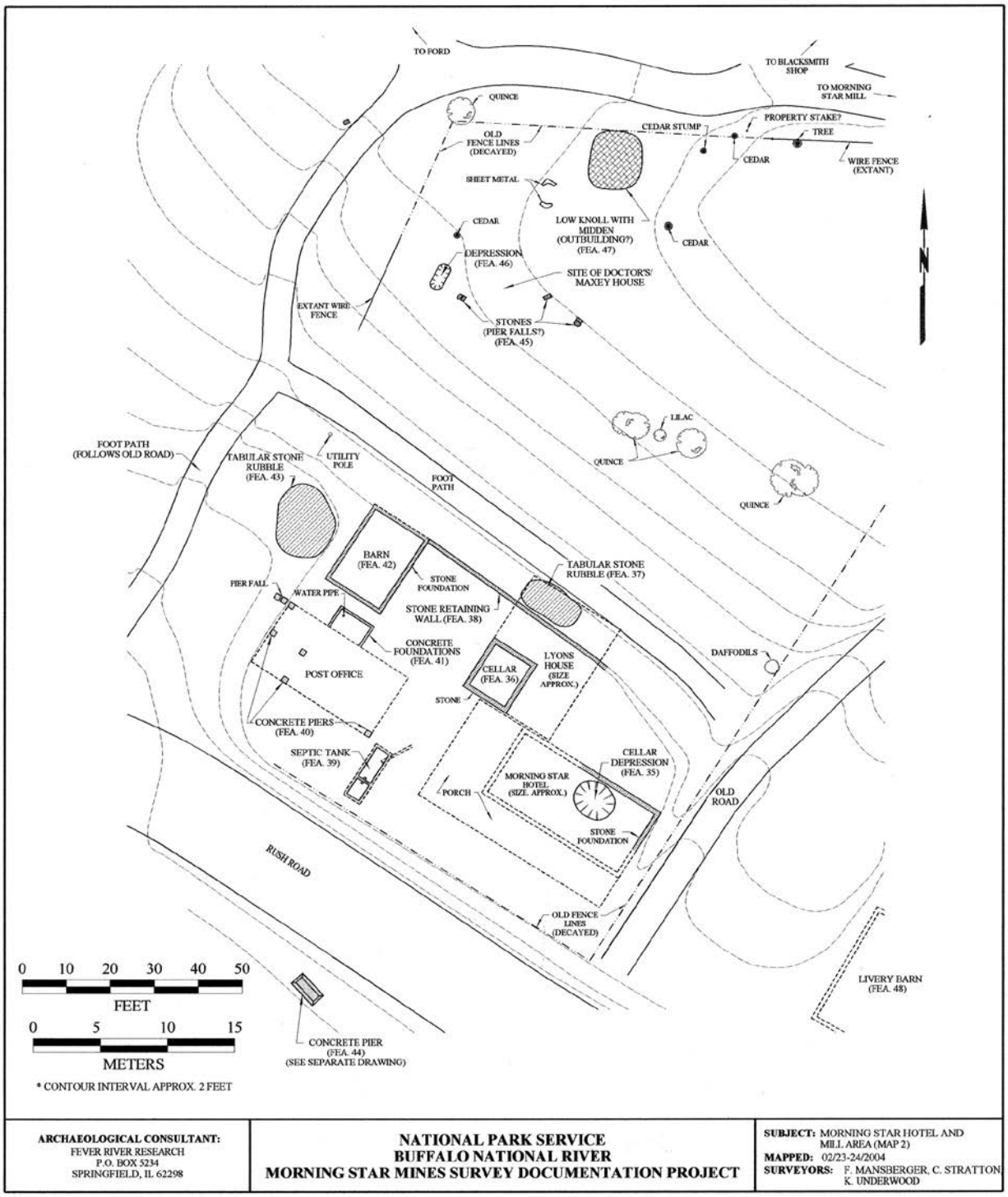


Figure 130. Map 2 of Area "B" of the Morning Star Site, showing the Morning Star Hotel lot. The size and configuration of some of the building footprints shown are approximate, due to the absence of above-grade structural evidence (FRR 2004).

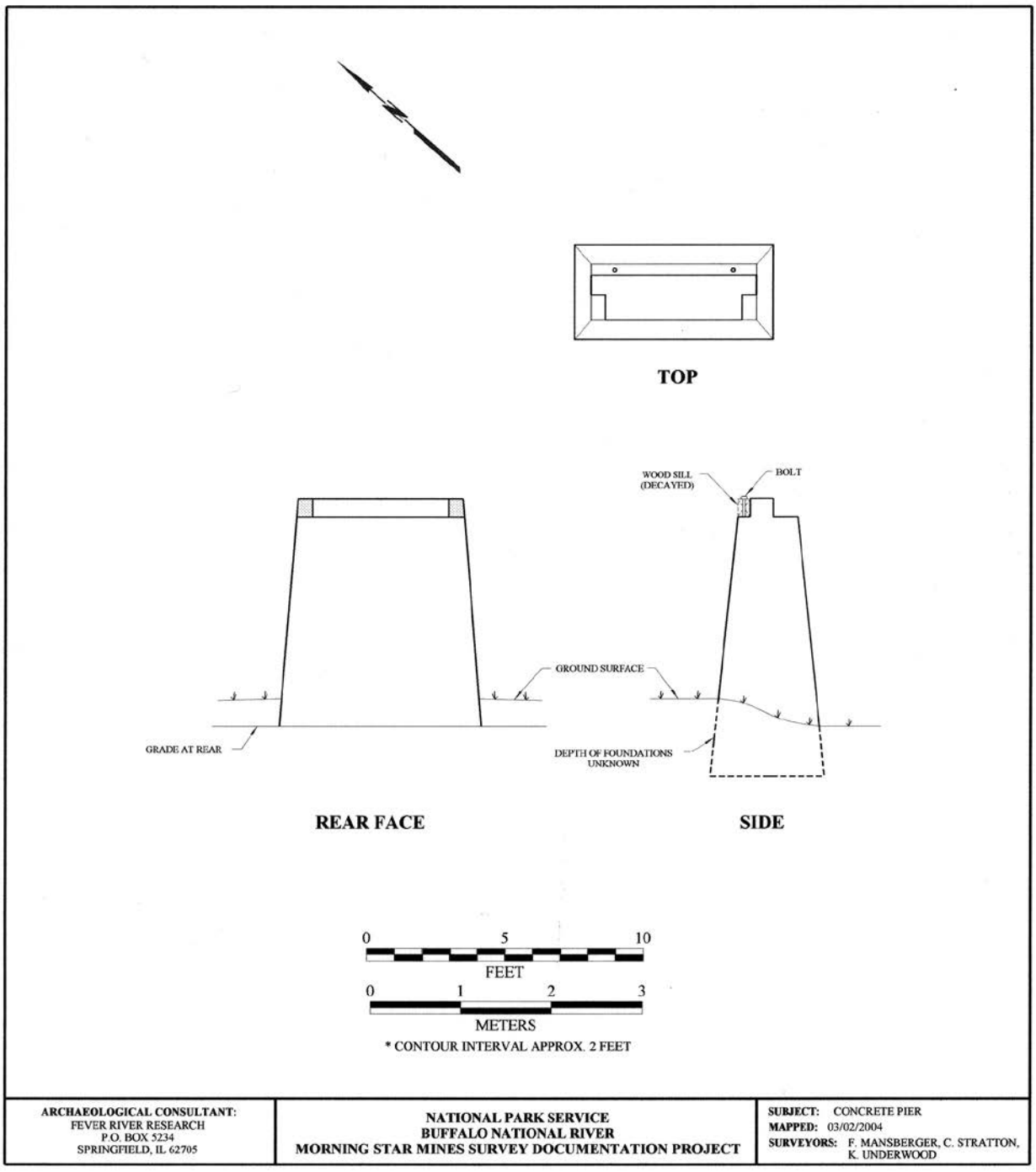


Figure 136. Plan and sectional views of Feature 44 (FRR 2004).

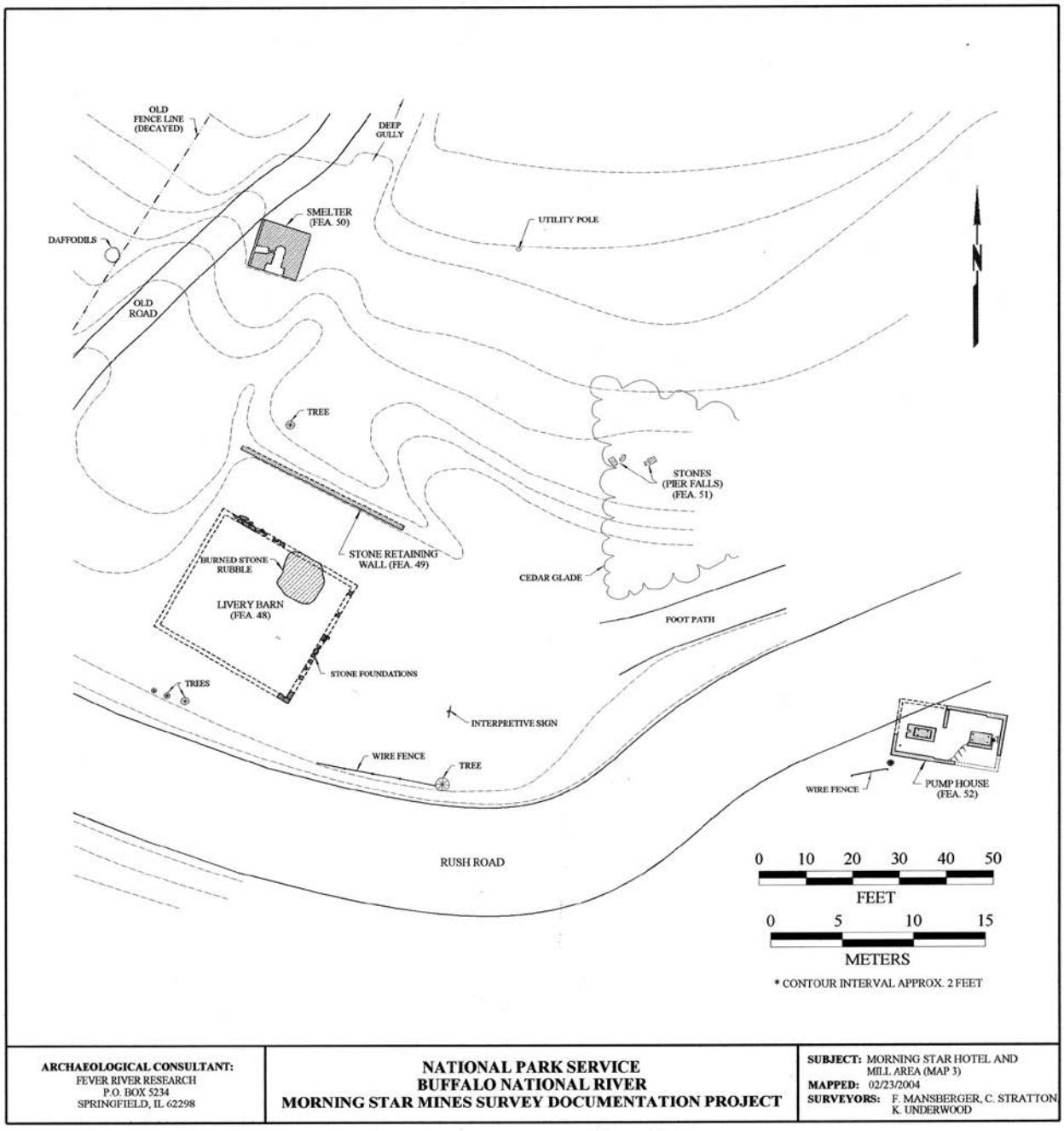


Figure 141. Map 3 of Area "B" of the Morning Star Site, showing the smelter and livery barn locations (FRR 2004).

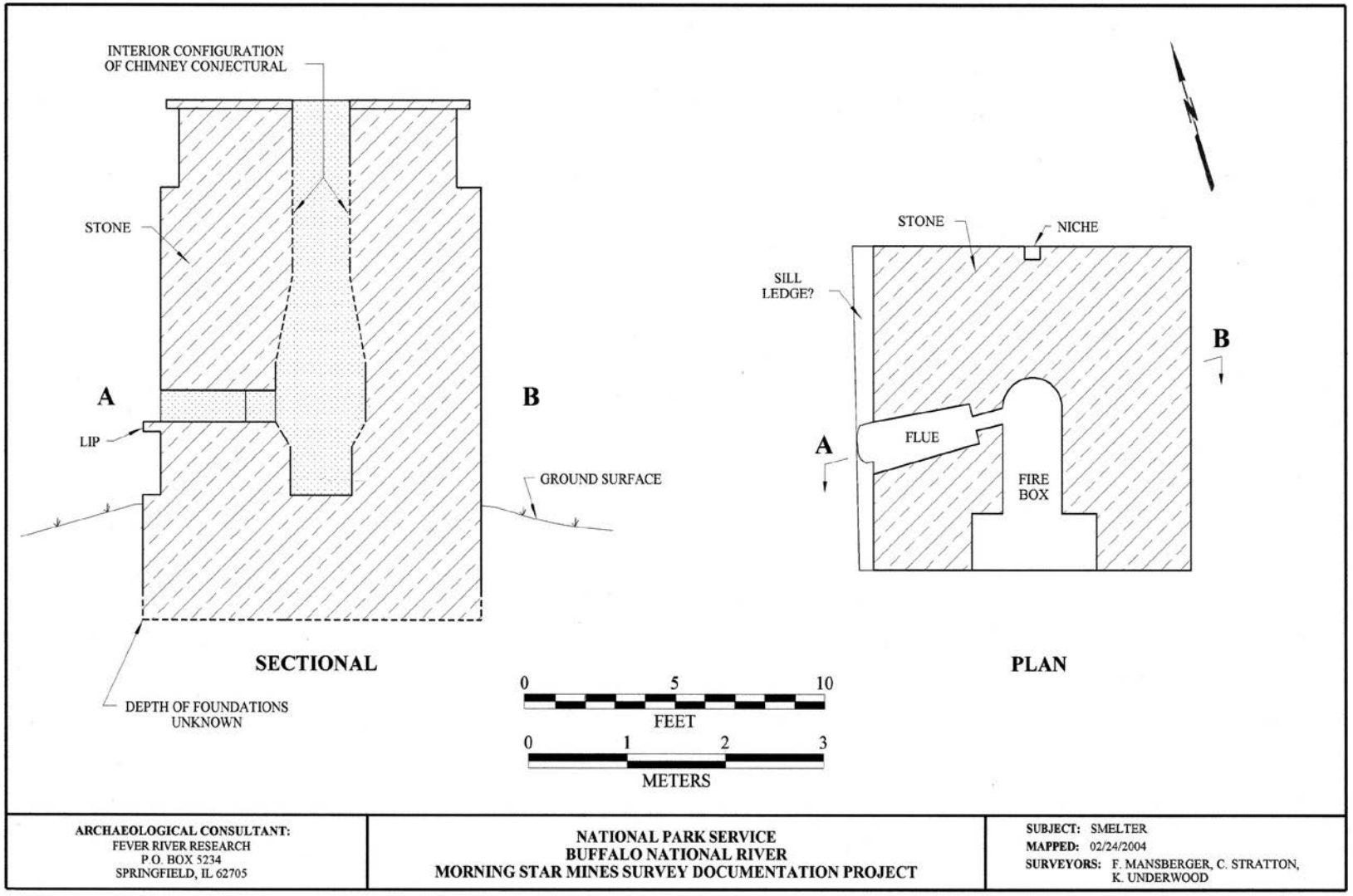


Figure 147. Plan and sectional views of the smelter (Feature 50) (FRR 2004).

