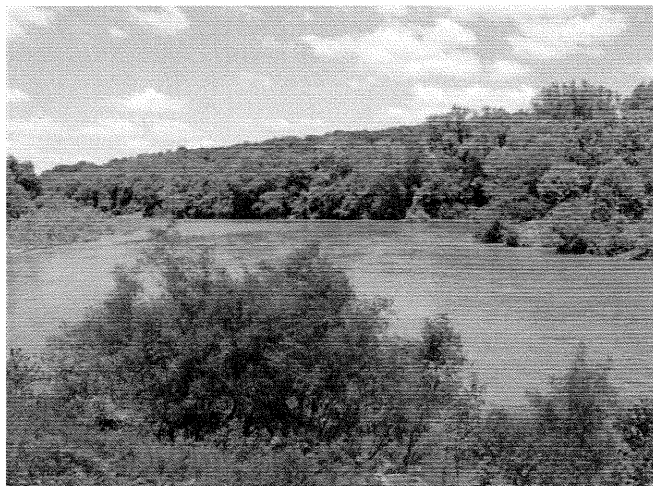


**LITTLE MIAMI NATIONAL SCENIC RIVER  
PRELIMINARY SECTION 7(a) DETERMINATION**

**For Section 14 Study Erosion Protection for**

**Anderson Township Park**

**Little Miami River, Anderson Township, Hamilton County,  
Ohio**



**National Park Service**

**Midwest Regional Office**

**October 8, 2004**



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## **PART I: INTRODUCTION**

The U.S. Army Corps of Engineers (Corps) proposes to provide bank stabilization assistance on the Little Miami National Scenic River (LMR), under the authority of Section 14 of the 1946 Flood Control Act, as amended, for an eroding site adjoining Anderson Township Park, Hamilton County, Ohio. The project was noticed to the public on December 18, 2003 (Corps 2003a), and was evaluated in an Environmental Assessment prepared by the Corps (Corps 2003b).

### **PROJECT HISTORY**

In 1992 Anderson Township purchased 47 acres of recreational park on the Little Miami National Scenic River (LMR) near river mile 8.7. The property was deeded to the Anderson Township Park District (APD) in 1993 (APD 1997). The park opened in 1996 and consists of playgrounds, hiking and biking trails, and athletic fields.

Soon after the time of purchase, erosion was noticed in the area and APD placed five tree revetments along a 1,000 lineal foot section of the bank. These revetments were washed away during high water events (Corps 2004a). In 1994, APD began a phased development and met with representatives of Ohio State Department of Natural Resources (ODNR) and the Soil and Water Conservation to assess the status of the riverbank. During the same year, APD planted 3,000 seedlings along the riparian buffer, over 1,000 which were planted directly into the riverbank. High water in the spring of 1995 caused an additional 10-15 feet of bank to wash away, including the APD plantings (Corps 2004a).

In 1995, upon request, ODR, Division of Natural Areas & Preserves staff provided technical assistance to APD to address erosion at the site to protect the APD building located adjacent to the river. ODNR provided recommendations for bank stabilization efforts. Following floods in 1994 and 1995, APD proposed using trees that had fallen into the LMR as "tree revetments" and acquired a Section 404 permit from the Corps to anchor trees into the bank as part of the stabilization work. APD also utilized local Boy Scout troops to plant over 2,000 seedlings directly into the bank; however, the plantings and other stabilization efforts failed during high water events in 1996 and 1997 (Corps 2004a) (information regarding the design, nature, and extent of these bank stabilization, monitoring efforts, and factors contributing to failure are not available at this writing).

In 1996 APD received approvals from ODNR and Ohio Environmental Protection Agency to install a mound sewage treatment system 100 feet from the riverbank (within the 100-year floodplain), provided the area between the mound and the river bank was replanted with trees to provide a vegetated buffer zone between the bank and mounds to reduce erosion.

In 1997, APD applied for an after-the-fact permit from the Louisville Corps District (Corps 1997) to place fill material for bank stabilization to protect an existing building, and to minimize hazards. The unauthorized work entailed the use of a track-hoe to excavate approximately 475 cubic yards of material from the river to construct a ramp to perform stabilization work. During the permit review period, ODNR recommended permit approval, provided that long-term

stabilization of the riverbank at the site was assured to prevent continued erosion, which would otherwise increase in severity, and provided the building and access road was relocated a sufficient distance from the riverbank so neither would be at risk during high flows (ODNR 1997). The National Park Service (NPS) provided comments to the Public Notice, pursuant to Section 7(a) of the Wild and Scenic Rivers Act. The NPS supported bank stabilization efforts, provided the use of riprap was prohibited. The NPS Section 7(a) approval contained conditions, which included a recommendation to relocate buildings and facilities 120 feet away from the river for the purpose of restoring the riparian buffer zone, thereby reducing further erosion (NPS 1997).

Evaluations conducted by staff from both the ODNR, Division of Wildlife and the Division of Soil & Water Conservation indicate natural processes and downstream entrenchment, encroachment on the floodplain, and upstream issues are contributing to the problem, which can not be successfully addressed by rip rap solutions. Recommendations included floodplain restoration or allowing the river to take its natural course (do nothing).

In 2003, canoeists notified APD that an exposed cultural feature was found eroding out of the bank of the LMR. The feature was found to be situated within the known boundary of the Perin Village archaeological site, and is part of a feature that contained burned wood charcoal and burned river cobbles, limestone, and soil. The site is eligible for listing on the National Register of Historic Places (NRHP) (Corps 2003a). No artifacts were recovered.

