WHITE RIVER WATERSHED

GREERS FERRY LAKE

LITTLE RED RIVER, ARKANSAS

DESIGN MEMORANDUM NO. 19-5

FOR
DEVELOPMENT AND MANAGEMENT OF
GREERS FERRY LAKE



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

MAY 1975

020



CESWL-OP-O 1 August 2006

MEMORANDUM FOR Operations Project Manager, Greers Ferry

SUBJECT: Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, Supplement No. 27

- 1. Supplement No. 27, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. This action will update the master plan indicating the current of level development and providing for the placement of future recreational facilities at Dam Site Park. Recent modernization to the park includes entrance and marina access roads, day-use boat launching ramp, restrooms, gatehouse complex, and two new camp loops with a total of 40 new sites as shown on the attached Plate 10.
- 2. Modernization of the park was partially funded with a Congressional Addition to project funds. Significant accomplishments as a result of the action included the separation of day-use and camping activities, a large swim beach area, limiting of sightseers traffic and reorganization of the marina concessionaire area. According to Chief, Planning and Environmental Office no Environmental Assessment was required. Modernization activities covered by this supplement were completed in 2005.
- 3. Dam Site Park is a Class "A" area with 269 camp sites. The park was visited by 331,970 users in FY 2004.

LEE E. BASS Chief, Operations

LEGGE T 5 36

CESWL-OP-O

22 May 2006

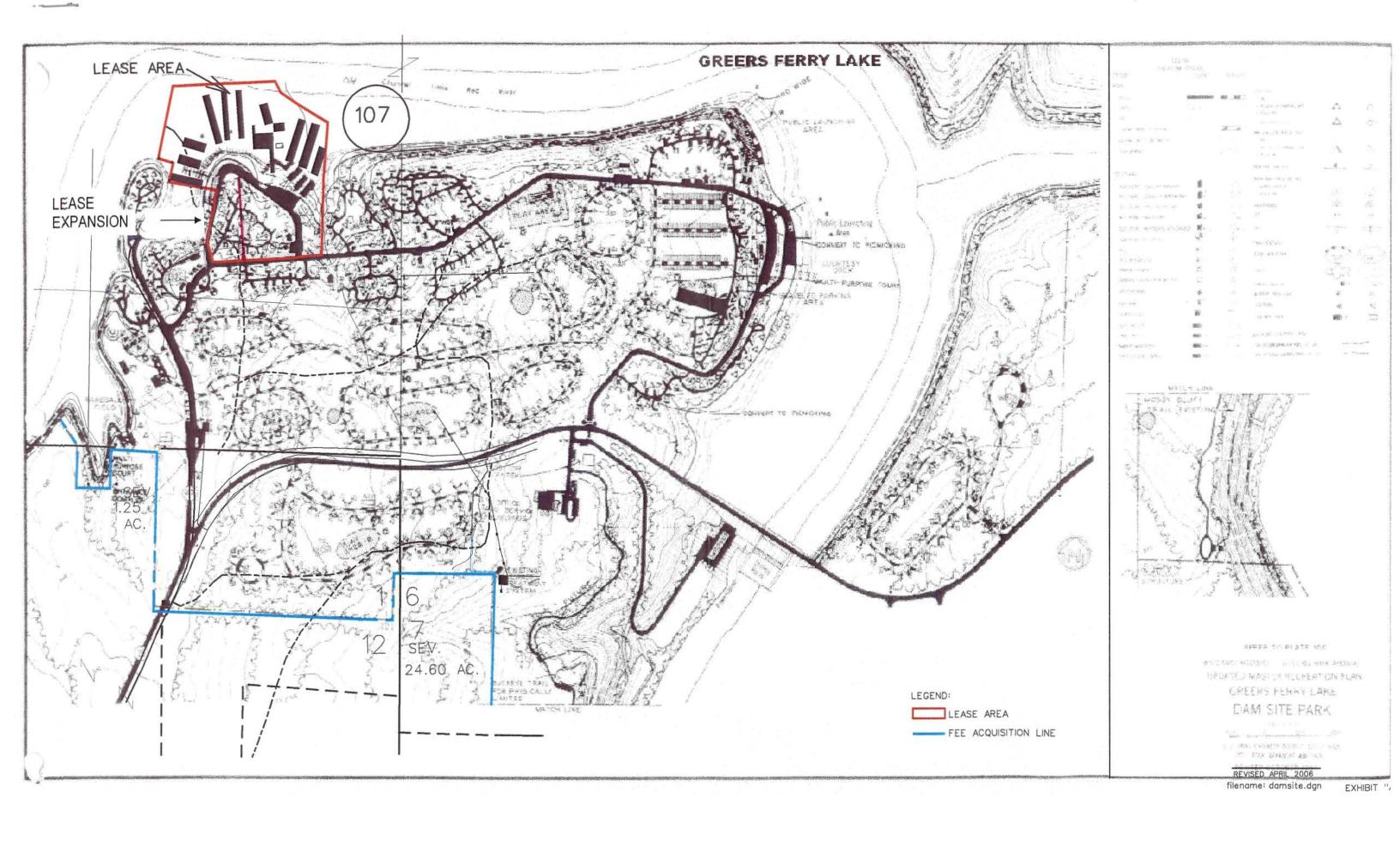
WOOTTEN

MEMORANDUM FOR Operations Project Manager, Greers Ferry Project Office

SUBJECT: Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, Supplement No. 26

- 1. Supplement No. 26, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. This action will permit the commercial concessionaire to reconfigure the Dam Site Marina site to provide additional lands for park modernization at Dam Site Park. The concessionaire has agreed to exchange lands in a cove for a greater portion of camp area "D" as shown on the attached Plate 10. The concessionaire will net an additional 4.3 acres.
- 2. This action will provide space for the inclusion of a three-lane boat launching ramp as a further step toward park modernization and separation of day use and camping activities. According to Chief, Planning and Environmental Office no Environmental Assessment was required. Modernization activities covered by this supplement were completed in 2005.
- 3. Dam Site Park is a Class "A" area with 269 camp sites. The park was visited by 331,970 users in FY 2004.

LEE E. BASS Chief, Operations Division



08 MAY 2001

MEMORANDUM FOR Operations Manager, Greers Ferry Project Office

SUBJECT: Master Plan Supplement No. 25, Fairfield Bay Park, Greers Ferry Lake

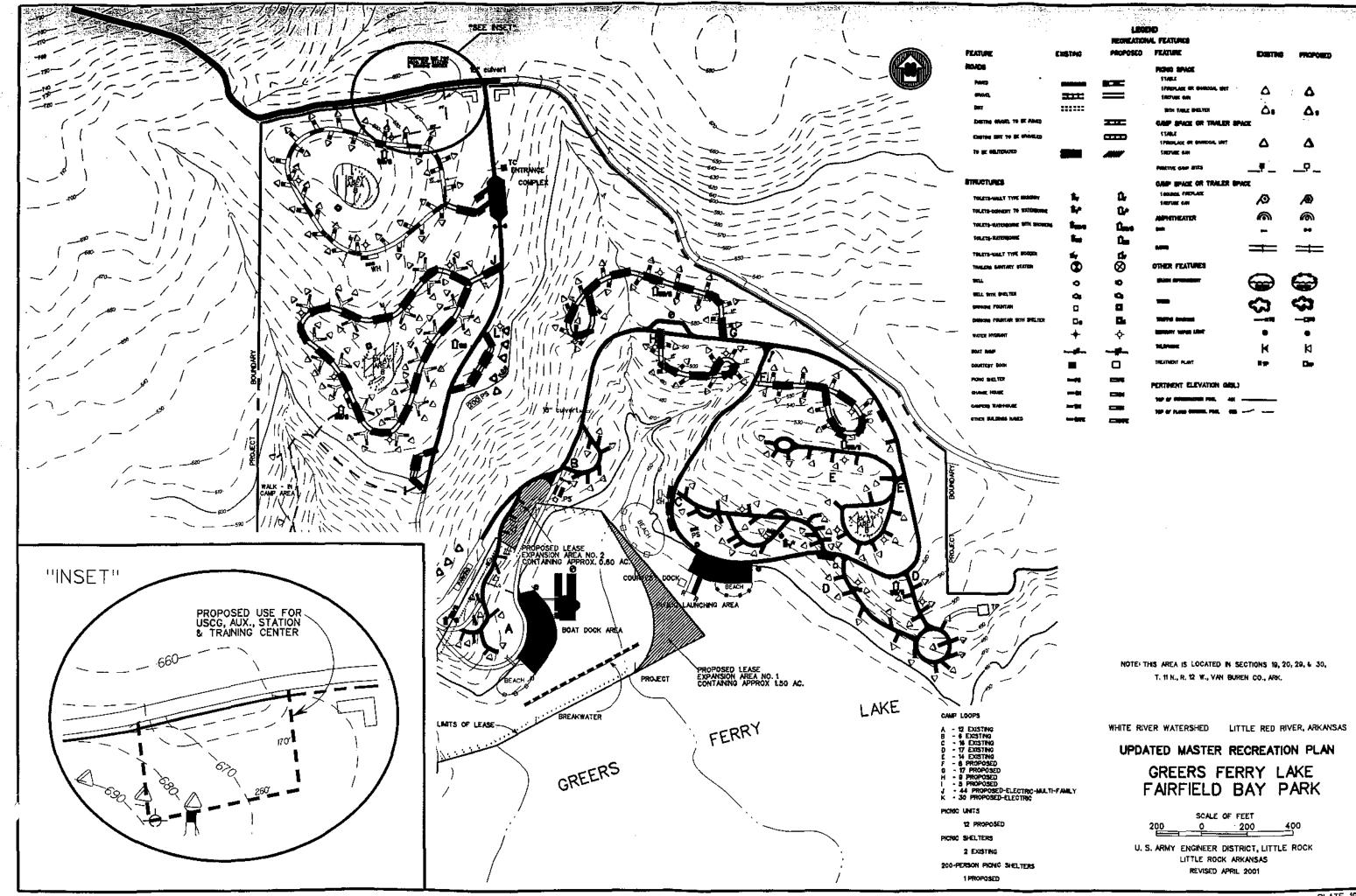
- 1. Reference Environmental Assessment and Finding of No Significant Impact, dated 9 April 2001, permitting additional land and water areas in the Fairfield Bay Marina lease area for placement of a 56 stall dock and additional parking.
- 2. Supplement No. 25, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. This action will permit the commercial concessionaire to expand the lease site to include additional parking and boat storage slips. The lease expansion area includes approximately 2.3 acres, and it is indicated on the enclosed revised Plate 19 Greers Ferry Lake Master Plan.
- 3. Fairfield Bay Park is a Class "A" area with 65 campsites, and it is leased to the City of Fairfield Bay, Arkansas. The park was visited by 28,057 users in FY 2000.

SIGNED

Encl

DOUGLAS L. BENTLEY, JR. LTC, Corps of Engineers
Acting District Engineer

Copy Furnished:
CECW-ON
CESWD-ETO-R
Chief, Real Estate Division
Chief, General Engineering Section
Chief, Hydrology & Hydraulics Branch
Chief, Environmental Analysis Branch
Chief, Geotechnical Branch
Greers Ferry Lake Master Plan
Log Book



CESWL-OP-ON (CESWL-GF/21 Dec 1999) (1130) 1st End Johnson/ew/5674 SUBJECT: Greers Ferry - Request to Expand Lease Area to Accommodate Additional Facilities, Sugar Loaf Marina

1 3 JAN 2000

District Engineer

THRU Chief, Operations Division

FOR Operations Manager, Greers Ferry Project Office

- 1. Supplement No. 24, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. This action will permit the commercial concessionaire to place additional boat storage slips and dockage in the lease site, and in addition the expansion will allow for the repositioning of the existing floating breakwater. The lease expansion area includes approximately 1.9 acres, and it is indicated on the enclosed revised Plate 18, Greers Ferry Lake Master Plan
- 2. Sugar Loaf Park is a Class "A" area with 95 camp sites. The park was visited by 86,833 users in FY 1999.

GIGNED

Encl

THOMAS A. HOLDEN JR Colonel, Corps of Engineers District Engineer

Copy Furnished:
CECW-ON (w/encl)
CESWD-ETO-R (w/encl)
Chief, Real Estate Division (w/encl)
Chief, General Engineering Section (w/encl)
Chief, Hydrology & Hydraulics Branch (w/encl)
Chief, Environmental Analysis Branch (w/encl)
Chief, Geotechnical Branch (w/encl)
Greers Ferry Lake Master Plan (w/encl)

Files (w/encl)
Log Book (w/encl)



DEPARTMENT OF THE ARMY LITTLE ROCK DISTRICT, CORPS OF ENGINEERS GREERS FERRY PROJECT OFFICE 700 HEBER SPRINGS ROAD NORTH

HEBER SPRINGS, ARKANSAS 72543-THE

December 21, 1999

Mr. Ken Rector Sugar Loaf Marina P. O. Box 249 Higden, Arkansas 72067

Dear Mr. Rector:

Please reference your letters dated November 22 and November 30, 1999 requesting to add additional boat slips and expand the lease area.

I have forwarded your requests along with my recommendations to our Real Estate Division in Little Rock. You can expect a reply from them.

Thank you for your cooperation.

Sincerely,

Thomas S. Park

Operations Manager



P.O. BOX 249 • HIGDEN, AR 72067 501-654-2555

November 30, 1999

Mr. Chris Roarke Greers Ferry Lake Project Office 700 Heber Springs Rd N Heber Springs, Arkansas 72543

Dear Chris:

Please reference my letter of November 22, 1999, pertaining to adding two double stalls to front of three existing docks. At this time we would also like to request an expansion to our lease area of approximately seventy (70) feet to allow us to reposition the tire breakwater to allow for more maneuverability with the currently proposed addition of the stalls to the front of the docks and possible future addition to the ends of each dock.

I have included a drawing of the current lease area and highlighted the expansion we are requesting. If you need additional information or have any questions please let me know.

One additional point, in the original letter we had requested adding three (3) new 52ft walkways to connect the docks, please revise this to four (4) new walkways. This will allow us to connect the marina store to the docks.

Sincerely,

Ken Rector

(~

Roach met w/ Messis Rector and Simmons, owners of SL Marina thur date. Purpose of the trip was two-fold:

- 1) Gave them a copy of the attached map showing the general layout of our water system in the park. When Rector was in the office last week to asked about getting water to the marine by tieing in to our system. We told him that the District is studying thus issue and we couldn't give him an amount at thus point.
- 2) Measured distance across come with a love!

 nampetition. Found 461.26 elevation wanty to like level as the control point. Distance across core is approx 440 yards. One third would be 146.6 yes Using the lease once map scale, toppoon that the northeast to southwest lease limit is approx 370 feet (123 yds). Distance to busy on the end of the breakust was 123 yards, just inside the limit. If they submit a request to add on to existing docks, I believe a lease once expansion will be necessary.

Roain



)

CESWL-OP-ON (CESWL-GF/21 Dec 1999) (1130) 1st End Johnson/ew/5674 SUBJECT: Greers Ferry - Master Plan Supplement No. 23, Request for Lease Area Expansion, Choctaw Marina

District Engineer

1 3 JAN 2000

THRU Chief, Operations Division

FOR Operations Manager, Greers Ferry Project Office

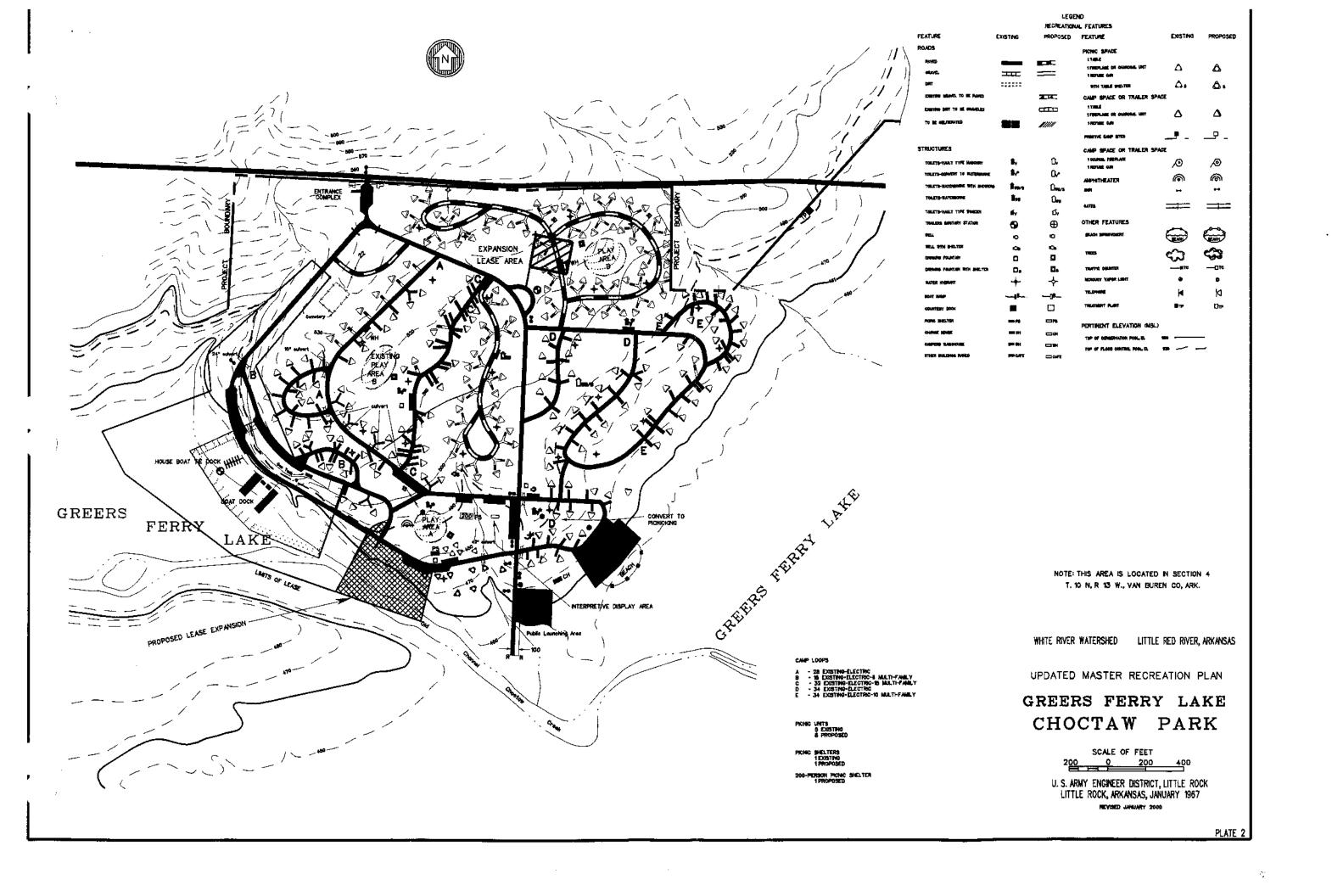
- 1. Supplement No. 23, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. This action will create a storage area for the commercial concessionaire. The lease expansion area includes approximately 1.0 acre, and it is indicated on the enclosed revised Plate 2, Greers Ferry Lake Master Plan.
- 2. Choctaw Park is a Class "A" area with 146 camp sites. The park was visited by 196,968 users in FY 1999.

SIGNED

Encl

THOMAS A. HOLDEN JR
Colonel, Corps of Engineers
District Engineer

Copy Furnished:
CECW-ON (w/encl)
CESWD-ETO-R (w/encl)
Chief, Real Estate Division (w/encl)
Chief, General Engineering Section (w/encl)
Chief, Hydrology & Hydraulics Branch (w/encl)
Chief, Environmental Analysis Branch (w/encl)
Chief, Geotechnical Branch (w/encl)
Greers Ferry Lake Master Plan (w/encl)
Files (w/encl)
Log Book (w/encl)



MEMORANDUM THRU CH, OPERATIONS DIVISION

FOR CH, REAL ESTATE DIVISION

SUBJECT: Greers Ferry - Master Plan Supplement No, 23, Request for Lease Area Expansion, Choctaw Marina

- 1. Reference enclosed letter and lease area map from John Ison, lessee, and our interim reply to him.
- 2. Mr. Ison is requesting a one-acre area (highlighted) within the boundaries of Choctaw Park. The area will be used to store equipment essential to marina operation.
- 3. Our office has no objection to this request. Recommend approval.
- 4. Please furnish new maps for Master Plan Supplement No. 23.

Thomas S. Park Operations Manager

Enclosures



DEPARTMENT OF THE ARMY LITTLE ROCK DISTRICT, CORPS OF ENGINEERS GREERS FERRY PROJECT OFFICE 700 HEBER SPRINGS ROAD NORTH

HEBER SPRINGS, ARKANSAS 72543-1888

December 21, 1999

Mr. John Ison Choctaw Marina P. O. Box 219 Choctaw, Arkansas 72028

Dear Mr. Ison:

Please reference your letter dated December 9, 1999 requesting additional lease area for a storage compound.

I have forwarded your request along with my recommendation to our Real Estate Division in Little Rock. You can expect a reply from them.

Thank you for your cooperation.

Sincerely,

Thomas S. Park

Operations Manager

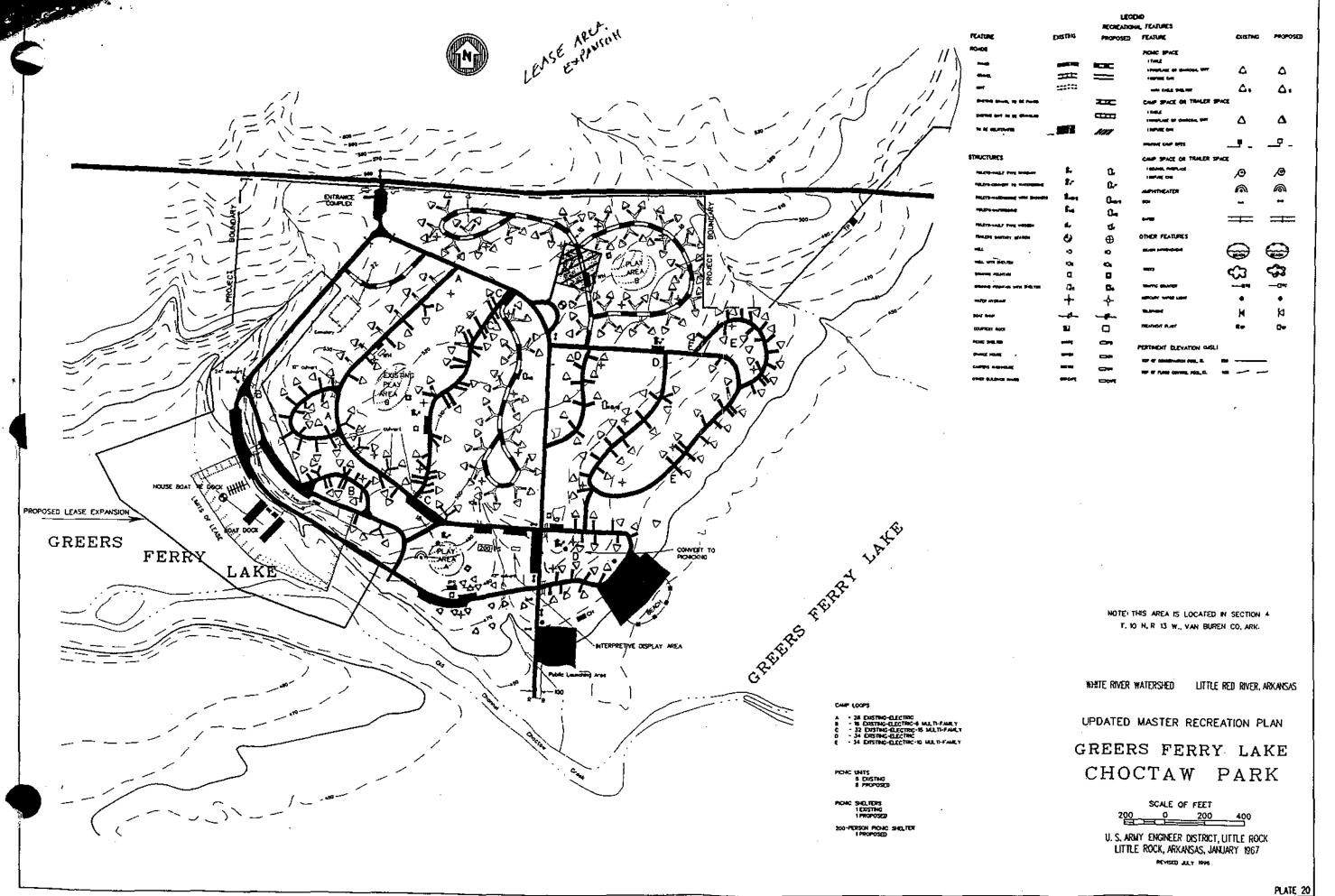
Chris

As per our convention on 12899.

I weed a stornge mea of App. I sene wear the sound + growel stornge must in Chock on pr. h. Previously maps have been provided.

Thomas John Roll

TU



425:1

CESWL-OP-ON 2 1 NOV 2000

MEMORANDUM FOR Operations Manager, Greers Ferry Project Office

SUBJECT: Revised Plate 13 for Approved Master Plan Supplement No. 22, Cove Creek Park, Greers Ferry Lake

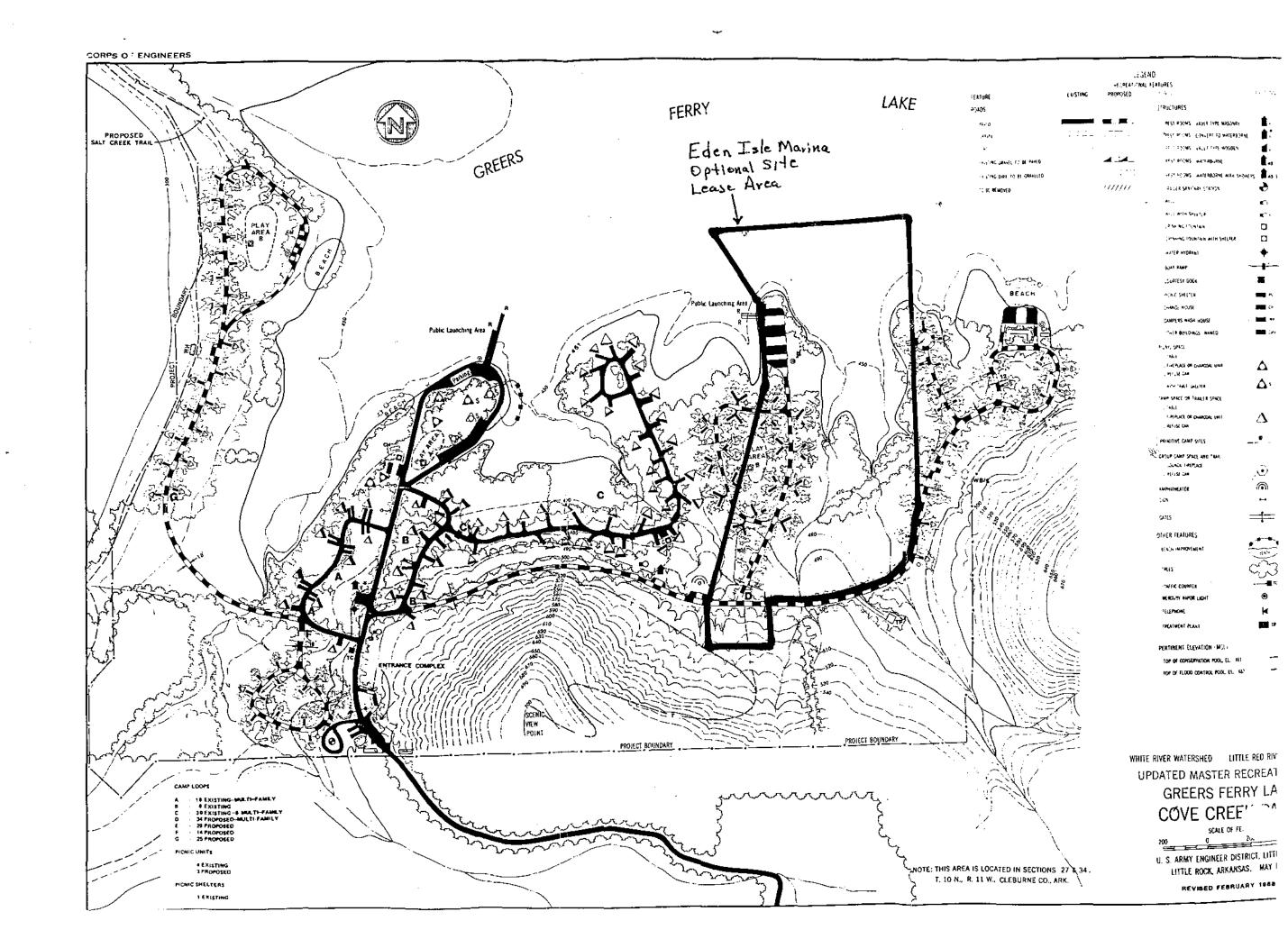
- 1. Reference 1st End, CESWL-OP-ON, 20 April 1999, subject: Greers Ferry Master Plan Supplement No. 22, Designated Lease Area for Commercial Marina in Cove Creek Park.
- 2. Note the changes to the Eden Isle Alternate Lease Site as indicated on the enclosed map. The commercial lease area was enlarged by 1.88 acres so that lands allocated for the previously approved site would meet facility requirements requested by Engineering and Construction Division.
- 3. Please substitute this map for the one previously sent for inclusion into the Greers Ferry Master Plan. No other action is required.

Comment of the commen

Encl

EDWARD R. WATFORD Acting District Engineer.

Copy Furnished:
CECW-ON
CESWD-ETO-R
CESWL-RE
CESWL-EC
CESWL-EC-HH
CESWL-PR-P/Enviro Team
CESWL-EC-DG
Greers Ferry Lake Master Plan
Log Book



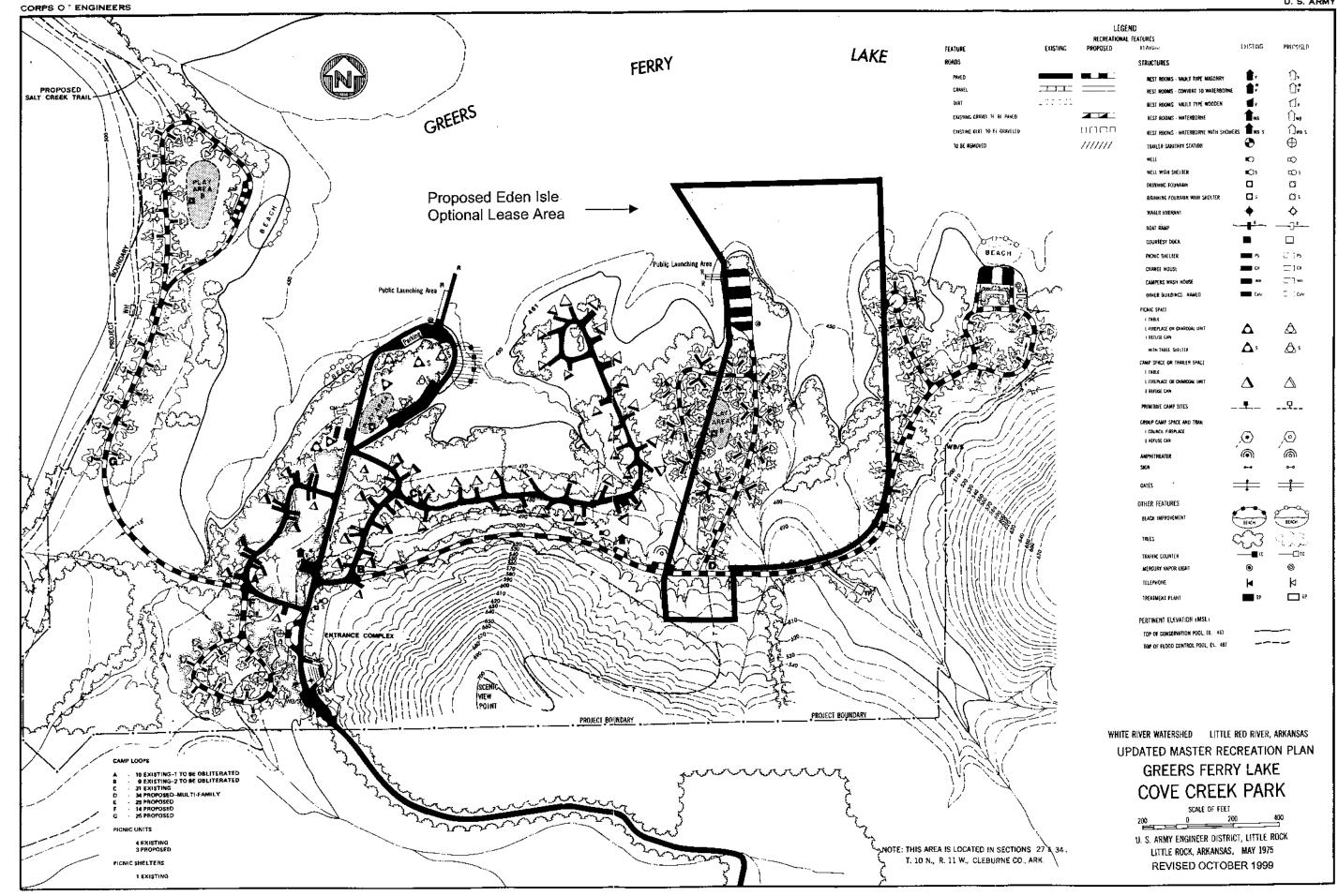


PLATE 13

CESWL-OP-ON (CESWL-GF/23 Mar 99) (1130) 1st End Johnson/tm/5674 SUBJECT: Greers Ferry - Master Plan Supplement No. 22, Designated Lease Area For Commercial Marina in Cove Creek Park

District Engineer

2 0 APR 1999

THRU Chief, Operations Division

FOR Operations Manager, Greers Ferry Project Office

Supplement No. 22, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. This action is in accordance with the 2 February 1999, Memorandum of Understanding between the Chief, Real Estate Division, and the Eden Isle Marina concessionaire. The expansion lease area limits are as indicated on the enclosed map. The commercial concession area includes 31 land and water acres.

