## Appendix C:  Draft Floodplain Statement of Findings

**Draft Statement of Findings**
**Executive Order 11988: Floodplain Management**

**Erbie Road Improvements**
**Buffalo National River**
**Project Number AR ERFO BUFF 2015-1(2)**

Recommended:

_____ _____
Superintendent, Buffalo National River Date

Certified for Technical Adequacy and Servicewide Consistency:

_____ _____
Chief, Water Resources Division, Washington Office Date

Approved:

_____ _____
Director, Midwest Region Date

## Introduction

*Executive Order (EO) 11988: Floodplain Managemen*t, requires the National Park Service (NPS) and other Federal agencies to evaluate the likely impacts of action in floodplains. NPS *Director's Order 77-2: Floodplain Management* and the *Procedural Manual 77-2: Floodplain Management* provide NPS policies and procedures for complying with EO 11988.

This Statement of Findings (SOF) has been prepared to comply with EO 11988. The FHWA and NPS have also prepared and made available an Environmental Assessment (EA) for Compton-Erbie Road Improvements. In the EA, the NPS identified the proposed rehabilitation of the Compton-Erbie Road and replacements of the low-water crossings on County Road 57 and County Road 79 as the proposed action and preferred alternative.

The SOF presents the rationale for the proposed improvement of the low-water crossings on County Road 57 and County Road 79 in the floodplain area and documents the anticipated effects. The proposed project is a Class 1 Action, per Director's Order #77-2. Class 1 Actions include manmade features which by their nature require individuals to occupy the site and are prone to flood damage. Avoidance of impacts to the floodplain is not possible because the existing low-water crossings are located in the 100-year floodplain; therefore, any improvements made to the crossings would be located in the floodplain.

## Proposed Action

Under the proposed action, Compton-Erbie Road would be rehabilitated for a length of 2.58 miles. The rehabilitation work would occur within the existing roadway prism, and is not located in a floodplain. The proposed action would also replace two low-water crossings that carry County Road 57 and County Road 79 across Cove Creek.

The first low-water crossing is located along County Road 57 at Cove Creek north of the Buffalo River, and is referred to as the Cove Creek Crossing. Temporary stream diversions would be installed, and the water behind the diversion would be pumped out through a filter bag to dewater the work area. The work would be completed in two phases to allow stream flow to pass through the open half of the channel. The existing concrete slab would be broken up, removed, and disposed of off-site. A crane would lift and install eight pre-cast concrete box culverts side-by-side to function as a vented ford. The top elevation would be 847.07 feet, whereas the current crossing elevation is approximately 845 feet. This means that the new low-water crossing would be overtopped during flood events. However, during normal flow and minor storms, water would flow through the box culverts. The box culverts would each be eight-foot span by four-foot rise, and would be embedded into the streambed approximately one foot. The roadway approaches to the low-water crossings would be reconstructed, and articulated concrete block mats would be installed.

The second crossing is located along County Road 79 at Cove Creek, immediately south of the first crossing, and is referred to as the Erbie Crossing. Temporary stream diversions would be installed, and the water behind the diversion would be pumped out through a filter bag to dewater the work area. The work would be completed in two phases to allow stream flow to

pass through the open half of the channel. The existing concrete slab would be broken up, removed, and disposed of off-site. The existing concrete slab low-water crossing would be replaced with a 120-foot long by 12- foot wide concrete slab low-water crossing. The concrete slab would be eight inches thick and would be cast in place. The surface of the concrete slab would be at the same elevation as the streambed. Articulated concrete block mats would be added from the intersection with County Road 79 to the end of the project near the Buffalo River.

## Site Description

Buffalo National River contains 95,730 acres within its established boundary and is located in Baxter, Marion, Newton, and Searcy Counties in northern Arkansas. It is one of the few undammed rivers in the continental United States and was declared the first national river by the U.S. Congress in 1972 (Public Law 92-237, March 1, 1972) 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…" Buffalo National River is managed by the NPS and provides many types of recreation, including hiking, boating, camping and fishing. Buffalo National River is significant for its free-flowing river, karst geology, cultural landscape, unique ecosystem and exceptional recreation setting.