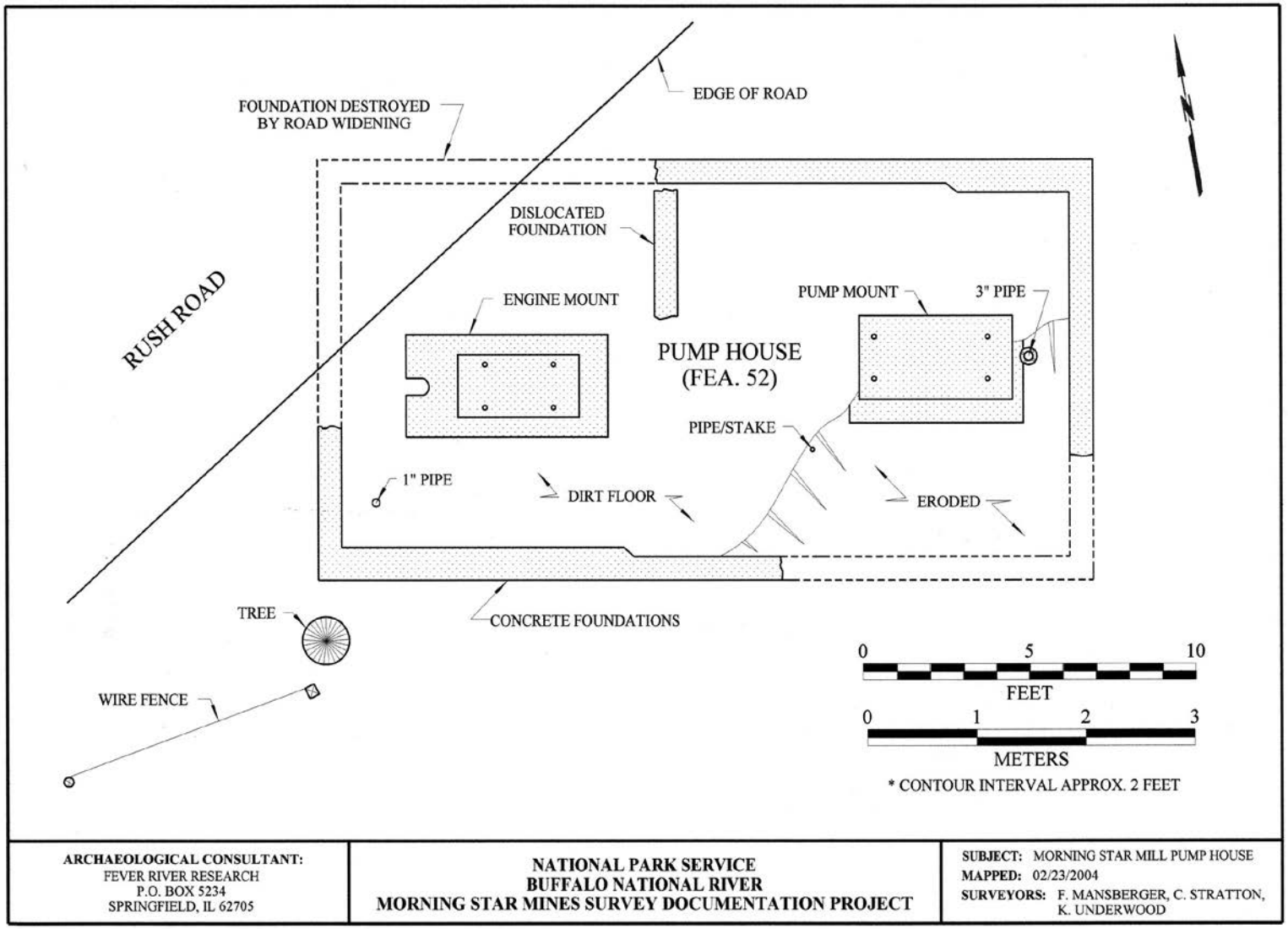


Figure 149. Plan of the pump house ruins (FRR 2004).

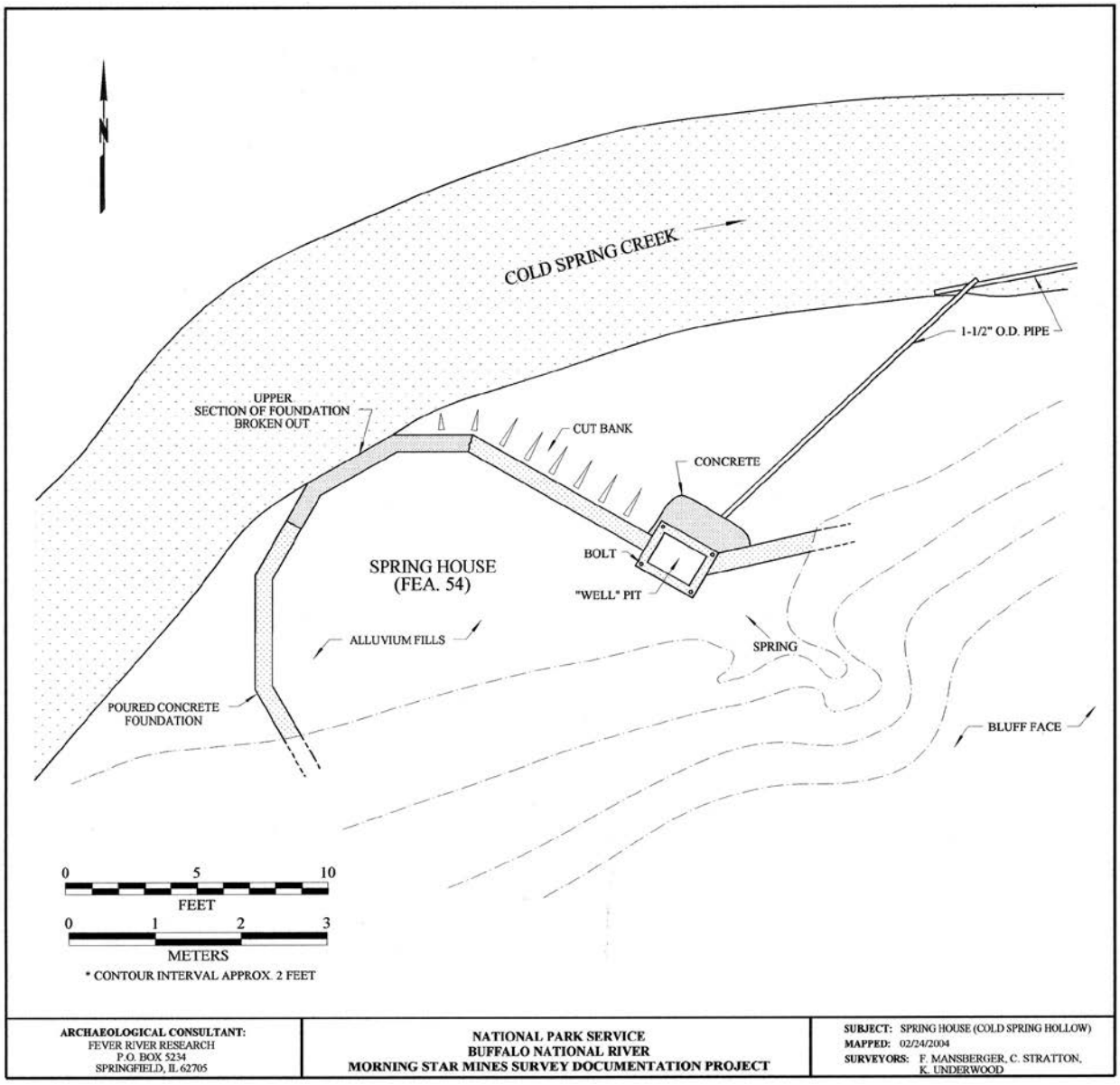


Figure 152. Plan of the Cold Spring Hollow spring house (FRR 2004).

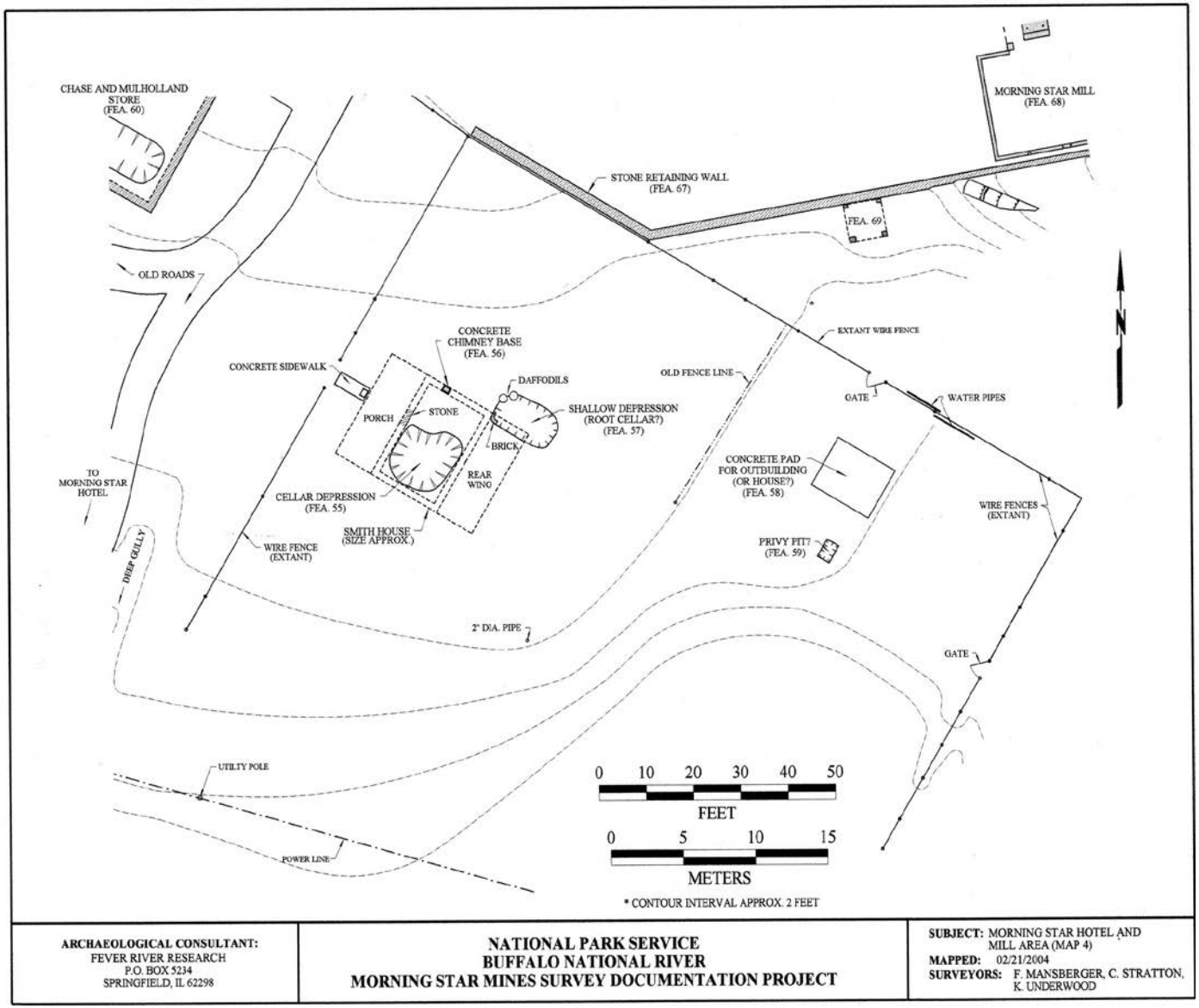


Figure 157. Map 4 of Area "B" of the Morning Star Site, showing the Smith House lot (FRR 2004).

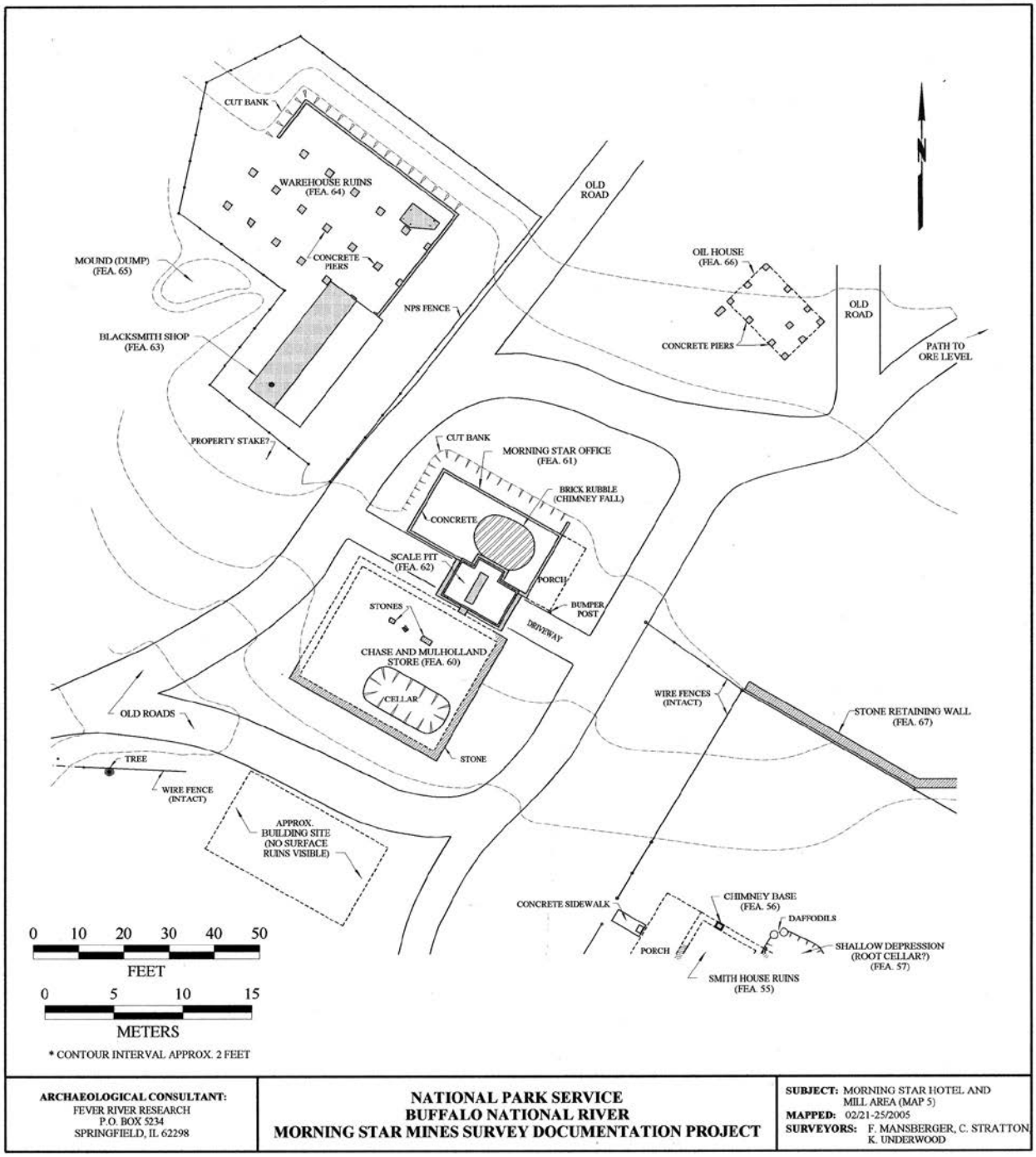


Figure 166. Map 5 of Area "B" of the Morning Star Site, showing the area around the Morning Star Office and Medley Blacksmith Shop (FRR 2004).