2 Encls 1 nc Added 1 encl 2. THOMAS A. HOLDEN JR. Colonel, Corps of Engineers District Engineer

Copy Furnished:
CECW-ON
CESWD-ETO-R
Chief, Real Estate Division
Chief, General Engineering Section
Chief, Hydrology & Hydraulics Branch
Chief, Environmental Analysis Branch
Chief, Geotechnical Branch
Greers Ferry Lake Master Plan
Log Book

MEMORANDUM THRU CHIEF, OPERATIONS DIVISION OF 3/25
TO CHIEF, REAL ESTATE DIVISION

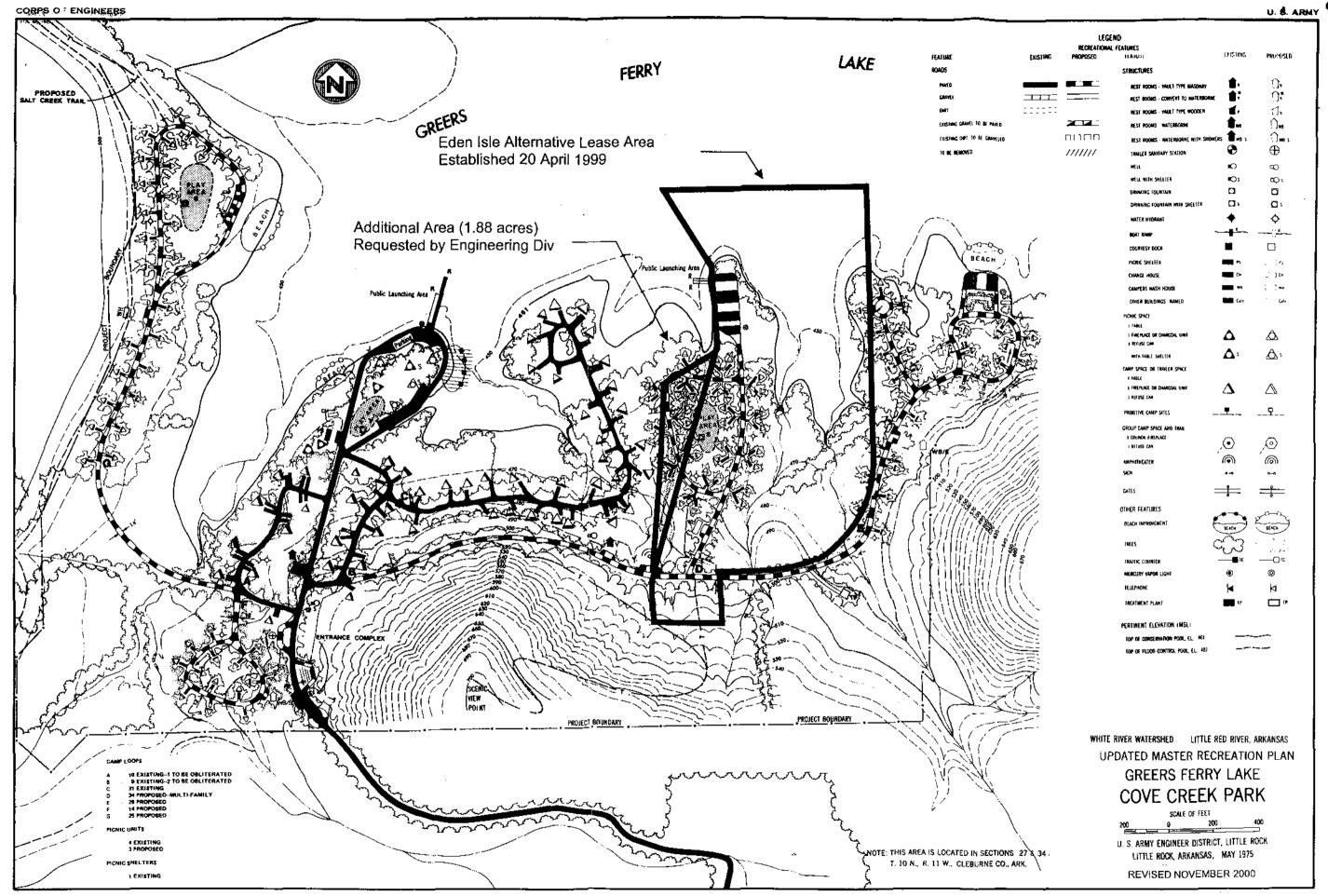
SUBJECT: Greers Ferry - Master Plan Supplement No. 22, designate lease area for commercial marina in Cove Creek Park.

- 1. Recommend area identified on attached map be designated as the lease boundaries for proposed commercial marina in Cove Creek Park. Eden Isle Marina will utilize this site as an optional marina location.
- 2. Please furnish new maps for Master Plan Supplement No. 22.

Encl

Thomas S. Park Operations Manager Greers Ferry

allowsful



CESWL-OP-ON (CESWL-RE-M/3 March 99) (1130) 1st End Johnson/tm/5674 SUBJECT: Request for Master Plan Supplement - Greers Ferry Lake

District Engineer

2 3 MAR 1999

THRU Chief, Operations Division

FOR Operations Manager, Greers Ferry Project Office

Supplement No. 21, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan is approved. This action is in accordance with the 2 February 1999, Memorandum of Understanding between the Chief, Real Estate Division and the Eden Isle Marina concessionaire. The lease area limits are realigned as indicated on the enclosed map. The commercial concession area size remains unchanged.

Encl

THOMAS A. HOLDEN JR. Colonel, Corps of Engineers District Engineer

Copy Furnished (w/encl):
CECW-ON
CESWD-ETO-R
Chief, Real Estate Division
Chief, General Engineering Section
Chief, Hydrology & Hydraulics Branch
Chief, Environmental Analysis Branch
Chief, Geotechnical Branch
Greers Ferry Lake Master Plan
Log Book

OP-O

CESWL-RE-M 03 March 1999

MEMORANDUM FOR Chief, Operations

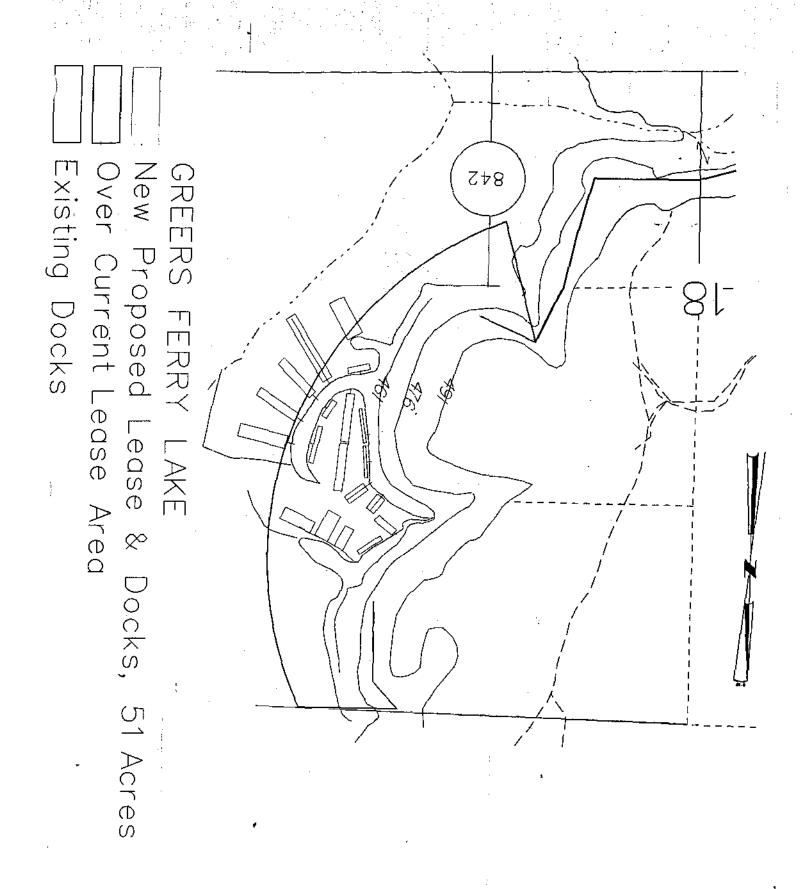
SUBJECT: Request for Master Plan Supplement - Greers Ferry Lake

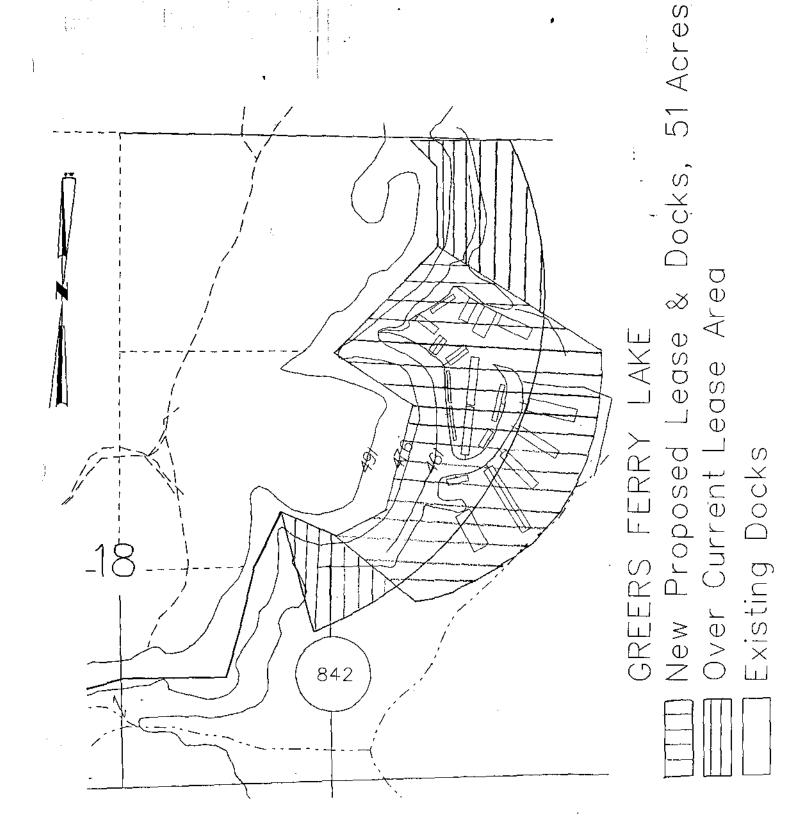
1. Attached is a map showing the existing lease area for Eden Isle Marina and the proposed lease area. Please supplement the Master Plan to change the lease site to the area indicated in yellow. This change is needed in order to realign the lease area so all docks are within the lease boundaries.

2. If you need any additional information, you may contact Ellyce Best at 5716.

Encl

Chief, Real Estate Division





EDEN ISLE MAIRINI
GIREFIES FEIGH
LAKE
[6 MAIRCH 1999

CESWL-OP-ON (CESWL-GF/29 July 98) (1130) 1st End Johnson/tm/5674 SUBJECT: Greers Ferry Master Plan Supplement No. 20, Sandy Beach

District Engineer

2 6 JAN 1999

THRU Chief, Operations Division

FOR Operations Manager, Greers Ferry PO

Supplement No. 20, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved making Sandy Beach Park available for leasing by the City of Heber Springs, Arkansas. The available area includes all lands designated on the enclosed Plate 3 totaling 72 acres.

247 35 page 15

2 Encls 1 wd Added 1 encl 2. THOMAS A. HOLDEN JR. Colonel, Corps of Engineers District Engineer

Copy Furnished:
CECW-ON (w/encl)
CESWD-ETO-R (w/encl)
Chief, Real Estate Division (w/encl)
Chief, General Engineering Section (w/encl)
Chief, Hydrology & Hydraulics Branch (w/encl)
Chief, Environmental Analysis Branch (w/encl)
Chief, Geotechnical Branch (w/encl)
Greers Ferry Lake Master Plan (w/encl)
Log Book (w/encl)

CESWL-GF

MEMORANDUM FOR: CH, OPS DIV
ATTN: CESWL-OP-ON

SUBJECT: Greers Ferry - Master Plan Supplement No. 15, Sandy Beach

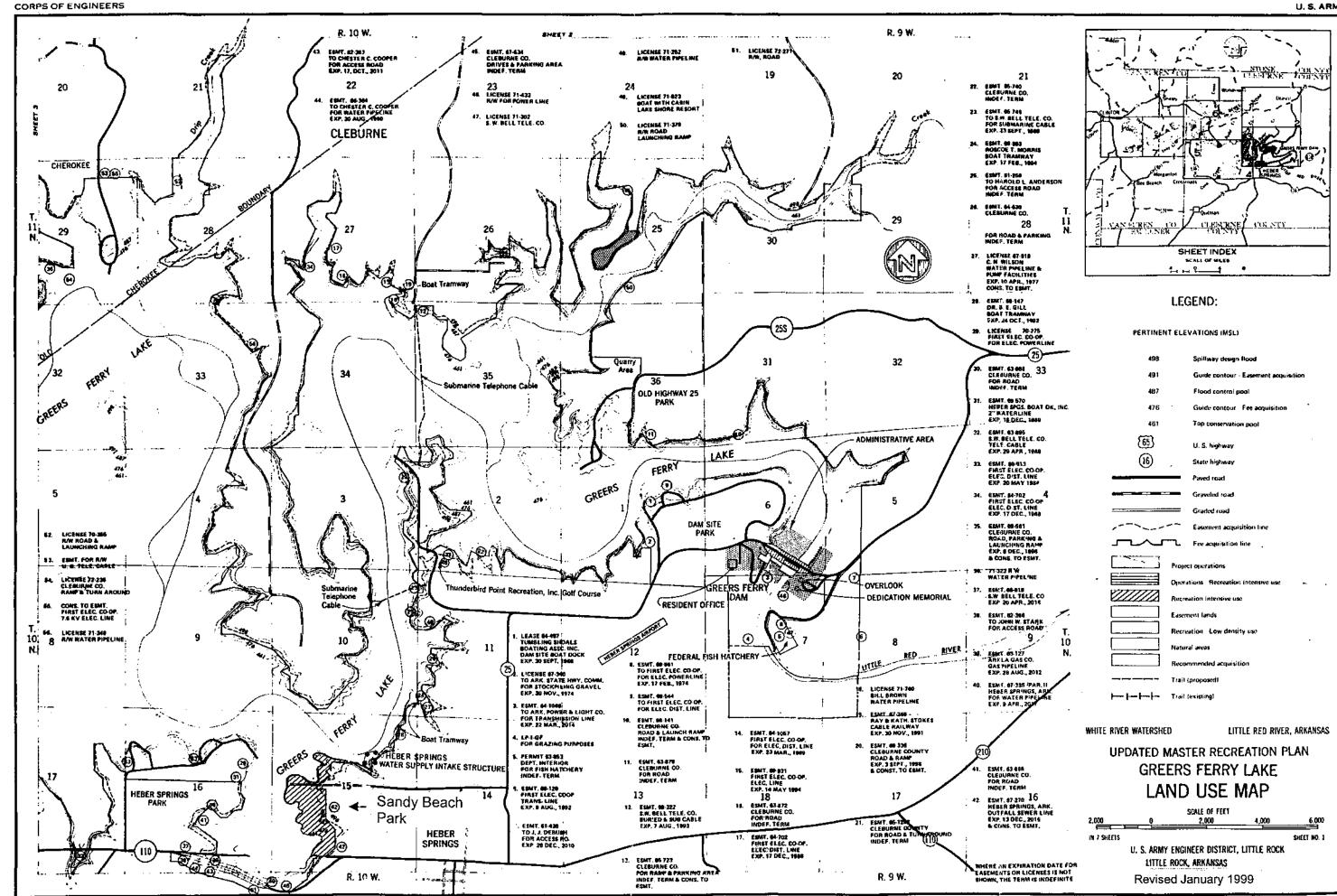
- Reference CESWL-OP-ON (CESWL-GF/14 JUL 98) 1st End dated
 July 98, SUBJECT: Greers Ferry City of Heber
 Springs Request for Lease of Sandy Beach Area
- 2. Enclosed is draft request for Greers Ferry Master Plan Supplement to change Sandy Beach area from recreation-low density use to recreation-intensive use for park.
- 3. Recommend this supplement be executed to expedite the lease to the city.
- 4. I visited with Heber Springs Mayor Ed Roper today. He has agreed to Challenge Cost share a portion of the proposed toilet for Sandy Beach. We will negotiate the terms and prepare a CCSA for implementation in FY 99.

Enclosure

Thomas S. Park Operations Manager Greers Ferry

- 1502 ₁₇₆₈ JUL 3 1 1898

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CESWL-OP-ON (CESWL-GF/29 Jul 98)(1130) 1st End Johnson/tmm/5674 SUBJECT: Greers Ferry Master Plan Supplement No. 19, Sandy Beach

District Engineer 1 9 AUG 1998

THRU Chief, Operations Division

FOR Operations Manager, Greers Ferry Project Office

- 1. Supplement No. 19, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved designating an area for park development.
- 2. This action redesignates portions of tracts 212-1, 214 and 700 totaling 72 acres from recreation low density to recreation-intensive use. The area is indicated on a copy of plate 3 (enclosed).

4 Encls wd encls 1-3 added 1 encl THOMAS A. HOLDEN JR.
Colonel, Corps of Engineers

District Engineer

Copy Furnished:

CECW-ON (w/encl)

CESWD-ETO-R (w/encl)

Chief, Real Estate Division

Chief, General Engineering Section

Chief, Hydrology & Hydraulics Branch

Chief, Environmental Analysis Branch

Chief, Geotechnical Branch (w/encl)

Greers Ferry Lake Master Plan

Log Book

MEMORANDUM FOR: CH, OPS DIV ATTN: CESWL-OP-ON

SUBJECT: Greers Ferry - Master Plan Supplement No. 15, Sandy Beach

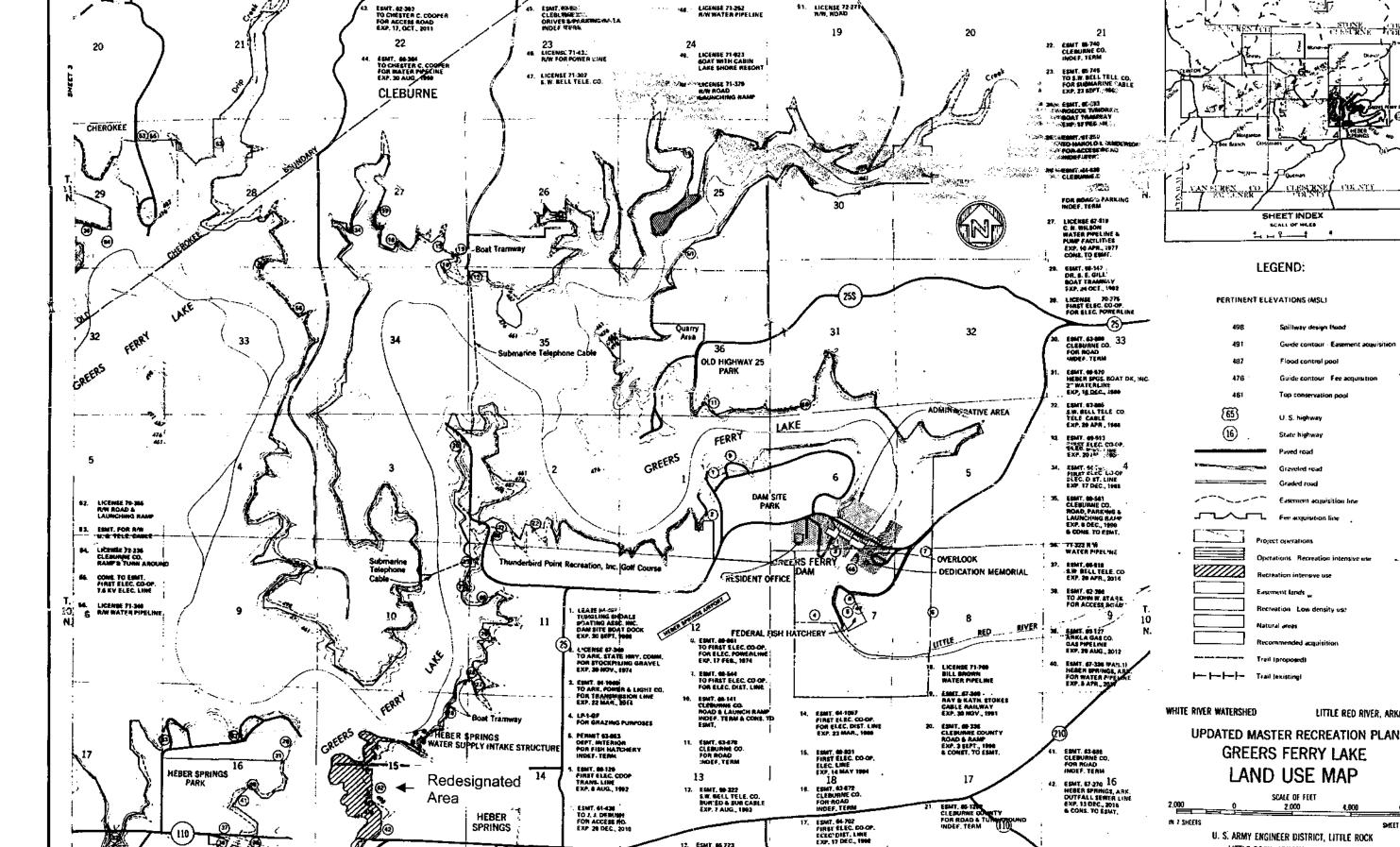
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 Springs Request for Lease of Sandy Beach Area
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- 3. Recommend this supplement be executed to expedite the lease to the city.
- 4. I visited with Heber Springs Mayor Ed Roper today. He has agreed to Challenge Cost share a portion of the proposed toilet for Sandy Beach. We will negotiate the terms and prepare a CCSA for implementation in FY 99.

Enclosure

Thomas S. Park Operations Manager Greers Ferry

Thomspul

2005, 7725 201-8-1-1938



12. ESMT. 86 723 CLESURNE CO. POR RAMP & PARKING AREA INDEF. TERM & CONS. TO ESMT.

A MEMBET 2

R. 9 W.

CORPS OF ENGINEERS

R. 10 W.

R. 10 W.

SHEET NO. 1

LITTLE RED RIVER, ARKANSAS

LITTLE ROCK, ARKANSAS

Revised August 1998

WHERE AN EXPIRATION DATE FOR EASEMENTS OR LICENSES IS NOT SHOWN, THE TERM IS INDEFINITE

R. 9 W.

CESWL-OP-ON CESWL-OP-G/19 February 1998) (1130) 1st End Johnson/tmm/5674 SUBJECT: Request to rename Van Buren Park

District Engineer

2 3 APR 1998

THRU Chief, Operations Division

FOR Operations Project Manager, Greers Ferry Project Office

Supplement No. 18, Design Memorandum No. 19-5, Greers Ferry Lake Master Plan, is approved. The City of Fairfield Bay, Arkansas, is changing the name of Van Buren Park to Fairfield Bay Park to note the new operator of this leased area.

Encl 1. nc KURT G. HOFFMANN

LTC, Corps of Engineers Acting District Engineer

CF:

CECW-ON (w/encl)
CESWD-ETO-R (w/encl)

Oper Proj Mgr, Greers Ferry(w/encl)

Chief, Real Estate Division (w/encl)

Chief, General Engineering Section (w/encl)

Chief, Hydrology & Hydraulics Branch (w/encl)

Chief, Environmental Analysis Branch (w/encl)

Chief, Geotechnical Branch (w/encl)

Greers Ferry Lake Master Plan (w/encl)

Log Book (w/encl)

Dele If

CESWL-OP-G

FEBRUARY 19, 1998

MEMORANDUM THRU: CH, CON OPS DIV

FOR: CH, REAL ESTATE DIV

SUBJECT: Greers Ferry - Request to rename Van Buren Park

- 1. Reference enclosed letter dated February 16, 1998 from Fairfield Bay Mayor Paul Mueller requesting they be allowed to rename Van Buren Park.
- 2. Van Buren Park is a former Corps of Engineers park that was leased to the City of Fairfield Bay in 1997. The park was apparently named for the county in which it resides, Van Buren County, Arkansas.
- 3. Since Fairfield Bay now has control of Van Buren Park, it makes sense that they would rename it to reflect both its caretakers and destination. Recommend Corps approve renaming of the area as requested.

encl

Thomas S. Park Operations Project Manager Greers Ferry

Thomas Park

CITY OF FAIRFIELD BAY

February 16, 1998

Greers Ferry Project Office U. S. Corps of Engineers Attn.: Mr. Tommy Parks P. O. Box 1088 Heber Springs, AR 72543

Re: Van Buren Park

Dear Tommy:

The Fairfield Bay City Council, at its February 9, 1998 meeting, unanimously passed a Resolution to rename Van Buren Park. The Council voted to rename the park 'Fairfield Bay Campground and Marina' subject to approval of the Corps of Engineers.

Enclosed please find a copy of Resolution No. 98-58. Please take the necessary steps to seek approval of this name. Please advise me if and when the name is approved. Thanks!

Yours very truly,

Sant Mulhe

Paul Mueller

Mayor

PM:jls

Enclosure

RESOLUTION NO. 98-58

A RESOLUTION TO RENAME VAN BUREN PARK

Whereas, the City of Fairfield Bay has executed a long term lease with the U.S. Army Corps of Engineers for Van Buren Park, and

Whereas, the City of Fairfield Bay, at the request of the U.S. Army Corps of Engineers, has recently annexed said park property into the City Limits of Fairfield Bay, and

Whereas, it is in the best interest of the citizens of Fairfield Bay to identify the City with said park;

NOW THEREFORE BE IT RESOLVED THAT:

The name of said park be changed from 'Van Buren Park' to 'FAIRFIELD BAY CAMPGROUND and MARINA' and that the new name be forwarded to the U. S. Corps of Engineers for approval and dissemination.

DATE: 7. brugy 10, 1998

APPROVEDY

Paul Mueller Mayor

ATTEST: Tenny Hamling

CESWL-OP-ON (CESWL-CO-GF/17 Dec 97) (1130) 1st End Johnson/tcm/5674 SUBJECT: Request to Install Additional Facilities, Choctaw Marina

District Engineer

24 MAR 1998

THRU Acting Chief, Operations Division

FOR Operations Project Manager, Greers Ferry Project Office

Supplement No. 17 to Design Memorandum No. 19-5, Greers Ferry Lake, is approved. The expansion area of 2.98 acres as shown on the enclosed map is needed for placement of above ground fuel storage tanks above the flood pool elevation (487 nvgd). Also included in the expansion area is a new fuel dock and land based marina store.

SGNED

5 Encls wd encls 1-4 Added 1 encl 5. P. S. MORRIS Colonel, Corps of Engineers District Engineer

Copy Furnished:
CECW-ON (w/encl 5)
CESWD-ETO-R (w/encl 5)
Chief, Real Estate Division (w/encl 5)
Chief, General Engineering Section (w/encl 5)
Chief, Hydrology & Hydraulics Branch (w/encl 5)
Chief, Environmental Analysis Section (w/encl 5)
Chief, Geotechnical Branch (w/encl 5)
Greers Ferry Lake Master Plan (w/encl 5)
Log Book (w/encl 5)

MEMORANDUM THRU CH, CON-OPS DIVISION FOR CH, REAL ESTATE DIVISION

SUBJECT: Greers Ferry - Request to Install Additional Facilities, Choctaw Marina

- 1. Reference enclosed letters, designated as enclosures 1 thru 4, from Mr. John Ison.
- 2. We have the following comments:
- a. Marinas should furnish site plans, drawn to scale, depicting all changes proposed and the current facilities, docks, etc. in place. Not only will this be more professional, it will make it much more efficient in dealing with future actions regarding the marina. As Corps or marina personnel change, accurate drawings/site plans will keep everyone on the Dup and updand make it much easier to make decisions concerning marina development.
- b. Encl 1 We have no objection provided the length of the new dock will not exceed one-third of the channel width at elevation 461 MSL. With standing timber on the opposite shoreline the channel is effectively reduced more than shown on a lease area map (i.e. the southern boundary of the channel width should be considered to be the edge of the standing timber, not the shoreline). Also recommend that a minimum of one parking space be constructed for every three stalls built (or whatever the Corps standards are).
- c. Encl 2 Lessee should be advised to coordinate UST replacement with the Department of Pollution Control and Ecology. Certification that the soil, tanks, etc meet EPA specifications should be furnished to the Corps.
- d. Encl 3 No objection to tire breakwaters being used for protection of marina. However, the breakwater and attachment to shoreline must be located within the lease area.
- e. Encl 4 Do not believe a breakwater along the eastern boundary of the lease area is warranted due to aesthetics (proximity to campground), the rarity of strong easterly winds and a reduction of the useable channel width to less than two-thirds.
- 3. Due to problems with housekeeping and safety issues in the past at Choctaw Marina, I recommend Mr. Ison be required to totally bring his marina up to specs (including a general cleanup and facelift) prior to approval of new facilities. Mr. Ison has made many improvements to the appearance of the marina area. These efforts should be acknowledged. Choctaw Marina is located within

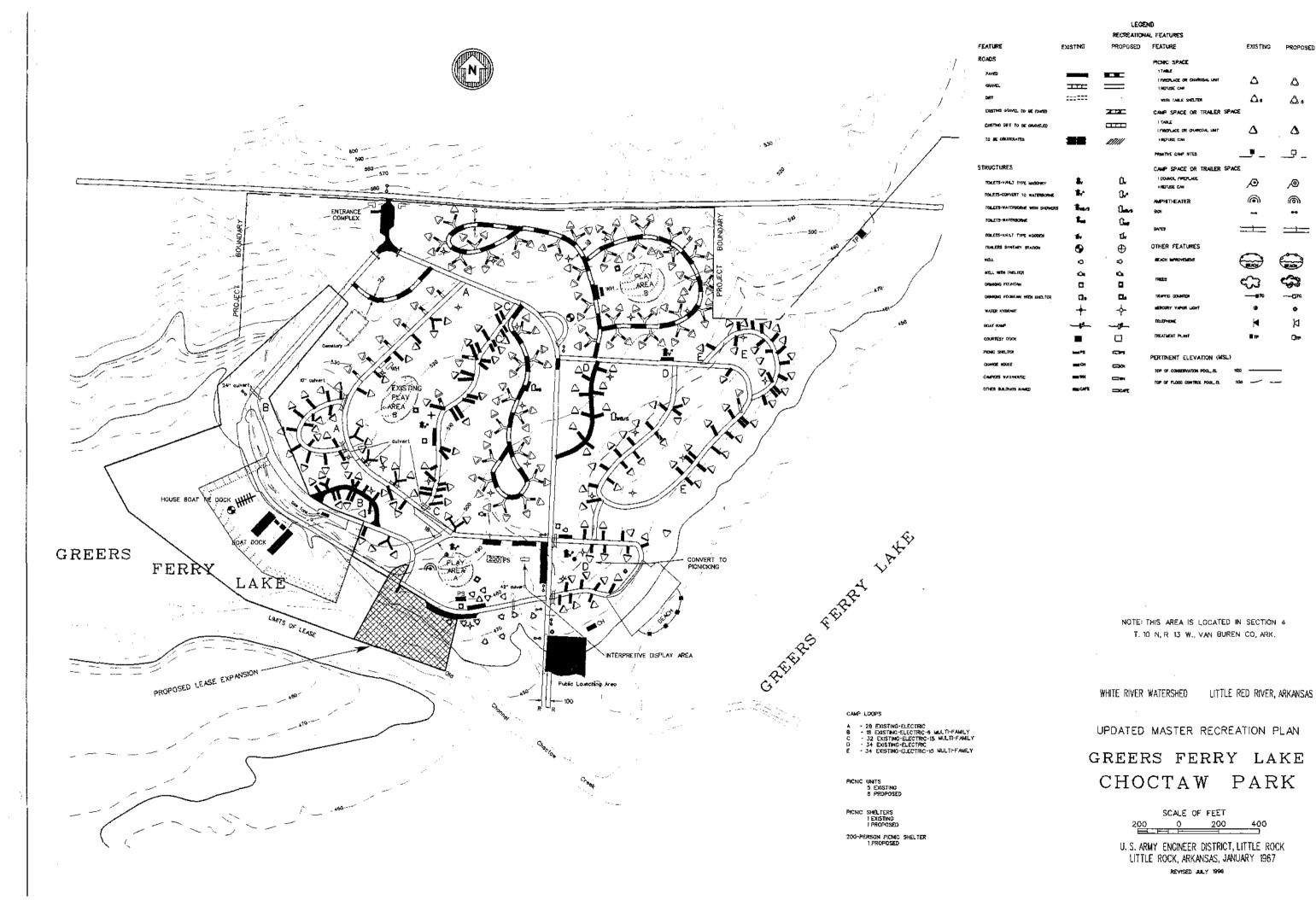
Choctaw Park, an extremely popular Corps campground. The marina is a direct reflection of the Corps' management of Greers Ferry Lake. As such, it should be held to the same standards for upkeep, maintenance, and housekeeping as the Corps provides in the campground.

