Fort Smith
Regional Water Supply Project Update
Spring 2000

Highlights:

- Numerous archaeological sites have been recorded in the project area.
- Major archaeological sites include prehistoric bluff shelters and a stagecoach stop.
- Further archaeological research will be conducted on several potentially important sites.
- Three design options for the outlet and spillway are being considered.
- The General Concept Design Memorandum is to be completed in June.

Archaeological and Historical Structure Survey Nears

Approximately 95 percent of the initial archaeological field investigation is complete. The purpose of this investigation, also known as a Phase I survey, is to discover previously unknown archaeological sites and prevent, through preservation, the possible loss of historically and scientifically significant cultural resources.

Numerous archaeological sites have been recorded, including 24 prehistoric sites, 38 historic sites, and 2 sites with both prehistoric and historic components. “With the exception of the old state park, what we found is pretty typical for this part of Arkansas,” said Eric Peterson, lead project archaeologist for Burns & McDonnell.

Prehistoric sites (those originally used by Native Americans) include stone scatters, isolated finds, bluff shelters, and one site with stone tool debris and pottery. The stone scatters vary greatly in size and consist mostly of flakes and other debris from the production of stone tools. Few artifacts that would indicate when these sites were used, such as projectile points and other stone tools, have been recovered, but the majority of the stone scatters likely date from 1,800 to 9,000 years ago. Isolated finds consist of a single artifact, typically a flake or stone tool fragment.

Four prehistoric bluff shelters have been identified. These sites contain stone tool debris and pottery that likely date from 500 to 1,200 years ago.

The historic sites found during the investigation include farmsteads, house sites, numerous Works Progress Administration (WPA) structures from the 1930s, a cattle dipping vat, a stagecoach stop, and two cemeteries. The farmsteads and house sites generally date from the late 1800s to the mid-1900s. Standing structures built by the WPA include cabins, a bath house, and a mainte-

Prehistoric bluff shelter.

Headstone from 1880s.

nance building in the state park; a water treatment plant currently in use by the city of Fort Smith; and numerous small outbuildings. Over 100 stone and concrete features associated with the WPA have been noted within the project area including wells, culverts, springboxes, pillars, retaining walls, bridges, and dams. In addition to the WPA structures, several other cabins dating to the mid-1900s were also recorded. The cattle dipping vat likely dates from the 1930s or 1940s. The remains of the stagecoach stop consist of a foundation and a well and likely date from the late 1800s to early 1900s. The two historic cemeteries date from the mid- to late 1800s.

Although the Phase I investigations are not yet finished, further archaeological research (Phase II) will be conducted on several potentially important sites. If these sites prove to be significant, a Preservation Plan, which may include additional searches of existing records, informant interviews, and excavation, will be prepared and submitted to the Corps of Engineers and the State Historic Preservation Officer for approval.

Spillway and Outlet Design

Three devices will be used to remove water from the new Lake Fort Smith. The water supply outlet works will release water to the treatment plant, control lake level and divert flows during construction, and, in an emergency, provide for draining of the lake. The principal spillway will discharge water into Frog Bayou when the water elevation in the lake is greater than 911 feet above sea level. During major flood events, water will also flow out of the reservoir through the auxiliary spillway.

Three options are being considered for the design of the outlet works and spillway systems for the new lake. The previous ***Update*** showed the first option, which consists of a separate structure for each of the major components. The outlet works would consist of a concrete tower located in the lake near the east end of the dam (east abutment). The principal spillway would be located on the west end of the dam (right abutment) and would convey excess water up to a 100-year flood event. The height of the spillway would be non-adjustable. Water in excess of the 100-year flood event would pass through the auxiliary located around the right abutment.

Cabin fireplace and chimney from 1930s.

The second intake and spillway alternative being studied combines the principal spillway and water intake structure. Adjustable gates would control the release of excess water in the lake. Released water would flow through a 28- to 30-foot-diameter tunnel in the left abutment.

The third alternative would be like the second, except a non-adjustable overflow would be used instead of gates to regulate the lake level.

Each alternative will be evaluated based on construction cost, operations and maintenance cost, level of control, and ease of operation.

General Concept Design Memorandum

The General Concept Design Memorandum (GDM) for the project is scheduled to be ready for review in June. This document brings together in one package the wide range of studies and preliminary design efforts undertaken in planning the new water supply. Included in the memorandum are conceptual design criteria and preliminary layout drawings for the dam, spillway, intake, outlet, and relocated state park. Many of these preliminary designs are based on the results of the first phase of the subsurface geological investigations, which are also in this document.

The appendices of the GDM consist of the various studies done to support this project, including:

- Dam height study
- Water yield analysis from the new reservoir
- Flood hydraulics and spillway design criteria report
- Phase I geotechnical report
- Draft Environmental Assessment
- Wetland identification, impact, and mitigation impact
- Section 404 permit application
- Request to amend Lee Creek Reservoir's operating license.

The GDM will be used by the city of Fort Smith, the project engineer, and others to determine desired features and modifications to be incorporated into the subsequent Detailed Design Memorandum. This document will include the final design calculations for the project components that will be used to prepare the final plans and specifications. The project is expected to be advertised for bid in the last quarter of 2001 and construction completed in 2005.

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