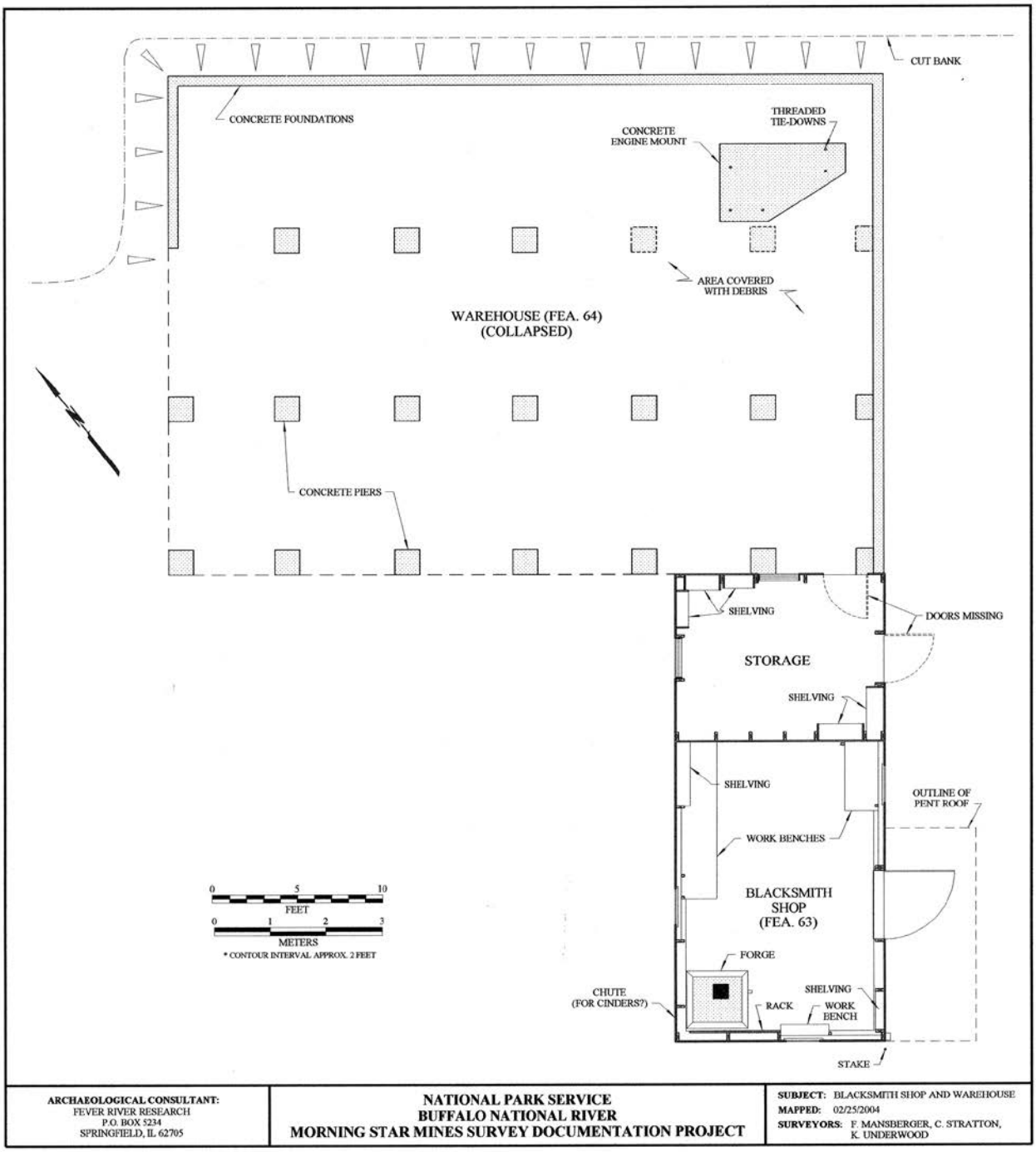


Figure 177. Plan of blacksmith shop and warehouse (Features 63 and 64) showing existing conditions (FRR 2004).

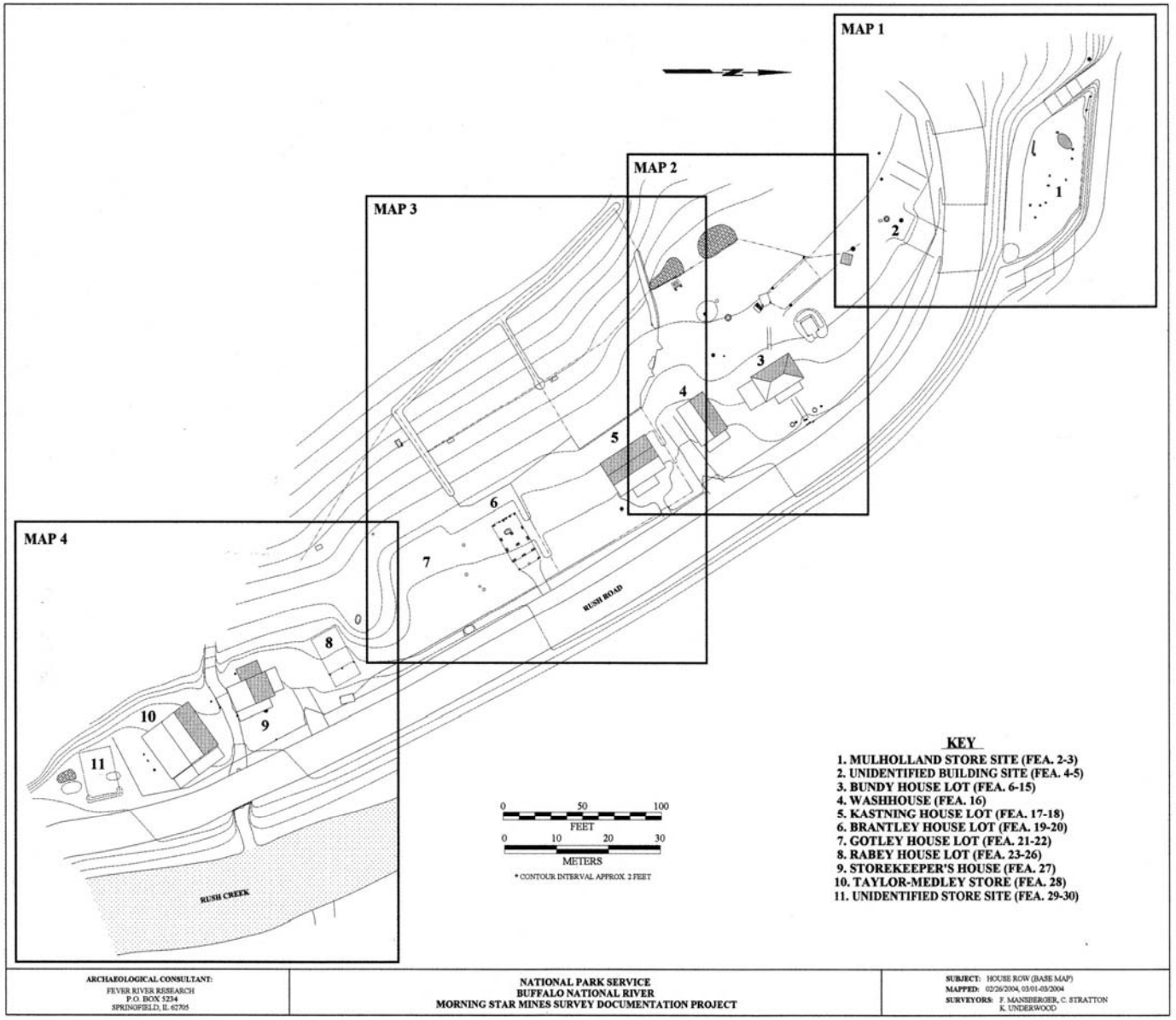


Figure 44. Areas mapped along House Row by Fever River Research in 2004. Detailed maps of these areas are attached below (FRR 2004).

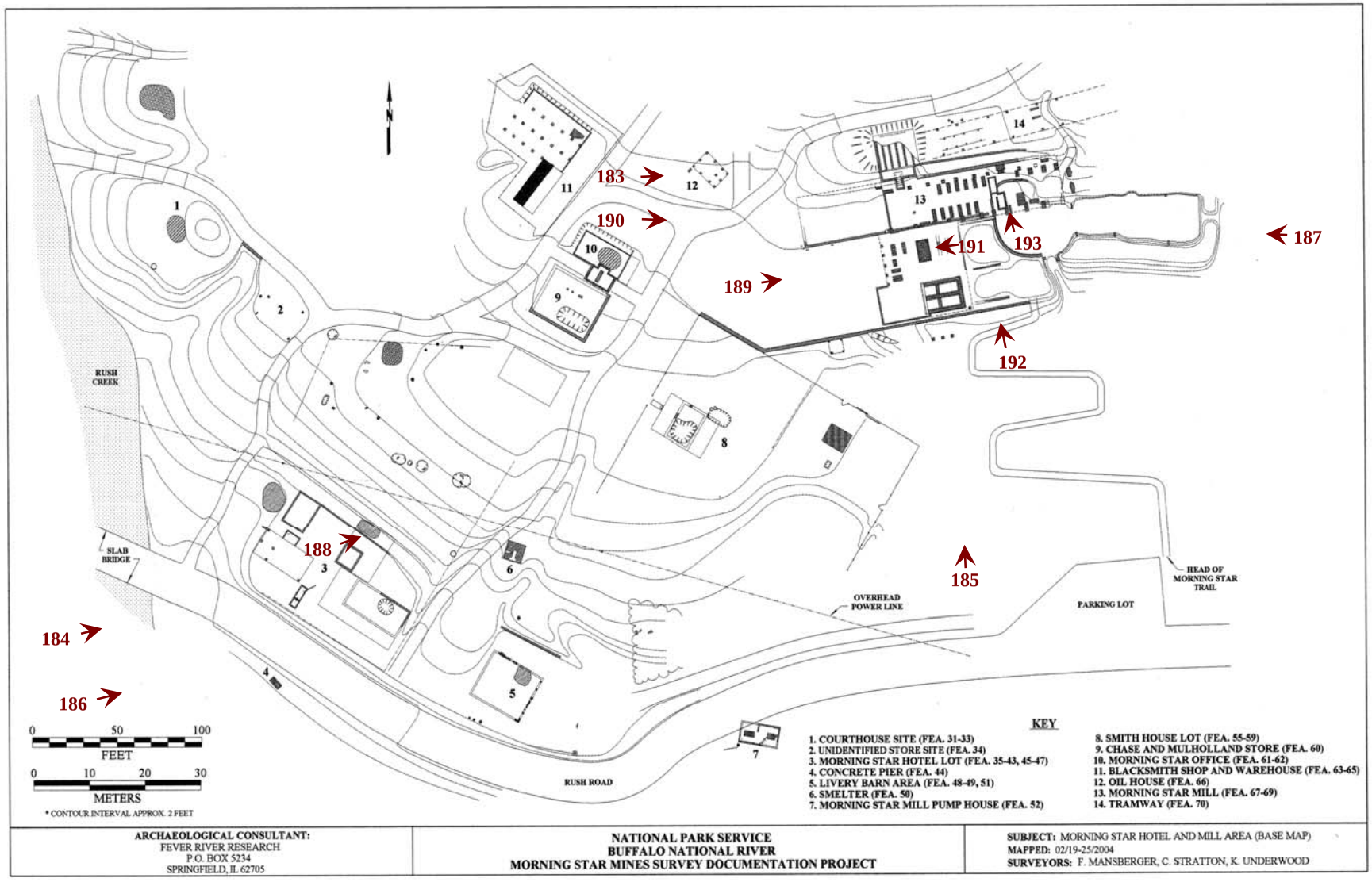


Figure 195. Map illustrating the locations and perspectives of historic photographs showing the Morning Star Mill. The numbered arrows refer to figure numbers in the report (FRR 2004).

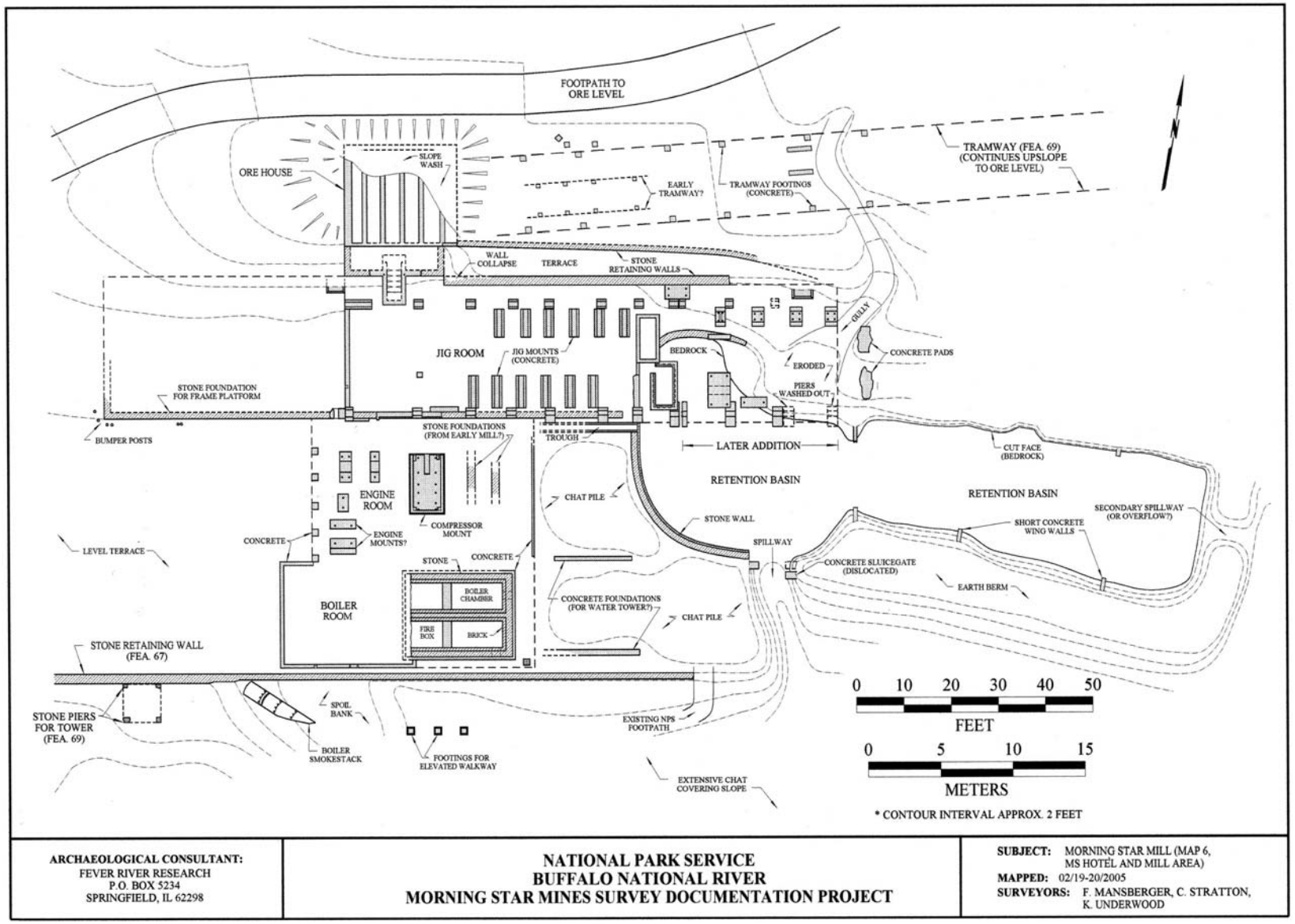


Figure 196. Map 6 of Area "B" of the Morning Star Site, showing the remains of the Morning Star Mill (FRR 2004).