Thomas S. Park

Flower Auch

Operations Project Manager

enclosures



EXISTING PROPOSED

(1sgf16.wpd)

CESWL-CO-ON (CESWL-CO-GF/14 Apr 97) (1130) 1st End Johnson/tm/5 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 16 LEGGETT

District Engineer

2 9 APR 1997

RISHER

THRU Chief, Construction-Operations Division

FOR Operations Project Manager, Greers Ferry PO

This supplement to the master plan is approved.

SIGNED

3 Encls wd encls 2-3

MAJ. MUEHLBERG P. S. MORRIS Colonel, Corps of Engineers

District Engineer

Copy Furnished:

CECW-ON (w/encl 1)

CESWD-ETO-R (w/encl 1)

Chief, Real Estate Division (w/encls 1-3)

Chief, General Engineering Section (w/encl 1)

Chief, Hydrology & Hydraulics Branch (w/encl 1)

Chief, Environmental Analysis Branch (w/encl 1)

Chief, Geotechnical Branch (w/encl 1)

NATURAL RESOURCES MGMT. (for date and mailing)

}

MEMORANDUM FOR Chief, Construction-Operations Division P4/16

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 16

- 1. The Greers Ferry Project Office personnel have performed a Park Operations Efficiency Review. As a result, the City of Fairfield Bay has made a request to lease the lands of Van Buren Park for public recreation purposes.
- 2. Van Buren Park is designated a class "A" park. It contains 127 acres, 37 of which are developed. The park facilities consist of 65 campsites (18 w/electrical outlets), 1 waterborne restroom, 1 vault restroom, 2 group shelter pavilions, and a boat launching ramp. Recreation visits in FY 96 totaled 541,600 hours. The park is located in Van Buren County, Sections 19, 20, 29 and 30, T11N, R12W. The area is accessible from State Highways 330 and 16. A 1.0 acre tract inside Van Buren Park has been allocated for use by the United States Coast Guard Auxiliary Flotilla. A copy of the updated master plan revised in June 1996, is enclosed for your reference (encl 1).
- 3. We have completed a Report of Availability (encl 2) and an Inventory Report (encl 3) for your review. The initial plan of development is being coordinated with representatives of the City of Fairfield Bay, and a final plan will be completed prior to the leasing of the subject area. Also, revisions to Natural Resources Management System (NRMS) will be reported in the FY 97.
- 4. Approval of this supplement is recommended.

Encls

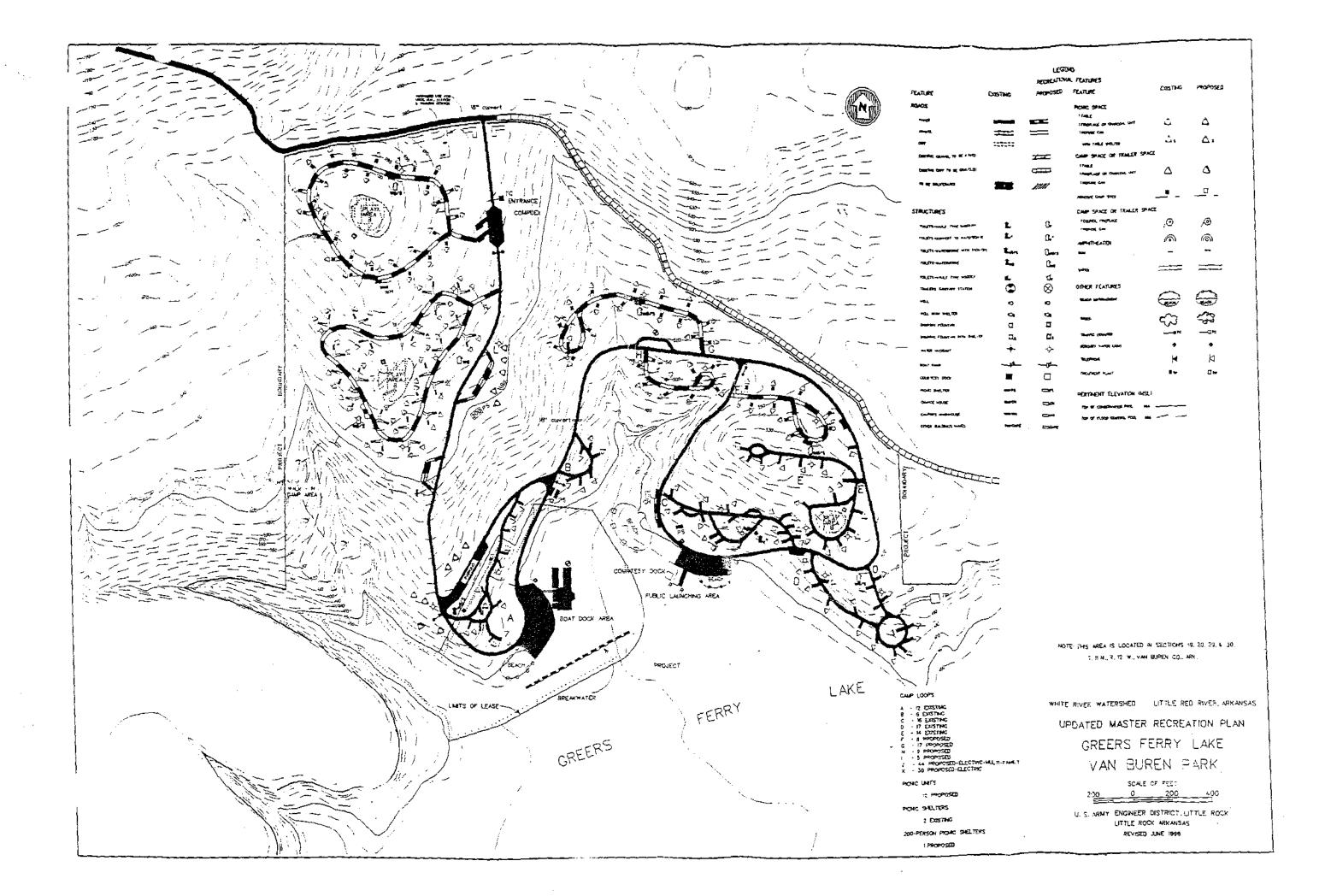
THOMAS S. PARK
Operations Project Manager
Greers Ferry

John Hach

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APR 1 6 1997

CRA-OPS DIVISION



CESWD-ETO-R (CESWL-CO-ON 13 Jan 97) (1130) 1st End Mr. McCauley / wm / 7-2434 SUBJECT: Greers Ferry Lake, Updated Master Plan, D. M. No. 19-5, Supplement No. 15

CDR, U. S. Army Engineer Division, Southwestern, 1114 Commerce Street,
Dallas, TX 75242-0216 7 FEB 1997

FOR Commander, Little Rock District, ATTN: CESWL-CO-ON

Approved.

FOR THE COMMANDER:

Encl wd

PAUL D. ROBINSON, P. E.

Director, Engineering and

Technical Services Directorate



DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-ON (1130)

13 January 1997

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-ETC-R

SUBJECT: Greers Ferry Lake, Updated Master Plan, D. M. No. 19-5, Supplement No. 15

- 1. The purpose of this supplement is to designate a lease expansion area of approximately 25 acres in Heber Springs Park, as shown on the enclosed Plate 12. The concessionaire has requested permission to extend the existing lease boundary for future use. The proposed expansion will permit the placement of additional boat docks and customer parking on the northern end. The current lease area has been fully utilized, and the southern lease boundary has previously been a point of conflict with adjacent land owners. Also proposed in the expansion area is the building of additional dry land storage, a workshop, and a new marina store.
- 2. Heber Springs Park is designated as an "A" class park. The developed park consists of 142 camping units (106/w electrical outlets), restrooms and showers, boat launching ramp, swim beach, and sanitary dump station. Recreation visitor hours in FY 96 totaled 3,660,333.
- 3. Approval of this master plan supplement is recommended.

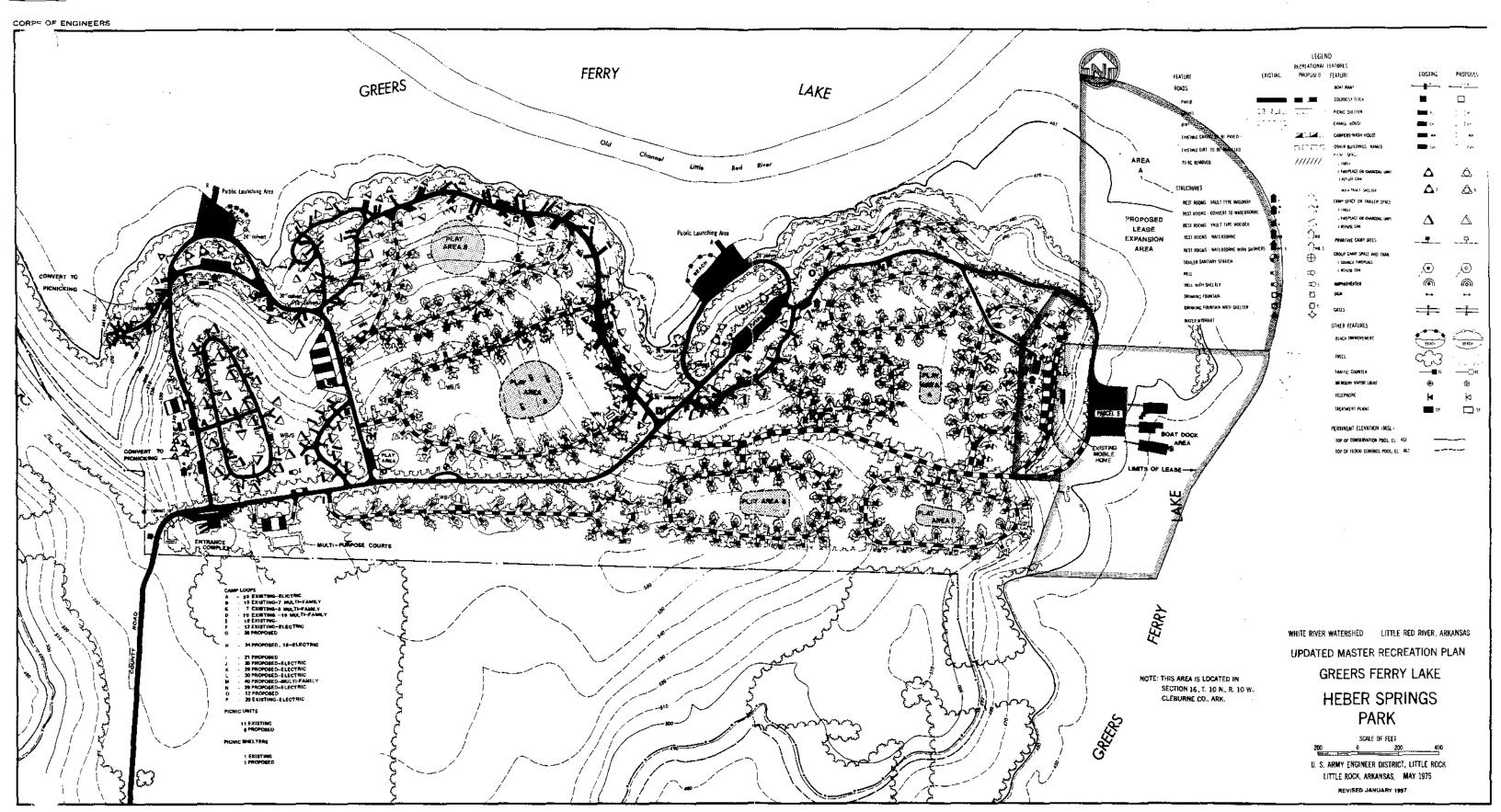
FOR THE COMMANDER:

Encl (4 cys)

KEITH THONEN, P.E.

Chief, Construction-Operations

Division



CESWD-ETO-R (CESWL-CO-ON 11 Dec 96) (1130) Mr. McCauley / wm / 7-2434 SUBJECT: Greers Ferry Lake, Updated Master Plan, D. M. No. 19-5, Supplement No. 14

8 JAN 1997

CDR, U. S. Army Engineer Division, Southwestern, 1114 Commerce Street, Dallas, TX 75242-0216

FOR Commander, Little Rock District, ATTN: CESWL-CO-ON

Approved.

FOR THE COMMANDER:

Encl wd

D. ROBINSON P.E.

Difector, Engineering and Technical Services Directorate

REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-ON (1130)

11 December 1996

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-ETC-R

SUBJECT: Greers Ferry Lake, Updated Master Plan, D. M. No. 19-5, Supplement No. 14

- 1. The purpose of this supplement is to designate a lease expansion area of 14.4 acres in Choctaw Park, as shown on the enclosed Plate 20. The concessionaire has requested permission to extend the existing lease boundary for future use. The requested area will permit the placement of additional customer parking for access to docks, establishment of floating breakwaters, and anchoring of mooring buoys.
- 2. Choctaw Park is designated as a class "A" park. The developed park consists of 146 camping units (78/w electrical outlets), restrooms and showers, boat launching ramp, swim beach, and sanitary dump station. Recreation visitor hours in FY 95 totaled 2,477,895.
- 3. Approval of this master plan supplement is recommended.

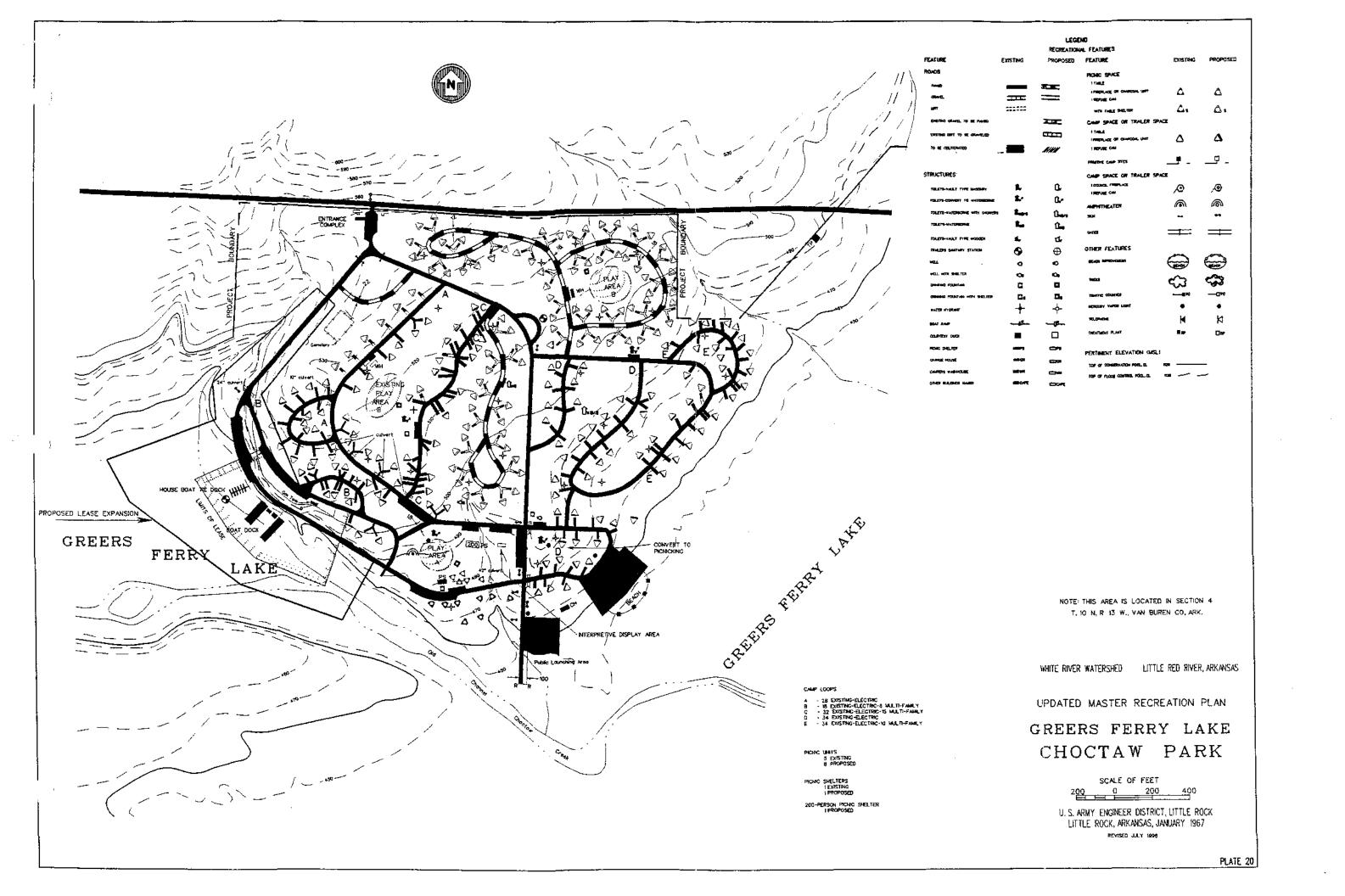
FOR THE COMMANDER:

Encl (4 cys)

KEITH THONEN, P.E.

Chief, Construction-Operations

Division





DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-ON (1130)

10 October 1996

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-ETC-R

SUBJECT: Greers Ferry Lake, Updated Master Plan, D. M. No. 19-5, Supplement No. 13

- 1. The purpose of this supplement is to designate a 1.0 acre tract inside Van Buren Park for use by United States Coast Guard Auxiliary Flotilla 15-1 as shown on the enclosed Plate 19. The Coast Guard Auxiliary has requested permission to place a modular building on the premises to serve as a base for training the public and auxiliary members in safe boating. Access to the area is from a state highway, and it will not add to traffic inside the park nor create a traffic hazard at the entrance.
- 2. Van Buren Park is designated as a class "A" park. The developed park consists of 65 camping units (18 w/electrical outlets), restrooms and showers, boat launching ramp, swim beach, and sanitary dump station. Recreation visitor hours in FY 95 totaled 4,430,336 hours.
- 3. Approval of this master plan supplement is recommended.

FOR THE COMMANDER:

Encl (4 cys)

Chief, Construction-Operations

Division

CESWD-ETO-R (CESWL-CO-ON/10 Oct 96) (1130) 1st End Mr.

McCauley/jj/7-2434

SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 13

CDR, U.S. Army Corps of Engineers, Southwestern Division, 1114 Commerce Street, Dallas, TX 75242-0216 0 4 NOV 1996

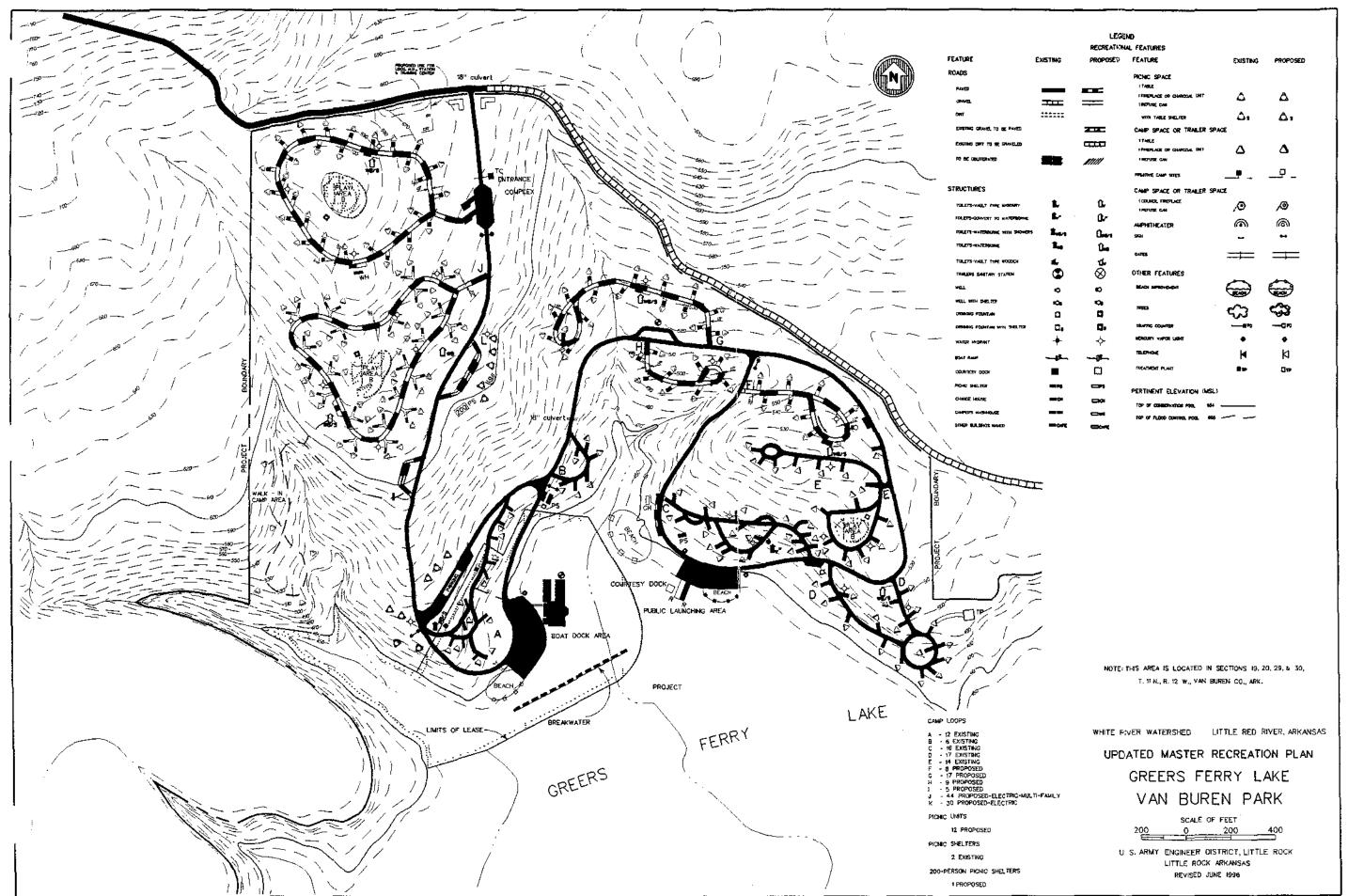
FOR Commander, Little Rock District, ATTN: CESWL-CO-ON

Approved.

FOR THE COMMANDER:

Encl wd PAUL D ROBINSON, P.E. Director, Engineering and

Technical Services Directorate



CESWD-CO-RP (CESWL-CO-L/12 Feb 92) 1st End Mr. McCauley/jw/7-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 12

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242 0 5 MAR 1992

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

Encl wđ

Acting Director, Directorate of Construction-Operations



DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 967
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L

12 February 1992

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-CO-R

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 12

- 1. The purpose of the supplement is to designate a lease expansion area and future lease expansion area to accommodate parking facilities to serve the commercial concession at Shiloh Park, Greers Ferry Lake. As the Corps can no longer provide new support facilities for concessionaires, the marina is being required to provide customer parking for each new boat dock added to the lease area.
- 2. The lessee proposes to use a 25-foot wide strip of land south of the existing road to develop customer parking. Also it is proposed to expand the lease area in a northwesterly direction for additional parking along the shoreline and for additional water area to construct storage docks. Requiring the concessionaire to provide additional parking facilities will reduce marina customer use of the launching ramp parking area and reduce the conflicts between park users and marina customers.
- 3. Finally, it is proposed to designate a future lease expansion area for long range planning of a large parking area and additional boat docks. This action will necessitate deleting a small proposed camping loop, but the best use of this area is for parking facilities to reduce traffic around the boat dock and existing campsites. Desirability of this area for camping also will diminish as more boat docks are constructed. Future campsites can be developed elsewhere in the park on more desirable terrain.
- Approval of this supplement is recommended.

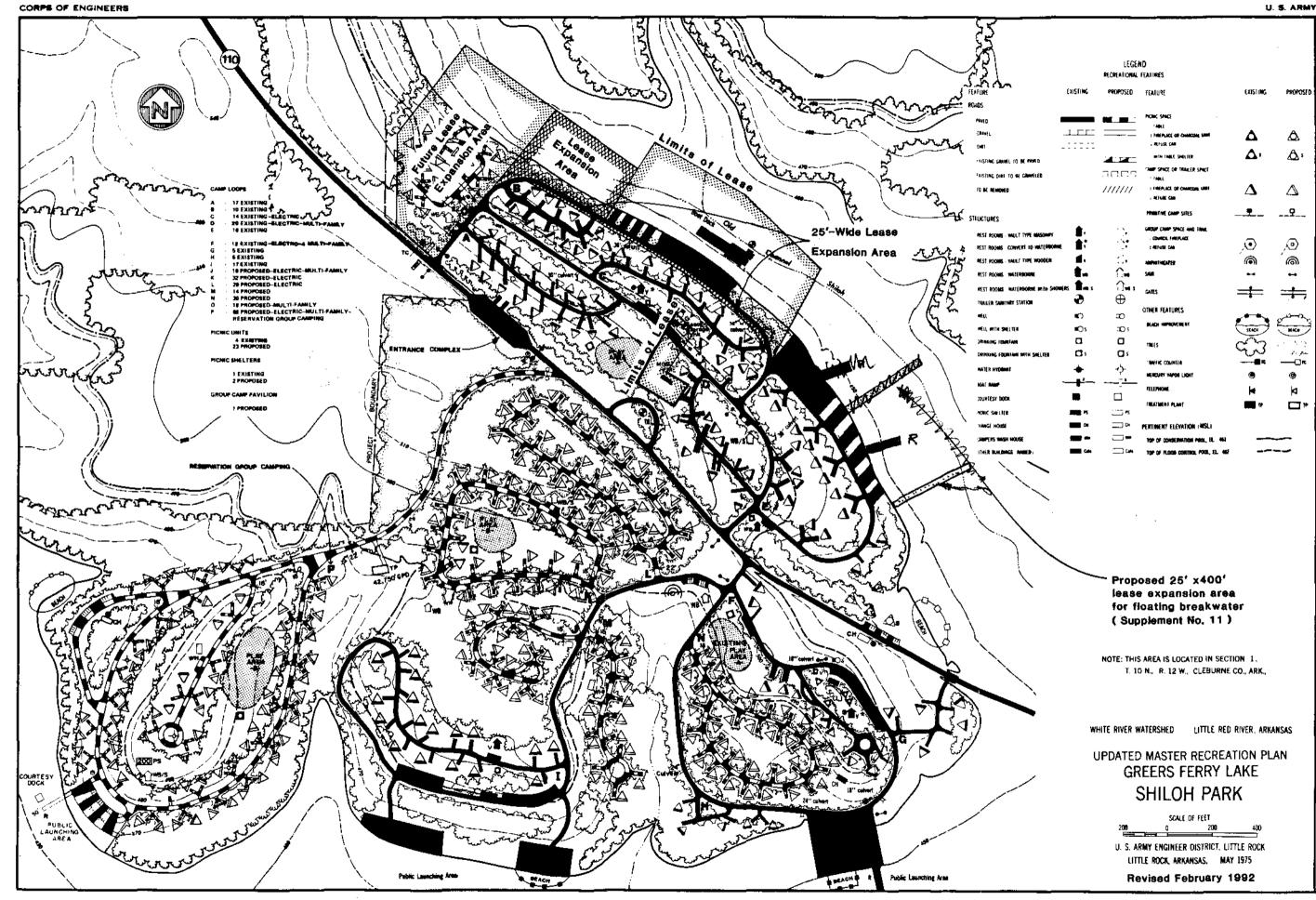
FOR THE COMMANDER:

Encl (4 cys)

KEITH THONEN, P.E.

Chief, Construction-Operations

Division



CESWD-CO-RP (CESWL-CO-L/27 Jan 92) 1st End Mr. McCauley/jw/7-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 11

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242 1 9 FEB 1992

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

Encl wd

10

JOE P. JARRELL, P.E.

Acting Director, Directorate of Construction-Operations

ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CEWSL-CO-L (1130)

27 January 1992

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-CO-R

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 11

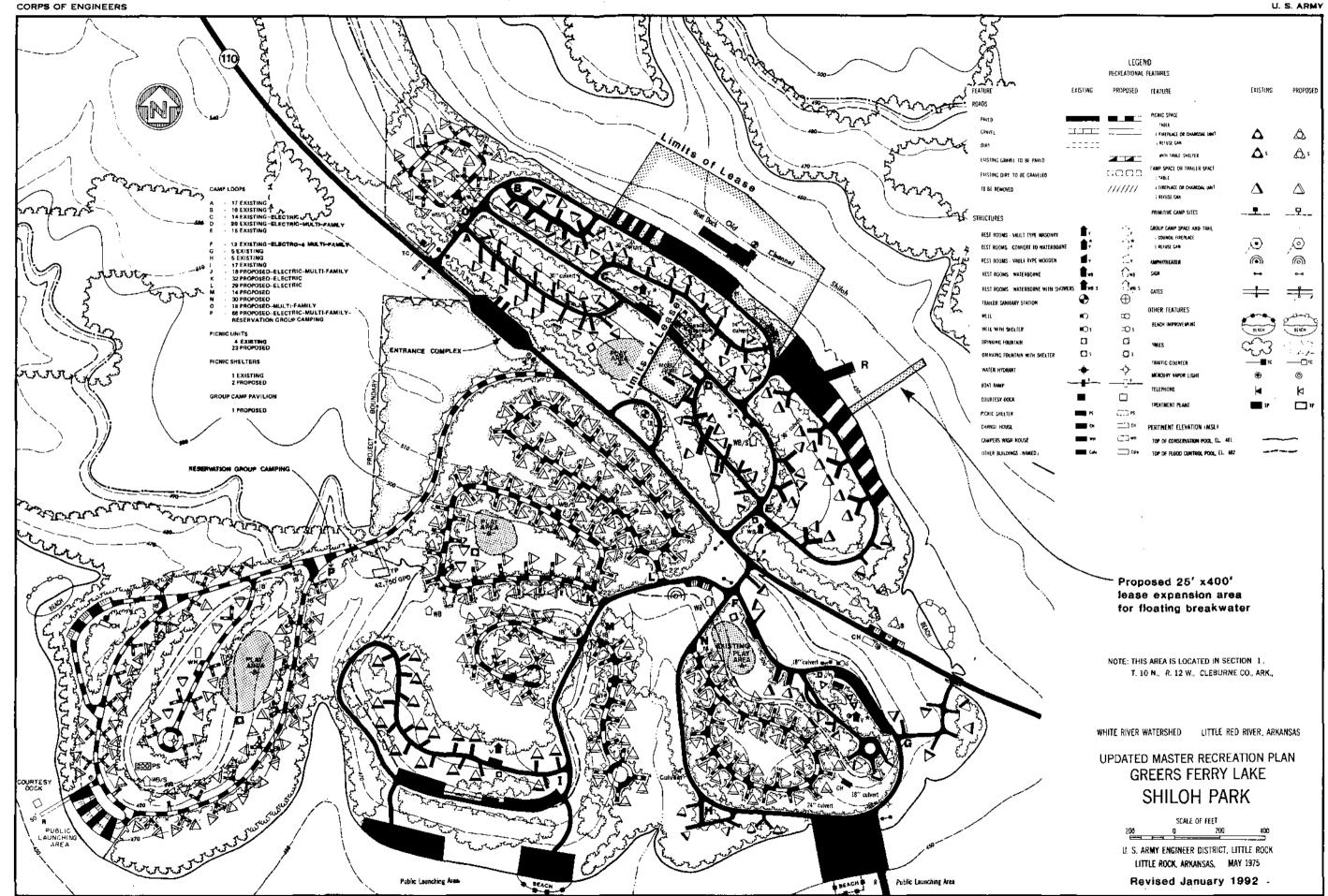
- The purpose of this supplement is to designate a lease expansion area for construction of a floating breakwater built of surplus tires at Shiloh Park. The lighted and marked breakwater will not unduly restrict boating access to the cove where the marina is located.
- 2. The Shiloh Marina lessee has requested a lease expansion area of approximately 25' x 400' to construct a breakwater to protect boat docks in the existing lease area from strong southerly winds normally occurring in the spring and summer seasons. In an effort to also protect users of the public launching ramp, the lessee has agreed to site the proposed breakwater location outside the present lease limits at the location shown on the enclosed plate 14. Boaters launching from Shiloh Park on windy days should benefit greatly from the protection offered by the breakwater, since the other launching ramps in the park are exposed to southerly winds making launching hazardous on occasions.
- Approval of this supplement is recommended.