Under Section 14 of the Flood Control Act of 1946, the Corps is authorized to provide funding assistance for streambank stabilization projects that protect endangered roadways, bridge-approaches, public works facilities such as water and sewer lines, public and private non-profit schools and hospitals, and other public facilities. Cultural resource listed on, or determined eligible for listing on the NRHP are also eligible. In December of 2003, the Corps issued a permit notice for "Section 14 Study Erosion Protection" of the site (Corps 2003a). An Environmental Assessment (EA) (Corps 2003b) was prepared in association with the public permit notice. The EA provided an evaluation of environmental impacts associated with the proposal. The Corps provided clarifying information on the 2003 EA to the U.S. Fish and Wildlife Service (Corps 2004a). The EA did not provide an analysis of the upstream conditions that may be contributing to erosion at the APD site, nor was a detailed hydrologic and hydraulic analyses provided. Impacts were not quantified for many of the impact topics discussed in the EA. The Corps indicated additional such analysis was beyond the scope of the Corps Section 14 program (Corps 2004a).

#### **PURPOSE OF PROJECT**

The stated project purpose is to provide protection to cultural resources (Native American habitation site) and to park facilities. The project is intended to provide bank protection on the LMR to protect the NRHP-eligible site. The proposal includes stabilizing 1,400 linear feet of river bank on the LMR, located at Riverside Park in Anderson County, Ohio. The project would entail the construction of bank toe protection structures and bendway weirs using approximately 12,600 cubic yards of stone riprap, 80 cubic yards of cobblestone, and 4,650 cubic yards of fill material (25,500 tons of riprap). Live plantings would be incorporated into the project to assist in stabilizing the bank. Twelve bendway weirs, eight feet wide and ranging from 15 to 75 feet in

length, would be spaced 100 feet apart, and extend at a 70-degree angle from the bank, pointing upstream into the LMR.

### **WILD AND SCENIC RIVERS ACT**

The Wild and Scenic Rivers Act (Act) was passed by Congress in October 1968. The Act established a method for federal protection for the nation's remaining free-flowing rivers, and a policy of preserving these rivers and their immediate environments for the use and enjoyment of present and future generations. Section 1(b) of the Act contains a congressional declaration of policy:

*It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.*

### **SECTION 7(A) DETERMINATIONS**

Section 7 of the Act affords substantial protection to rivers included in the National Wild and Scenic Rivers System (the System) and to congressionally authorized study rivers. Section 7(a) states, in part:

*... no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration.*

A Section 7(a) evaluation, pursuant to the Act, is used to analyze impacts of a proposed water resources project and determine whether any impacts would have a direct and adverse effect on the values for which the river was established, namely its free-flowing condition, water quality, and ORV's. Federal water resources projects that are determined to have a direct and adverse effect on the values for which designated rivers were added to the System are prohibited. Water resources projects include, but are not limited to: dams, water diversion projects, fisheries habitat and watershed restoration/enhancement projects, bank stabilization projects, channelization projects, boat ramps and other activities that require a Section 404 permit from the Corps.

### **OUTSTANDINGLY REMARKABLE VALUES**

To be eligible for designation, a river must be free-flowing and contain at least one Outstandingly Remarkable Value (ORV), i.e. scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value. Agency resource professionals develop and interpret criteria in evaluating river values (unique, rare, or exemplary) based on professional judgment on a regional, physiographic, or geographic comparative basis. "Other similar" ORVs may include botanical, hydrological, palenontological, or other unique/rare resources, and scientific or

heritage values.

Section 16(b) of the Act defines free-flowing as “*existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway.*”

#### **NON-DEGRADATION AND ENHANCEMENT POLICY**

The Act provides management mandates to agencies responsible for administering components of the System. Section 10(a) states that:

*Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values.*

The *Final Revised Guidelines for Eligibility, Classification and Management of River Area*, promulgated by the Department of the Interior and the Department of Agriculture (Federal DOI and Department of Agriculture 1982), interpret Section 10(a) as a non-degradation and enhancement policy for all designated rivers, regardless of their classification as wild, scenic, or recreational. The guidelines state that although each classification permits certain existing development at the time of designation, the criteria for classification do not imply that additional inconsistent development is permitted in the future.

In Summary, each component of the System is to be preserved in its free-flowing condition, and managed to protect and enhance the values for which each river was designated, while providing for public recreation and resource uses which do not adversely impact or degrade those values.

#### **ESTABLISHMENT OF THE LITTLE MIAMI NATIONAL SCENIC RIVER**

The Little Miami National Scenic River is a state-administered component of the National Wild and Scenic Rivers System, per section 2(a)(ii) of the Wild and Scenic Rivers Act (Public Law 90-542, as amended; 16 U.S.C. 1271 *et seq.* The upper LMR (66 miles) was designated in 1973 and the lower 28-mile segment (from Foster/Glen Island to the Ohio River) was added in 1980, following an intensive restoration effort to remove human-caused impacts, including scenic intrusions, and securing commitments by local and state agencies to improve the water quality of the lower reach.

State administered components of the National Wild and Scenic Rivers System must meet the same standards of resource protection as congressionally designated rivers. As the river managing agency, the State of Ohio is responsible for ensuring that the provisions of the Wild and Scenic Rivers Act are met, including the implementation of non degradation standards for discharges into this nationally significant river. On state-administered National Wild and Scenic Rivers without adjacent federal ownership, as is the case with the LMR, the Secretary of the Interior, through the NPS, is responsible for making Section 7(a) determinations of effect on designated rivers.