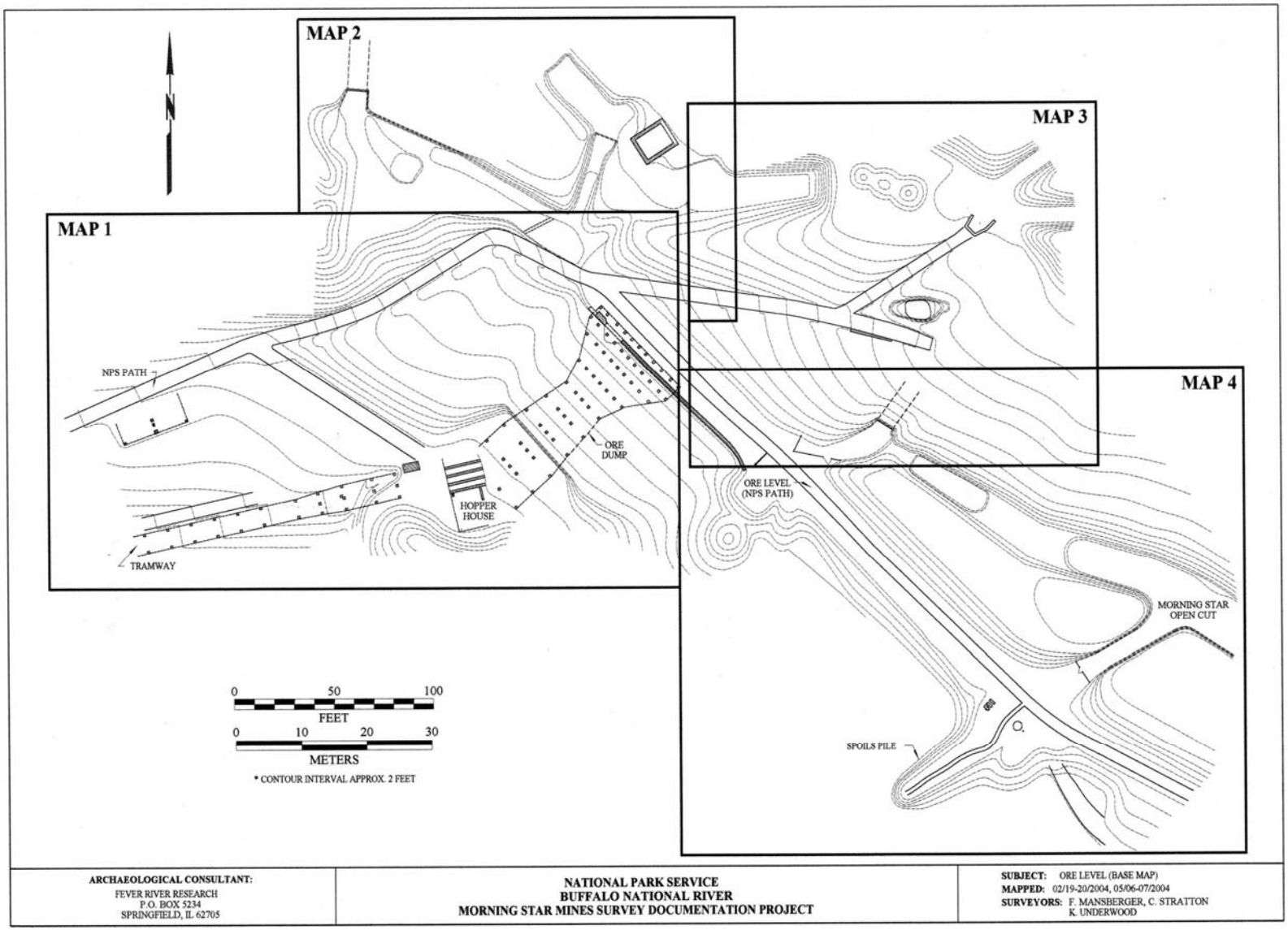


Figure 206. Map illustrating the sections of the Morning Star Mine and ore level mapped in detail during the survey (FRR 2004).

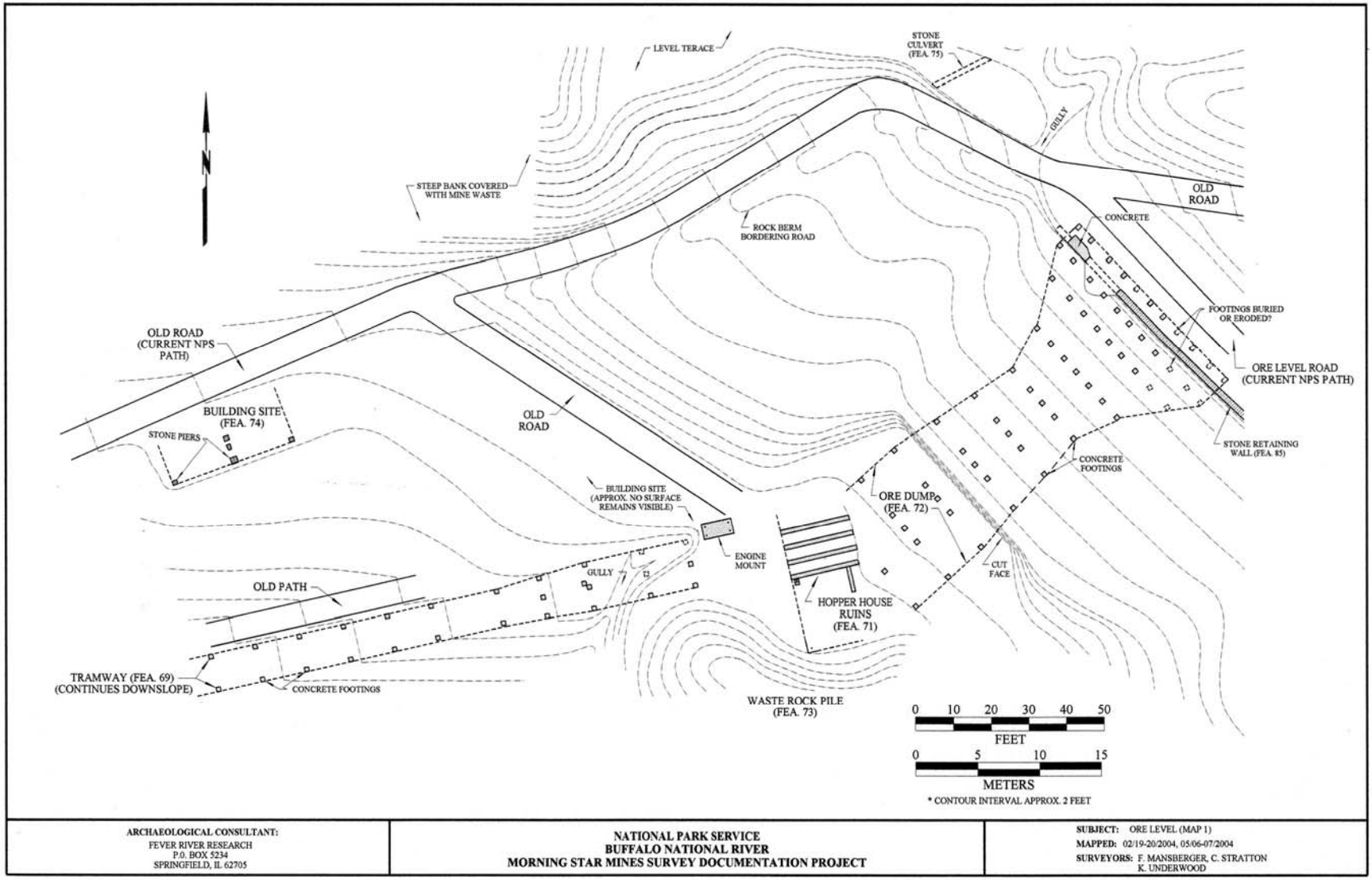


Figure 211. Map 1 of the ore level, showing the area around the hopper house and ore dump (FRR 2004).

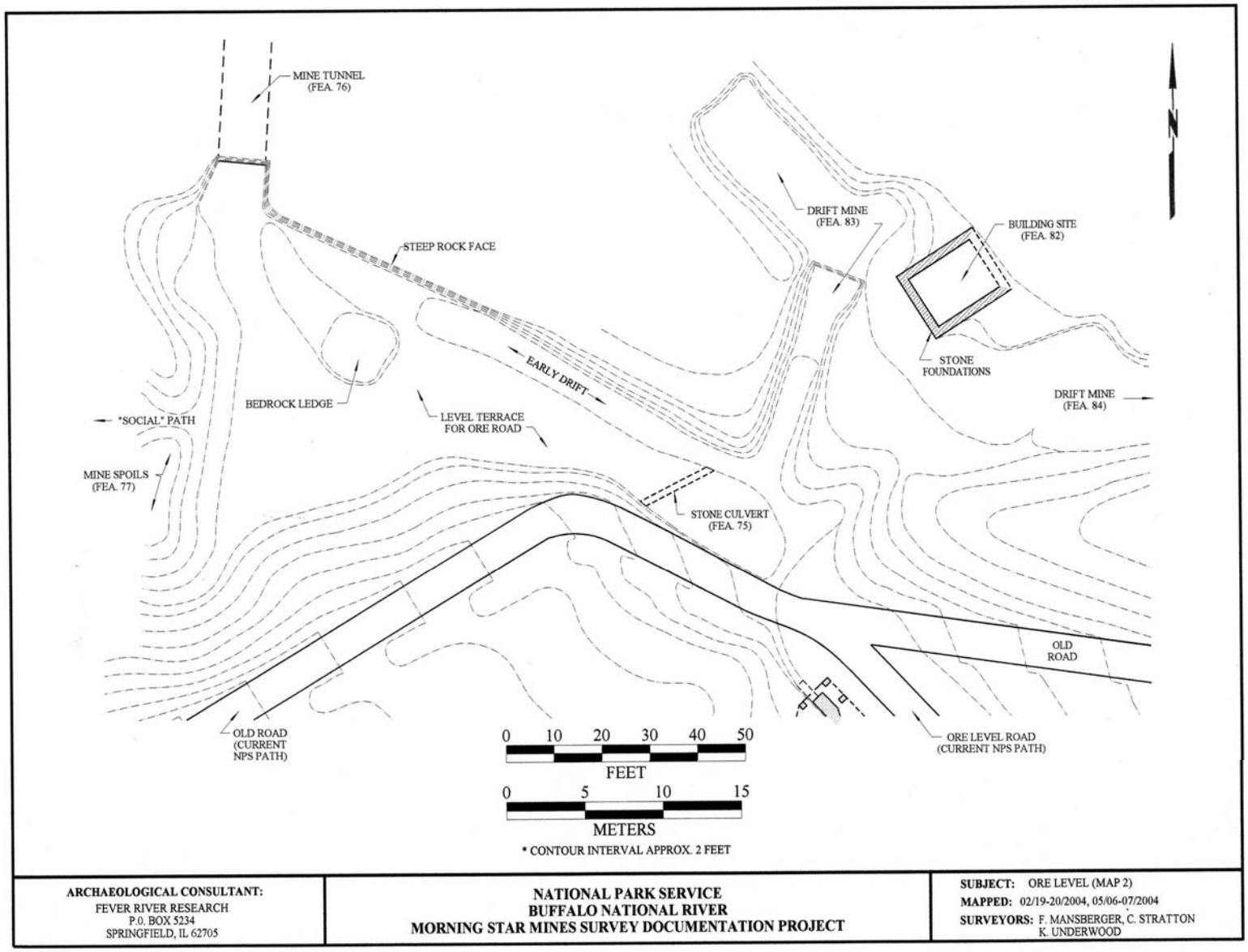


Figure 214. Ore level Map 2, showing the locations of Features 75 through 84 (FRR 2004).