FOR THE COMMANDER:

Encl (4 cys)

KEITH THONEN, P.E.

Chief, Construction-Operations Division



CESWD-CO-RP (CESWL-CO-L/28 Aug 91) 1st End Mr. McCauley/iv/ FTS 729-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 10

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 25 SEP 1991

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved subject to the following comment:

Once the proposed high water ramp is constructed, it is recommended that the existing ramp be closed as soon as possible due to the incompatible activities taking place at that location.

FOR THE COMMANDER:

Encl wd

cting Director, Directorate of Construction-Operations



DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L

28 August 1991

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-OD-R

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 10

- 1. The purpose of this supplement is to indicate the location of a high water boat launching ramp and parking areas at Devils Fork Park as shown on the enclosed plate 21.
- 2. High water facilities are needed to serve the public during extended periods of high lake levels. The existing launching ramp and parking areas have been under water during past floods, requiring visitors to launch boats from flooded roads and to park off of paved surfaces. It is proposed to provide a concrete boat launching ramp and low cost gravel-surfaced parking areas to reduce damages from visitors and better serve the public. The parking areas, with a connecting launching ramp, will be used at different lake levels.
- 3. Long range plans are to convert the launching ramp, located immediately west of the proposed high water ramp, to an expanded beach area. The two uses, swimming and boat launching, are not compatible from safety and water quality standpoints.
- 4. Approval of this supplement is recommended.

FOR THE COMMANDER:

Encl (4 cys)

KEITH THONEN

Chief, Construction-Operations

Division

REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L (1130)

30 July 1990

MEMORANDUM FOR Commander, Southwestern Division, ATTN: CESWD-CO-RR

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 8

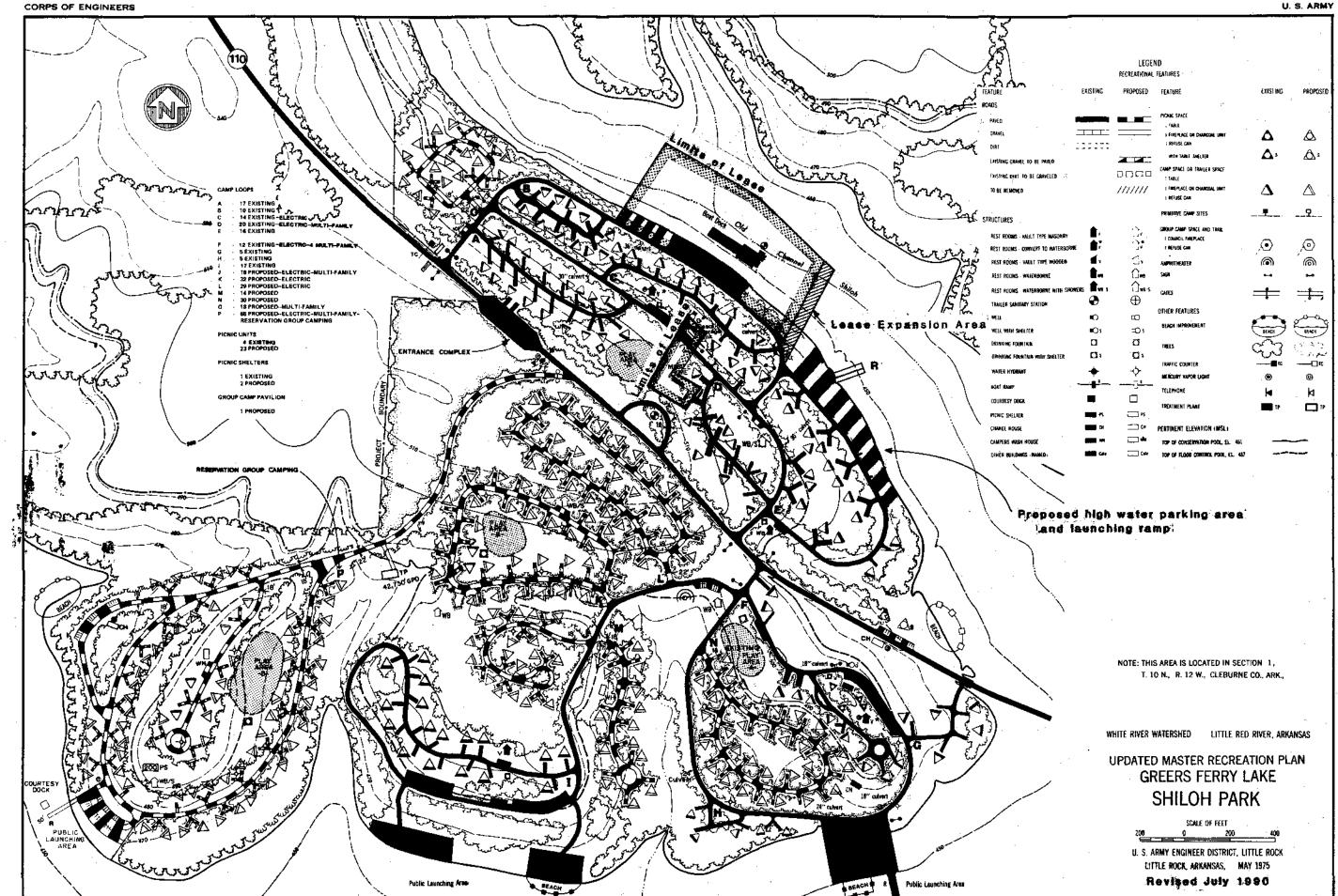
- 1. The purpose of this supplement is to indicate the locations of high water boat launching ramps and parking areas at Shiloh and Sugar Loaf Parks as shown on the enclosed plates 14 and 18.
- 2. High water facilities are needed to serve the public during extended periods of high lake levels. Most of the launching ramps and adjoining parking areas have been under water during the past flood, requiring visitors to launch boats from flooded roads and to park off paved surfaces. It is proposed to provide concrete boat launching ramps and low cost gravel-surfaced parking areas to reduce the resource damage from visitors and better serve the public.

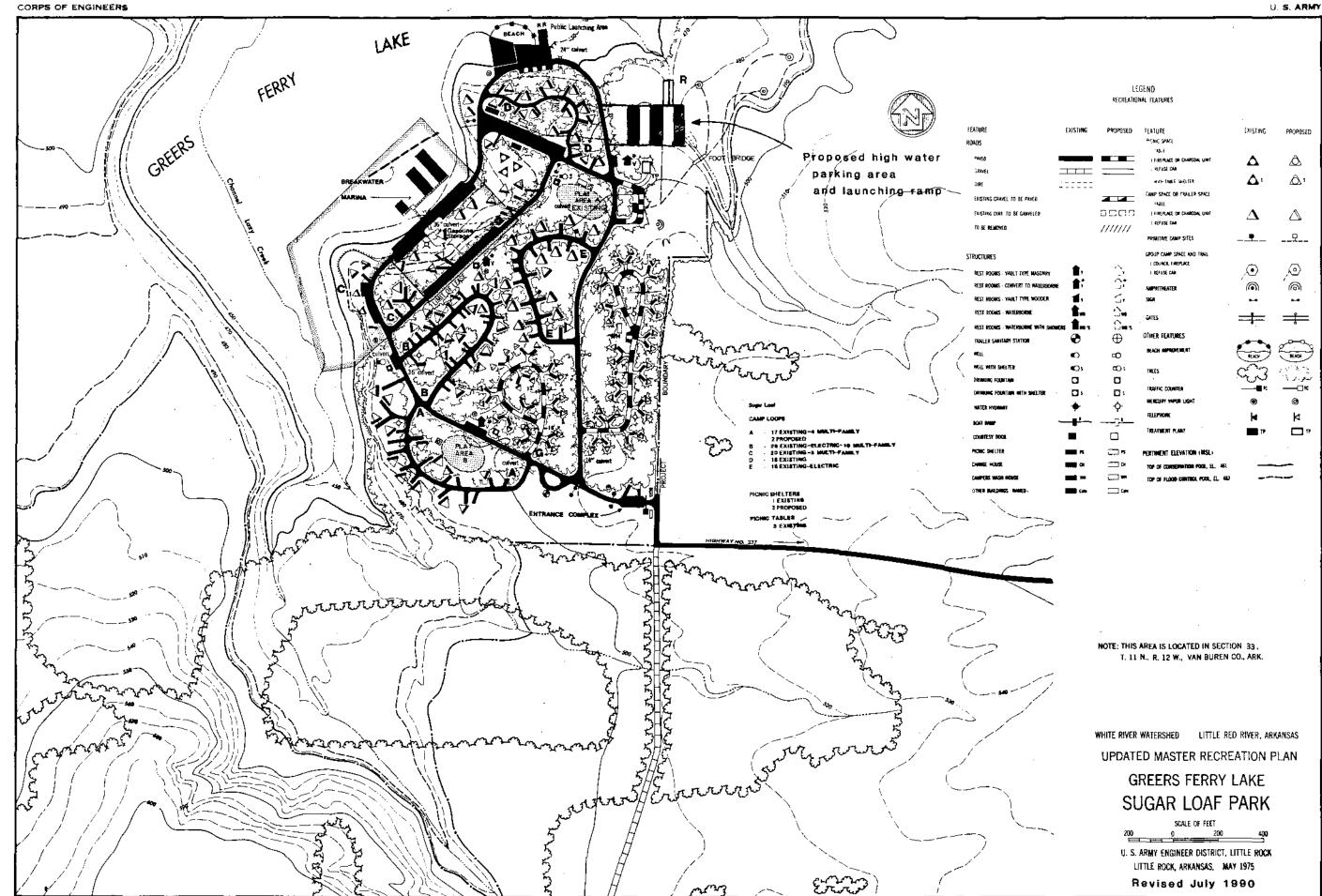
Approval of this supplement is recommended.

2 Encls (4 cys)

CHARLES C. McCLOSKE III Colonel, Corps of Engineers

Commanding





CESWD-CO-RP (CESWL-CO-L/16 Apr 90) (1130a) 1st End Mr. McCauley/pm/767-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 7

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 16 MAY 1990

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

Encl wd

CF (w/basic & encl): CECW-ON BARRY G. ROUGHT, P.E. Director, Directorate of Construction-Operations CESWD-CO-RP (CESWL-CO-L/30 Jul 1990) (1130a) 1st End Mr. McCauley/pm/767-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 8

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 15 AUG 1990

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

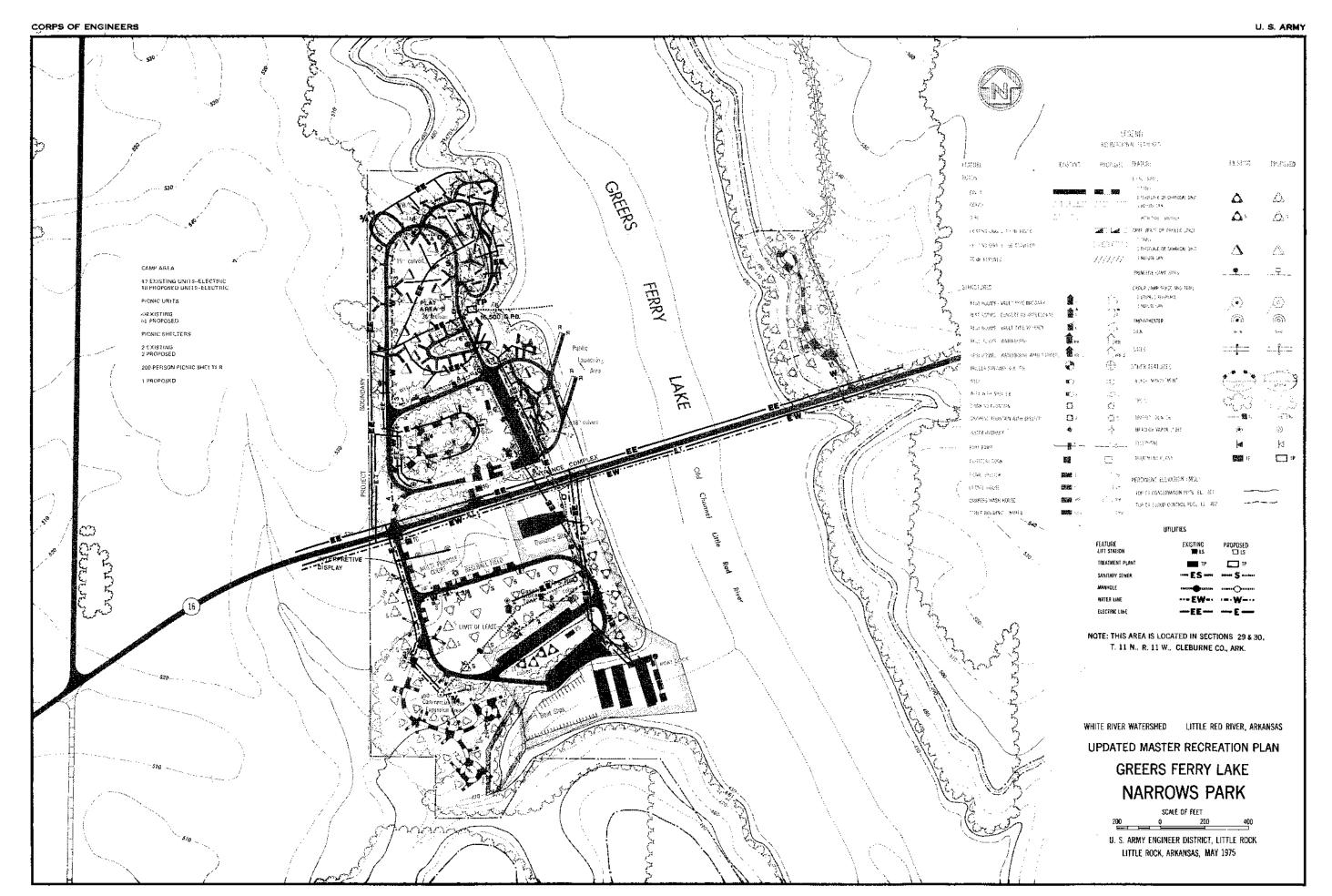
FOR THE COMMANDER:

2 Encls

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BARRY G. ROUGHT, P.E.
Director, Directorate of
Construction-Operations

CF (w/basic & encls): CECW-ON



CESWD-CO-RP (CESWL-CO-L/12 Oct 90) 1st End Mr. McCauley/plvd/7-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 9

DA, Southwestern Division, Corps of Engineers, 1114 Commerce St., Dallas TX 75242-0216 13 NOV 1990

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved, subject to the following comment:

While the concept of the proposed plan is approved for master planning purposes, it is questionable that the facility may be constructed under current requirements for cost-sharing of new facilities. Accordingly, economic justification for expenditure of Federal funds must be submitted for approval prior to construction.

Encl wd

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BARRY C. ROUGHT, P.E. Director, Directorate of Construction-Operations

Revised August 1991

REPLYTO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L (1130)

1 2 OCT 1990

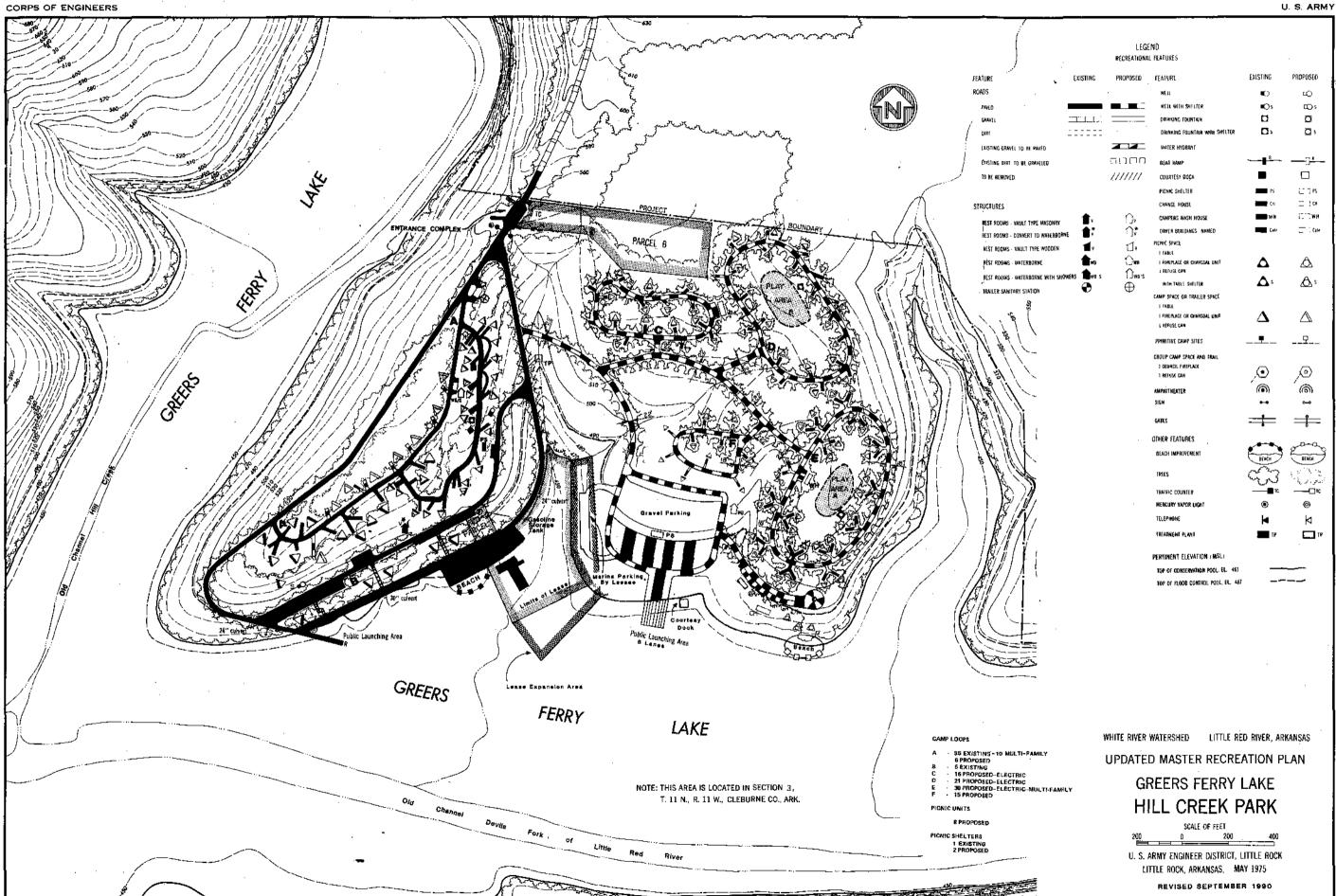
MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-OD-R

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 9

- The purpose of this supplement is to revise the development plan for Hill Creek Park to include a major boat launching complex to accommodate fishing tournaments and other special activity events. Also, the limits of the concession lease have been revised to reflect the proposed conditions and to designate an expansion area to allow for orderly growth of the marina.
- A 200-vehicle parking area and an 8 launching lane ramp are proposed for development as shown on the enclosed Plate 16 for Hill Creek Park. The number of requests for large fishing tournaments has increased to the point where the impact on park facilities is unacceptable and interferes with normal use of the parks by the public. This trend has become a major problem for management of the parks at Greers Ferry with 200 to 250 boats, vehicles, and trailers disrupting the normal park operation and essentially closing the park involved to the general public. The proposed facility is urgently needed and justified in order to provide one location on the lake where these activities can start without undue usurpation of ramps and parking areas in the parks. A large group shelter, restroom, and courtesy boat dock are also planned to facilitate these group activities. Development may be accomplished in phases as funds are available. Gravel roads, parking areas, and concrete ramps would be constructed initially. A possibility exists that various fishing organizations may participate financially for a portion of the construction costs. The proposed courtesy dock would be constructed and maintained by local fishing clubs.
- The limits of the concession lease have been revised to reflect the proposed lease agreement. Also, a revised lease expansion area has been designated. Hill Creek Park is now accessible by paved road, and the marina is experiencing a large growth in business for boat storage facilities. The expansion area will permit the lessee to expand his docks and provide additional parking without impacting other planned park developments. The marina will also benefit from the proposed tournament fishing activities and associated advertisements.
- 4. Approval of this supplement is recommended.

Encl (4 cys)

CHARLES C. McCLOSKEY 111 Colonel, Corps of Engineers



ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

1 6 APR 1990

CESWL-CO-L

MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-OD-R

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 7

- The purpose of this supplement is to revise the lease limits for Shiloh Marina to reflect the existing lease area, proposed revisions, and to designate a small expansion area to accommodate planned expansion of docking facilities. Additional parking is proposed by the lessee.
- The Shiloh Marina lessee proposes to construct about 80 to 90 boat stalls during the next year or two. The present lease area will be enlarged about 50 feet along the east lease limit. Likewise, the lessee will expand the existing parking lot by 50 to 60 vehicle parking spaces. The land area portion of the lease area will be revised as shown on the enclosed Plate 14. This change will delete those areas that are not essential for operation of the marina. The land areas within the lease will be utilized for parking, fuel storage tanks, operator's quarters, and minor storage areas for supplies. Existing Corps-operated campsites will remain and will no longer be within the lease limits. These changes will eliminate potential conflicts over maintenance responsibilities of the lessee and the Corps in Shiloh Park. The lease area as revised will include 3.0 acres of land area above conservation pool, and 6.4 acres of water area.
- Future expansion requests by the lessee will be considered on a case-by-case basis. Such expansions will be limited to the area west of the present lease area.

Encl (4 cys)

CHARLES C. McCLOSKEY III Colonel, Corps of Engineers

Commanding

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975

Revised April 1990

Public Launching Area

Public Launching Area

CESWD-CO-RP (CESWL-CO-L/23 March 1990) (1130a) 3rd End Mr. McCauley/pm/767-2434 SUBJECT: Greers Ferry Lake, Updated Master Plan, DM No. 19-5, Supplement No. 6

Commander, Southwestern Division, Corps of Engineers, 1114
Commerce Street, Dallas, TX 75242-0216 18 MAY 1990
FOR Commander, Little Rock District, ATTN: CESWL-CO-L

The subject supplement is approved as resubmitted.

FOR THE COMMANDER:

l Encl

BARRY 6 ROUGHT, P.É. Director, Directorate of Construction-Operations

CF (w/2d End and encl): CECW-ON

REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 857 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L (1130)

23 March 1990

MEMORANDUM FOR Commander, Southwestern Division, ATTN: CESWD-OD-R

SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 6

- 1. The purpose of this supplement is to make an additional 7.1 acres of water area available for commercial lease expansion at Heber Springs Park. The concessionaire has expanded to the point that the existing lease area is filled to capacity with boat docks. Although the proposed lease expansion extends beyond the designated park boundary, only water area will be utilized. The land adjacent to the expansion area is presently allocated to Recreation-Low Density Use, but reallocation of the land is not considered necessary at this time.
- 2. The expansion will provide a wind sheltered mooring area that will not impact on future park development. While adjacent private property owners may suffer some loss of visual aesthetics, the lease expansion as proposed will have little impact on park users.
- 3. It is recommended that the lease area be amended as shown on the enclosed Plate 12.

Encl (4 cys)

CHARLES C. McCLOSKEY XII
Colonel, Corps of Engineers

Commanding

CESWD-OD-R (CESWL-CO-L/23 March 1990) (1130a) 1st End Mr. McCauley/pm/767-2434 SUBJECT: Greers Ferry Lake, Updated Master Plan, DM No. 19-5, Supplement No. 6

Commander, Southwestern Division, Corps of Engineers, 1114
Commerce Street, Dallas, TX 75242-0216 5 APR 1990

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

The subject supplement is returned for additional information and appropriate action required by the following comments:

- a. In view of known public opposition and congressional interest in the proposed lease expansion, it is requested that appropriate public involvement and congressional notification be accomplished and discussed.
- b. Alternatives to the expansion as proposed should be discussed, i.e., dry dock storage, expansion in the other direction, extension of existing docks, etc.
- c. The adequacy of existing parking to accommodate additional usage resulting from expansion should be addressed.
- d. Any area proposed for expansion which is not zoned Recreation-Intensive Use should be reallocated as required by ER 1130-2-435.
- e. Any proposal for additional water area should include some shoreline land for accessibility, maintenance, etc.

FOR THE COMMANDER:

Encl wd ERRY W. SMITH, P.E.

Acting Director

Directorate of Operations

CESWL-CO-L (CESWL-CO-L/23 Mar 90) (1130) 2d End SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 6

DA, Little Rock District, Corps of Engineers, P.O. Box 867, Little Rock, Arkansas 72203-0867 18 Apr 90

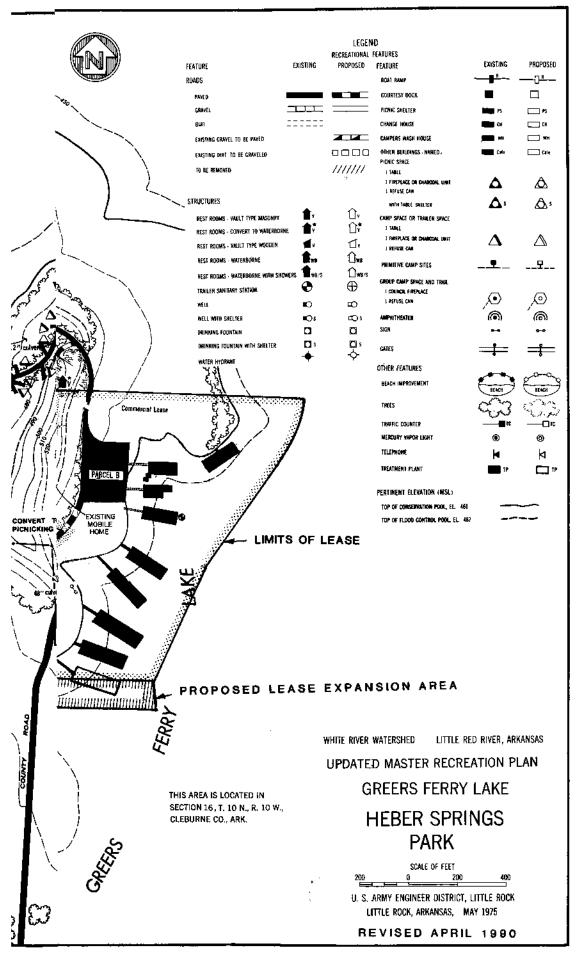
FOR Commander, Southwestern Division, ATTN: CESWD-OD-R

- 1. After an additional field inspection to locate the park boundary, it appears that the expansion of facilities can be accomplished by extending the south boundary of the lease area 150 feet rather than 500 feet as originally proposed. Since the limited expansion will not detract from the scenic view of the subdivision, no clearing of trees will be permitted, and no land area will be used by the concessionaire, we do not feel that the magnitude of this action warrants public involvement.
- 2. The proposed expansion will provide the least adverse impact on the park of the various alternatives available. Dry storage construction would utilize valuable park land and would also require additional support facilities such as road, parking, and utilities. Expansion of the lease in a northerly direction would not only impact future park development, but it would place the dock facilities on a point exposed to northwestern winds. The concessionaire has already arranged the existing docks to effectively utilize all of the space in the lease area. Extension of the existing docks is unsatisfactory because the longer docks would be unstable and very difficult to anchor.
- 3. The need for additional land has been reexamined, but there is no requirement for land access to the new dock from outside the existing lease area. Walkways between docks will provide adequate access to the new dock or, as shown on the revised Plate 12, land access to the new dock is available from the existing lease area.

4. It is recommended that the request for expansion of the lease area be reconsidered.

2 encls wd encl 1 Added 1 encl (4 cys) CHARLES C. McCLOSKEY III
Colonel, Corps of Engineers
Commanding

Charles C. Andlow



CESWD-OD-R (CESWL-CO-L/6 February 1990) (1130a) 1st End Mr. McCauley/pm/767-2434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 5

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 22 FEB 1990

FOR Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

2 Encls

JERRY W. SMITH, P.E. Acting Chief Operations Division

CF: (w/basic & encls)
CECW-ON

REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L

6 February 1990

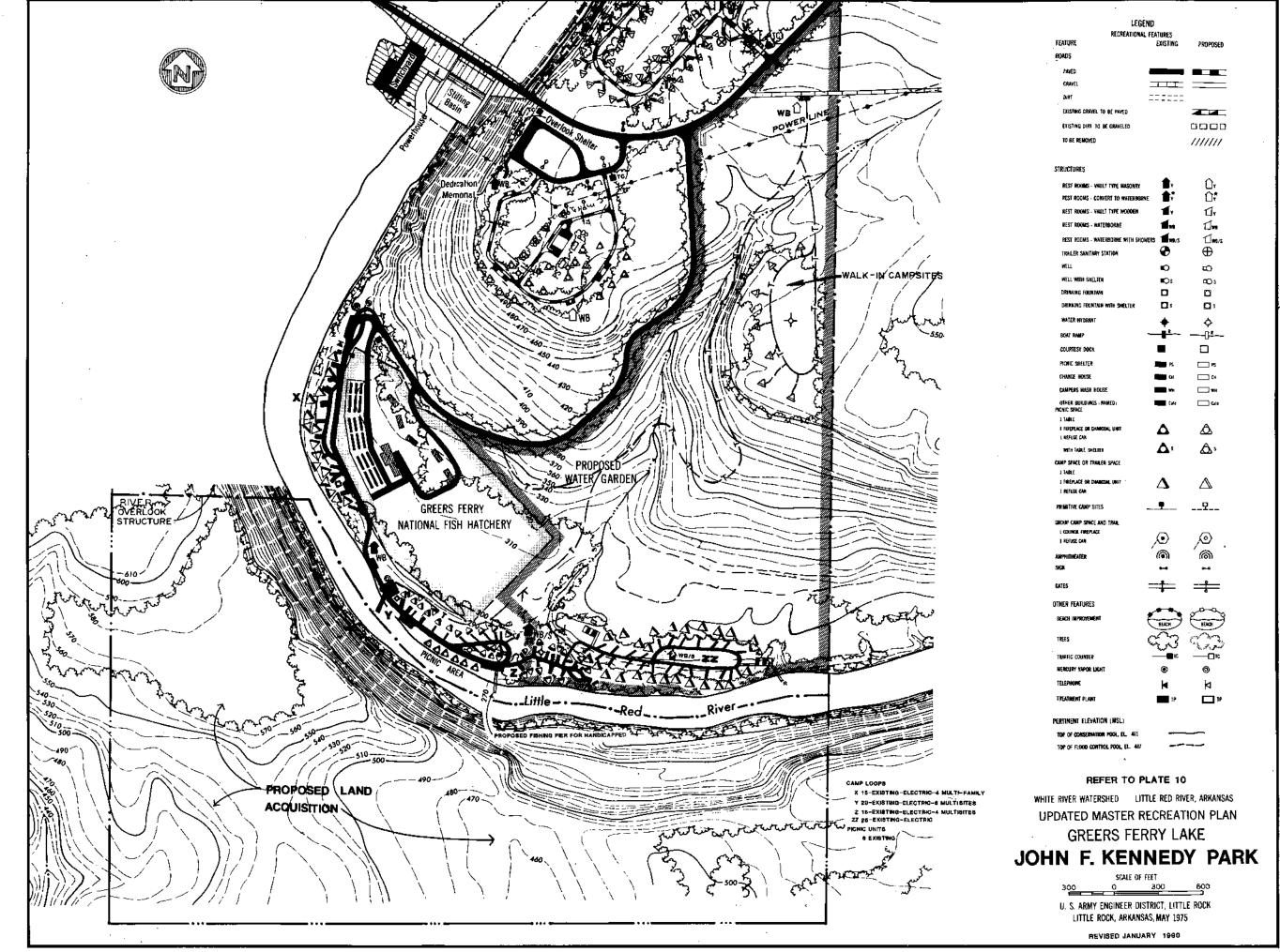
MEMORANDUM FOR Commander, Southwestern Division ATTN: CESWD-CO-R

SUBJECT: Greers Ferry lake, Master Plan, Supplement No. 5

- 1. The purpose of this supplement is to locate facilities proposed for construction with Fiscal Year 1991 Special Recreation Use Fee (SRUF) Funds in Old Highway 25 Park and John F. Kennedy Park. The facilities proposed will enhance fee collections in these parks.
- 2. Old Highway 25 has 100 campsites that are fully occupied or in overflow status almost every weekend during the recreation season. The proposed camping loop, with 30 campsites and a waterborne restroom with showers, as shown on Plate 11, will alleviate this over-crowding while increasing fee collections.
- 3. JFK Park has the highest occupancy rate of any park on Greers Ferry Lake. Camping Area 22, with 25 campsites, has recently been constructed, but a group shelter is needed to serve camping clubs and various other groups. Future plans also include providing an additional launching ramp and parking area to relieve the pressure on the existing ramp as shown on Plate 10c.
- 4. Trout fishing is the most popular activity in JFK Park. Currently, access for bank fishing requires transversing a steep river bank, so bank fishing is totally inaccessible to handicapped visitors. The addition of a handicapped fishing pier will enable the physically limited to experience the thrill of trout fishing. The addition of the pier will increase camping visitation and the resulting use fee revenues.
- 5. Approval of this supplement for needed recreational facilities is recommended.

