



RECREATION ENGINEERING AND PLANNING
485 ARAPAHOE AVENUE
BOULDER, CO 80302
(303) 545-5883 (PHONE AND FAX)

May 31, 2013

Benton County Planning and Environmental
c/o Rinkey Singh, AICP
905 NW 8th St.
Bentonville, AR 72712

Re: Whitewater and Habitat Improvements Project, Siloam Springs, AR- Instream Use Narrative

Dear Mrs. Singh,

Recreation Engineering and Planning (REP), as a consultant for the City of Siloam Springs (City) and the Walton Family Foundation (WFF), is proud to submit the subject narrative. The narrative attempts to further clarify and explain the instream elements of the project.

Flowing near Siloam Springs, the Illinois River at Fisher Ford has great potential to host a multi-use park (see Figure 1). Improvements to the bank and channel would help open up the river to recreational use by paddlers, anglers, and other users, as well as help enhance the habitat for the fish and waterfowl that inhabit the river.

WFF contracted REP to complete design and permitting associated with the project. The submitted drawings consists of fish habitat and recreational boating improvements, as well as related bank and access improvements. These bank, whitewater, and fishing improvements will be designed with Americans with Disabilities Act (ADA) access and opportunities in mind. The improvements will help strengthen the tie between the river and the community, provide a whitewater paddling amenity for the local community, and create a whitewater and fishing resource for the region.



Figure 1: An REP project in San Marcos, Texas

Recreation Engineering and Planning
485 Arapahoe
Boulder, CO 80302
www.boaterparks.com

This project will serve many different user types (See Figure 2 and Figure 3). The reach currently is used for fishing, and changes were made with a goal of maintaining and increasing fishing opportunities. The proposed whitewater drops and pools provide excellent fish habitat. Fishermen will continue to frequent the area both during boating season and during the off-season. The area will be enhanced for walkers, joggers, picnickers, and will provide ample opportunity for simply spending time by the river watching boaters and fisherman. In addition, many youth-oriented paddling and angling programs, in addition to swiftwater training courses, have sprung up around the development of whitewater parks as a way to provide training and healthy, accessible recreation for young people.



Figure 2: ADA access point at a REP whitewater park in Johnstown, PA



Figure 3: A fisherman enjoying the Salida Whitewater Park

Instream Project Description

The project area spans from just downstream of the Fisher Ford Road Bridge, within the Ordinary High Water Line of the Illinois River, to an existing gravel bar approximately 0.2 miles downstream. An aerial image of the project site is shown below in Figure 4. Instream modifications associated with this project include engineered drop structures for whitewater recreation, bank restoration and terracing, improved access points, trails, and fishing habitat improvements.



Figure 4. Aerial image of the Illinois River near Siloam Springs, AR showing the project area.

Hydrology

The mean monthly streamflow at the site is illustrated below in Figure 5

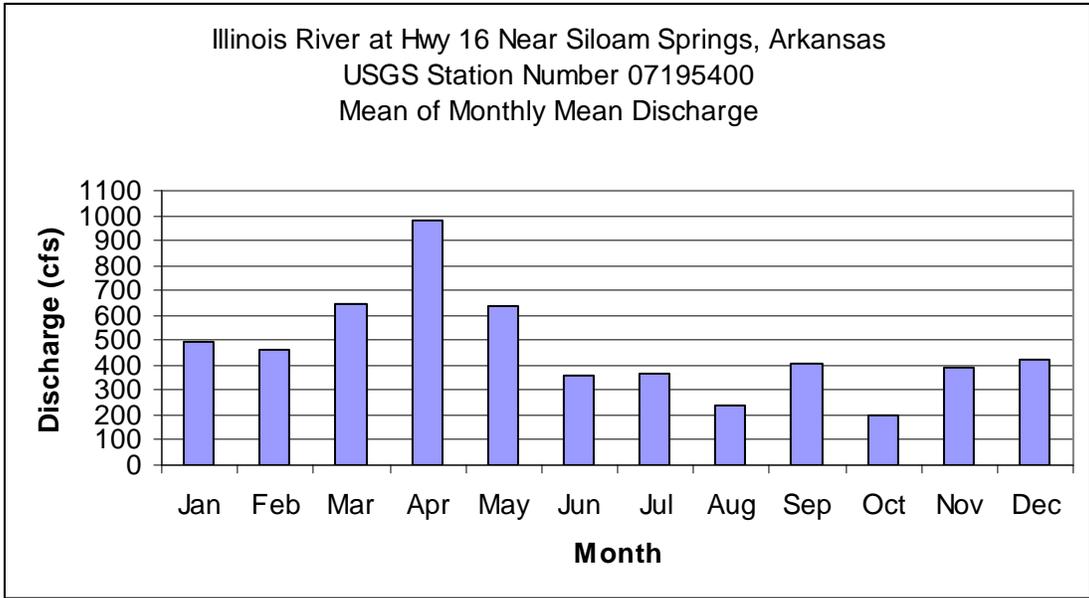


Figure 5: Mean monthly stream flow at USGS Gauge 07195400 approximately 2 miles upstream of the project reach (Source waterdata.usgs.gov, period of record 1979-2009)

High flows on the Illinois River near Siloam Springs generally occur in the months of March through May, and drop in the fall and winter. Mean monthly flows range from 200 cfs in October to 1,000 cfs in April (Figure 5). However, in rare cases, peak flow has historically reached over 60,000 cfs (Figure 6). Although the weather in the area may not be hospitable during all months, the flow conditions support whitewater recreation all year long.

Based on this hydrograph and the mean flows, REP recommends construction during the months of August through October. At this time, construction is scheduled for these months in 2013.