Erbie is located in the western portion of the Buffalo National River. At Erbie, visitors are able to access the River and there is also a location to obtain drinking water. Several roads cross through Erbie, including Compton-Erbie Road (also referred to as County Road 19), County Road 57, and County Road 79. Compton-Erbie Road is located to the east of State Highway 43 and connects Compton to Erbie. In the project area, Compton-Erbie Road and County Roads 57 and 79 are generally 16-foot wide aggregate surface primitive roads. The average daily traffic on these roads is less than 100. County Road 57 and County Road 79 have low-water crossings over which water continuously flows during normal conditions.

## Floodplains in the Study Area

Floodplains are a vital part of our environment and their flooding is a natural occurrence. During high precipitation events, flooding of the land (or floodplain) adjoining a waterbody occurs. The low-water crossings on County Road 79 and County Road 57 both cross Cove Creek, and are therefore located in the floodplain (Figure 2). The existing low-water crossings convey water year-round, and under normal conditions are underwater. Portions of the roadway approaches on each side of the low-water crossing are located in the floodplain. The County Road 57 low-water crossing and roadway approach from the Buffalo River are also located within the Buffalo River floodplain. The County Road 79 low-water crossing is located near the confluence of Cove Creek and Cecil Creek. The County Road 19 portion of the project area is not located in a floodplain, and so it is not discussed in this section. The floodplain provides the functions of sediment storage, floodwater storage, groundwater recharge, channel stability, water quality, and habitat. A Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map is unavailable for the study area. Survey (LIDAR) was used in order to assess floodplain boundaries in the project area (Figure 1).

Rainfall in the study area causes the streamflow in Cove Creek to rise rapidly. As the water levels in the Buffalo River also rise and extend into the floodplain, the point at which Cove Creek meets the Buffalo River moves further upstream in Cove Creek. This results in the deposition of the bed load carried by Cove Creek at this point. The increased water volume in Cove Creek also causes the creek to change its course and travel down the road, since the roadway approach is a lower elevation than the adjacent stream bank. As the creek turns to travel down County Road 57, it causes erosion of the stream bank and sends additional debris downstream.