2 Encls (4 cys)

CHARLES C. McCLOSKEY III Colonel, Corps of Engineers Commanding



REVISED JANUARY 1990

CESWD-CO-RR (CESWD-CO-RR/12 Nov 87) (1130) 2d End GOODKNIGHT/da/72436 SUBJECT: Greers Ferry Project Pool Manipulation for Fish and Wildlife Habitat Benefits

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, Texas 75242-0216 26 MAY 1988

FOR: Commander, Little Rock District, ATTN: CESWL-CO-R

- 1. The plan calls for holding flood waters two feet above the conservation pool at elevation 463 from 1 April to 1 July, 1989. This is not desirable on a continuous basis. Pool manipulation plans generally should be accomplished within the conservation pool because of the potential for flooding in the spring. For these reasons, the subject plan is approved only if the 1 April lake elevation is changed from 463 to 461.
- 2. The lake level manipulation plan for Greers Ferry will affect the operation of other projects within the Southwestern Power Administration (SWPA). Therefore, the District should coordinate this plan with SWPA, through the Divison Reservoir Control Center.

FOR THE COMMANDER:

Encl wd

GENE R. DREZKE

Acting Chief, Construction-Operations Division

CF (w/basic, lst end & encl): CECW-ON

REPRODUCED AT GOVERNMENT EXPENSE

DEPARTMENT OF THE ARMY

SOUTHWESTERN DIVISION, CORPS OF ENGINEERS
1114 COMMERCE STREET
DALLAS, TEXAS 75242-0216

REPLY TO ATTENTION OF

CESWD-CO-RR (1145)

1 2 NOV 1987

MEMORANDUM FOR: Commander, Little Rock District, ATTN: CESWL-CO-L

SUBJECT: Greers Ferry Project Pool Manipulation for Fish and Wildlife Habitat Benefits

- 1. Greers Ferry Lake has been tentatively selected by the Southwestern Division as the next power project for lake level manipulation to provide fish and wildlife habitat benefits. This selection is conditioned upon the development of a detailed plan by the Little Rock District and the approval by the Division.
- 2. A supplement to Design Memorandum No. 19-5, Appendix D, the Fish and Wildlife Management Plan for Greers Ferry Lake should be submitted to the Division, Attention: CESWD-CO-RR, for review and approval. If you have additional questions concerning this subject, you may contact Ms. Vicki Goodknight at FTS 729-2436.

FOR THE COMMANDER:

A. P. HUTCHISON Chief, Construction-Operations Division CESWL-CO-R (CESWD-CO-RR/12 Nov 87) (420-74c) 1st End Mr. Rutt/1a/378-5673 SUBJECT: Greers Ferry Project Pool Manipulation for Fish and Wildlife Habitat Benefits

DA, Little Rock District, Corps of Engineers, P.O. Box 867, Little Rock, Arkansas 72203-0867 20 Apr 88

FOR: Commander, Southwestern Division, ATTN: CESWD-CO-RR

As requested, Supplement 1 to Appendix D, Fish and Wildlife Management Plan, to Design Memorandum No. 19-5, Updated Master Plan, Greers Ferry Lake, is enclosed for your review and approval.

Encl (5 cys)

NTHONY V NIDA

Colonel, Corps of Engineers

Commanding

CESWD-CO-RP (CESWL-CO-L/1 Mar 88) (1130) 1st End McCauley/da/72434 SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 4

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 10 MAR 1988

FOR: Commander, Little Rock District, ATTN: CESWL-CO-L

Approved.

FOR THE COMMANDER:

Encl wd

CF (w/basic & encl): CECW-ON A. P. HUTCHISON

Chief, Construction-Operations Division

REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

0 1 MAR 1988

CESWL-CO-L (1130)

MEMORANDUM FOR: Commander, Southwestern Division, ATTN: CESWD-CO-R

SUBJECT: Greers Ferry Lake, Master Plan, Supplement No. 4

1. The purpose of this supplement is to update the enclosed site plans to indicate existing recreation development in all parks at Greers Ferry Lake. These site plans were last updated in 1975 when the master plan was updated.

2. Approval of this supplement is recommended.

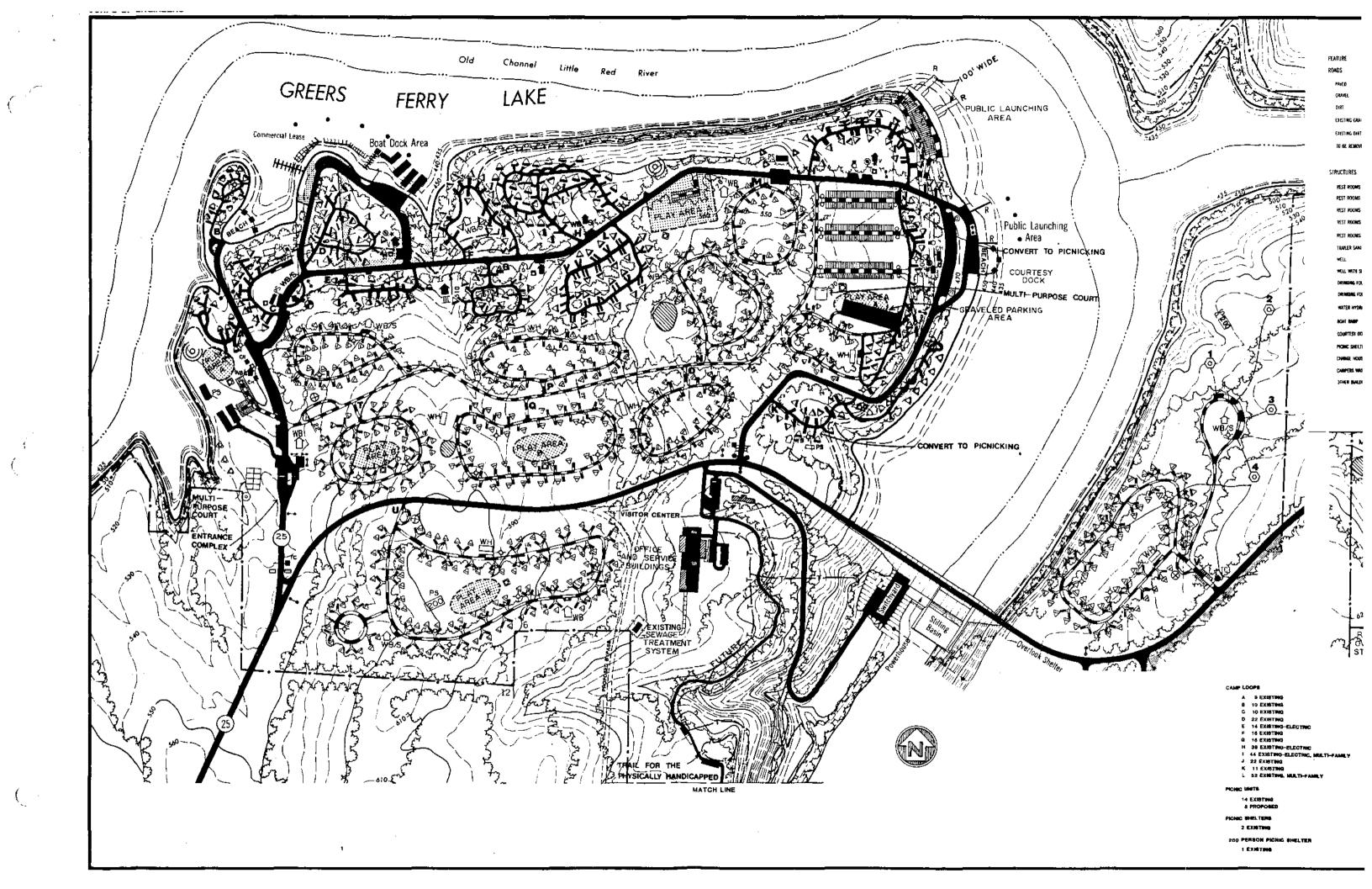
Encl (4 cys)

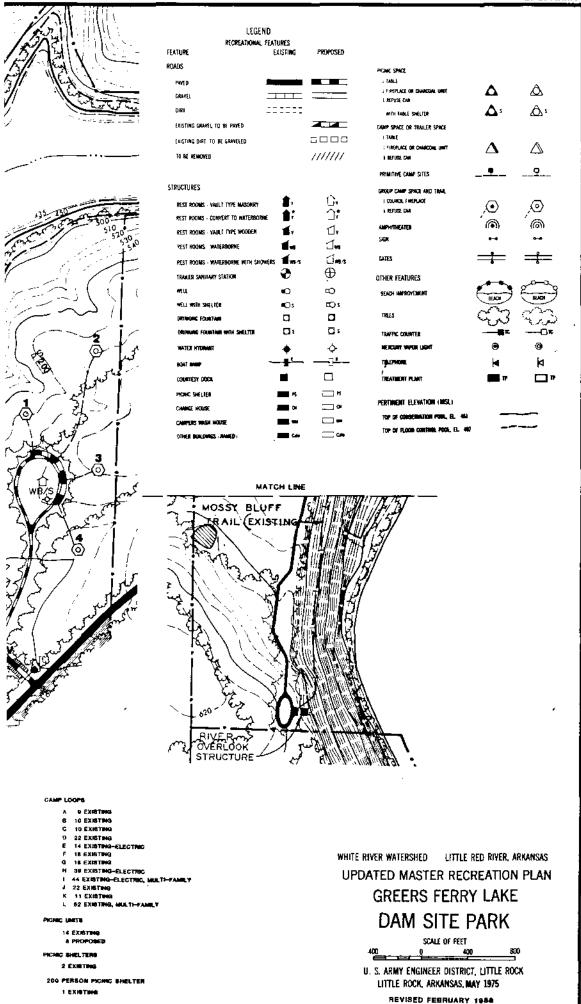
ATHONY VONIDA

Colonel, Corps of Engineers

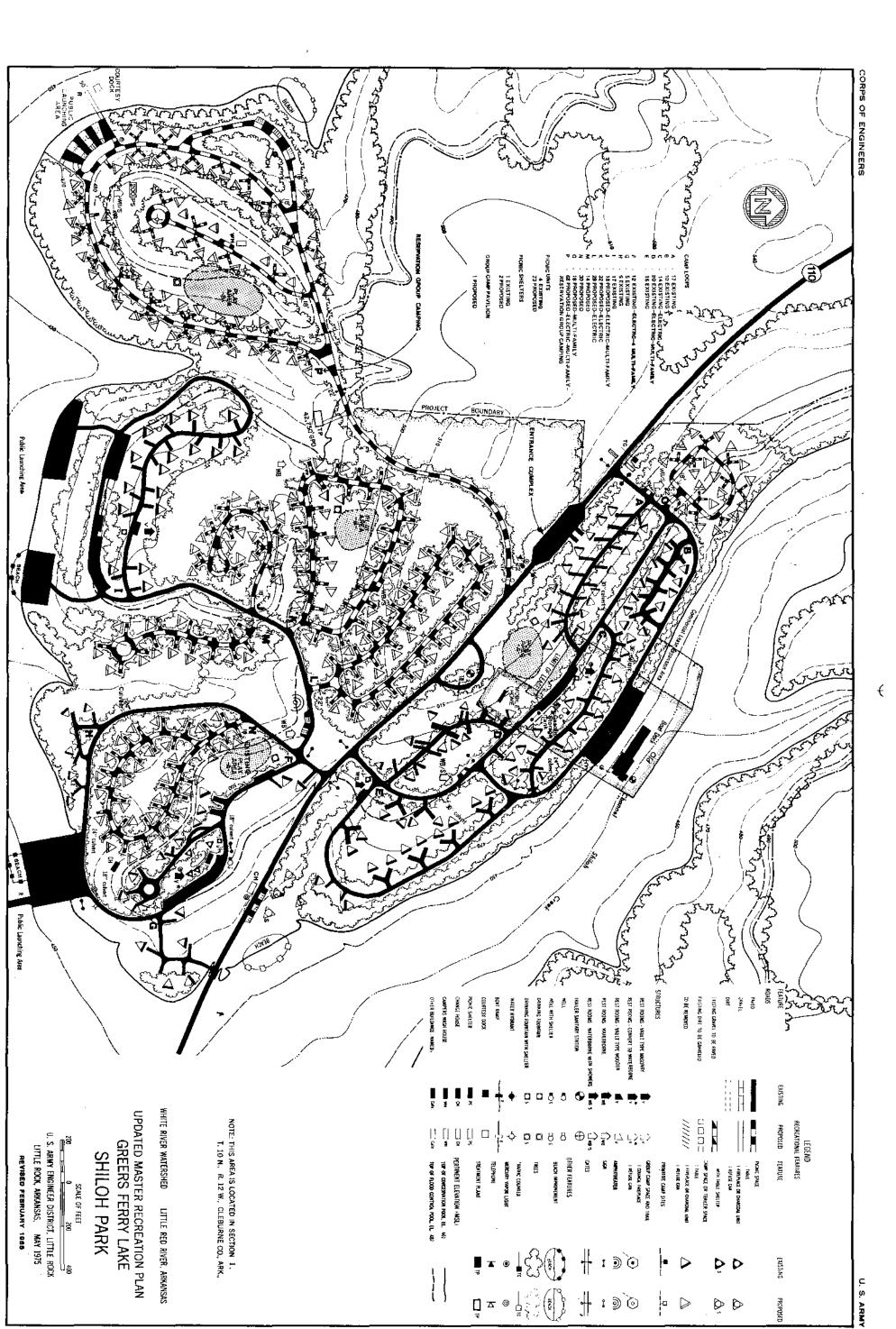
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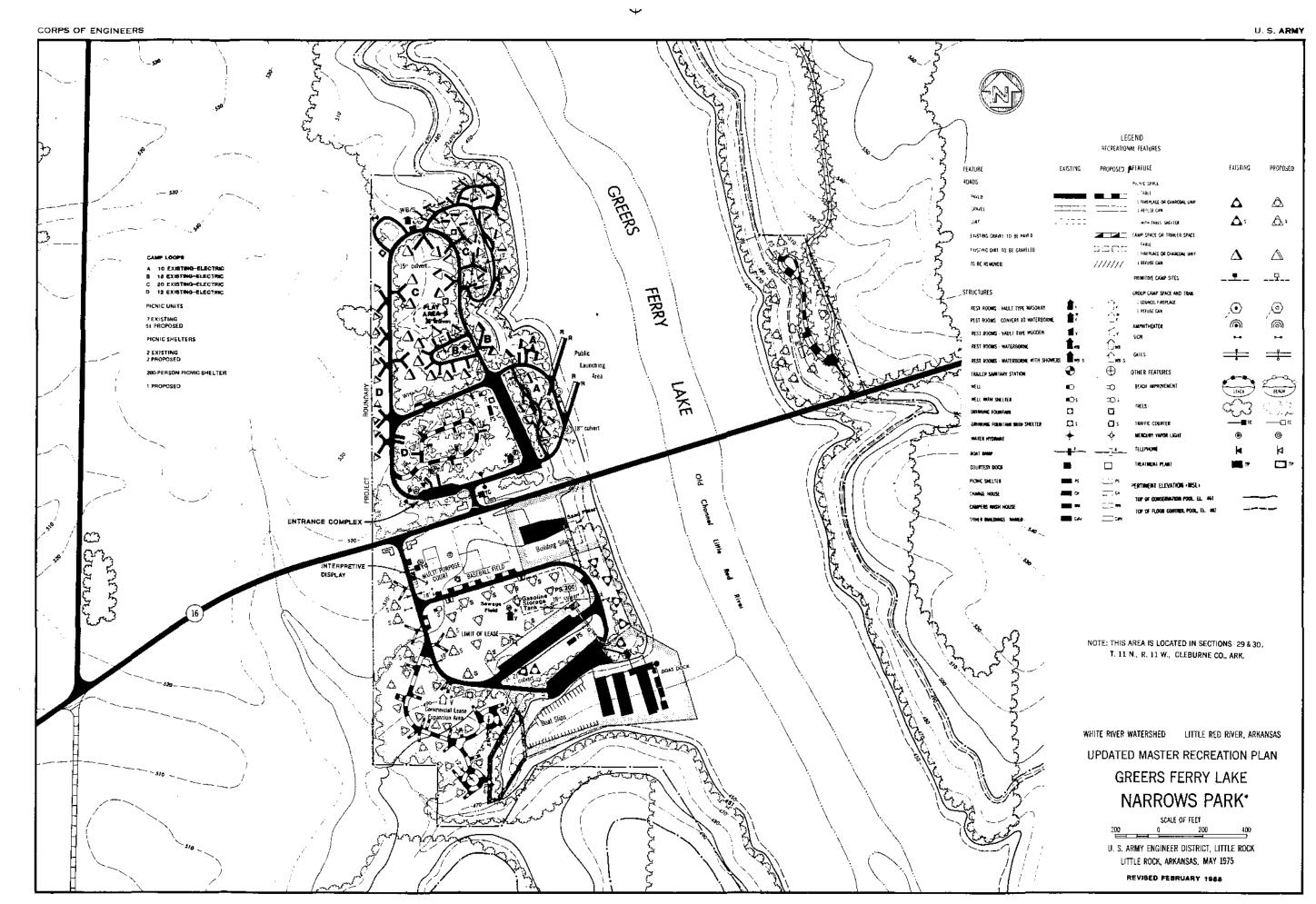
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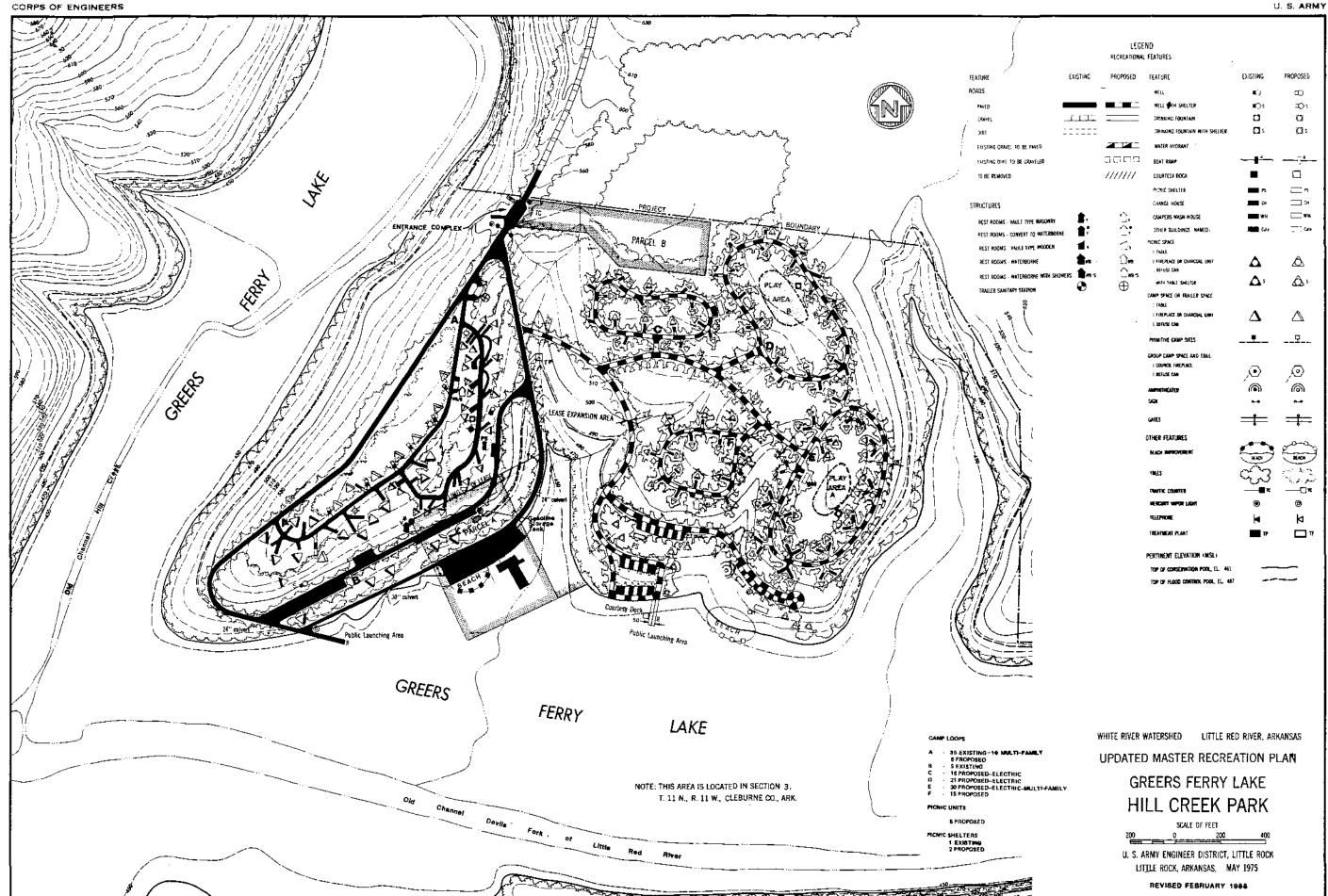


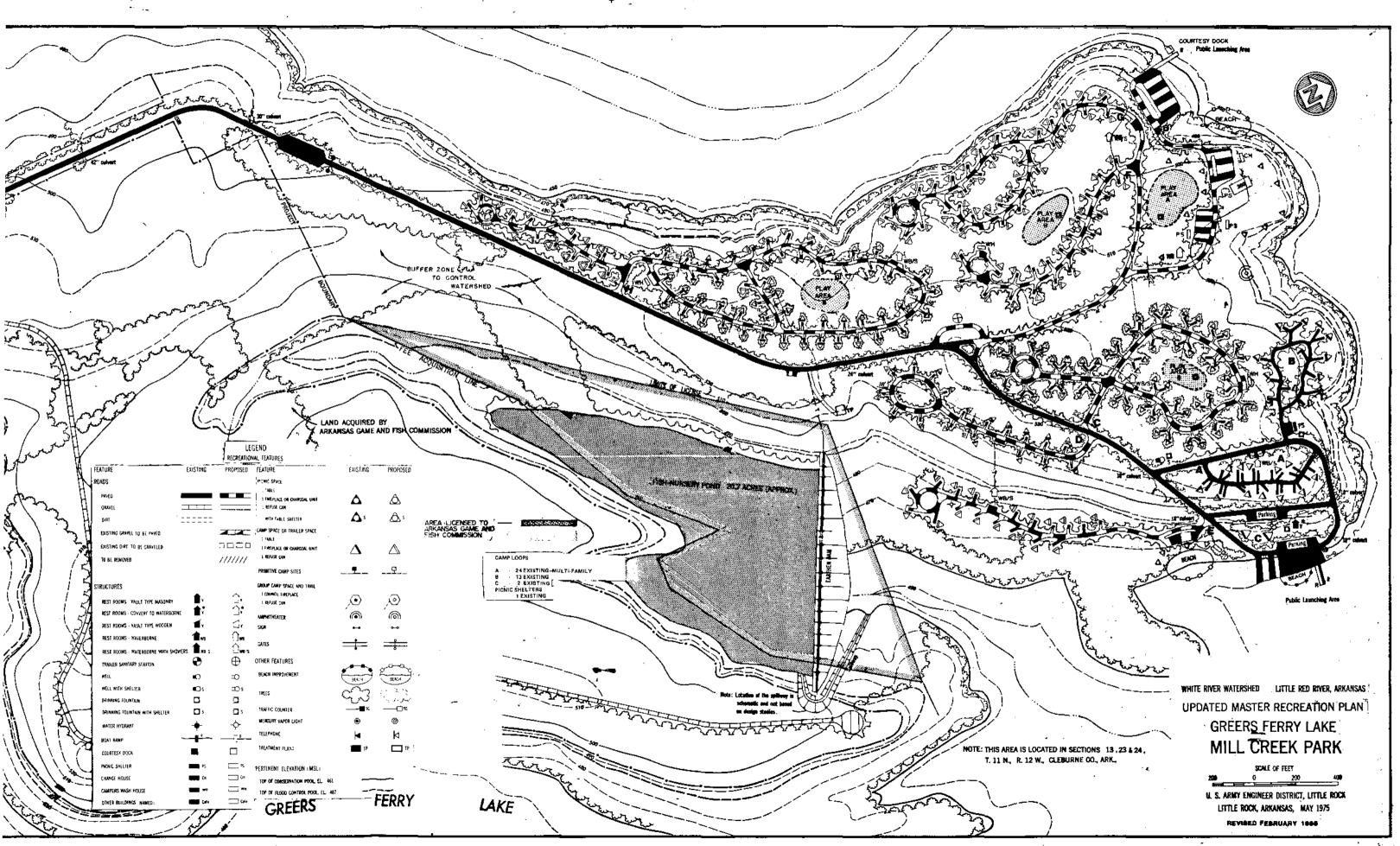


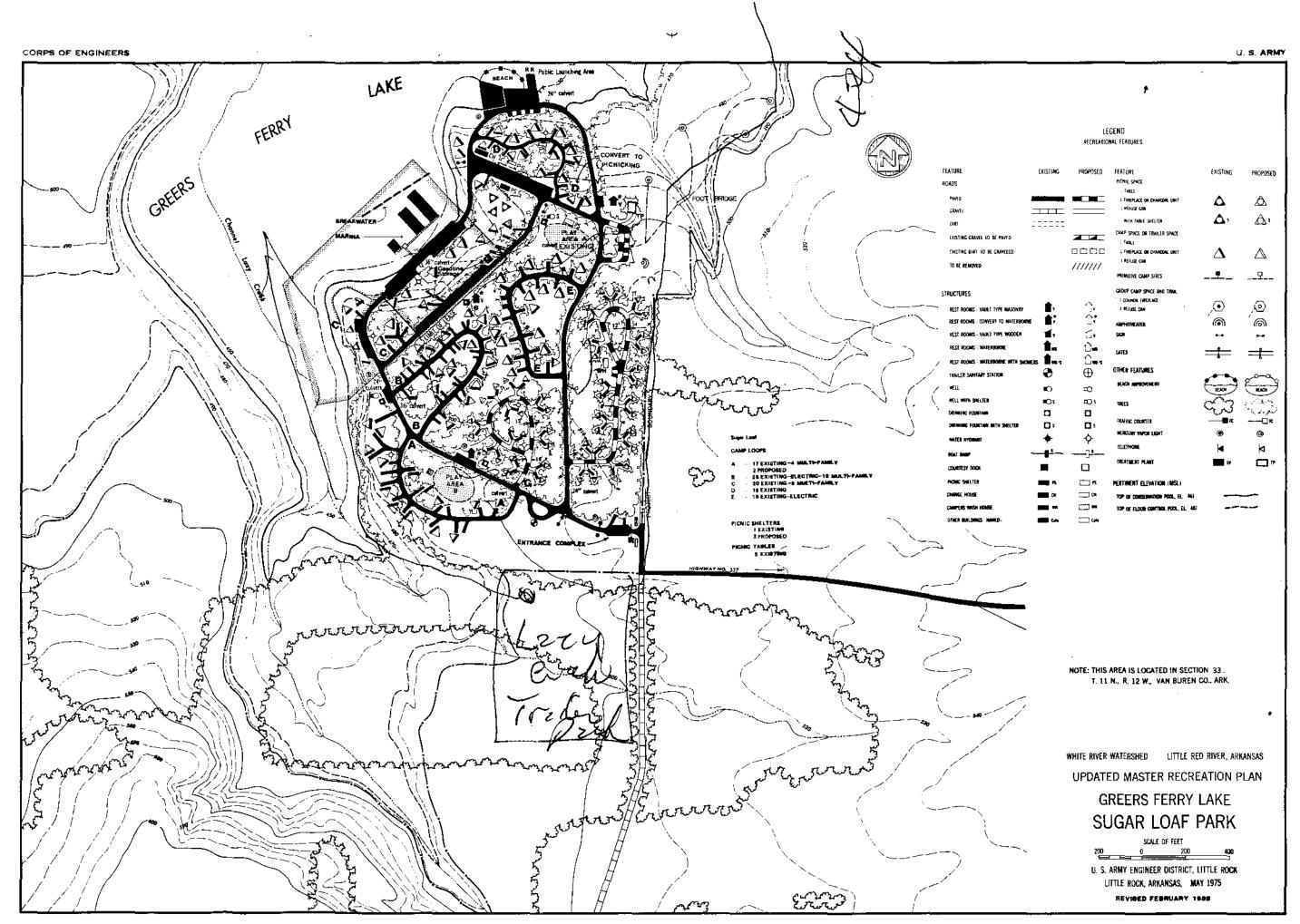
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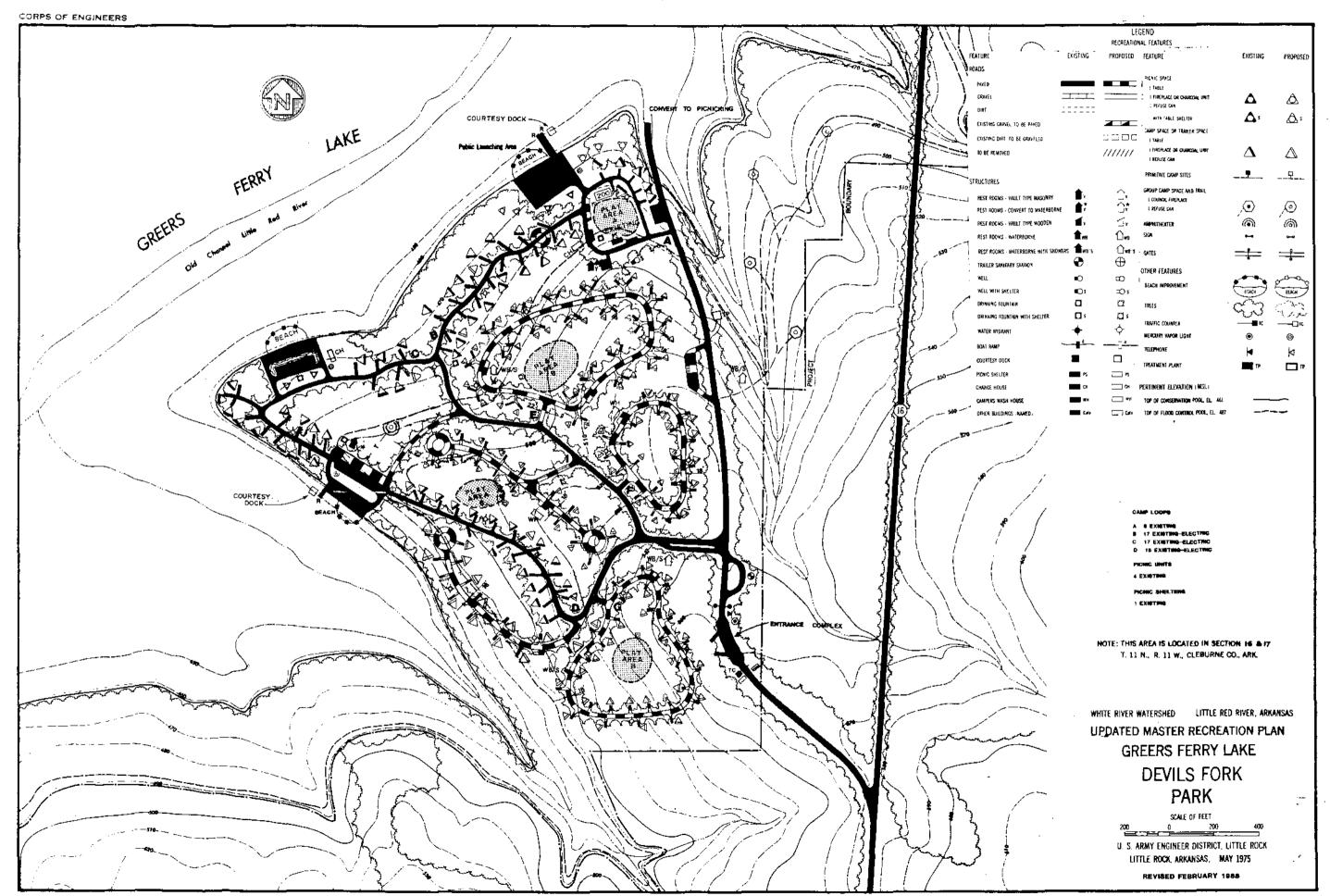