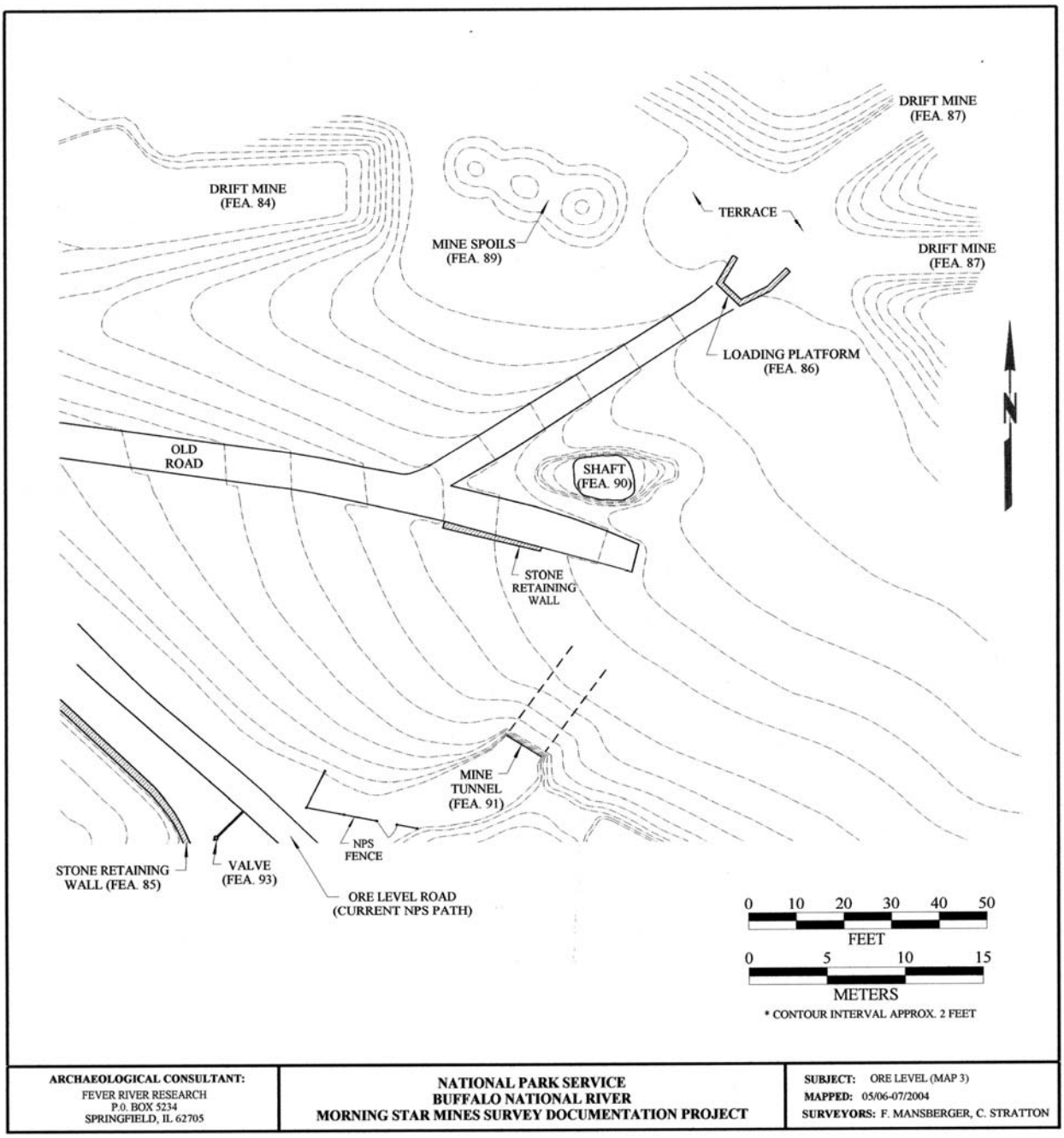


Figure 222. Ore level Map 3, showing the locations of Features 84 through 91 (FRR 2004).

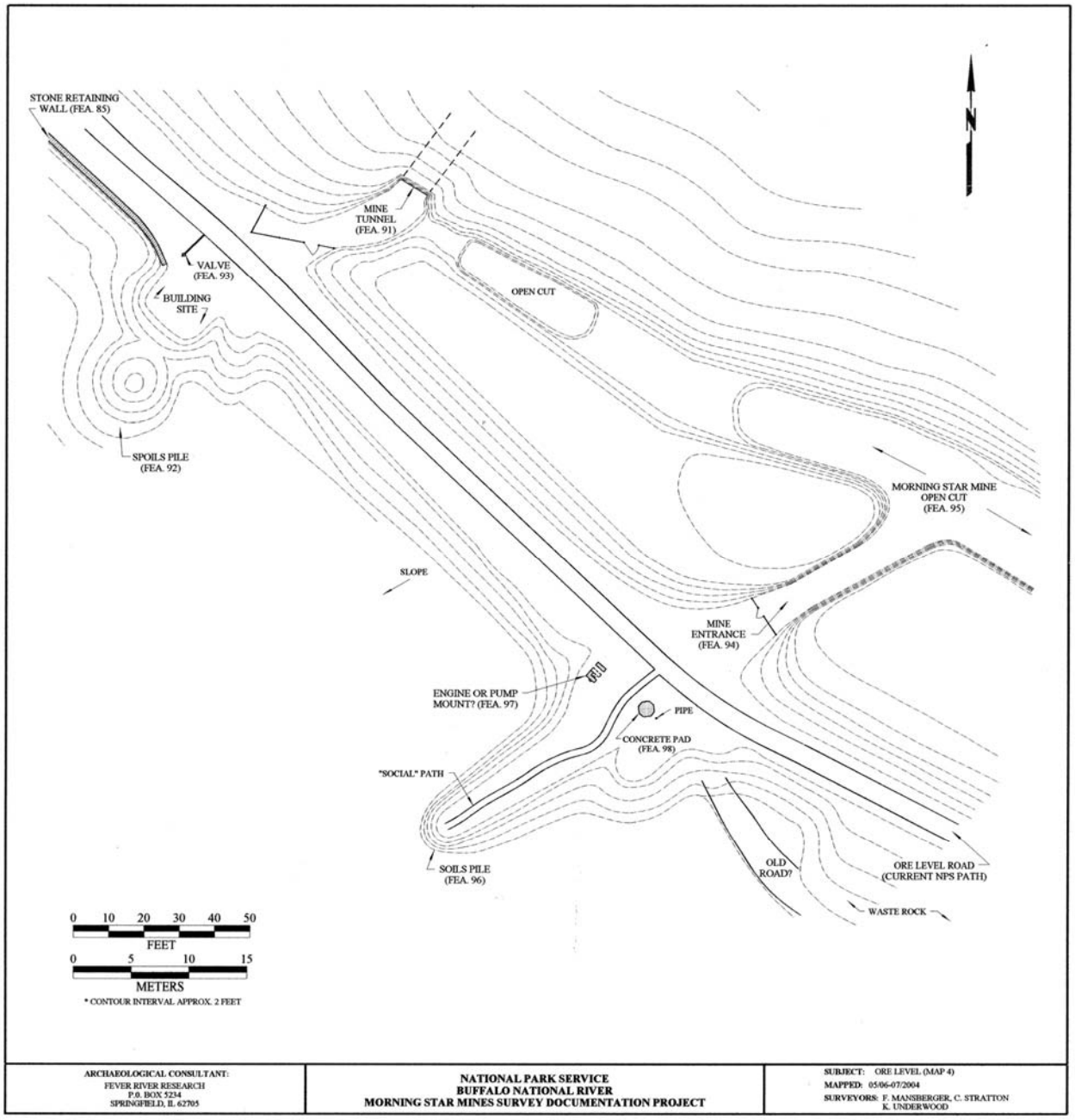


Figure 225. Ore level Map 4, showing the locations of Features 91 through 95 (FRR 2004).

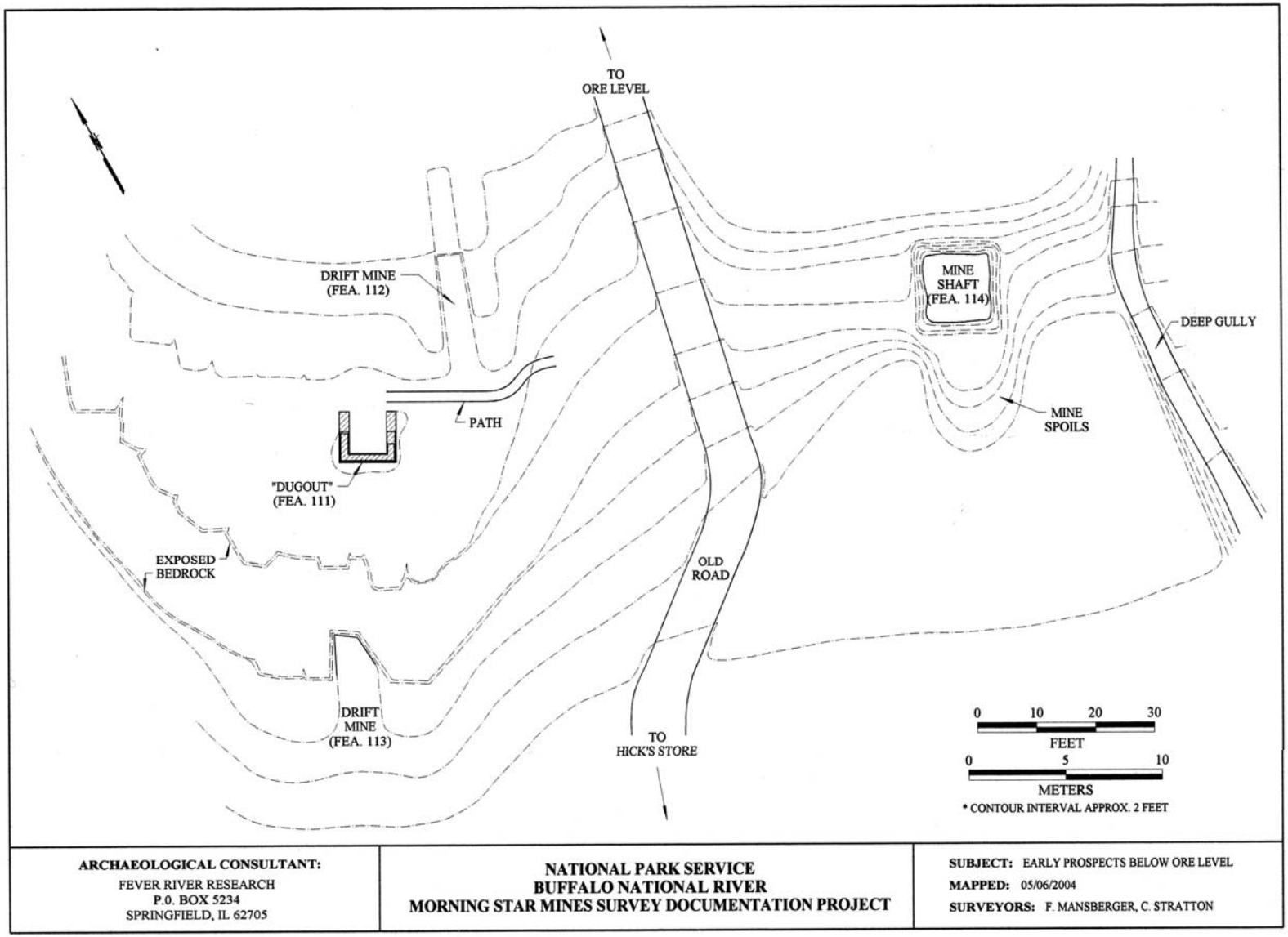


Figure 247. Map showing the early mining area located between the ore level and Hicks Site (FRR 2004).

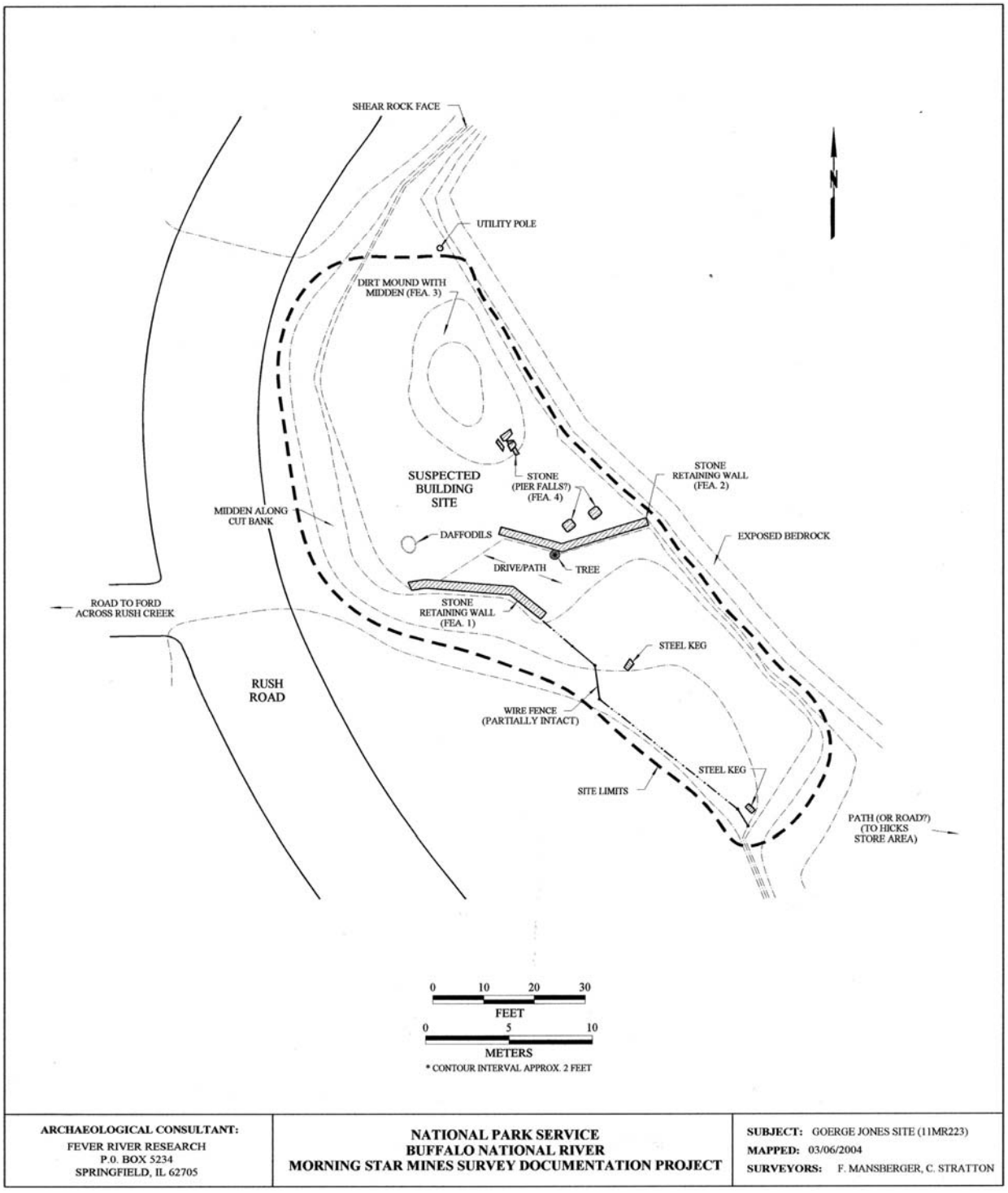


Figure 256. Site plan for the George Jones Site (3MR223) (FRR 2004).