The Bureau of Outdoor Recreation (BOR), Department of the Interior (DOI), was the agency within the DOI that prepared Wild and Scenic River studies. In 1973, BOR published: *Little Miami River: A Wild and Scenic River Study* (BOR 1973). This study was prepared pursuant to Public Law 90-542, the Wild and Scenic Rivers Act, and sets forth the conceptual guidelines for the classification, development and management of the upper Little Miami river segment as a component of the System and is intended for use by concerned federal and state agencies involved in master planning and eventual administration of the area. The BOR study served as the basis for the DOI report (DOI 1973) to Congress which recommended the addition of the Little Miami River, Ohio, to the National Wild and Scenic Rivers System. The report adopted and finalized the BOR study, including the findings and the recommended River Plan. These two documents (BOR study and DOI report) serve as the basis for management of both segments of the LMR as a federal Wild and Scenic River, until such time the State of Ohio develops a new river management plan.

#### **MANAGEMENT OF THE LITTLE MIAMI NATIONAL SCENIC RIVER**

By virtue of its inclusion in the System, the LMR was designated to preserve its free-flowing condition and its ORVs, which include: scenic, recreational, geologic, fish and wildlife, historic, cultural, archaeological, scientific and other similar resources (DOI 1973). The lower segment of the LMR, where the proposed project is located, is classified as "recreational". Classification, per section 2(b) and 10(a) of the Act is an indication of the degree of development at the time of designation, and how the segment will be administered. Classification has little bearing on impact analysis under Section 7(a) of the Act.

The management objectives for the LMR are to protect and enhance the values which caused it to be included in the System (DOI 1973). The river should be managed to maintain its natural, free-flowing condition; to protect and enhance its water quality and ORVs; and to provide for public access, use, and interpretation (public education) of the important ORVs. Management recommendations for the LMR include the following statements (DOI 1973):

- Development and management of the Little Miami Riverway should give primary emphasis to maintaining and enhancing its aesthetic, scenic, historic, archaeological, and scientific features. All recreation facility development should be consistent with protection and enhancement of the river environment.
- That a Little Miami Advisory Board be established to advise and assist the state and local governmental units on the planning, development, management, and administration of the river. It would serve to coordinate state, local government, and citizen efforts in achieving a unified, comprehensive program to protect the special values of the river.
- Take steps to insure high water quality on the Little Miami watershed through enforcement of water quality standards and the encouragement of compatible soil and water conservation practices.

The recommended River Management Plan included the following specific to land use resources:

- Maintenance of stable soils and protection of the watershed adjacent to the river is essential. Special emphasis should be placed on preventing and controlling soil erosion.



This is true for both natural and man-caused deterioration. Soil stabilization measures and re-vegetation should be undertaken where feasible on all exposed soil areas.

- Removal of bankside vegetation should be prevented and cropping restricted where it endangers natural or scenic values.
- Efforts should be made to encourage local units of government to apply zoning controls of land adjacent to the river, particularly in the floodplains and nearby developed areas to ensure that the quality of the environment is protected by a buffer zone.

## PART II: Proposed Project

### PROJECT SPONSORS

Anderson Township Park is the project sponsor; the U.S. Army Corps of Engineers is providing assistance under Section 14 of the Flood Control Act of 1946, as amended (Section 14 provides authority for the Corps of Engineers to “develop and construct emergency streambank and shoreline protection projects to protect endangered roadways, bridge approaches, public works facilities such as water and sewer lines, public and private non-profit schools and hospitals, and other public facilities”. Projects involving protection of cultural resources that are eligible for listing, or are listed on the NRHP are also eligible under Section 14. The sponsor is required to contribute 25 percent of the total project costs).

### LOCATION OF THE PROJECT

The proposed bank stabilization project would occur at approximately river mile 8.7 on the left descending bank (left, facing downstream) at Anderson Township Riverside Park, Hamilton County, located in the greater Cincinnati area, Ohio. The site is immediately downstream of a sharp bend in the river (Corps 2004a) (Figure 1).

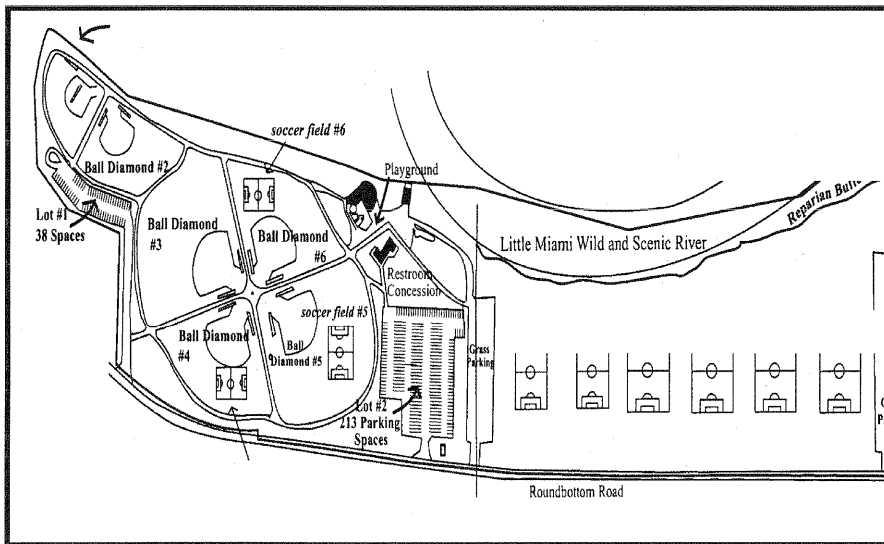


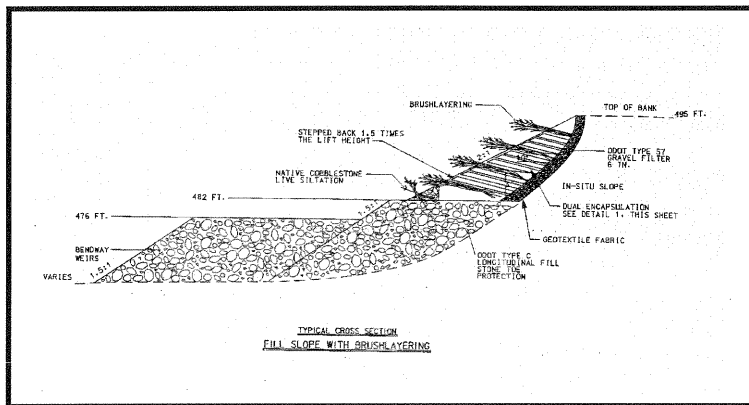
Figure 1: Riverside Park, Anderson Township (Anderson Township 2004).