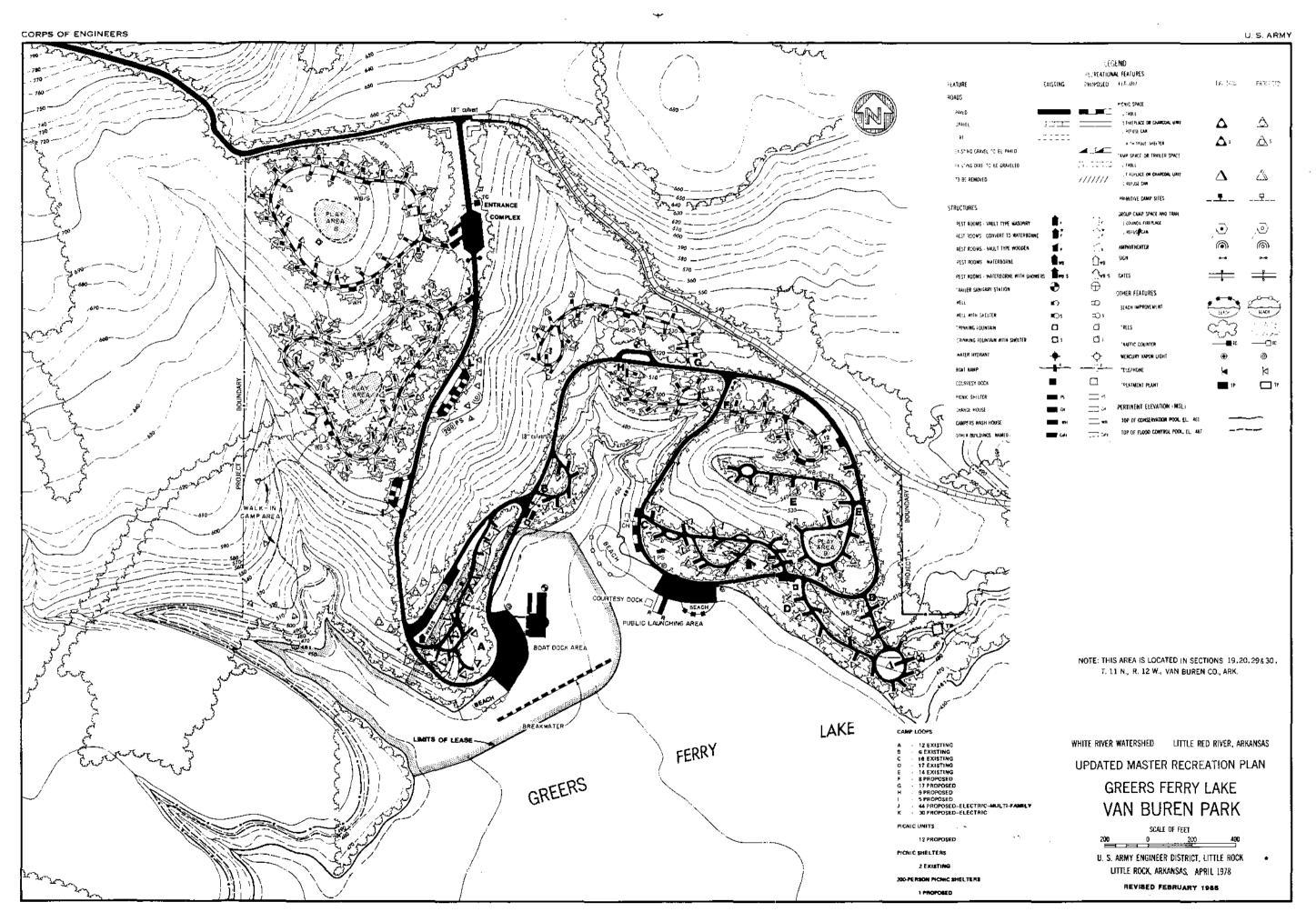




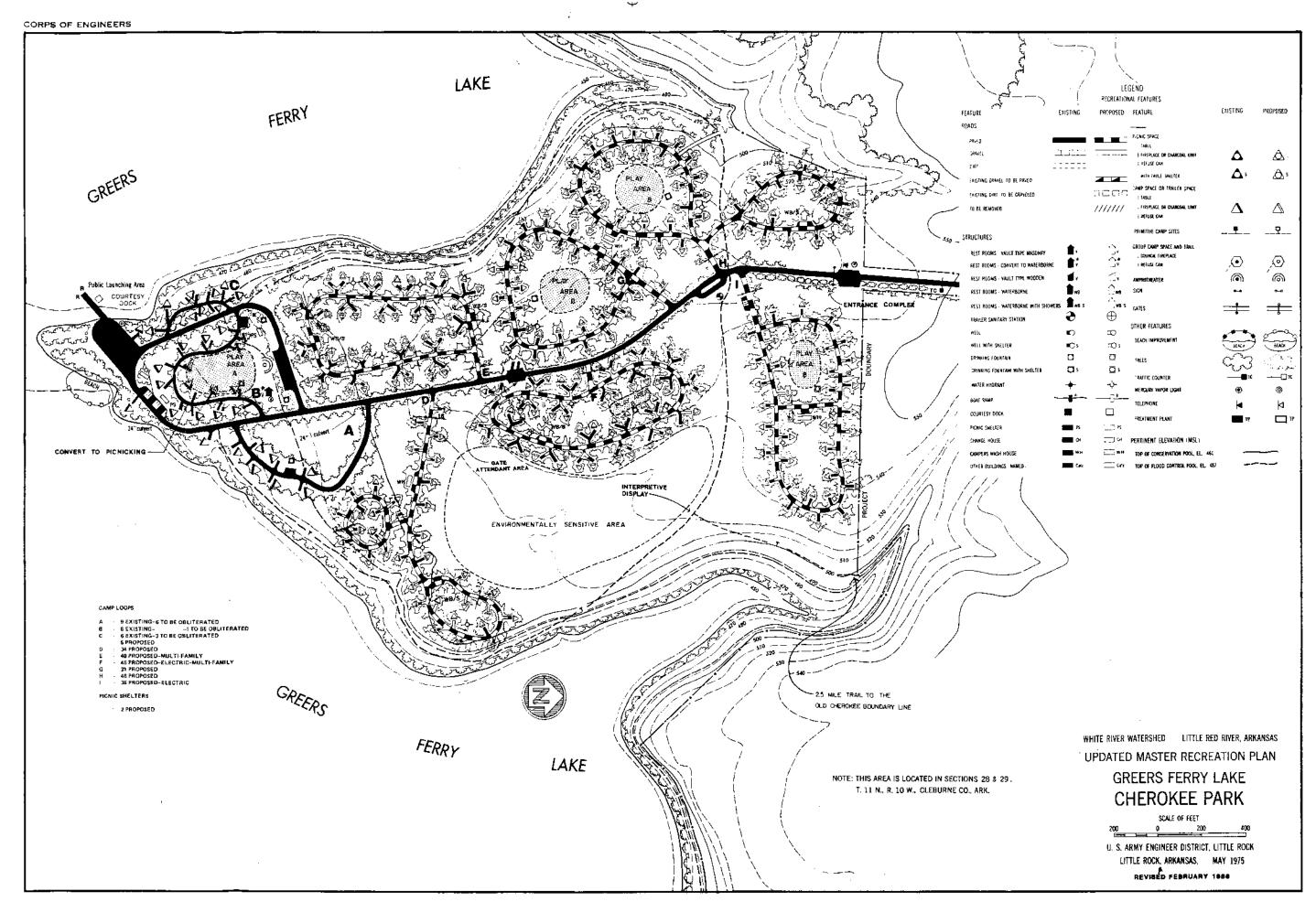








CORPS OF ENGINEERS U. S. ARMY LEGEND RECREATIONAL FEATURES FAIS1946 PERMIT CAMP SPACE OR TRAILER SPACE 5000 : FIREPLACE OR CHARCOAL UNI \triangle /////// ,O ര **□**™ COURTESY 13 EXISTING 10 PROPOSED 44 PROPOSED BEACH Public Launching Area WHITE RIVER WATERSHED LETTLE RED RIVER, ARKANSAS NOTE: THIS AREA IS LOCATED IN SECTIONS 25.8.36. UPDATED MASTER RECREATION PLAN T. 11 N., R. 13 W., YAN BUREN CO., ARK. 20 × 20 PRIMITIVE **GREERS FERRY LAKE** SOUTH FORK **GREERS** FERRY **PARK** SCALE OF FEET U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975 REVISED FEBRUARY 1988



CESWD-CO-RP (CESWL-CO-L/11 Jun 87) (1130) 1st End McCauley/dma/72434 SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 3

Cdr, Southwestern Division, Corps of Engineers, 1114 Commerce St., Dallas, TX 75242-0216 7 JUL 1987

FOR: Commander, Little Rock District, Corps of Engineers, ATTN: CESWL-CO-L, P.O. Box 867, Little Rock, AR 72203-0867

Approved.

FOR THE COMMANDER:

Encl wd

A. P. HUTCHISON
Chief, ConstructionOperations Division

CF (w/basic & encl): CECW-ON (5 cys)

REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203-0867

CESWL-CO-L (420)

11 June 1987

MEMORANDUM FOR: Commander, Southwestern Division, ATTN: SWDCO-RR

SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 3

- 1. The purpose of this supplement is to make an additional 8 acres available for the commercial concession lease in Heber Springs Park. The additional area includes approximately 4 acres above elevation 461 m.s.1. The concessionaires have expanded to the point that the requested area is required to contain existing docks. The southward limit of the lease is proposed as the extension of the park's southern boundary.
- 2. The concessionaires presently lease 14.5 acres of which 7 acres lie below elevation 461 m.s.l. The lease area is being effectively utilized.

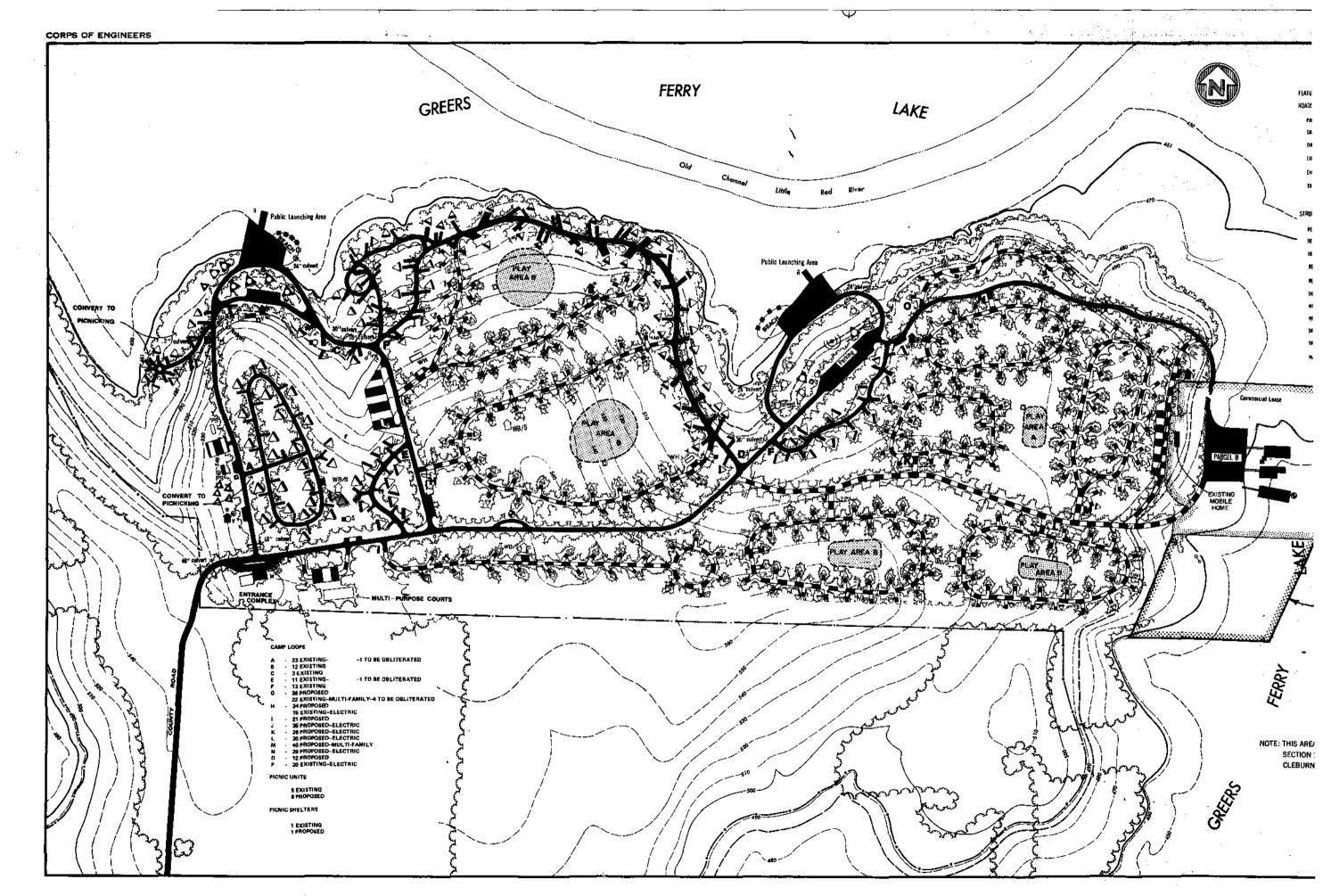
3. Recommend the present lease be amended as shown on the enclosed plate 12 to make the additional land and water area available for concession operation.

Encl (9 cys)

MARVIN O. THOMPSON

LTC, Corps of Engineers

Acting Commander



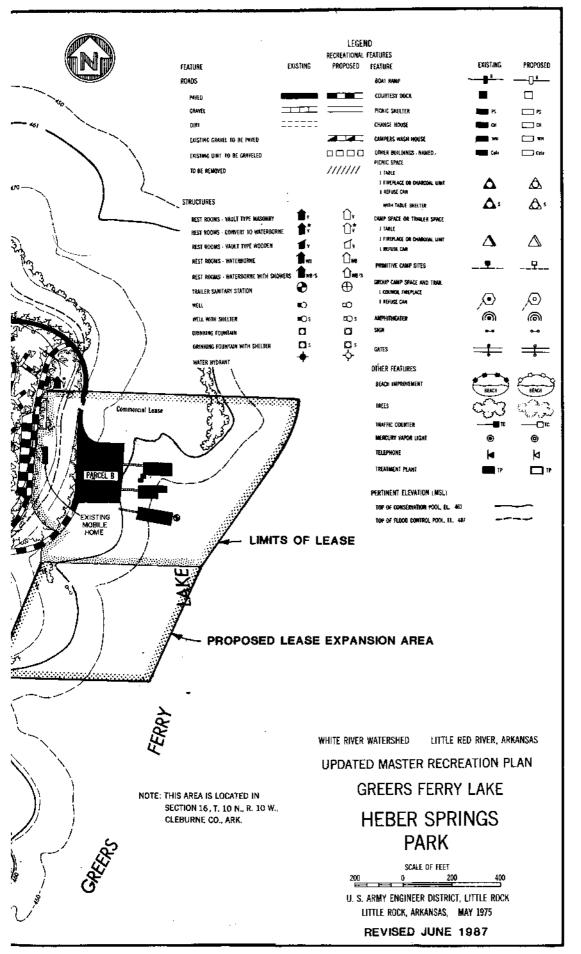


EXHIBIT TO SUPPLEMENT NO. 3

SWDCO-RP (15 Oct 81) 3d Ind SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 2

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242 15 JAN 1982

TO: Commander, Little Rock District, ATTN: SWLCO-L

Approved.

FOR THE COMMANDER:

wd all incl

Chief, Construction-Operations Division

CF: w/2d Ind & incl

CDR USACE(DAEN-CWO-R) (5 cys)

SWDCO-RP (15 Oct 81) 1st Ind

SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 2

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242 3 0 007 1981

TO: Commander, Little Rock District, ATTN: SWLCO-L

Supplement No. 2 to D.M. No. 19-5, Updated Master Plan, Greers Ferry Lake, is approved subject to the following comment:

Plates 12 and 19. The limits of existing lease and lease expansion areas for the commercial concessions should be clearly identified.

FOR THE COMMANDER:

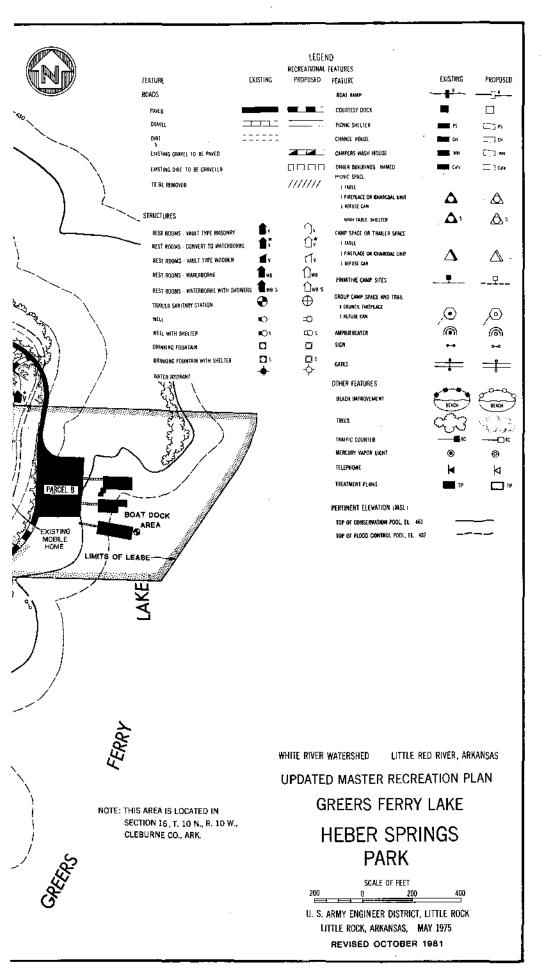
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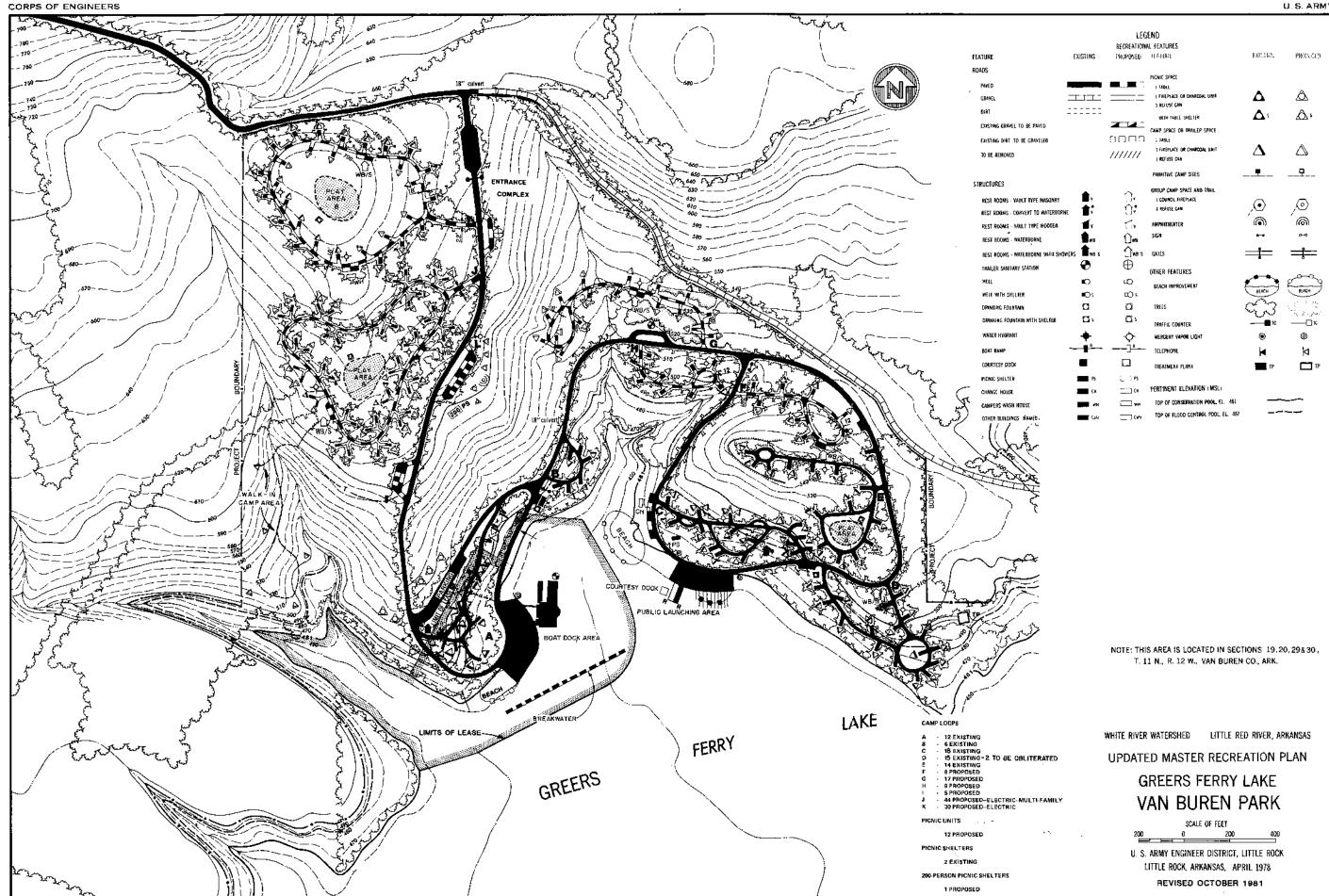
Tolla. P. HUTCHISON
Chief, Construction-

Operations Division

CF: w/basic & incl

CDR USACE(DAEN-CWO-R) (5 cys)





REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203

SWLCO-L

15 October 1981

SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 2

Commander, Southwestern Division

ATTN: SWDCO-RR

- 1. The purpose of this supplement is to update the park site plans to clearly reflect existing recreational facilities and minor site plan revisions. The site plans were last updated in May 1975 when the master plan was completely updated. Proposed traffic circulation revisions noted on the existing site plans have been deleted in order to reduce excessive design details, thereby illustrating major facilities more clearly. However, these traffic revisions will remain a part of the overall development plan for the parks.
- 2. Plate 10, Dam Site Park, has been divided into two plates (10 and 10c) in order to define the limits of Dam Site Park and John F. Kennedy Park, respectively. Also the scales of these plates were enlarged to improve readability.
- 3. Approval of this supplement is recommended.

15 Incl (9 cys)

as

LARRY S. BONINE

Lightenant Colonel Corps of Engineers

Commanding

SWLCO-L (15 Oct 81) 2d Ind

SUBJECT: Greers Ferry Lake, Updated Master Plan, D.M. No. 19-5, Supplement No. 2

DA, Little Rock District, Corps of Engineers, 700 West Capitol, Little Rock, AR 72201

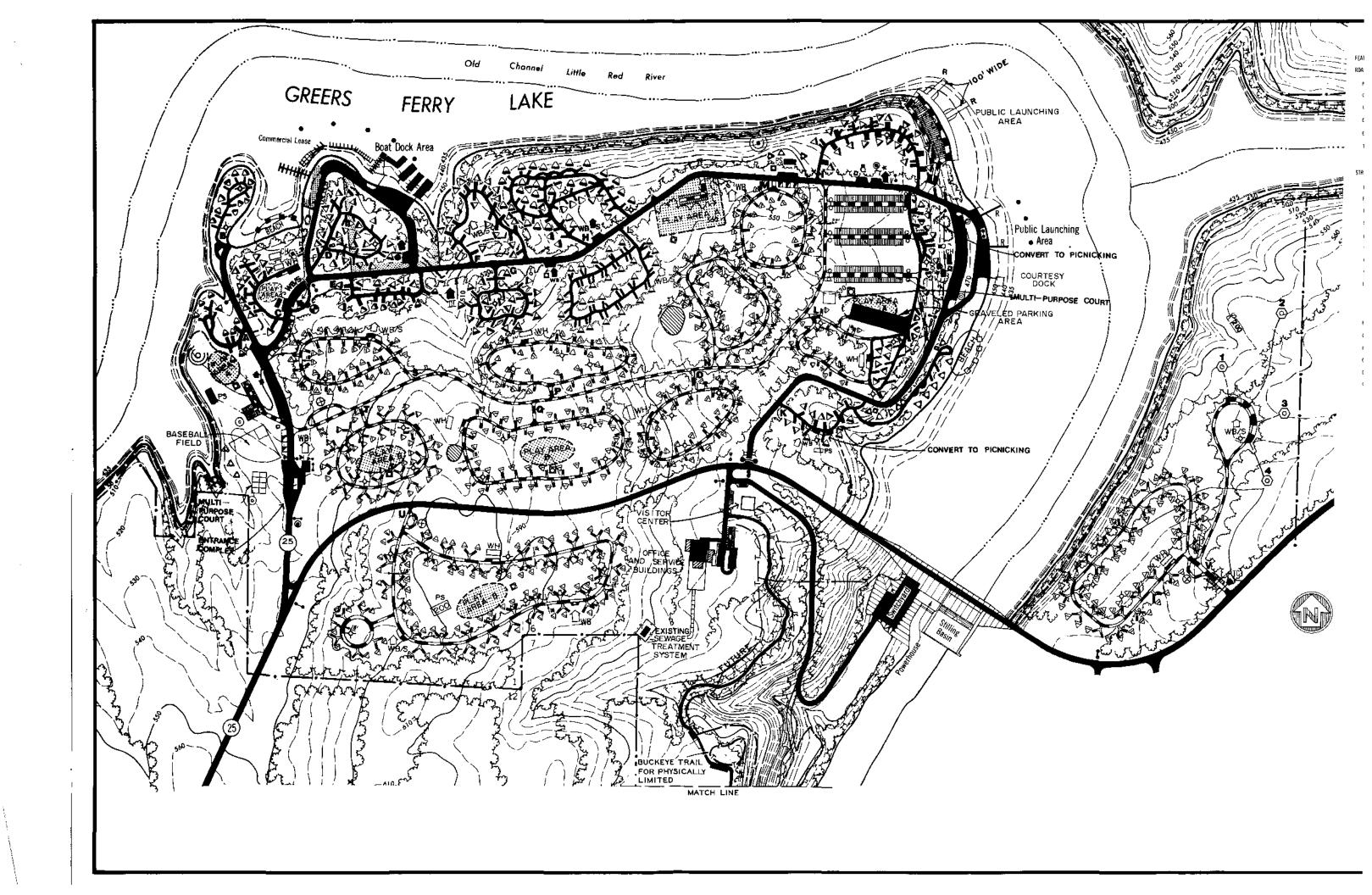
TO: Commander, Southwestern Division, ATTN: SWDCO-RP 11 JAN 1982

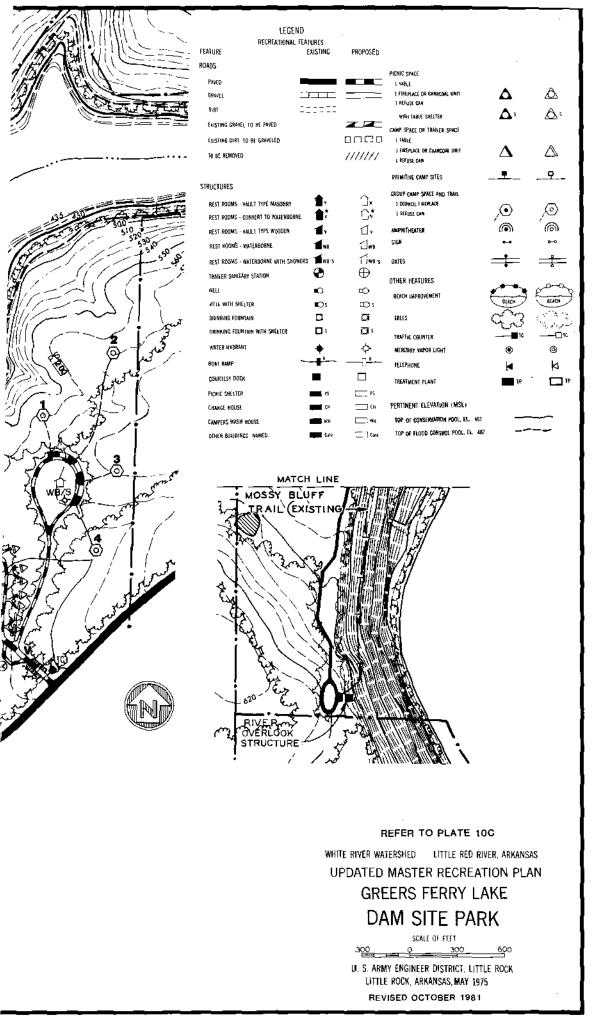
Plates 12 and 19 have been revised to show the limits of existing leases for the commercial concessions as requested in the previous indorsement.