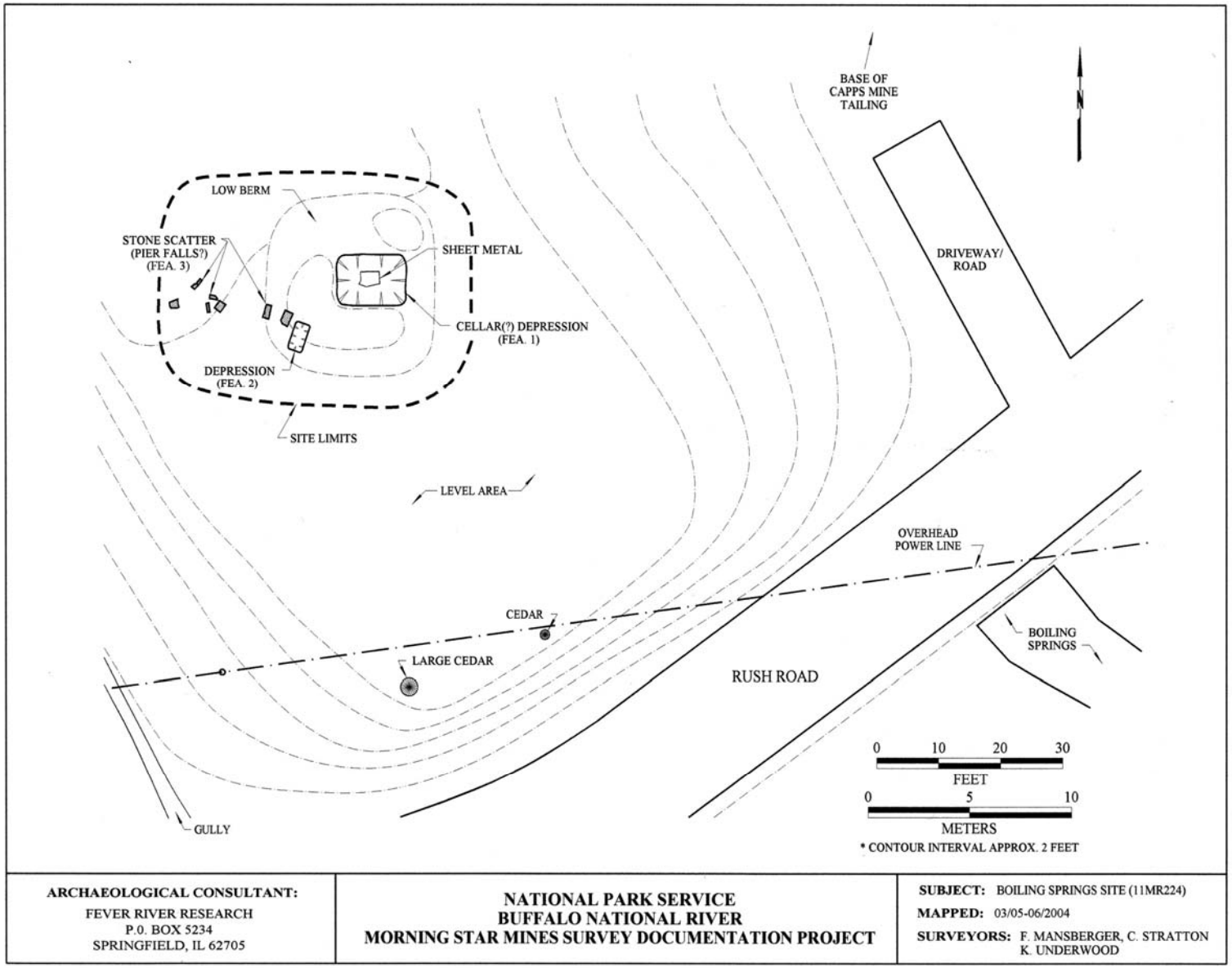


Figure 261. Site plan for the Boiling Springs Site (3MR224) (FRR 2004).

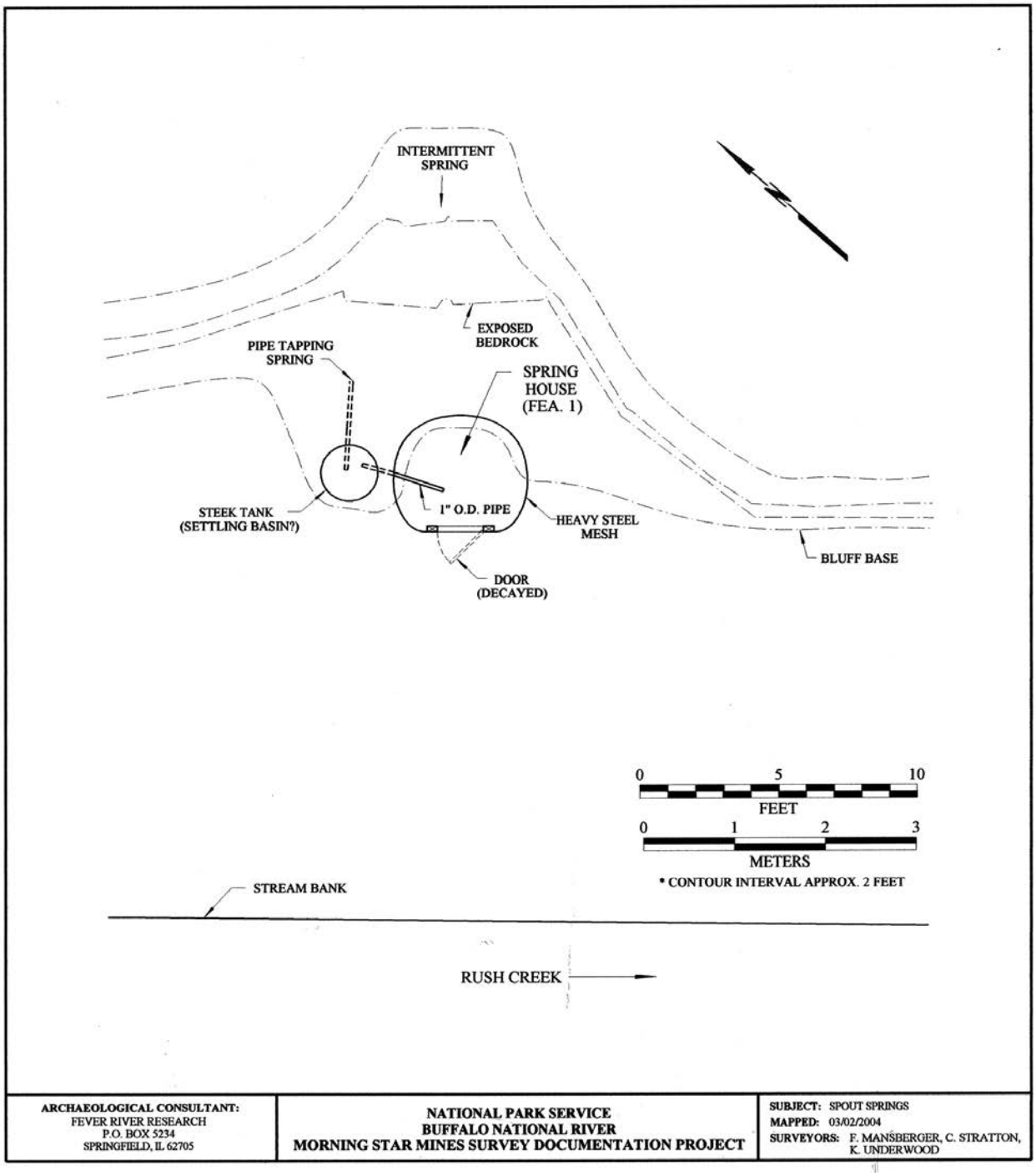


Figure 50. Plan of Spout Springs (Feature 1) (FRR 2004).

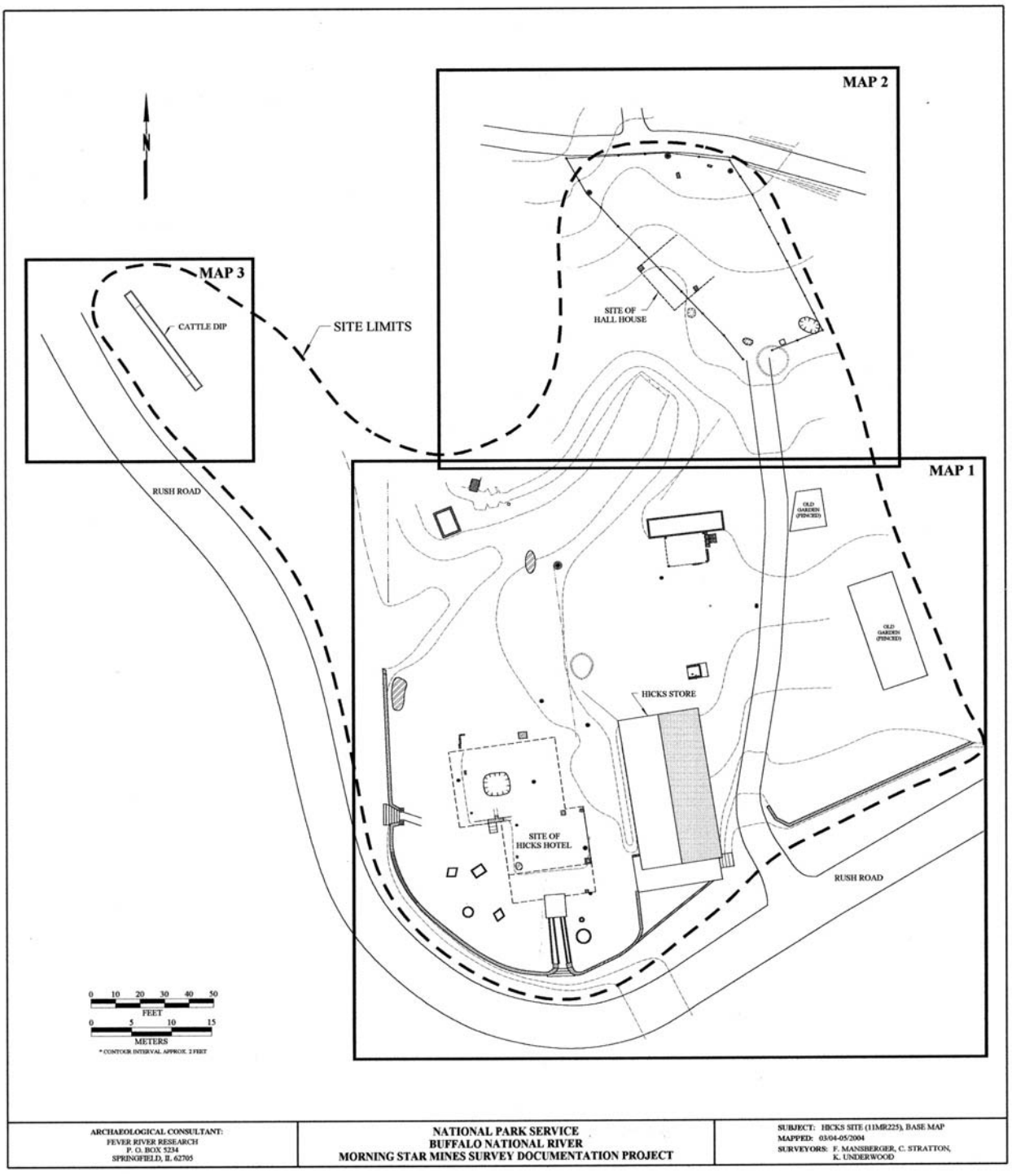


Figure 268. Plan of Hicks Site showing the three mapping areas (FRR 2004).

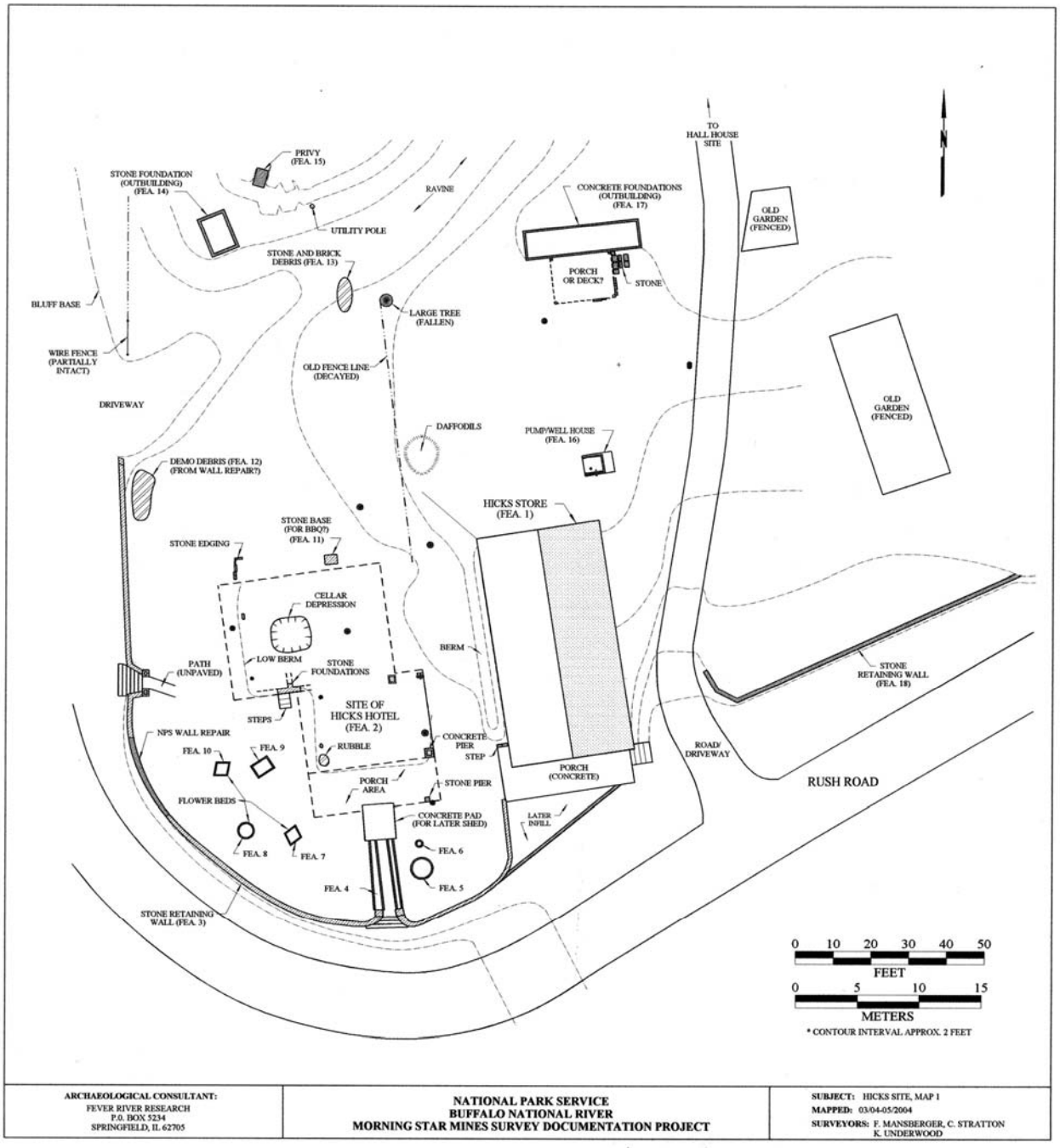


Figure 269. Map 1 for the Hicks Store Site, showing location of hotel and store, along with adjacent features (FRR 2004).