**PROJECT PROPOSAL**

Erosion along approximately 1,400 feet of the river's left bank is estimated to be progressing at a rate of 15-20 feet of bank per year (Corps 2003b) (Figure 2). Using a combination of longitudinal fill stone protection (LFSTP), live siltation, brush layering, live staking, and bendway weirs (Figure 3), the Corps proposed to stabilize the bank to prevent loss of archeological resources, an APD storage building and ancillary park improvements. The project is a water resources project.



**Figure 2.** Little Miami River at Riverside Park, Anderson Township.



**Figure 3:** Project cross-section with Bendway Weir (Corps, 2003b)

Specifically, the project would include the following measures:

- LFSTP: LFSTP protection systems (rip rap) provide continuous bank protection with stone dikes placed longitudinally at or slightly streamward of the toe of the eroding bank.

On the LMR, the LFSTP would have a trapezoidal cross section and a riverside slope of 1 vertical to 1.5 horizontal (Corps 2003b). The LFSTP would be constructed from the base of the river bottom to an elevation of 482 feet, three feet above Ordinary High Water (OHW) elevation (479 feet), and 13 feet below the top of the bank. Thus, there would be three feet of stone protection above the OHW elevation, and below the beginning the zone where re-vegetation takes place. While rock would be visible at the onset of the project, it is expected that the rock would be hidden once the vegetation above begins to grow.

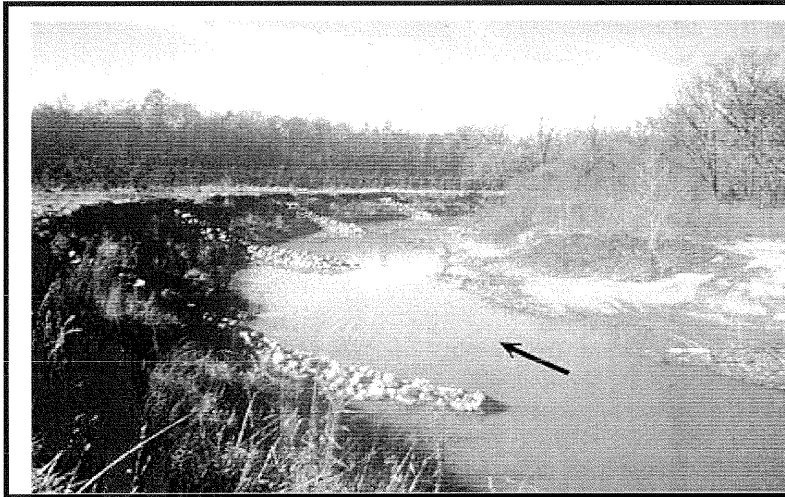
- Live siltation: This revegetation technique is proposed to secure the toe of a slope, and trap sediments. Live siltation would be placed above the 482 foot elevation, immediately above the LFSTP.
- Brushlayering: Various layers of live branches, placed in criss-cross, overlapping pattern with the tips of the branches protruding just beyond the face of the fill would be placed on the bank to further stabilize soils.
- Live Stakes: Live vegetative cuttings would be placed in the soil to vegetate the bank where there is little or no fill required at the natural slope. Live stakes would be placed above the live siltation components (over the 482-elevation).
- Bendway weirs: Bendway weirs are designed to control and redirect currents and velocities throughout a bend (and the immediate downstream crossing) of a river or stream. They are installed in a series of upstream-angled (from five to 25 degrees), low-elevation stone sills that are attached and keyed into the outer bank of a bend.

Twelve bendway weirs, spaced 100 feet apart, and keyed into the LFSTP would be installed on site. The bendway weirs would have side and end slopes of 1 vertical to 1.5 horizontal. Most of the weirs would be 15 feet long, however, the four weirs at the downstream end of the project would be 25 feet, 20 feet, 60 feet, and 70 feet long respectively (total approximate surface area 127,000 square feet) (Corps 2004a).

The weirs would be designed to an elevation of 476 feet, three feet below the OHW elevation (479 feet) and would not be visible during normal flow conditions. The weirs are intended to divert erosive forces away from the bank (Figure 4).

Approximately 12,600 cubic yards (25,500 tons) of Ohio, Type C stone would be used to construct the toe protection and bendway weirs (Ohio Type C stones are 6-18 inches in diameter, and are usually dolomite, limestone or quartzite, depending on local sources). About 4,650 cubic yards of topsoil fill would be used to construct the brushlayering slope. In addition, 600 cubic yards of #57 bedding stone (6-inch thick) and about 80 cubic yards of native cobblestone would be used over the OHW (elevation 476 feet) for live siltation. Construction activities for the

bendway weirs would occur within the LMR. The remaining elements of the project would not require construction activities within the river.



**Figure 4:** Example of weirs within a stream (Corps 2004b)

The LFSTP would be constructed first and would serve as an access road. The weirs would be constructed after the LFSTP is established. The upper bank would be seeded with native grasses and native trees, shrubs, and perennials would be planted. The APD maintenance/storage building located on the downstream end of the eroding bank would also be removed.

#### **DURATION OF THE PROJECT**

The project would be implemented in late summer during low water periods and is anticipated to last about one year.