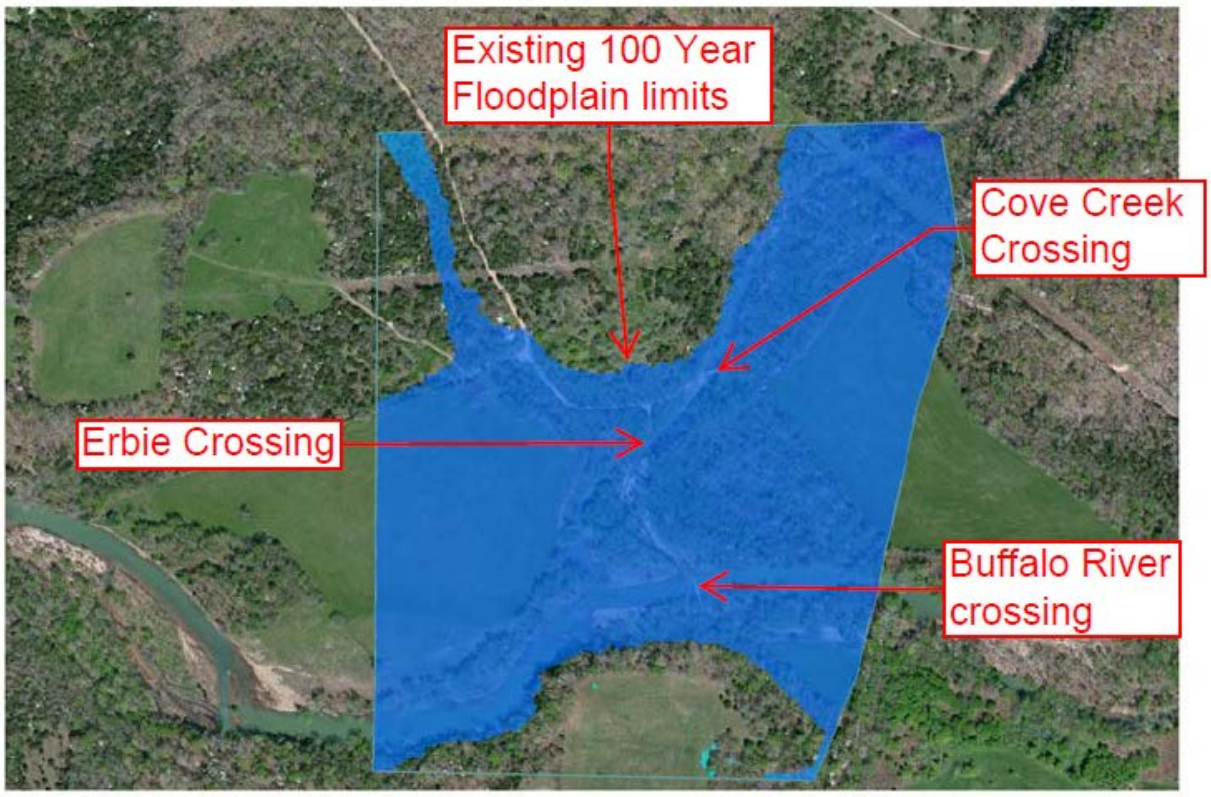


**Figure 1. Floodplain Map of the Study Area**

## Impacts to Floodplains

The replacement of the two low-water crossings would require the placement of fill material, a concrete slab, and box culverts to raise the roadway profile, which in turn would cause a minor increase in backwater conditions. Backwater includes all water upstream of a bridge, crossing, or dam and is directly related to the volume of structures in a waterway. The maximum rise in backwater for the 2-year peak water level and the 10-year peak water level would be 0.95 feet and 1.4 feet, respectively. The rise in backwater dissipates upstream of the crossings. Downstream of the crossing, differences in the water levels pre- and post-construction are negligible. The Action Alternative would have no impact on the Buffalo River floodplain, and would have a minor impact to the Cove Creek floodplain due to the minor rise in backwater.

The box culverts of the County Road 57 crossing would be embedded in the creek and the bottom would be filled with natural native streambed material. This allows the streamflow to pass through the box culverts in a more natural way (and not pick up speed as it flows over the concrete slab) than the previous concrete slab. The substrate of the creek would continue through the culvert, eliminating the scour pool and normalizing the creek's flow velocity. The raised crossing elevation and reduced creek disturbance would allow crossing use during some minor storms that would have rendered the previous crossing unusable.

Both low-water crossings are entirely underwater during the 2-year return period. Since the entire area is underwater during the 100-year event, the proposed low-water crossings would have no change to the water surface elevation of the 100-year event.

## Justification for Use of the Floodplains

The proposed actions are needed for park personnel to access and safe passage for maintenance purposes and provide visitors access to nearby trailheads. County Road 79, from its intersection with County Road 57 to the Buffalo River (including the low-water crossing at Cove Creek) was severely damaged by the May 2015 storm. Due to the pre-storm configuration of the road being lower than the stream bank, the flood-stage water levels diverted, creating an eroded channel along the roadway. The flood waters also carry a large amount of material downstream to be deposited on the road and into the Buffalo River. With each subsequent flood event, the damage reoccurs and requires repair in order to restore access to the area. The storm damage has totally changed the hydrology of the confluence of Cove Creek with the Buffalo River. The low-water crossing at County Road 79 has scoured on the downstream side which has eroded material from underneath the structure. This has weakened the stability of the low-water crossing.

The study area lies within the 100-year floodplain. The low-water crossings would be replaced along approximately the same alignment, minimizing the impact to floodplains. There is no practicable alternative site within which to conduct the proposed action. No occupancy of floodplain areas will be encouraged by the implementation of this project.

### Investigation of Alternative Sites

In addition to the proposed action, a No Action alternative was considered. The purpose of this project is to provide sustainable vehicular access to the Erbie area while minimizing adverse impacts to the surrounding environment. Alternatives Considered But Dismissed include replacing the County Road 57 low-water crossing with a concrete slab (instead of box culverts) and replacing the County road 79 low-water crossing with box culverts (instead of a concrete slab). These alternatives would have the same impacts as the proposed action, as the alignment and footprint would be about the same.