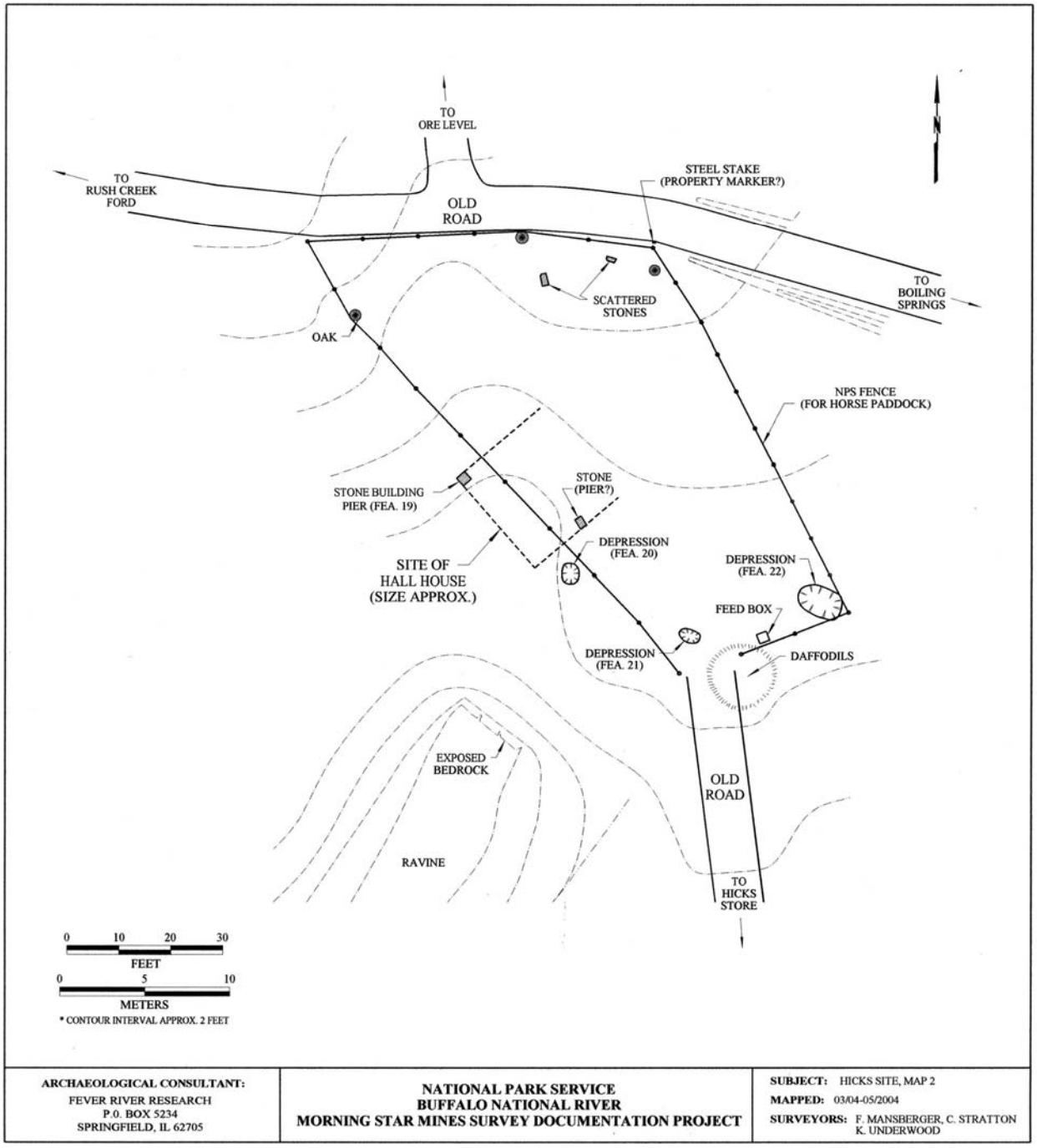


Figure 279. Hicks Site Map 2, showing the northern end of the site where the Hall House was located (FRR 2004).

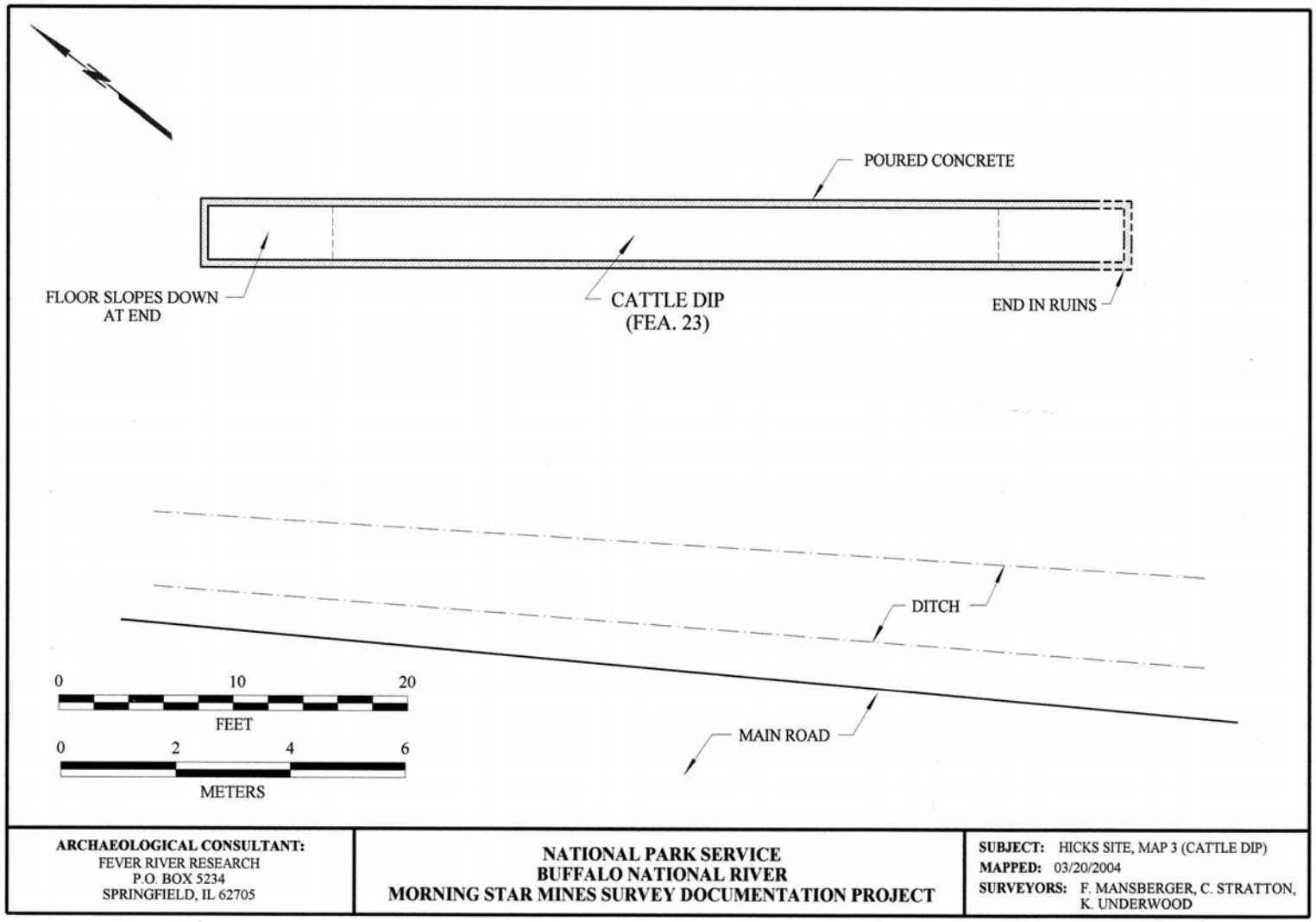


Figure 281. Hicks Site Map 3, showing Feature 138, a cattle dip located on the northwest corner of the site (FRR 2004).

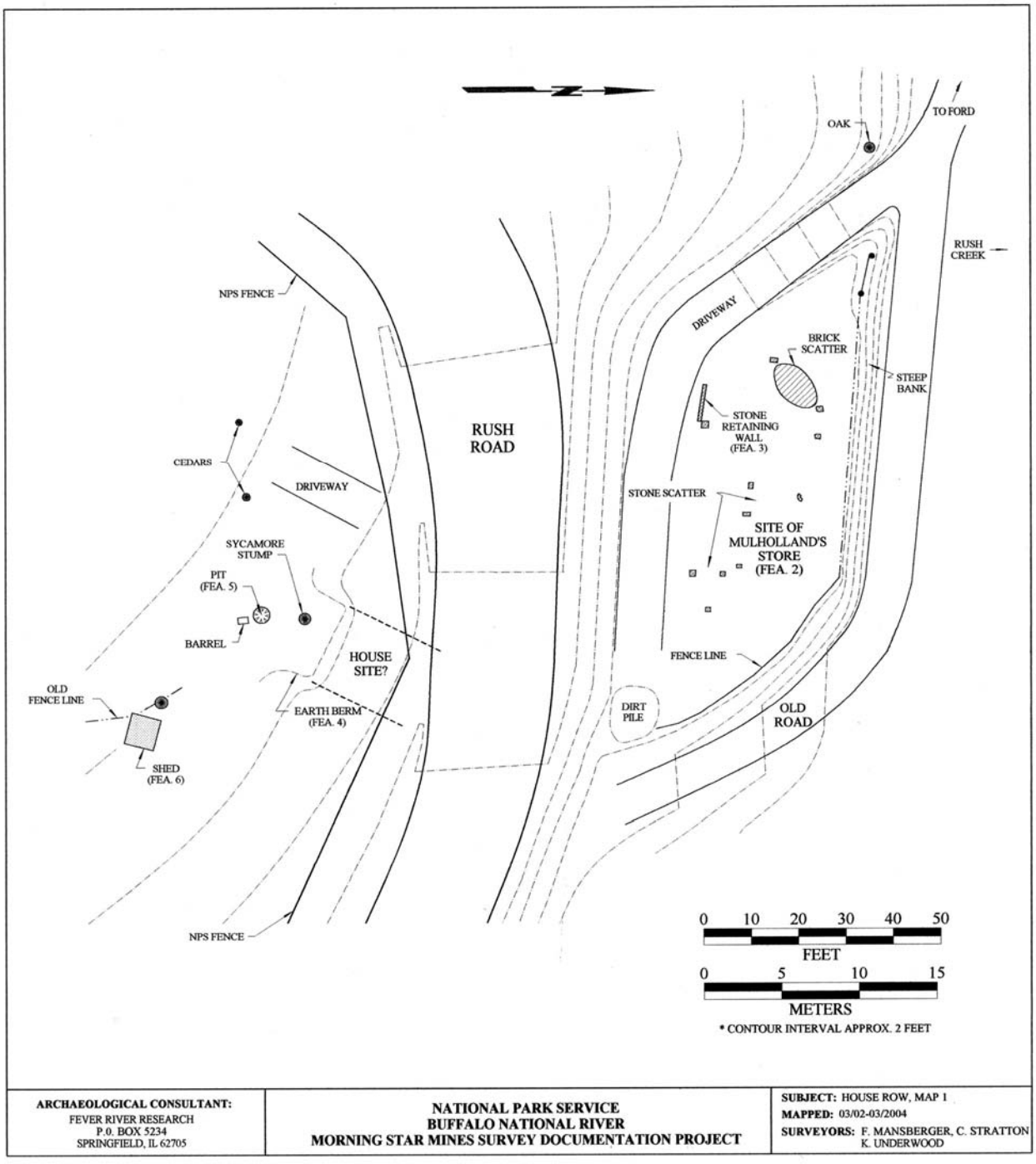


Figure 53. Map 1 of the House Row area, showing the sites of the Mulholland Store and unidentified dwelling (FRR 2004).

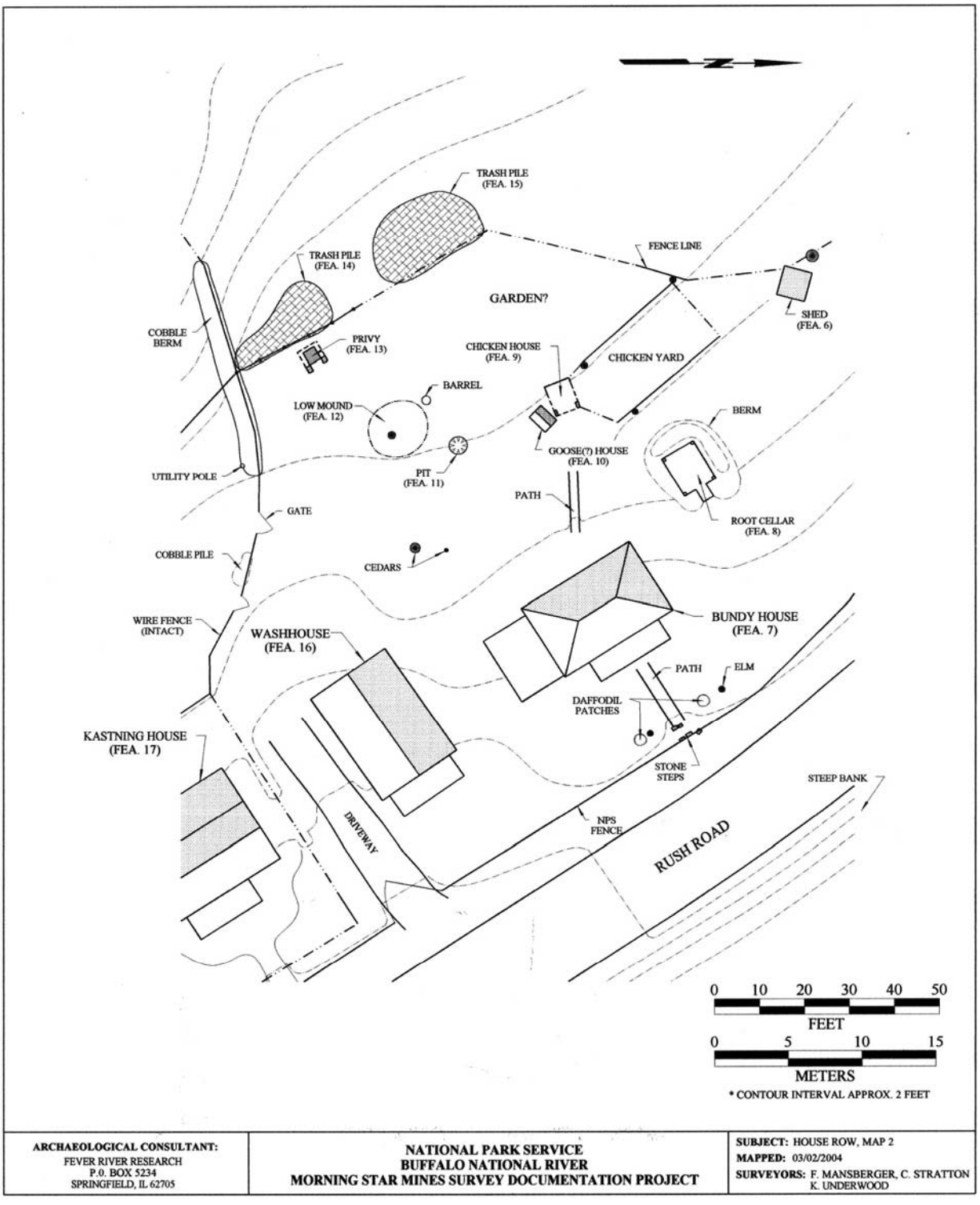


Figure 56. Map 2 of the House Row area, showing the Bundy House, Washhouse, and associated features (FRR 2004).