## **PART III: Analysis of Effect**

### **INTRODUCTION**

Prior to project approval, the Corps requires an NPS determination of effect, pursuant to Section 7(a) of the Wild and Scenic Rivers Act. This section analyzes the effects the Corps proposed action will have on the free-flowing condition and the ORVs of the LMR. Information to make this assessment is derived from the Corps Public Notice, the Corps EA (Corps 2003a; Corps 2003b, respectively), and the Corps EA as clarified by the Corps (Corps 2004a), telephone and e-mail correspondence with the Corps and Ohio Department of Natural Resources, field investigations, a site visit by NPS, relevant planning documents, and information in NPS files. This determination addresses effects to the free-flowing condition and to the ORVs of the LMR.

### **FREE-FLOWING CONDITION**

Section 16(f) of the Wild and Scenic Rivers Act defines the term “free-flowing” as applied to any river or section of a river, “*existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modifications of the waterway*”

Flow data are collected at three locations on the Little Miami. One of the collection locations is located at Milford, less than four miles upstream of the project site (river mile 12.9). Flow data is summarized in the report to Congress (DOI 1973) and is maintained by the U.S. Geologic Survey (USGS) (USGS 2004). During normal water years, water volume between August-October is at a minimum. At the Milford gage, for an 88-year period (between 1915 and 2003), monthly mean streamflows were measured at 392 cubic feet per second (cfs) for August; 364 cfs for September, and 797 cfs for October (USGS 2004). Peak flows occur during January, February and March. The monthly mean streamflows for the same 88-year period were measured at 2,095 cfs for January, 2,415 cfs for February, and 2,145 cfs for March. The lowest monthly mean flow recorded in the last five years was during September of 1999, recorded at 91.1 cfs. The highest monthly mean flow rate was 2,680 cfs, recorded in May, 2001 (USGS 2004).

The project would include the placement of rock above (LFSTP) and below (Bendway Weirs) the ordinary high water line of the Little Miami River in order to stabilize the accelerated erosion.

Bendway Weirs are designed to control and redirect currents and velocities throughout a bend (and the immediate downstream crossing) of a river or stream (Figure 4). Water flowing over the weir is redirected at an angle perpendicular to the axis of the weir. The hydraulic effects of Bendway Weirs are to reduce flow velocities near the outer bank. A stream's strong secondary currents in the bend are broken up. The hydraulics of flow in the river would be modified to some degree. As described in the EA (Corps 2004a), the Bendway Weirs would have the following effects on the LMR:

- **Reduce velocity:** “Flow velocities in the water column within the weir field (over the tops of the weirs) would be reduced significantly”. The anticipated velocity reductions of top-water currents where weirs are longer than 15 feet are estimated to be “up to

50%, based on limited prototype measurements on other rivers”

- Reduce energy: The hydraulic roughness generated by turbulent flow over the bendway weirs will result in a reduction of overall river energy.
- Movement of the Thalweg: The proposed plan will move the thalweg (deepest part of the channel) from the toe of the LFSTP to an alignment immediately riverward of the river ends of the bendway weirs (toward the middle of the LMR).

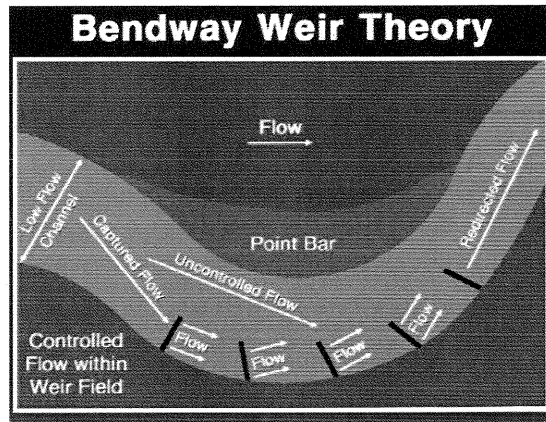


Figure 5: Bendway Weir Theory (Corps 2004b)

#### Finding of Effect:

The LSTP and weir structures would alter the flows of the LMR. The project as proposed would constitute a direct and adverse effect to the river’s free-flowing condition.

#### WATER QUALITY

Generally, the water quality of the Little Miami River is good to excellent. The waters are designated as an Exceptional Warm Water Habitat Stream by the state of Ohio. Water quality has improved significantly in the Little Miami River Basins over the past few decades because of improvements in the treatment of municipal and industrial wastes. However, the effects of industrialization and urbanization on the quality of rivers and ground-water resources remain a priority concern of water-resource managers and planners, state and local governments, and citizen groups. Some of these effects relate to nonpoint sources of contaminants and are the subject of ongoing research and watershed management projects such as the Lower Great Miami Watershed Enhancement Program, the Little Miami Partnership, the Stillwater Watershed Project, Indian Lake Watershed Project, and the Miami Conservancy District’s Groundwater 2000 Program (USGS 1997). Erosion at the site is contributing to increased turbidity and sedimentation.

Construction associated with proposed project would lead to temporary increases in turbidity and suspended solids, although management practices would be in place to reduce and minimize any potential impacts. The LFSTP would serve as the haul road for the protective stone, and would thus preclude the need for construction to occur within the river. In stream work would be necessary for the construction of the weirs.

**Finding of Effect:**

Although temporary negative impacts to water quality are expected with construction activities, there would be no long-term impacts anticipated once the bank is stabilized and sediment is no longer dispersed into the river.

**SCENIC ORV**

The Little Miami River was declared Ohio's first State Scenic River on April 23, 1969, and included in the National Wild and Scenic River System as Little Miami National Scenic in 1973. The lower segment, within which the project area is located, was added to the System in 1980.