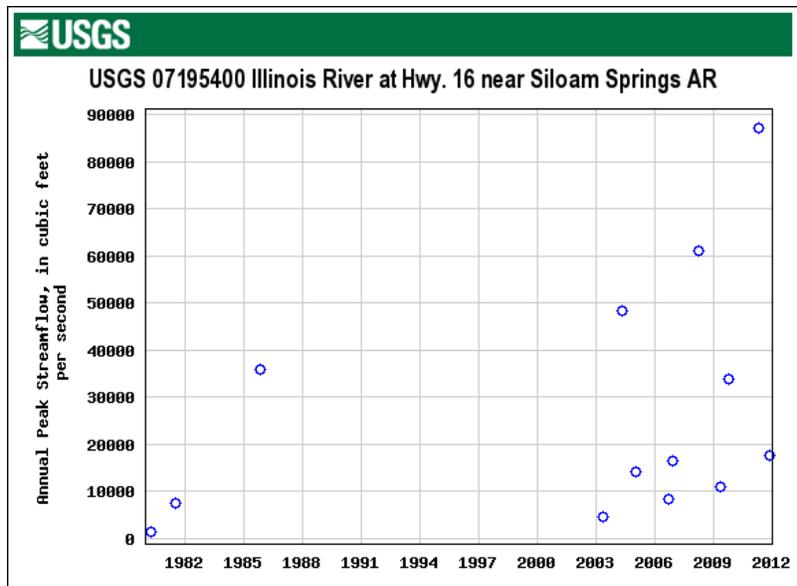


Figure 6. Peak flows at USGS Gauge 07195400 Illinois River at Hwy 16 near Siloam Springs, AR (source: waterdata.usgs.gov)

Proposed Instream Improvements

Instream, bank stabilization, river access, and trail improvements are proposed along the reach of the Illinois River shown in the attached drawings. The improvements are designed to complement each other and provide a recreational facility for users from advanced freestyle paddlers to streamside picnickers.

Design Elements

This project will serve three main user-types: in-stream users, on-bank users and anglers. The primary in-stream users will be whitewater enthusiasts including kayakers, canoeists, rafters, tubers, swimmers and boogie board/surfers. On-bank users include pedestrians, joggers, picnickers, and bird watchers. The design elements accommodate anglers with improved river access and fish habitat improvements.

Typically, whitewater parks are popular fishing areas due to the deep water habitat and aerated water. The whitewater drop structures create drops and pools providing excellent fish habitat in the summer and excellent overwinter habitat in the colder months.

An additional design objective is ensuring that this whitewater project is ADA-friendly. This will include (but is not limited to) construction of paved access points, deflectors at the put-ins and take-outs, and paved trails. REP has worked closely with disabled river users to incorporate specific design elements into the access points and those elements will be included in this project.

In-stream users would be provided with both float through and park-and-play type whitewater features designed to provide a variety of difficulties depending on flow rates at the park. At higher flows the course will become more challenging and the hydraulics featured at the “U” Structures will become more dynamic and powerful. At lower flows these same structures will accommodate beginner and intermediate boaters who seek to develop their skills. Many other whitewater parks have been used extensively for instruction, and accommodate beginners and children.

On-bank users will be able to take advantage of easy riverside access, improved trails for walking and jogging, as well as new terraced areas for lounging and spectating.

“U” Structures

The primary whitewater features are “U” Structures, which are typical REP whitewater structures that create waves or holes that cater to recreational and freestyle kayakers and fishermen. These structures are constructed using large, grouted rock anchored into the bed and bank of the river. The structures would also have a gradual sloped area on the south side to allow for fish passage. In addition, the deep pools downstream of “U” Structures provide excellent habitat for fish, especially during spring and summer runs. Signage at the site suggests that all users, inflatable or hard boat, wear a life-jacket and helmet (among other things). Figure 7 shows examples of two typical “U” Structures.



Figure 7. (top to bottom) A "U" Structure designed for instruction in Salida, CO and freestyle kayakers utilizing another "U" Structure in Steamboat Springs

Deflectors

The design includes deflectors, which are used to provide tranquil backwater conditions at put-ins and take-outs plus recreational instream features. The deflectors are designed to provide a deep thalweg channel interface with a tranquil backwater area that is commonly used by instream users to practice eddy turns and peel-outs. The deflectors provide a location where bank users can access the river, sit and enjoy the rushing water, and experience a more intimate riverine environment.

Random Boulders and Boulder Clusters

The project included random boulders and boulder clusters throughout the channel. The boulders are designed to provide velocity refuge and areas for boaters to practice instream maneuvers. They also prove to be valuable when boaters need to self-rescue following a flip or

swim in one of the drop structures. Finally, the boulders provide eddies and feeding zones for fish and aquatic species.

Bank and Instream Access Improvements

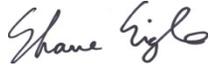
Several bank stability and river access improvements are included within the project. Access points are important for minimizing the impact of river usage, and providing safe access to the water. Multiple river access points are proposed. These access points are scattered throughout the right bank and allow users of the bankside trail the opportunity to step down on two or three large boulders to access the river's edge. The boulders will be placed with a flat side up to allow easy access.

The project includes a concrete five-foot trail that runs adjacent to the river during low and medium flows, and may become inundated during higher flows. The trail is designed to give river users an intimate experience with the river and provide access for those wishing to get wet.

The five-foot bankside trail is accessed by a 10-foot upland trail. The upland trail is designed to provide access to multiple parts of the project, for multiple users. It is wide enough to accommodate canoeists trying to enter or exit the river, safety vehicles, and those less able to negotiate the five-foot bankside trail. In addition, the trail provides upland access to viewing areas where the instream users can be viewed.

Please notify me if you have questions or concerns.

Thanks,



Shane Sigle, PE

Recreation Engineering and Planning

Attachment:

Benton County Permit Revision Drawings