## Other Permits

In order to construct the project, additional permits and approvals would be necessary.

United States Army Corp of Engineers (USACE) Clean Water Act Section 404 Permit/ Section 10 of the Rivers and Harbors Act

The Rivers and Harbors Appropriation Act of 1899 prohibits the creation of any obstruction to the navigable capacity of any of the waters of the United States. The Federal Water Pollution Control Act, more commonly known as the "Clean Water Act," under Section 404, directs the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into waters of the United States at specified disposal sites. This project would discharge dredged or fill material into the waters of the United States. The proposed project would most likely qualify for coverage under Nationwide Permit 3, Maintenance, or Nationwide Permit 14, Linear Transportation Projects. There is no associated fee, and the review period is typically 45 calendar days for Nationwide Permits.

NPDES (National Pollutant Discharge Elimination System) Permit

This project would likely disturb less than five acres of bare soil and has automatic coverage under the Arkansas DEQ Stormwater Program, NPDES General Permit No. ARR15000. Project would only require a “Site with Automatic Coverage (Less than 5 Acres) Construction Site Notice. This general permit regulates stormwater discharges at land disturbance construction sites, and must be obtained prior to conducting any land disturbance activity. The removal of vegetation leaves bare soil which is more vulnerable to erosion. As stormwater flows over a construction site, it can pick up pollutants like sediment, debris and chemicals and transport these to a water body.

401 Water Quality Certification

The 401 Water Quality Certification is a “certification,” needed for any Federal permit involving impacts to water quality. Most 401 Certifications are triggered by Section 404 Permits issued by the U.S. Army Corps of Engineers. Typical types of projects involve filling in surface waters or wetlands. Section 401 of the Clean Water Act delegates authority to the States to issue a 401 Water Quality Certification for all projects that require a Federal permit (such as a Section 404 Permit). The "401" is essentially verification by the State that a given project will not remove or degrade existing, designated uses of “Waters of the State,” or otherwise violate water quality standards. Mitigation of unavoidable impacts and inclusion of stormwater management features are two of the most important aspects of water quality review. This certification is issued by the Arkansas Department of Environmental Quality (ADEQ). ADEQ normally issues 401 Certification within 120 days of receipt of a complete application.

Short Term Activity Authorization (STAA)

In Arkansas, any activity that causes disturbance in the water or stream include entry of machinery, debris removal from water or wetland, bridge construction/demolition and other activities conducted in any water that may cause a violation of the Arkansas Water Quality Standards must be authorized through a Short Term Activity Authorization (STAA). The STAA allows individual or entities to perform in-stream work that might cause water quality violations in Arkansas waters and must be obtained prior to beginning in-stream work. This authorization is issued by the Arkansas Department of Environmental Quality (ADEQ) – Water Division.

## Mitigative Actions

The low-water crossings would be replaced at approximately the same location. The top of the box culvert low-water crossing on County Road 57 would be 847.07 feet, whereas the current concrete slab elevation is approximately 845 feet. This low-water crossing would be overtopped by the 2-year event and would have no change to the 100-year event water surface elevation. The proposed action would not have an adverse impact on the floodplain and its associated value.

The new low-water crossings are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).

Minimization and mitigation include the protection of human health and safety, protection of investment, and protection of floodplain resources and processes. The construction of new low-water crossings would replace existing investments. Risk to the investment exists and would continue to exist after the low-water crossings are replaced. The NPS would repair or reconstruct the facility if and when damage occurs. Protection of floodplain resources and processes was achieved to the extent possible.

## Conclusion

The NPS and FHWA conclude that there is no practical alternative to improve sustainable vehicular access to the Erbie area in Buffalo National River, and that the floodplain and its associated value would not be adversely impacted. Permits with other Federal and State agencies would be obtained prior to construction activities. The NPS finds the preferred alternative to be acceptable under *Executive Order 11988: Floodplain Management*.

## References

National Park Service. (2003). *Procedural Manual #77-2: Floodplain Management.*