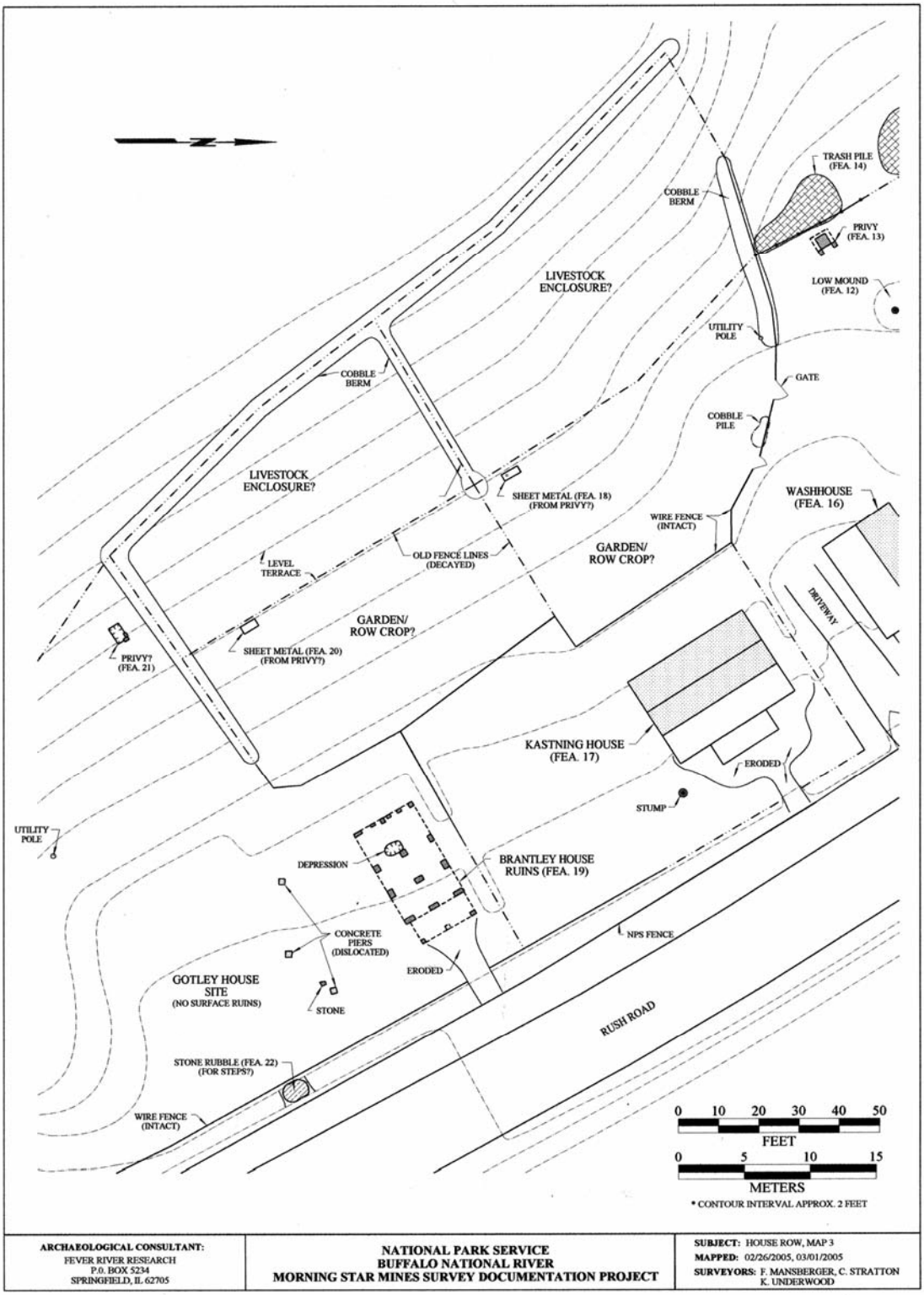


Figure 69. Map 3 of the House Row area, showing the Kastning and Brantley house lots (FRR 2004).

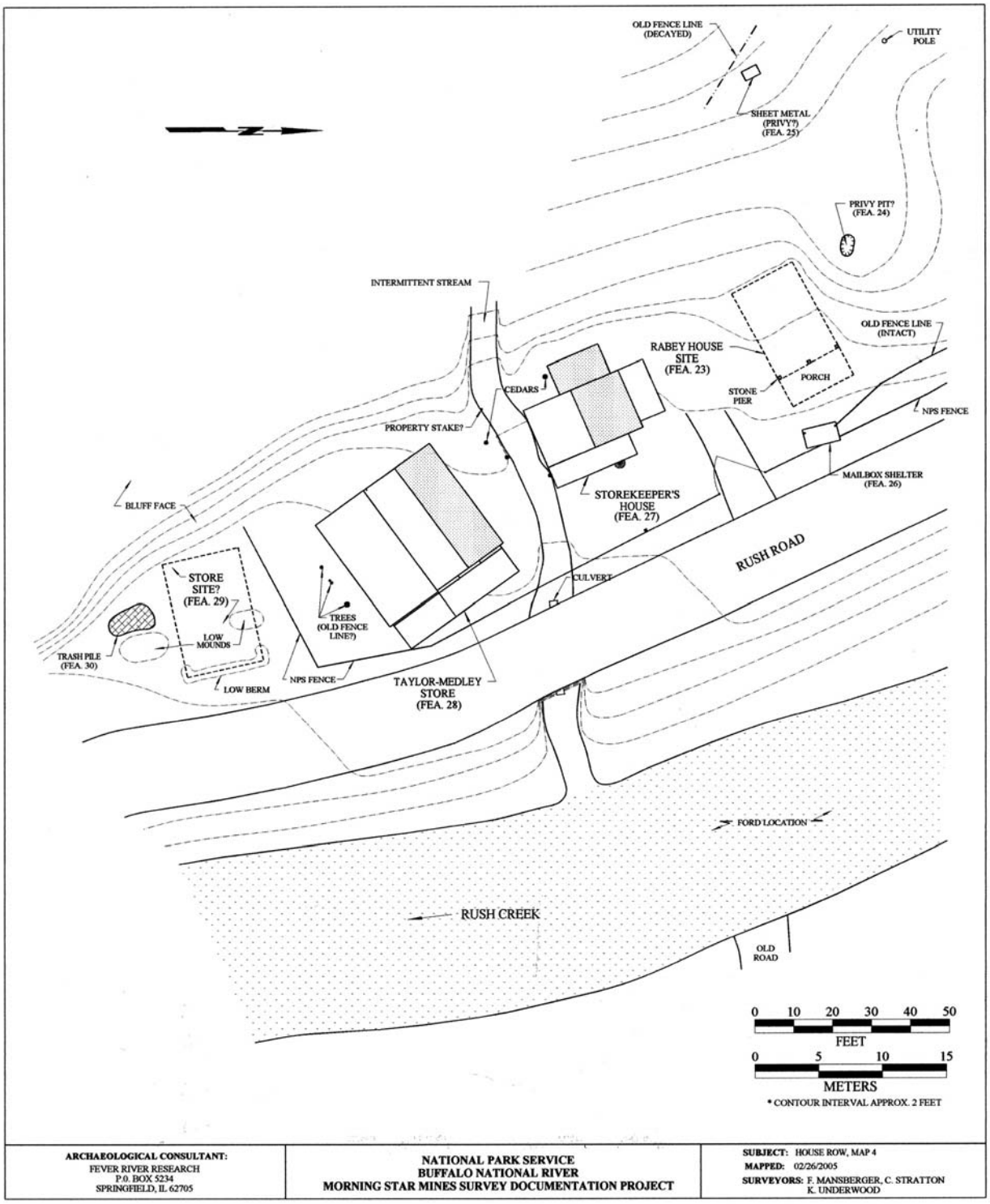


Figure 80. Map 4 of the House Row area, showing the Taylor-Medley Store, Storekeeper's House, and Rabey House site (FRR 2004).

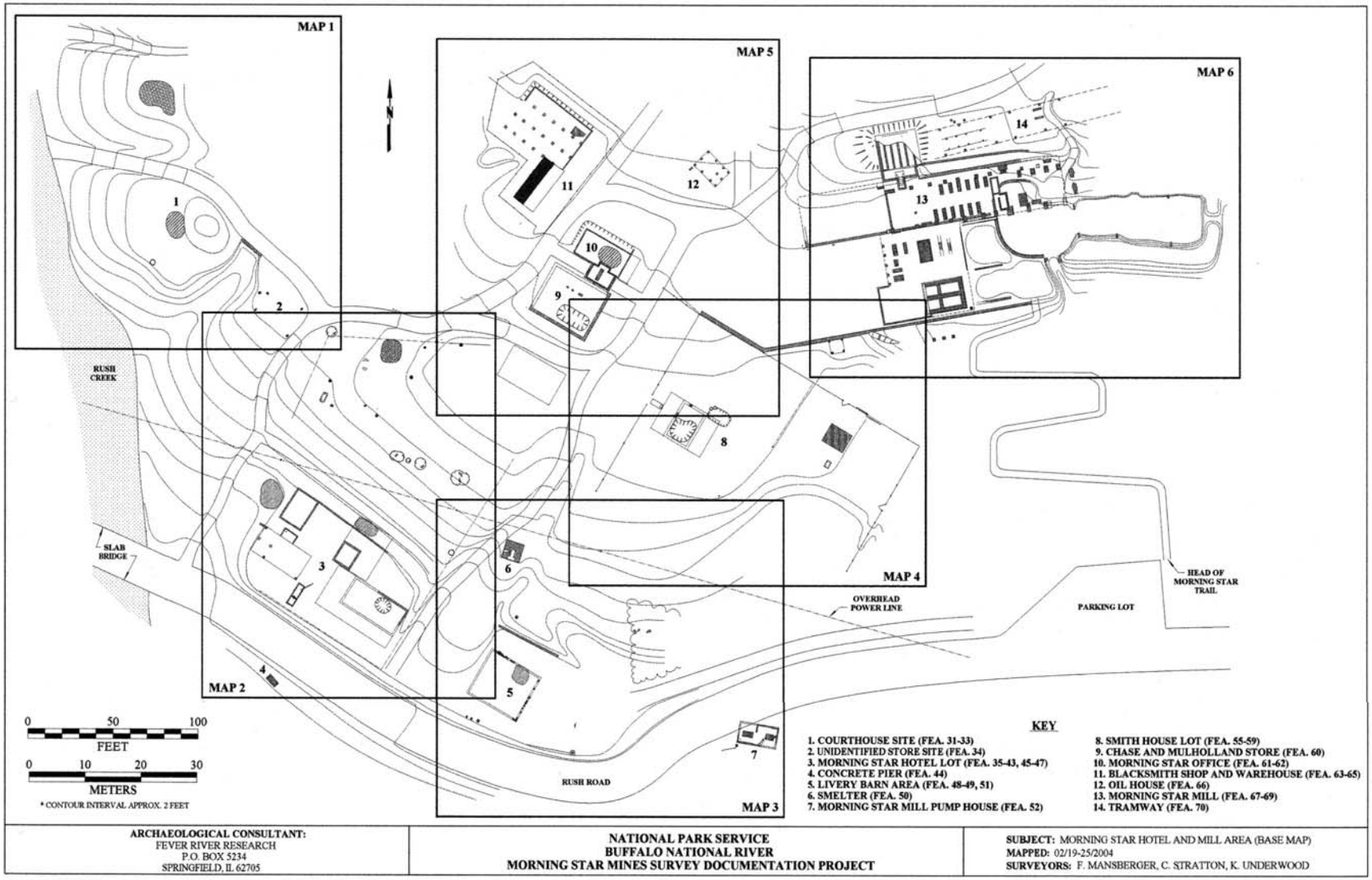


Figure 112. Site plan of Area "B" of the Morning Star Site. Maps of the six sub-areas noted are attached below (FRR 2004).

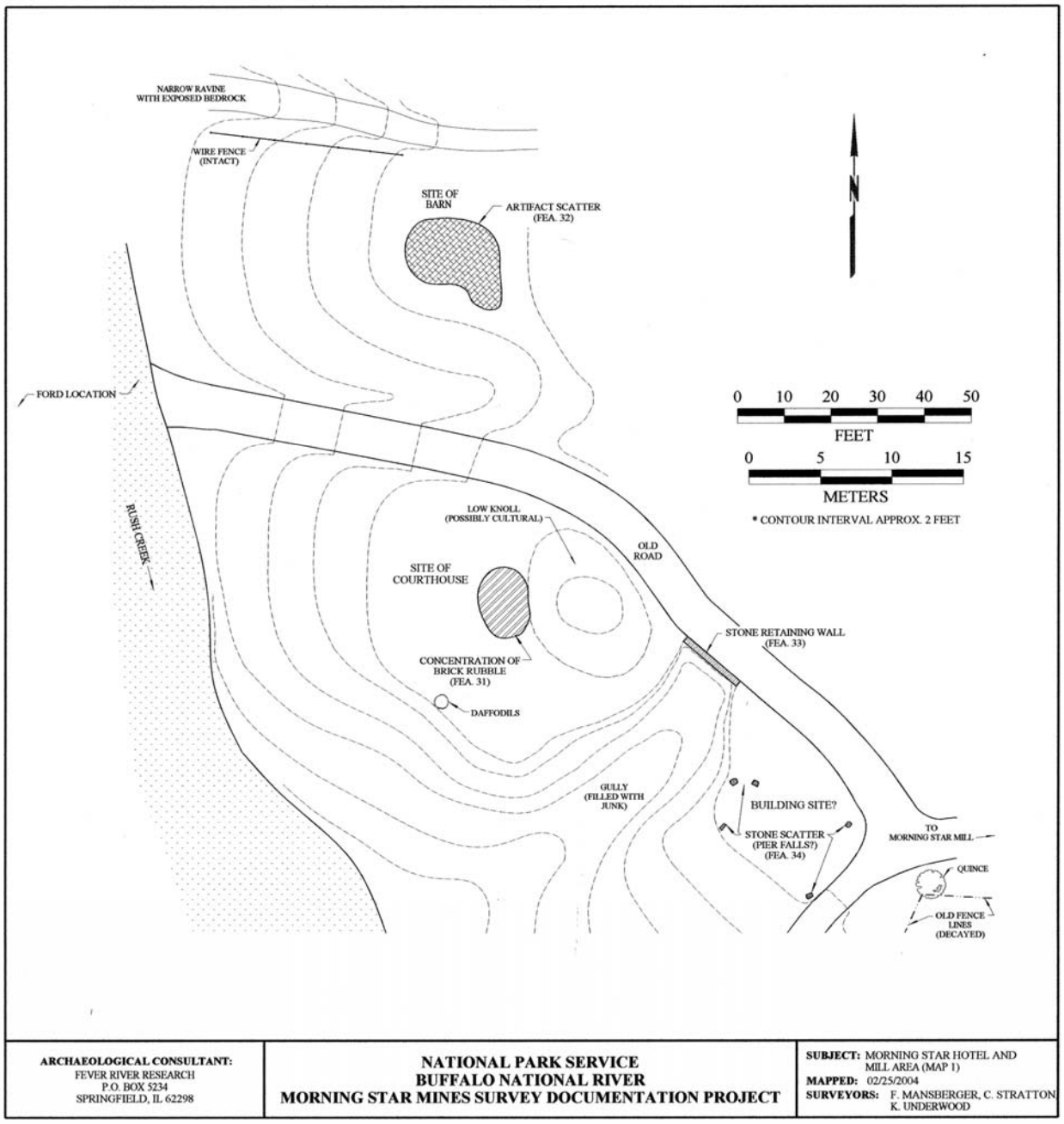


Figure 117. Map 1 of Area "B" of the Morning Star Site, showing the locations of the courthouse and associated barn and an unidentified commercial building (FRR 2004).

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