The Little Miami River corridor contains some of the most scenic, interesting, and diverse natural features in the State of Ohio. For much of its length, it is a pleasant stream, flowing alternatively through a deep gorge, steep wooded slopes, farmlands, and occasional small riverside communities. Although human activities are evident along many parts of the river's edge, the river is relatively undeveloped compared to other streams in Ohio. The LMR and its immediate surroundings are of major importance for open space and natural beauty in southwestern Ohio, where urban growth is rapidly destroying the few remaining natural areas (DOI 1973).

The project site is located in the segment of the river which is classified as "recreational", thus certain levels of development and visual intrusions are expected; however, the river's classification does not have a bearing on the determination of effect. Moreover, the cumulative impacts of this and other such visual, human-caused intrusions that have occurred in the area since the segments designation, or that are known to occur in the foreseeable future, must be considered.

Hydrographs and rating curves were generated for the project by the Corps and are included in Appendix B (a hydrograph is a graph which plots the discharge of a river; rating curves are used to relate river stage to discharge). The data is based on the USGS stream gage located at Milford (approximately four miles upstream, at river mile 12.9), but adjusted for the additional contributing area at Anderson Township. According to data (Corps 2004c), at a flow of 1,500 cfs the river's stage would be at 476 feet, which is the top height of the bendway weirs. At flows below 1,500 cfs, the weirs would be visible. USGS data (USGS 2004) indicates the river is below 1,500 cfs quite frequently between summer and late fall, roughly on the average, more than half the time.

**Finding of Effect:**



Construction activities, which would be visible a short distance upstream and downstream from both land and water, would intrude upon the visual qualities associated with the river for the duration of the project (approximately one year).

The LFSTP would be constructed from the river bottom up to an elevation of 482 feet (three feet above OHW elevation), and extend a length of 1,400 feet (over 0.25 mile). The LFSTP would be composed of Ohio Type C stone (limestone, dolomite or quartzite), and would be visible at the onset of the project. It is expected that the rock would be hidden once vegetation, which would be placed above the 482-foot elevation, becomes established. However, outside the growing season (late spring and summer), the rock stone layer would again be visible; the extent of exposure would depend on water levels at the time. Portions of the LFSTP that are three feet above the OHW elevation may be visible depending on water levels, regardless of season. The rock LFSTP would have a negative impact to the scenic values of the LMR during some portions of the year.

Twelve Bendway Weirs would be constructed using Type C rock to provide diversion of erosive forces away from the bank. The bendway weirs would be spaced 100 feet apart and keyed into the LFSTP. Most of the weirs would be 15 feet long; however, the four weirs at the downstream end of the project would be 25 feet, 20 feet, 60 feet, and 70 feet long respectively. The weirs would be designed to an elevation three feet below the OHW elevation, and thus would not be visible during certain flow conditions. However, during low flow periods, which include the summer and fall months, portions, or all of the weirs, may be visible. These features would resemble man-made structures, and would significantly intrude upon an already visually impacted area.

Until the vegetation is established (during and after initial construction, approximately three years), the man-made elements of this project would be visible year round. Man-made elements not normally expected on the LMR would be visible. These would include the 12 Bendway Weirs, which would extend out into the river, and nearly a quarter-mile of rock toe protection (rip rap) along the river bank. Once vegetation is established, the man-made elements would then be visible during certain portions of the year (late fall to early spring). While many human developments and associated features are visible along the LMR, including rural farms, agricultural lands, buildings, and recreational facilities, these elements are part of the existing landscape, and most are buffered by a vegetated riparian corridor. The proposed structures would represent additional intrusions; intrusions which are incompatible with the natural and cultural landscape of the LMR, and would disrupt contributing elements associated with the scenic qualities of the LMR. The NPS finds this project would have a direct and adverse effect upon the outstandingly remarkable scenic value of the LMR.

## **RECREATION ORV**

The LMR provides a significant base for a number of recreational activities for the large populations in and near Cincinnati, Dayton, Hamilton, Springfield and Columbus, Ohio, where there are few river-oriented recreation developments and only minimal river areas under protection. Popular recreational activities include canoeing, tubing, motorized boating, fishing, and general enjoyment of the river's scenic beauty. These recreation opportunities are

distinctive, of relatively high quality, in a natural environment, and not readily available elsewhere. Yearly recreational activities peak during the summer months.

The Lower LMR segment (from Foster to the Ohio River) has riffles, long pools, rocks, rapids and islands, shallows and sharp turns. Except during floods, the stretch is considered Class I waters, interesting and beautiful for the capable canoeist, yet ideal for the inexperienced.

In the report to Congress, the DOI (DOI 1973) indicated that the emphasis for management of the LMR should be "placed on the development of water-oriented recreation facilities that would provide a wide range of compatible recreation activities.....access sites and other facilities should be developed and distributed with close attention paid to the impact from use that would result". Further supporting development of recreation-based facilities compatible with the scenic nature of the river, the report encouraged that facility development be conducted in a manner which would not detract from the quality of the river scene developments be placed back from the river's bank, and in most cases, screened from the view of the river user.

As previously noted, at flows below 1,500 cfs, the weirs would be exposed. Data indicates the river is below 1,500 cfs quite frequently between summer and late fall, roughly on the average, more than half the year (USGS 2004c). Thus, during low flow periods, which include the summer and fall months, portions, or all of the weirs, may be exposed.

#### **Finding of Effect:**

During the duration of the project, water-based and land-based recreationists would be exposed to the sights and sounds associated with construction. Recreational river use of the immediate project area would be temporarily disrupted by construction activities and heavy machinery/equipment associated with the project (e.g., dump trucks, back hoes, plows/ graders and other heavy equipment). Any fishing near the project area would likely be temporarily interrupted, but would resume upon completion of the proposed action (Corps 2003b). For some, construction activities would be an inconvenience, for others, construction activities would degrade the recreational experience, especially for those seeking solitude and/or a more natural experience on the river. While negative, construction activities would not have a direct and adverse effect on the recreationally outstandingly remarkable values of the LMR.