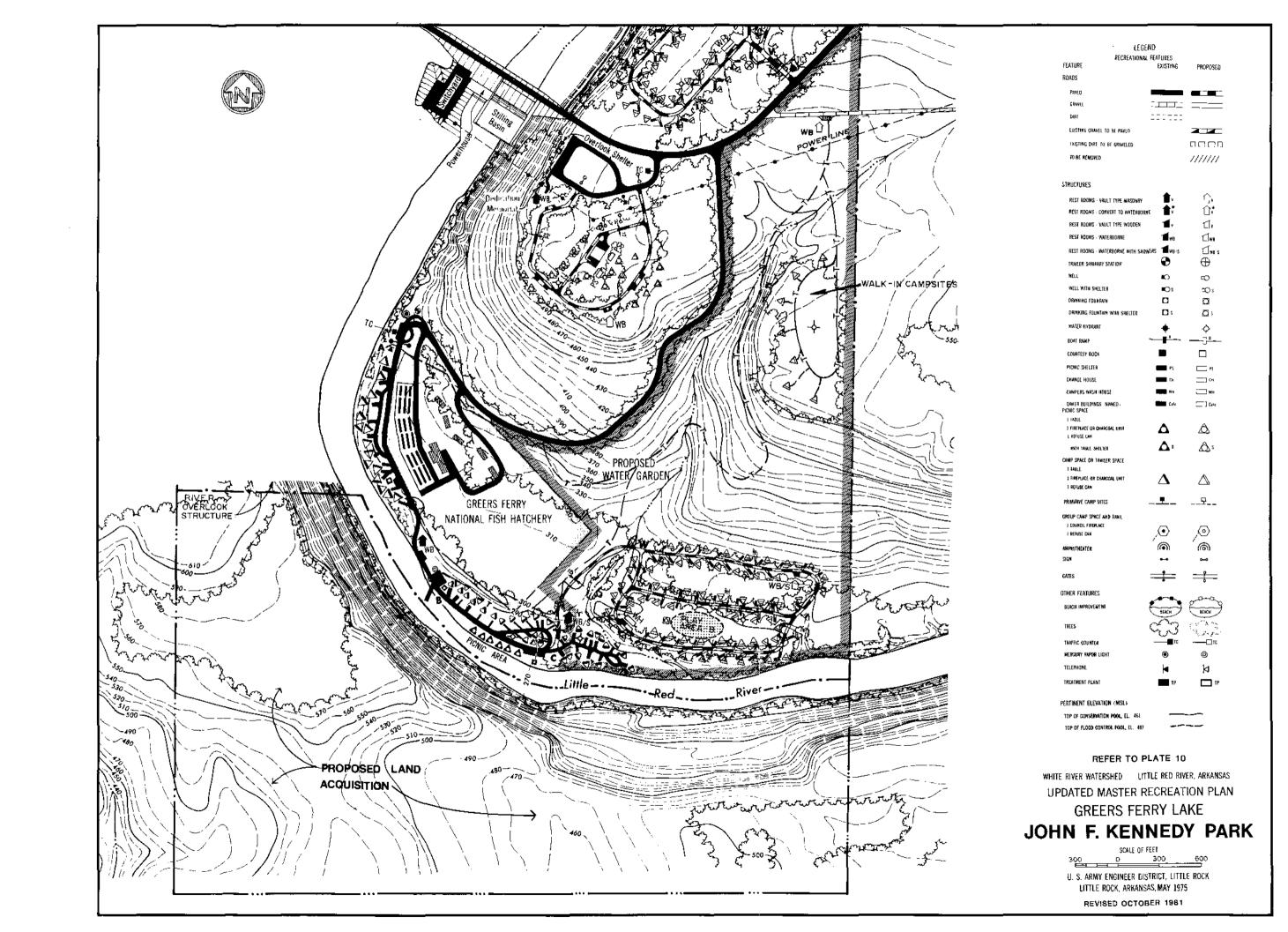
2 Incl (9 cys)

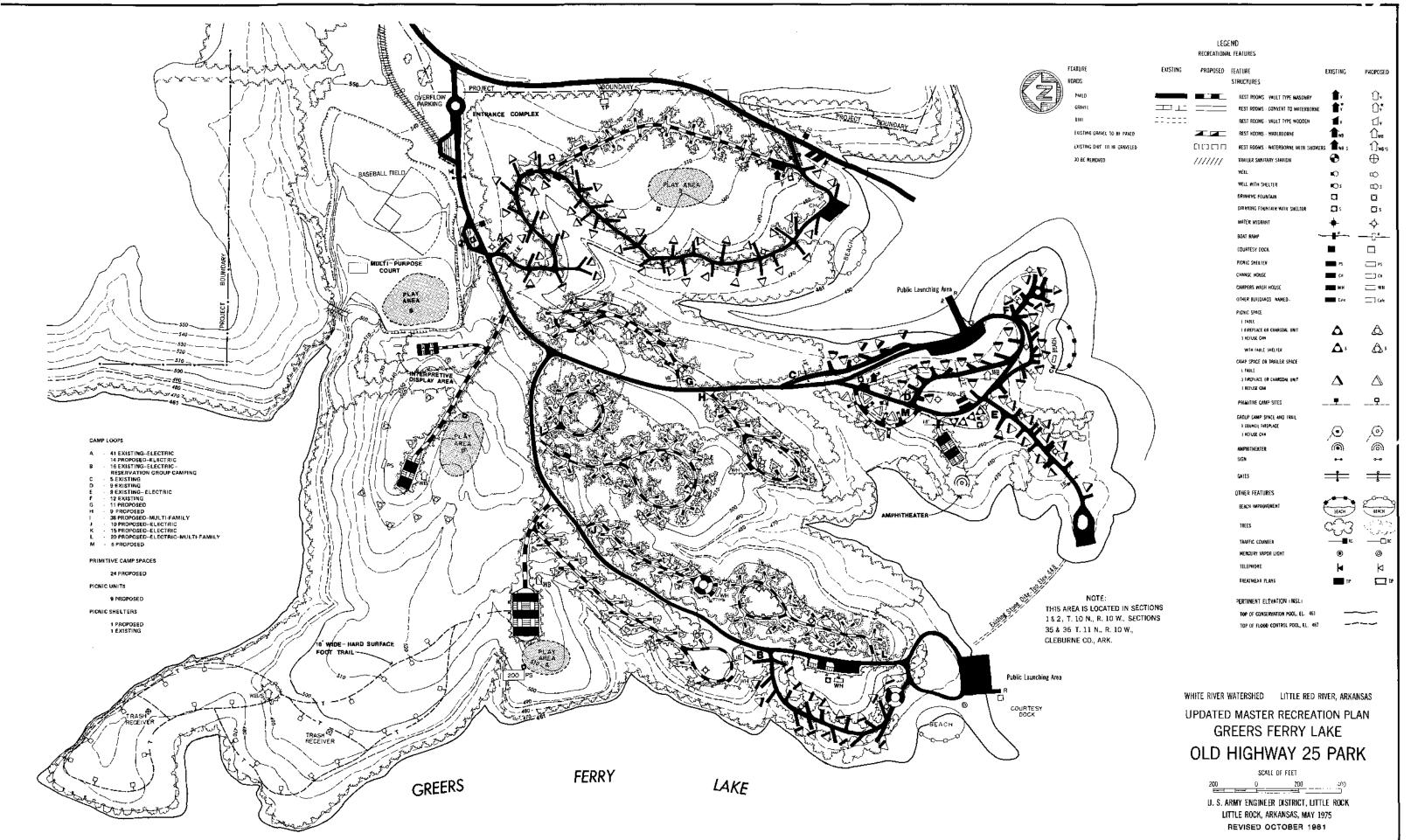
Lieutenant Colonel, Corps of Engineers

Commanding

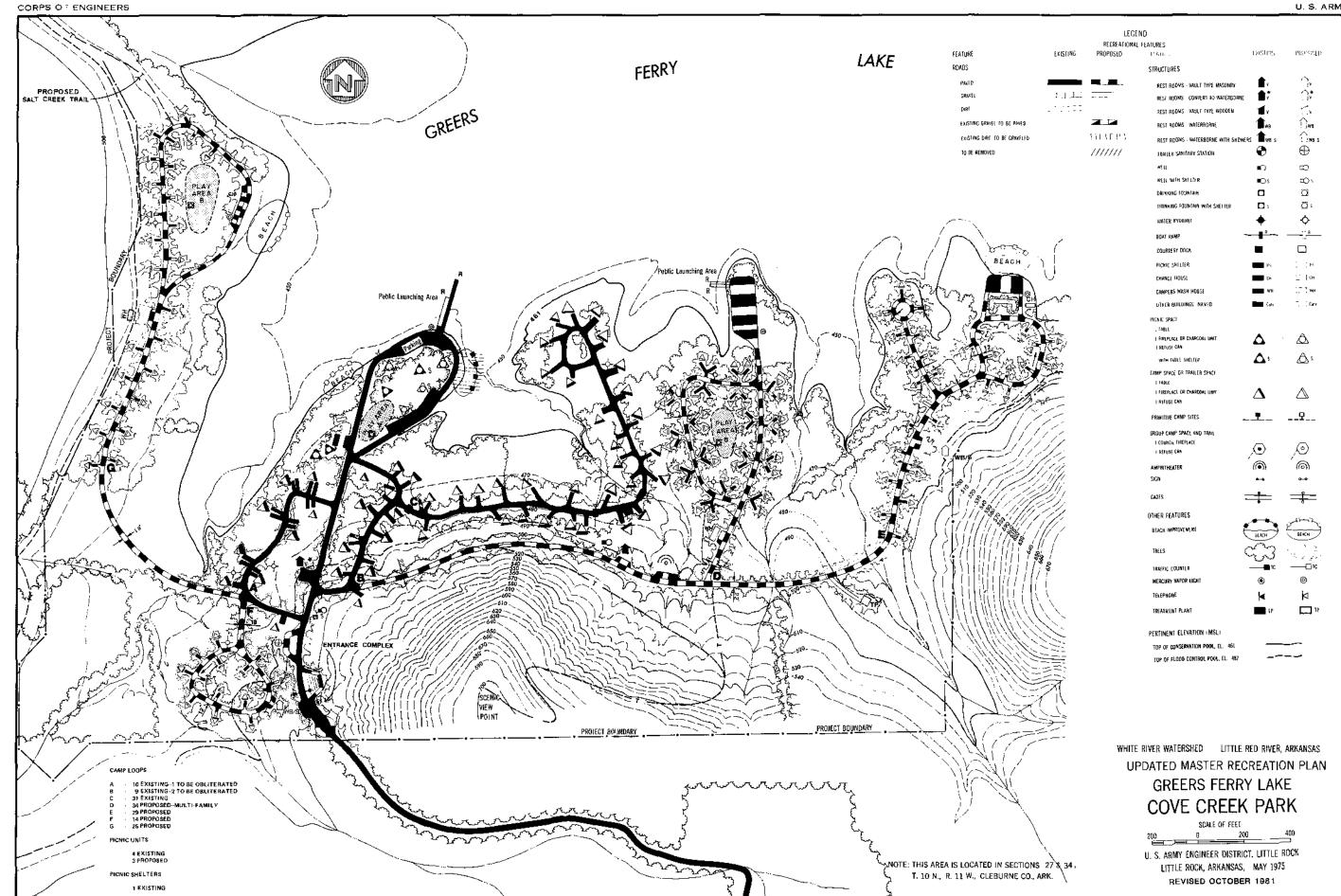


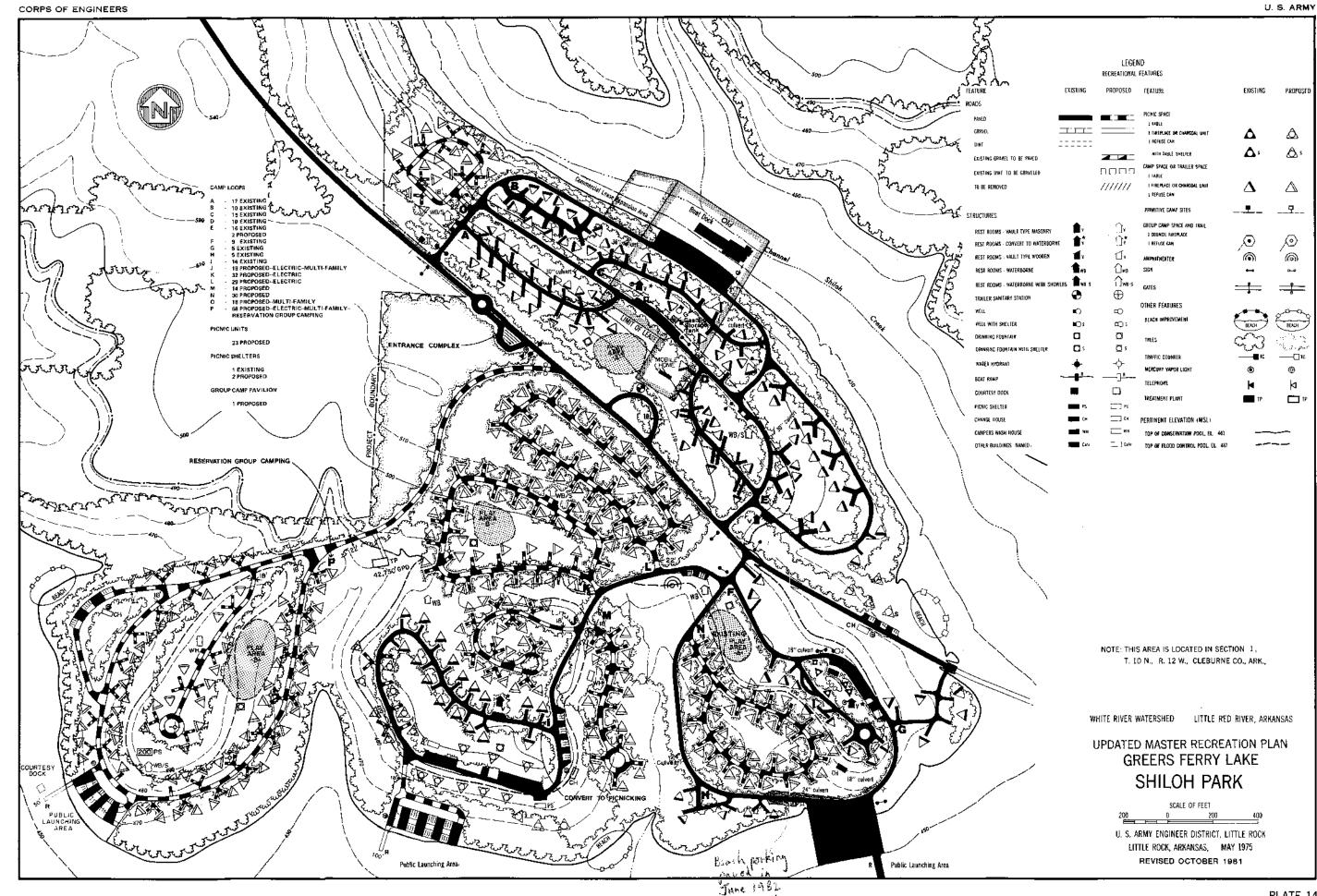




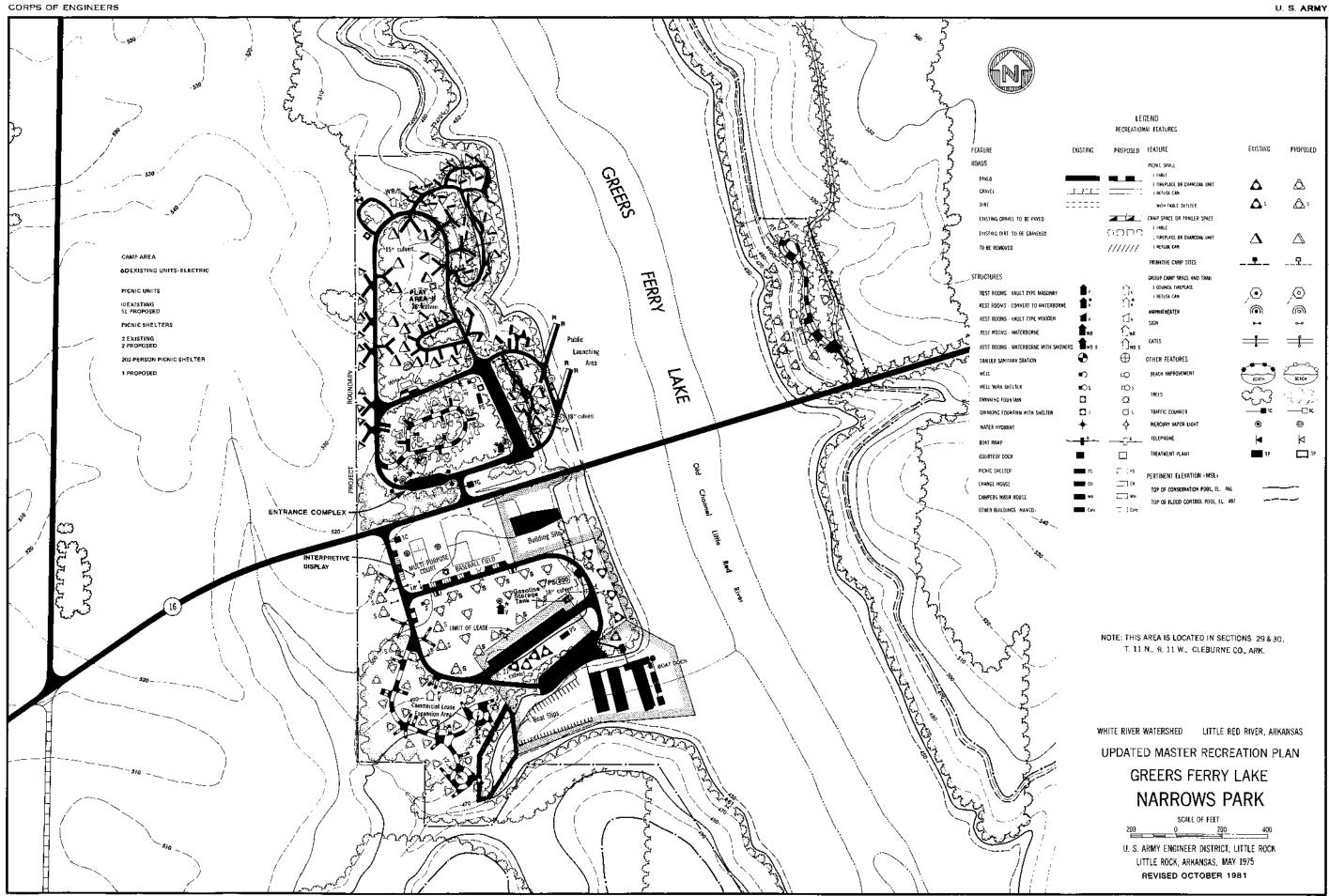


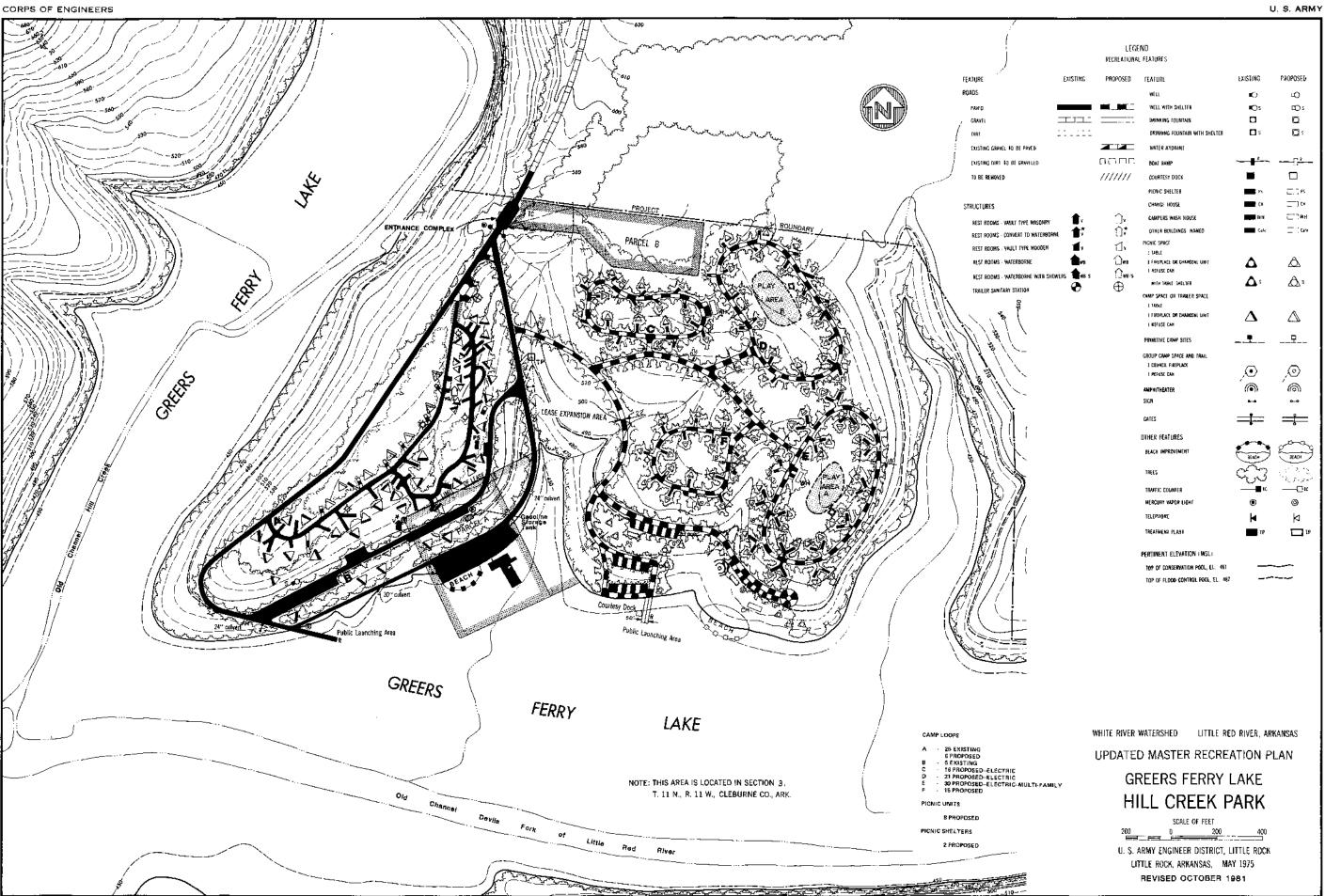
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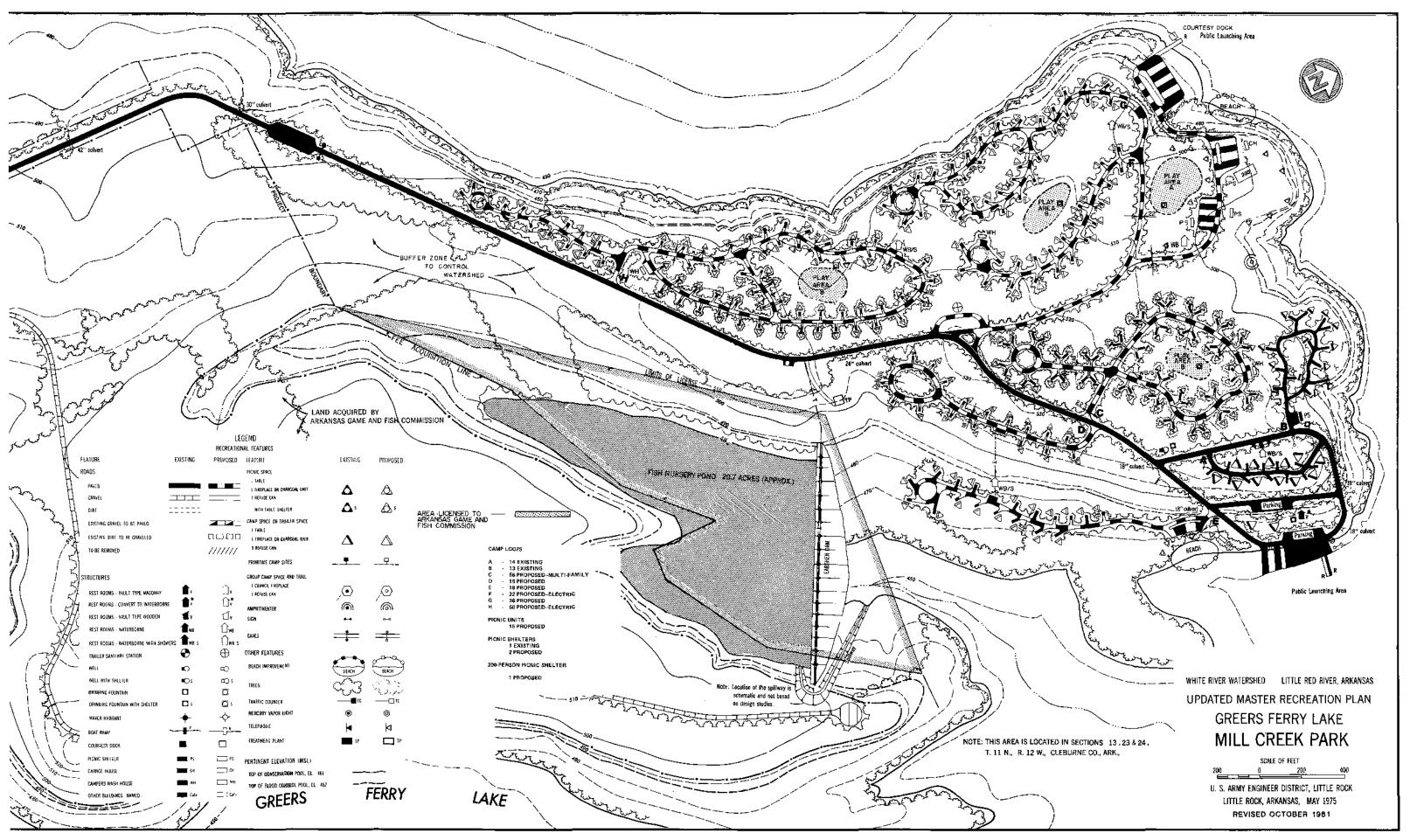




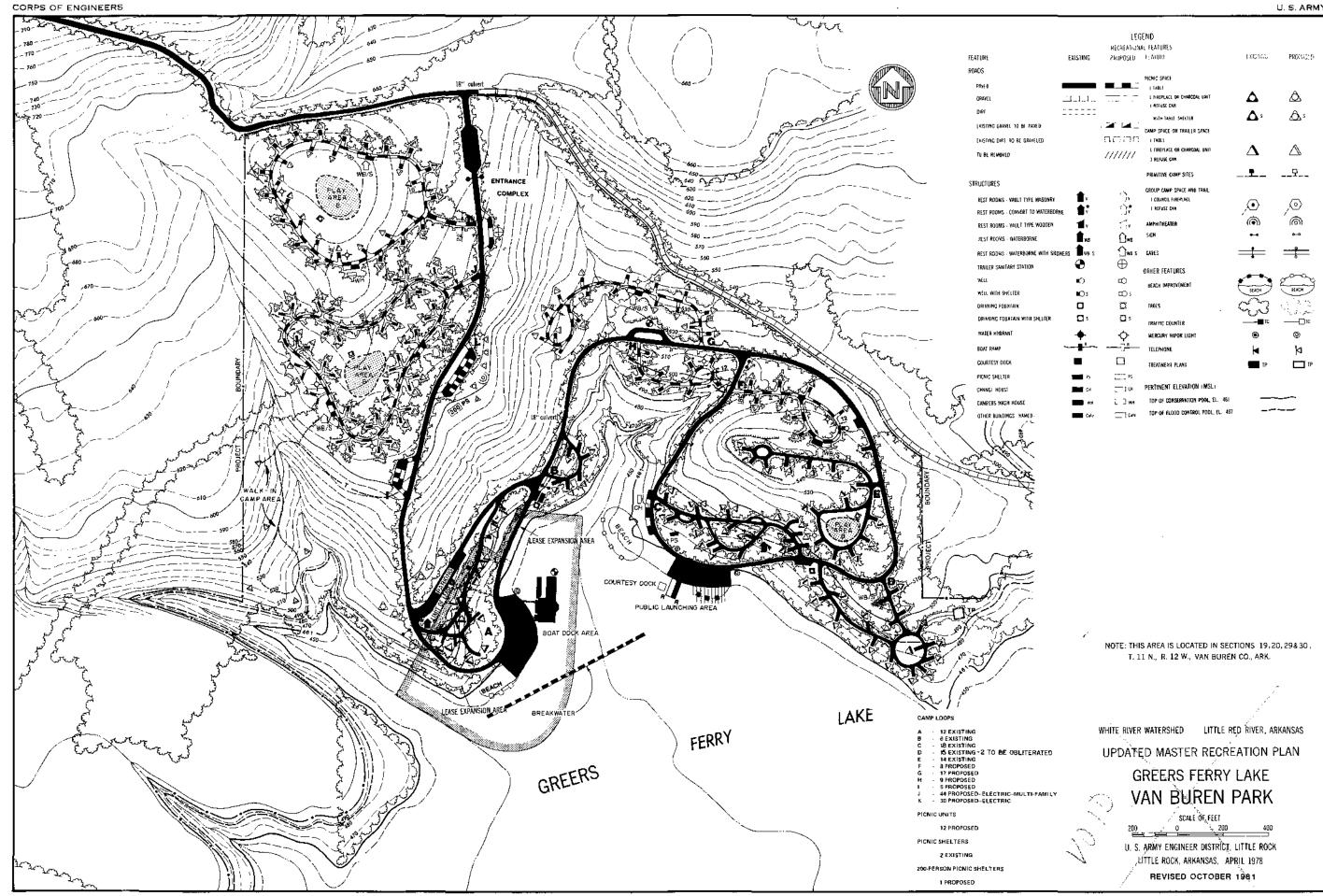
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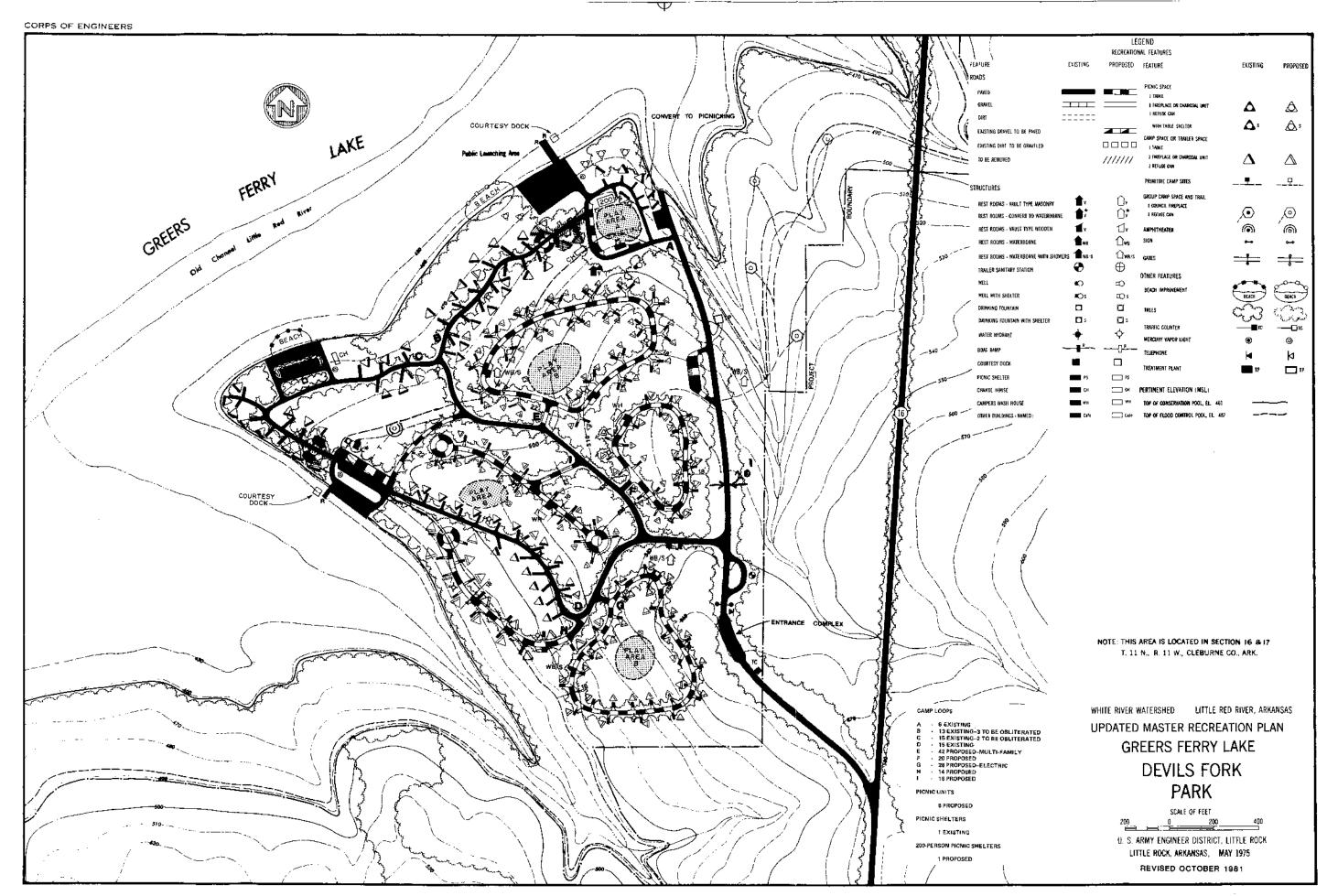