The twelve weirs would extend from 25 feet to 60 and 70 feet into the river channel. During low flow periods, the weirs would be visible, or would be slightly submerged and could pose a hazard to recreational users of (canoes, kayaks, tubers and motorboats) the river. The NPS finds that the project would have a direct and adverse affect to the outstandingly remarkable recreational values of the LMR

#### **GEOLOGIC ORV**

The Little Miami Valley is an area of considerable geological interest. The basin is crossed by what was the southern boundary of the Wisconsin Age glacier and by the boundaries of rock formations from two major geological periods--the Ordovician and the Silurian. The most impressive evidence of the effects of the varied geological history is found at Clifton Gorge. Collecting sites for invertebrate fossils are numerous at a variety of locations near the river.

In the project area, the river flows through glacial outwash and till deposits. The river bottom in the area is composed of silty clay with fine sand (Corps 2003b) and would be minimally disturbed during the installation of the 12 rock weirs. Excavation of the bank to complete a uniform grade would disrupt the soils present at the project site. The upland areas adjacent to the river bank have been converted to athletic fields and a golf course.

**Finding of Effect:**

The project would not have a direct and adverse effect to the outstandingly remarkable geologic values of the LMR.

**FISH AND WILDLIFE ORV**

The river and its immediate environs support a diversity of fish and wildlife. Over 90 fish species and 35 shellfish (primarily mussels) are found in the LMR, many of which are considered rare (DOI 1973). A significant sport fishery exists for smallmouth bass, spotted bass, channel catfish, flathead catfish, rock bass and bluegill. Reptiles and amphibians are well represented in the area, as are mammals, with 44 species of mammals present. The bird life found within the LMR is one of the most outstanding categories of fauna. Nearly 200 species of birds use the area on an annual basis (DOI 1973).

Wildlife potentially found in the project area includes raccoons, muskrats, turtles, beavers, snakes, deer, and a variety of small mammals. Numerous species of shorebirds, waterfowl, and migrant birds, including wading ducks, herons, grebes, geese, kingfishers and warblers inhabit the area. Aquatic species include common fishes and mussels. Mussel species have not been observed within the project area (Corps 2004a).

Vegetation (fish and wildlife habitat) in the project area includes typical riparian and floodplain species, although the riverbank within the immediate project area is not vegetated and lacks mature tree species.

**Finding of Effect:**

Construction activities within the bed and banks would have minimal impact to river and riparian corridor. Some sedimentation would occur and could result in localized increases in turbidity and suspended solids in aquatic and shallow water habitat. Local fisheries and wildlife would quickly recover. The NPS finds that there would be no direct and adverse effect to the outstandingly remarkable fish and wildlife values of the LMR.

**HISTORIC/CULTURAL/ARCHEOLOGICAL ORV:**

There are numerous sites of historical interest, of national, as well as local scope. Prehistoric people and, later, the American Indians generally migrated to well-watered valleys, such as the Little Miami, which provided abundant natural resources necessary for maintaining their cultures. The LMR provided an easy pathway during pioneer times, and at least three military expeditions used this pathway. There are numerous mills that provided service for early settlers,

and taverns which provided rest for travelers.

Perhaps the most important historical features of the Little Miami region lie in the many prehistoric and historic American Indian camps and earthworks (DOI 1973). The mound-building peoples of the Little Miami were of two distinct cultures--the Adena and the Hopewell. A third group of occupants was the Fort Ancient culture.

Two archeological sites are located on the floodplain overlooking the Little Miami River near the project site. Edwards Stone Mound III (Figure 1) was excavated in the 1880s and contained at least 71 burials. Perin Village (Figure 2) is a Late Woodland (ca. AD 500-1000) habitation site (Corps 2004a; Pederson 2004). Excavations in the late 1990s and early 2000s were conducted on the floodplain and along the exposed riverbank. Numerous artifacts and buried features were found. The densest concentration of artifacts occurs in the site's southern portion. Perin Village has been determined to be eligible for listing on the NRHP. The project area as currently defined includes only the southern portions of Perin Village.

Perin Village is eligible for listing to the NRHP due to its potential to yield information about a little understood time period in Ohio prehistory (Pederson 2004). In Ohio archeology, the Late Woodland period is situated between two well-documented time periods. The preceding Middle Woodland (200 BC-AD 500) is often associated with that of the Hopewell culture, known for burial mounds, geometric enclosures, and artistry in crafts. During this time, people lived in small groups often moving among hunting, fishing, and other camps to supplement a diet of wild food resources with the growing of some low maintenance, weedy crops. The later Late Prehistoric (AD 1000-1650) in Ohio is usually connected to that of the Fort Ancient culture, characterized by larger groups of people living in villages and practicing corn agriculture. In comparison to the knowledge about these two periods, very little is known about the intervening Late Woodland. It appears that around AD 400 to 500, people began to congregate in very small villages with a focus more on the growing of crops. Sometimes a small earthen wall was built around the village. By AD 800, people may have become more mobile based on the lack of known archeological sites dating to this period. Within two centuries, people were living in large villages and were corn agriculturalists. The transition from the mound building Hopewell culture to the agricultural Fort Ancient culture is thus relatively unknown.

Although some Late Woodland sites have been excavated in central and southern Ohio, many of these sites have been destroyed by agriculture or development, including many in the project area's vicinity. A proposal to name a regional variant of the Late Woodland for archeological sites in the Cincinnati area was put forth in the 1960s. This "Newtown Focus" was named after the village of Newtown, located approximately one mile from Perin Village. As such, the intact nature of the Perin Village is a significant cultural resource. In addition, its location about one-quarter mile from the Turner Earthworks, a large Hopewell earthwork, presents additional lines of questioning regarding the transition from Middle to Late Woodland (Pederson 2004).

**Finding of Effect:**

The Corps proposal includes a combination of methods which would require construction into the river. Although the bank slope would not need to be cut back, some damage to the site could be expected to occur along the edge of the riverbank and in the construction corridor. Overall,

the proposal would preserve the site with minimal destruction. The Ohio Historic Preservation Office (OHPO) has concurred with the Corps finding of no adverse effect, pursuant to Section 106 of the National Historic Preservation Act (Corps 2004a).

The NPS finds that the proposal would not have a direct and adverse effect on the outstandingly remarkable historic/cultural/archaeological values of the LMR.

**SCIENTIFIC AND OTHER SIMILAR ORV:**

Two National Natural Landmarks (Clifton Gorge and Glen Helen), one National Historic Landmarks (Fort Ancient), and numerous sites of paleontological interest are located within the LMR valley. These sites are located several miles upstream in adjacent counties.

**Finding of Effect:**

Excluding the Perin Village site (which is evaluated above), the project is not located near any known site of scientific or other similarly significant feature. The NPS finds the proposal would have no direct and adverse effect on scientific or other similarly important ORV.

## **PART IV: Preliminary Section 7(a) Determination Findings & Recommendations**

### **PRELIMINARY SECTION 7(A) DETERMINATION:**

Based upon the previous discussion, the NPS finds, on behalf of the Secretary of the Interior, that the Corps proposed project for the river bank stabilization project, as proposed with rock riprap and weirs, would have a direct and adverse effect on the free-flow condition and to the scenic and recreational ORVs of the Little Miami National Scenic River. Per the provisions of the Act, on behalf of the Secretary of the Interior, this project as described may not proceed.

This determination is based on information provided by the Corps in the EA for the proposal (Corps 2003b; Corps 2004a), telephone and e-mail correspondence with the Corps, field investigations, a site visit by NPS, relevant LMR discussions with members of the projects interdisciplinary Section 7 team (Appendix A), NPS resource professionals, planning documents, and information and correspondences in NPS files. This determination addresses the project as described in the context of the project's effects on the values for which the LMR was included into the System.

### **RECOMMENDATIONS:**

It has long been recognized that without vegetative buffers and other complementary controls, unplanned developments will continue to exacerbate erosion up and down the LMR. Indeed, the recommended river management plan for the LMR (DOI 1973) anticipated problems associated with loss of riparian vegetation and thus recommended restrictions on the allowable extent of tree and vegetation removal. The report indicated that "efforts should be made to encourage local units of government to apply zoning controls of lands adjacent to the river, particularly in the floodplains and nearby developed areas to insure that the quality environment is protected by a buffer zone", and that recreation facility development should be consistent with protection and enhancement of the river environment, including the floodplain.

The loss of the riparian corridor, both upstream and at the APD site has contributed significantly to the problem, and continues to exacerbate natural forces of erosion. The eroding river bank at this site is a problem that has persisted for over a decade. A review of the streambank problem shows that ODNR, APD, and other agency staff have spent many hours over the past ten years discussing this situation. Assessments indicate that the erosion is due to entrenchment downstream, watershed development/impervious surfaces, encroachment in the floodplain, and natural processes. Previous recommendations and/or permit conditions included directions for the restoration of the riparian corridor, implementation of a Forest Corridor Reforestation Management Plan developed for and submitted to APD (ODNR 2001), and relocation of the APD maintenance building out of the floodway and floodplain.

The NPS recognizes that this is an on-going problem, which, unattended to, could have adverse consequences to APD interests and to the NRHP resources. A complete understanding of upstream and on-site influences will assist in developing a long-term, comprehensive solution

that is compatible with the APD goals and other stakeholders involved. For example, redesign of runoff areas upstream could lessen or stop riverbank erosion. As such, the NPS encourages continued dialogue with the State of Ohio (ODNR, OHPO, Ohio Environmental Protection Agency), and other appropriate state/local agencies to assist the Anderson Park District (APD) in exploring alternatives that are compatible with the Wild and Scenic Rivers Act and the management goals for both LMR and Riverside Park. The NPS can offer assistance in identifying stakeholders, facilitating planning/evaluation meetings. The agency recommend the following actions:

- Relocation of the APD building (per conditions of a previous 404 permit) out of the floodplain. Relocation of the septic mound away from the riverbank and, ideally, out of the 100-year floodplain.
- Evaluation of data recovery efforts. While preservation *in situ* may not be feasible, portions of the site may be documented and recovered. In many instances, data recovery of properties listed on or eligible for listing on the National Register of Historic Places is an acceptable mitigation measure when *in situ* preservation is not feasible.
- Installation of interpretive exhibits explaining the significance of Perin Village, the LMR, and the reasoning for selecting the current course of action.
- Completion of a hydrological study of the river in this area. The study should fully evaluate factors accelerating erosion at, and upstream of the site, model changes in natural flows (mean monthly) associated with streambank armoring, weirs, and other standard methods of stabilizations, (including no-action), and evaluate impacts to LMR resources. In the interim, revegetating portions of the streambank with live saplings and other plantings during the appropriate time of year to avoid flood damage (including proper care/cultivation/monitoring), to slow erosion.
- Develop a long-term Comprehensive River Management Plan for the LMR that identifies management actions for the next 15-20 years and involves state, county, local, and private organizations.

**APPROVED BY:**

/s/ Ernest Quintana

10/9/04

Regional Director, Midwest Region  
National Park Service

Date

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