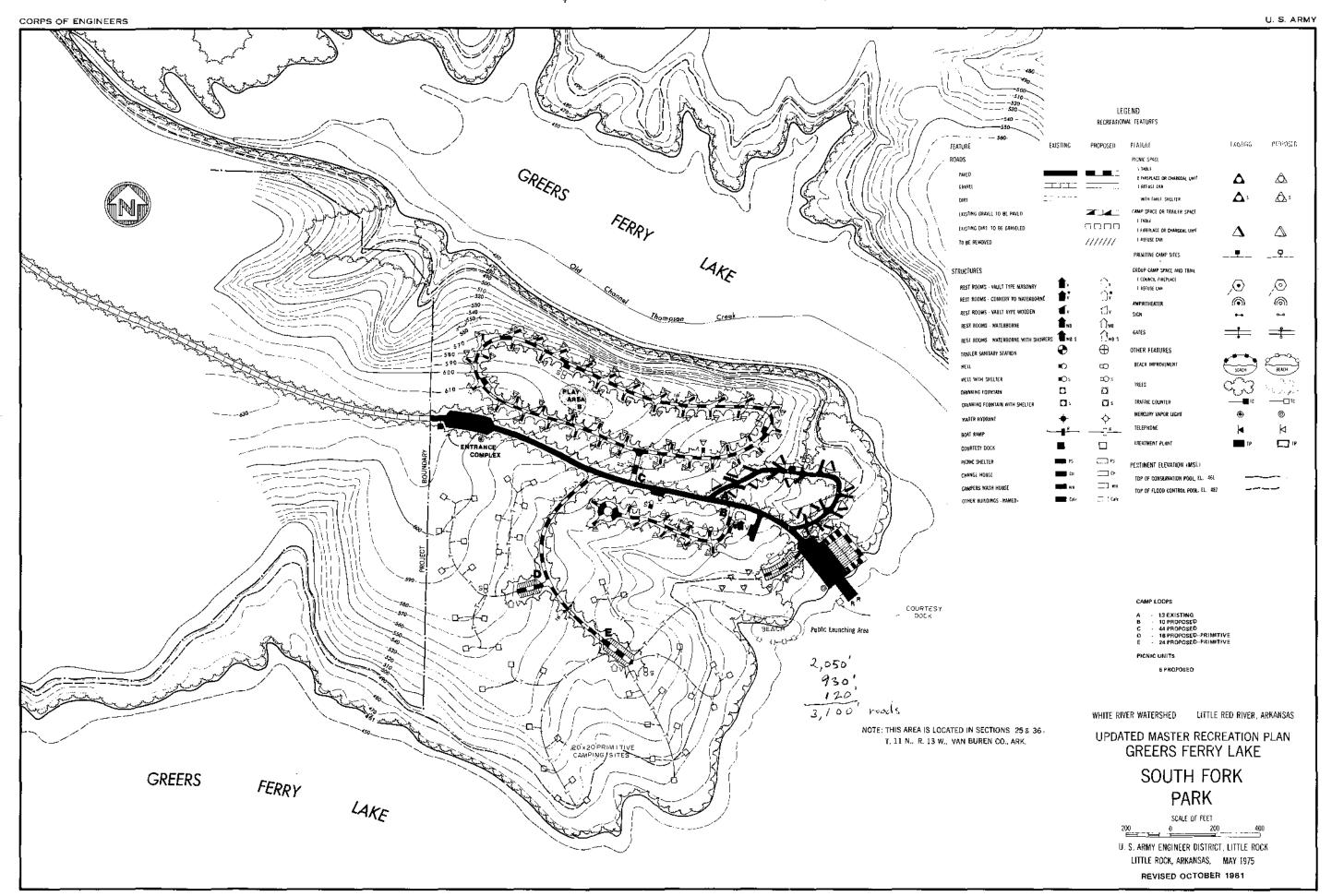




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SWDCO-RR (SWLCO-L 12 Mar 79) 1st Ind

SUBJECT: Greers Ferry Lake, Little Red River, Arkansas, Design Memorandum No. 19-5, Updated Master Plan for Development and Management of

Greers Ferry Lake, Supplement No. 1

DA, Southwestern Division, Corps of Engineers, Main Tower Building, 1200 Main Street, Dallas, TX 75202 19 MARCH 1979

TO: District Engineer, Little Rock, ATTN: SWLCO-L

Approved.

 t_1

FOR THE DIVISION ENGINEER:

wd all incl

Chief, Construction-Operations Division

CF: w/incl

HQDA (DAEN-CWO-R) (5 cy)

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203

REPLY TO ATTENTION OF:

SWLCO-L

12 March 1979

SUBJECT:

Greers Ferry Lake, Little Red River, Arkansas, Design Memorandum No. 19-5, Updated Master Plan for Development and Management of Greers Ferry Lake, Supplement No. 1

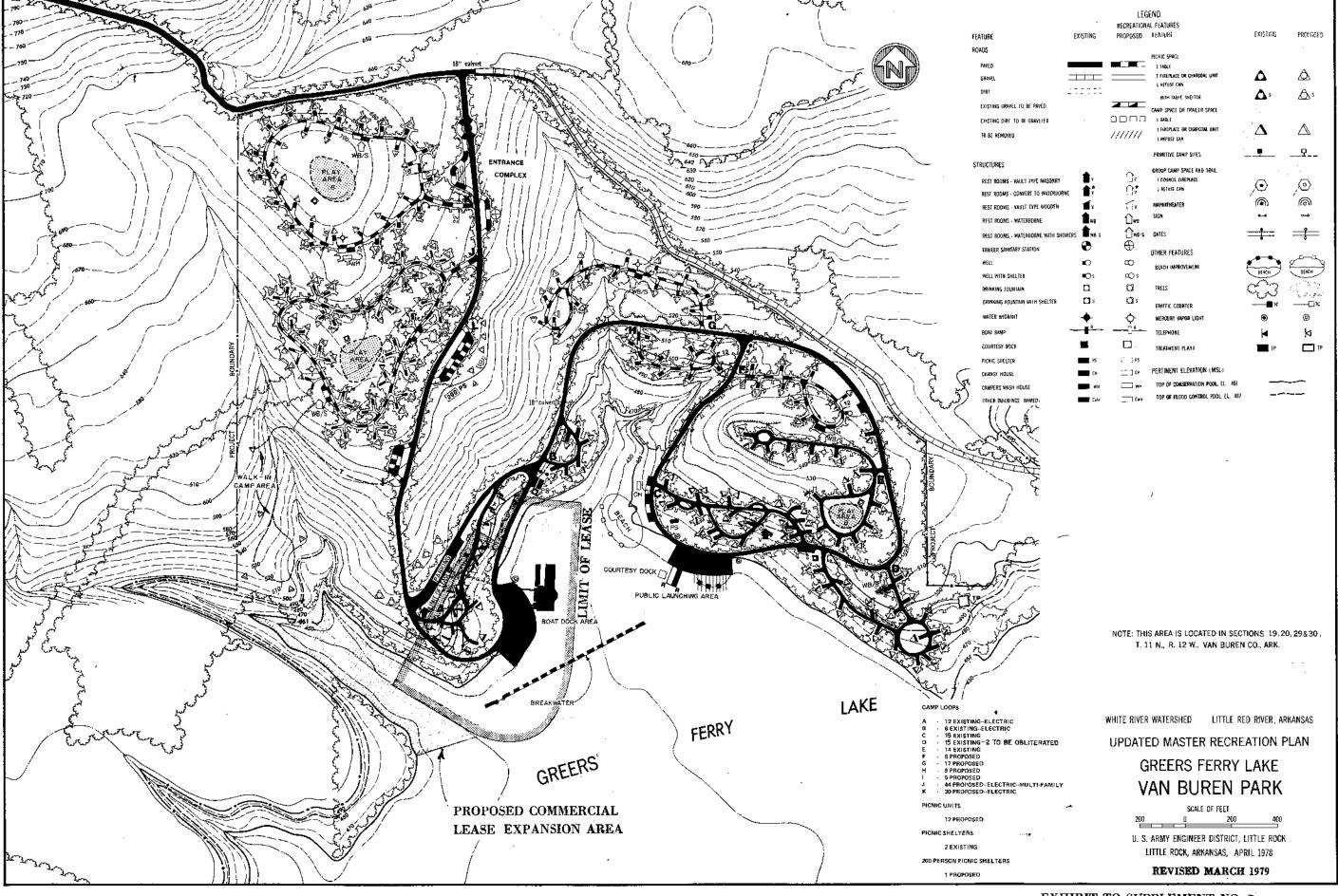
Division Engineer, Southwestern

- 1. The purpose of this supplement is to make an additional 4.2 acres available for the commercial concession lease in Van Buren Park. The concessionaire has requested additional lease area in the protected cove west of the present lease for construction of a party barge dock and covered boat dock and addition of mooring buoys. Expansion of the lease area will not conflict with the planned recreational development of the park since a walk-in camping area is the only facility proposed.
- 2. The concessionaire presently leases 4.63 acres of land above the top of the conservation pool, elevation 461 feet, m.s.l., and 8.87 acres of water area. The concessionaire is effectively utilizing the present lease and must have additional area sheltered from the wind if he is to meet the public demand for additional boat storage.
- 3. It is recommended that the present lease be amended as shown on the inclosed Plate 19 to make available an additional 4.2 acres of water. Approval of this supplement is recommended as commercial leasing of this area is considered the best use of the land.

l Incl (9 cys) As stated

Colonel, Corps of Engineers

District Engineer



CORPS OF ENGINEERS

)

SWDPL-R (SWLED-PV 6 Jun 75) 3d Ind

SUBJECT: Greers Ferry Lake, Little Red River, Arkansas, Design Memorandum No. 19-5, Updated Master Plan for Development and Management of Greers Ferry Lake

DA, Southwestern Division, Corps of Engineers, Main Tower Building, 1200 Main Street, Dallas, Texas 7520226 JAN 1976

TO: District Engineer, Little Rock

The subject Master Plan is approved subject to comments in the preceding indorsements.

FOR THE DIVISION ENGINEER:

BARRY G. ROLGHT

Chief, Planning Division

DAEN-CWO-R (6 Jun 75) 2nd Ind

SUBJECT: Greers Ferry Lake, Little Red River, Arkansas, Design Memorandum No. 19-5, Updated Master Plan for Development and Management of Greers Ferry Lake

DA, Office of the Chief of Engineers, Washington, D.C. 20314 9 Jan 76

TO: Division Engineer, Southwestern ATTN: SWDPL-R

Submitted Master Plan is approved subject to Division comments and the following:

- 1. Page 4-2, Para 4-04. There is no rationale presented for not using ER 1120-2-403 and Technical Report #2 as the method for projecting recreation visitation to the project.
- 2. Page 4-9, Para 4-11. It is not clear from the discussion in this paragraph how the proposed facilities shown on Table 4-07 were arrived at. In addition, there appears to be no relationship between proposed facilities and the deficiencies shown on Table 4-06 or the calculations of carrying capacity (para 4-09) and optimum visitation (para. 4-10) which are assumed to have some constraining function on project visitation. Correspondingly, the level of proposed recreation facility development shown on the plates reflects this confusion and proliferation of camping units throughout the 15 park sites.
- 3. Page 6-5, Para 6-07. The subject Master Plan is not the proper report vehicle for seeking authorization for acquisition of the 208 acres of land on the right bank downstream of the dam. Although preservation of environmental and scenic quality and control of undesirable encroachment are praiseworthy objectives and consideration thereof is required in the planning process for projects approved after enactment of P.L. 91-190 (NEPA), this does not constitute authority to acquire additional land at existing projects for that purpose.
- 4. <u>General</u>. Plates should show development that appears outside project boundaries. The camping units proposed on the southerly side of the park road shown on Plate 12 will be unnecessarily close to the residentual development which appears on Plate 12A.

DAEN-CWO-R (6 Jun 75) 2nd Ind

SUBJECT: Greers Ferry Lake, Little Red River, Arkansas, Design Memorandum No. 19-5, Updated Master Plan for Development and Management of Greers Ferry Lake

- 5. General. All references to Corps of Engineers Facility Design, Index No. 0-5700 should be eliminated. This collection of drawings was distributed to the field for reference only and are not official Corps design criteria. Park Practice Design is the official document for design criteria per paragraph 14 of ER 1110-2-400.
- 6. Plates 11B, 16B and 21B. With the exception of Heber Springs Park, the proposed sewage treatment plants to be constructed at the individual sites discharge their effluents into the lake through outfalls. Depending on wind and current characteristics of the lake, contamination of bathing beaches in the vicinity of the outfalls may occur. Particular attention is directed to Old Highway 25, Hill Creek and Devils Fork Parks.
- 7. Plate 14b. Except for Shiloh Park, all the other parks have treatment plants located above elevation 487 (flood control pool elevation). The probability of inundation of the Shiloh Park treatment plant should be given and the reason for selection of the site explained.

FOR THE CHIEF OF ENGINEERS:

Incl wd GEORGE BRAZIER

Chief, Construction-Operations Division

Directorate of Civil Works

SUDPL-R (SWLED-PV 6 Jun 75) 1st Ind

SUBJECT: Greers Ferry Lake, Little Red River, Arkansas, Dasign Memorandum No. 19-5, Updated Moster Plan for Development and Management of Greers Ferry Lake

DA, Southwestern Division, Corps of Engineers, Main Tower Building, 1200 Main Street, Dallas, TX 75202 19 AUG 1975

TO: HQDA (DAEN-CMP-V)
WASH DC 20314

- 1. Forwarded recommending approval of the land use portion subject to the following comments:
- a. Plates 3 through 9. It is understood that the combination of colors on the land use maps (shown between the top of conservation pool and the flood control pool) provides for dual allocations of use for the single allocations shown in the legend. For example, the combination blue and yellow provides for dual project operations and low density recreation use. District personnel advise that this will be clarified in future updating actions.
- b. Plate 5. The location of the area licensed to the Arkansas Game and Fish Commission (Sumber 10) is not correctly designated. This should be moved to the location of the fish nursery pond adjacent to Mill Creek Park.
- 2. Those portions of the plan pertaining to development and management of the project resources are approved subject to the following comments:
- a. Para 2-04, Table 2-01. Capacity at top of conservation pool should be 1,910,500 acre feet. Capacity at bottom of power drawdown should be 1,194,000 acre feet.
- b. Fara 3-03. The soils information should be supplemented as follows:
- (1) The soils associations should be listed with descriptions and wanagement characteristics.
- (2) A map should be furnished to show the locations and extent of the various associations.

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 867 LITTLE ROCK, ARKANSAS 72203

REPLY TO ATTENTION OF:

SWLED-PV

6 June 1975

SUBJECT:

Greers Ferry Lake, Little Red River, Arkansas, Design

Memorandum No. 19-5, Updated Master Plan for Development

and Management of Greers Ferry Lake

Division Engineer, Southwestern

Design Memorandum No. 19-5, which was prepared by Comprehensive Professional Services, a Little Rock firm, under Contract No. DACW03-74-C-0095, is submitted for your approval.

1 Incl (7 cys)

as

CHARLES E. DOWNS

LTC, Corps of Engineers Acting District Engineer SWDPL-R (SWLED-PV 6 Jun 75) 1st Ind

SUBJECT: Greers Ferry Lake, Little Red River, Arkansas, Design Memorandum No. 19-5, Updated Master Plan for Development and Management of Greers Ferry Lake

c. Section V. The Bureau of Sport Fisheries and Wildlife letter dated 10 June 1974, included in this section, refers only to Deaver Lake and does not appear to be relevant to Greers Ferry. District personnel advise that this letter was in response to LED's letter asking for comments on both Greers Ferry and Beaver; therefore, the Bureau obviously had no comments on the Greers Ferry plan.

FOR THE DIVISION ENGINEER:

1 Incl 4 cy incl 1 wd

BARRY G. ROUGHT Chief, Planning Division

cf: √swlid-fy

WHITE RIVER WATERSHED ARKANSAS

LITTLE RED RIVER GREERS FERRY LAKE

DESIGN MEMORANDUM NO. 19-5

UPDATED MASTER PLAN FOR DEVELOPMENT AND MANAGEMENT OF GREERS FERRY LAKE

PREVIOUSLY ISSUED AND CURRENTLY SCHEDULED DESIGN MEMORANDUMS

		Date	
Memo.		submitted	Date
No.	Subject	or scheduled	approved
·			
1	Site Selection	27 Jul 56	26 Sep 56
2	Hydrology and Hydraulic Analysis	21 Sep 56	20 Mar 57
3	Hydroelectric Power	15 Mar 57	21 Aug 58
4	Access Roads and Service Facilities	28 Sep 56	31 Oct 57
5	General Design Memorandum	28 Dec 56	13 Mar 57
6-1	Concrete Materials	5 Mar 58	25 Apr 58
6-2	Concrete Characteristics	10 Oct 58	19 Dec 58
. 7	Geology and Soils	28 Jun 57	4 Sep 57
8	Embankment Design - Auxiliary Dams	2 Jan 58	20 Mar 58
9-1	Main Dam and Appurtenant Works - Part 1	16 Sep 57	6 Jan 58
9-2	Main Dam and Appurtenant Works - Part 2	25 Nov 57	16 Apr 58
	Real Estate Requirements:		
11-1	Dam Site, Work Area, Access Roads	17 Sep 56	11 Apr 57
11-2	Reservoir Area	3 Jul 57	3 Oct 57
11-3	Quarry Area	29 Apr 58	27 Aug 58
15	Reservoir Clearing	10 Dec 59	21 Mar 60
	Supplement No. 1	28 Mar 61	12 Apr 61
	Supplement No. 2	9 Jun 61	3 Jul 61
	Supplement No. 3	14 Aug 61	11 Sep 61
	Supplement No. 4	25 May 62	
	Relocations		
16-1	Power and Telephone Lines	13 Aug 57	18 Nov 57
	Supplement (AP&L)	19 Feb 62	1 Mar 62(SWD)
16-2	Heber Springs Water Supply	31 Mar 58	26 May 58
16-3	State Highways	14 Feb 58	15 Apr 58
	Supplement No. 1	12 Sep 58	29 Oct 58
	Supplement No. 2	. 24 Mar 59	27 Apr 59
	Supplement No. 3	27 May 60	14 Jun 60
16-4A	Van Buren County Roads	17 Sep 58	11 Dec 59
	Revision	10 Sep 59	11 Dec 59
	Additional Data	15 Jan 60	22 Jan 60
	Supplement	17 Feb 61	3 May 61
16-4B	Cleburne County Roads	25 Sep 59	11 Dec 59
	Additional Data	18 Jan 60	4 Feb 60(SWD)

PREVIOUSLY ISSUED AND CURRENTLY SCHEDULED DESIGN MEMORANDUMS (con.)

Memo.		Date submitted	l Date
No.	Subject	or scheduled	approved
			
16-5	Cemeteries	1 Aug 57	5 Nov 57
16-6	Higden Streets	25 Apr 60	28 Jun 60
	Power Plant:		
17-1	Preliminary Design Report	31 Oct 57	24 Jan 58
17-2-1	Powerhouse Arrangement and		
	Architectural Design	10 Feb 59	13 Apr 59
17-2-2	Structural Design	19 Mar 59	24 Apr 59
17-2-4	Electrical Design	4 Aug 60	22 Oct 59
17-2-5	· - · · · · · · · · · · · · · · · · · ·	16 Aug 60	19 Sep 60
17-2-6	Power Plant Piping	1 May 61	Jun 61
17-2-7	Powerhouse Fallout Protection		
	Facilities	19 Jan 62	
19-1	Reservoir Management	12 May 58	4 Sep 59
19-2	Master Plan	13 Apr 61	21 Dec 61
19-3	Overlook Shelter	21 Aug 62	17 Oct 62
19-4	Updated Master Plan	Jan 68	8 Aug 68
19-5	Updated Master Plan	May 75	
20	Sediment Ranges	15 Jul 60	3 Aug 60
21	Instrumentation	19 Mar 59	15 Apr 59
22	Fallout Protection for General		
	Public	18 Oct 61	Withheld
23	Operational Facilities	6 Feb 64	24 Sep 64

WHITE RIVER WATERSHED ARKANSAS

LITTLE RED RIVER
GREERS FERRY DAM AND LAKE

DESIGN MEMORANDUM NO. 19-5

UPDATED MASTER PLAN FOR LAKE DEVELOPMENT AND MANAGEMENT

SECTION I

INTRODUCTION

- 1-01. Project authorization. The Greers Ferry Dam and Lake project was authorized by the Flood Control Act of 28 June 1938 (Public Law 761, 75th Congress, 3d Session), as modified by the Flood Control Act approved 18 August 1941 (Public Law 228, 77th Congress, 1st Session), to include the authorization of the project for flood control and generation of hydroelectric power.
- 1-02. Purpose and scope. The project is a multiple-purpose power and flood-control project and is a major unit in a comprehensive plan for development of the water resources of the White River Basin in Missouri and Arkansas. Additional benefits are derived through utilization of the impounded water and resulting shoreline for recreational pursuits. Utilization of the lake area for forestry, soil conservation, and fish and wildlife management are additional benefits created by the impoundment. The impounded water also serves as a municipal water supply for the cities of Clinton and Heber Springs, Arkansas. An easement for a pumping plant and pipeline right-of-way for municipal water supply was issued to Heber Springs by the Secretary of the Army on 15 October 1963.

This report updates Design Memorandum No. 19-4 for Greers Ferry Dam and Reservoir dated December, 1967. This updated plan provides for an orderly, progressive development of the project and changes in planning and land use resulting from a re-evaluation after approximately seven years of development under the guidance and direction of Design Memorandum No. 19-4.

1-03. Application of Public Laws.

a. <u>General</u>. Section 4 of the Flood Control Act approved 22 December 1944, as amended by Section 4 of the Flood Control Act of 1946, and as further amended by Section 209 of the Flood Control Act approved 3 September 1954 (Public Law 780, 83rd Congress), authorizes the Department of the Army to provide for recreational use of the lakes under its control.

- b. Implementation of Public Law 89-72. Recreational development since 1974 requires implementation of the policy established by the retary of the Army in coordination with the office of Management and leget as outlined in EC 1130-2-138 dated 31 May 1974, Recreational relopment at Completed Projects. The policy requires that a non-level body must agree to furnish not less than 50 percent of the cost incremental development and further agree to operate, maintain, and wide replacement of the park development; or that a system of user arges be put in place to recover all operation, maintenance, and placement costs.
- c. Public Law 93-303, Fee Collection System. On 7 June 1974, Public v 93-303 was enacted. This law provides for the collection of fees at mily camping and group camping areas having various classes of facilies as follows:
 - Class A. Waterborne restrooms; potable water; showers (warm water); sanitary disposal station; camp sites with table, fireplace (rock ring or grill); refuse containers; paved roads; designated tent or trailer spaces; visitor protection control; personal fee collection (honor system will not be used).
 - Class B. Vault restrooms; potable water; sanitary disposal station; camp sites with table, fireplace (rock ring or grill); refuse container; access and circulation roads; designated tent or trailer spaces; visitor protection control; personal fee collection.
 - Class C. Pit or vault restrooms; potable water; camp sites with table, fireplace (rock ring or grill); refuse containers; access and circulation roads; designated tent or trailer spaces; visitor protection control; personal fee collection.
 - Class D. Portable or pit restrooms; potable water; fireplace (rock ring or grill); refuse containers; access and circulation roads; designated tent or trailer spaces; visitor protection control; personal fee collection.

An additional charge of \$0.50 per day may be made for use of electrical hookups in parks in Classes A, B, C, or D.

At each Corps lake, where camping is permitted, at least one primitive campground containing designated camp sites, sanitary facilities, and vehicular access will be provided where no fee will be charged. The primitive campground will contain sufficient camp sites to qualify as reasonably large.

-04. Coast Guard Regulations. The Arkansas Game and Fish Commission oted on 21 May 1974 to adopt the minimum Coast Guard Regulations regarding ecreational boating at Federally-controlled waters. The Arkansas Game and ish Commission's wildlife officers will be responsible for enforcing the ederal boating regulations.

The minimum regulations are outlined as follows:

- All vessels equipped with propulsion machinery of any type must be properly numbered and registered in the state of principal use.
- Each floating craft should be equipped with one personal floatation device for each person aboard or being towed. These personal floatation devices shall be the approved Type I, II, III or IV.
- 3. One Coast Guard-approved flame arrestor installed on each carburetor of all gasoline engines excepting outboard motors installed after 25 April 1940. All vessels shall have B-II or B-III type flame arrestors on board.
- 4. Fire extinguishers shall be B-I type, Coast Guard-approved, unless the construction is such that explosive flamable vapors cannot be trapped; there are no closed compartments, no permanently installed fuel tanks or portable fuel tanks over 12 gallon capacity.
- 5. Proper lights are required to be displayed from sunset to sunrise.
- 6. At least two ventilator ducts fitted with cowls or their equivalent, to properly ventilate the bilges of every engine and fuel tank compartment of boats constructed after 25 April 1940 using fuel having a flashpoint of 110 degrees Fahrenheit or less.

7. Whistles

- a. Class A boats (under 16 feet length) are not required to have a whistle on board but "Rules of the Road" require that proper signals be sounded.
- b. Class I boats (at least 16 feet but under 26 feet) are required to have one hand, mouth, or power-operated type whistle which is audible for at least one-half mile.
- c. Class II vessels (at least 26 feet but under 40 feet) are required to have one hand or power-operated whistle audible for one mile.
- d. Class III vessels (40 feet or over in length) shall be equipped with one power-operated whistle audible for at least one mile.

8. Bells

- a. Class A and Class I vessels are not required to have a bell but "Rules of the Road" require that proper signals be sounded.
- b. Class II and Class III are required to have one bell producing a clear, round tone.
- 1-05. Status of the project. Construction of Greers Ferry Dam and appurtenant works was initiated in March, 1959, and completed in December, 1962. The powerhouse and switchyard were completed in July, 1964. Construction activities at this time are limited to further development of recreation facilities.

WHITE RIVER WATERSHED ARKANSAS LITTLE RED RIVER

GREERS FERRY DAM AND LAKE DESIGN MEMORANDUM NO. 19-5 UPDATED MASTER PLAN FOR LAKE DEVELOPMENT AND MANAGEMENT

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В	Forest Management Plan	Jun 72	
С	Fire Prevention Plan	May 75	
D	Fish and Wildlife Management Plan	Jun 75	
E	Project Safety Plan	22 Jun 72	14 Jul 72
F	Lakeshore Management Plan	8 Apr 75	May 75

SECTION II

GENERAL CHARACTERISTICS OF PROJECT AREA

- 2-01. Location. The Greers Ferry Dam is located at river mile 79.0 on the Little Red River, a tributary of the White River, and is about two miles' northeast of Heber Springs, Arkansas, about 50 air miles northeast of Little Rock, Arkansas, and about 115 air miles northwest of Memphis, Tennessee. The lake area extends in a westerly direction upstream from the dam approximately 50 miles into Cleburne and Van Buren Counties, Arkansas.
- 2-02. Accessibility. Greers Ferry Lake is bordered on the west by U. S. Highway 65, and a network of state highways encircle the area. From the U.S. Highway on the west, the area is served by State Highways 16, 330, 356, and 92. The northern and eastern portions of the area are served by State Highways 110, 9, 16, 25, and 210. The southern portion is served by State Highways 5, 25, and 16. The area in which Greers Ferry lake is located is not served by a railroad. The Heber Springs airport is located between the city and dam. No scheduled commercial airline serves the area at this time.

2-03. Description of the project.

- a. Greers Ferry Lake is nestled in the eastern foothills of the Arkansas Ozarks. The lake is actually two bodies of water—one lying north of the other and connected at the middle by a quarter mile wide channel called the "Narrows". The surrounding terrain is rocky and rugged with vertical changes in elevation of more than 600 feet. The 276-miles of shoreline lie within Cleburne and Van Buren Counties and the perimeter of the lake is almost entirely wooded with a cover of mixed shortleaf pine and upland hardwoods.
- b. Three major tributaries of the Little Red River comprise the water source for Greers Ferry lake. Two of these cributaries, the Devils Fork of the Little Red River and the Middle Ford of Little Red River are rapid flowing and provide excellent floating recreation above the area of impoundment.
- c. Greers Ferry Lake is the eastern-most major impoundment of water in Arkansas (see Location Map, Plate 1). It has a 150 highway mile zone of influence which draws a major portion of the lake's visitors from eastern Arkansas and western Tennessee.
- 2-04. Engineering features. The main dam is a concrete structure 1,704 feet in length and 249 feet in height above its lowest foundation. The spillway is a gated overflow section designed for regulation of the lake level. Six electrically operated radial-type gates, each 40 feet by 36 feet, control the spillway. Flow through the 5-foot 8-inch by 10-foot 0-inch sluice is controlled by a hydraulically-operated sluice gate. There are two 48,000 kw. generating units with an installed capacity of 96,000 kw. A summary of pertinent data of the dam and lake is shown in the following Table 2-01.

TABLE 2-01

PERTINENT DATA

Crest length, feet Maximum height above streambed, feet Width of base of dam, feet Volume of concrete in dam, cubic yards	1,704 243 214 820,000
Auxiliary Dams Number Length, feet Maximum height, feet Elevation, top of embankment, feet above m.s.l.	2 3,500 and 4,500 40 and 95 503
Spillway Length of spillway section, feet Elevation of spillway crest, feet above m.s.l.	280 453
Power Provisions Main generating units, number Rated capacity of each unit, kilowatts Main generating units, ultimate installation Installed capacity, kilowatts	2 48,000 2 96,000
Lake Top of flood control pool, elevation Surface area, acres Storage capacity of lake, acre feet Length of shoreline, miles	487 40,500 2,844,000 343
Top of conservation pool, elevation Surface area, acres Storage capacity of lake, acre feet Length of shoreline, miles	461 31,500 1,194,000 276
Bottom of power drawdown, elevation Surface area, acres Storage capacity of lake, acre feet	435 24,000 716 ₇ 000
Land Acquisition (as of 1 January 1974) Fee, acres Flowage easement, acres Total acres	40,914 4,634 45,548

2-05. Pool fluctuation and streamflow. The project was designed and constructed to provide for the top of the flood control pool at elevation 487 feet, m.s.l. The top of conservation pool and the bottom of the power drawdown are established at elevations 461 and 435 feet, m.s.l., respectively.

Under normal conditions of rainfall and runoff, the lake elevation is expected to fluctuate between these elevations. During flood conditions, the lake level may rise into the flood control pool and under extreme flooding may exceed the top of the flood control pool at elevation 487 feet several feet during surcharge operation. Under extended drought conditions, comparable to those known to have occurred during the period of record, the lake level may be drawn below the nominal bottom of the power drawdown. Plates 38 and 39 show the Greers Ferry pool stage hydrograph and pool elevation duration curve for experienced operation of the project from April, 1964, through December, 1975. A summary of the natural flows at the dam site for the 40-year period, October, 1921, through September, 1961, is as follows:

TABLE 2-02
STREAMFLOW DATA

	:		:	Volume	:	Average Rate
	:	Period	:	(Acre feet)	:	(c.f.s.)
	:		:		:	
Average annual	:	40 years	:	1,369,100	:	1,890
Maximum annual	;	1927	:	3,062,000	:	4,230
Minimum annual	:	1954	:	469,200	:	650
Maximum monthly	:	April 1927	:	848,600	:	14,260
Minimum monthly	:	Several times	:	0	:	0
•	:		:		:	

SECTION III

RECREATION AND ENVIRONMENTAL RESOURCES OF THE PROJECT AREA

- 3-01. General. The project is located in the foothills of the Ozark Mountains, a popular vacation and retirement area. This area has a mild climate, long season for outdoor recreation, scenic terrain, abundance of fish and wildlife, unpolluted rivers and creeks, and mineral springs.
- 3-02. The lake and surrounding area. At the top of the conservation pool, elevation 461 m.s.l., the lake has a surface area of 31,500 acres and a shoreline length of 276 miles. At the top of the flood pool, elevation 487 m.s.l., it has a surface area of 40,500 acres. The lake is fed by the Middle Fork, Devils Fork and South Fork of the Little Red River and by numerous clear water creeks. The lake is irregular in shape with numerous arms and coves. Steep bluff formations on both sides of the central portion of the lake confine the water to a straight channel dividing the lake essentially in half. The area is generally wooded and rugged with interesting geologic formations overlooking the lake. The principal tree growths consist of a number of species of oak and shortleaf pine. Other trees prevalent in the region include hickory, cedar, elm, gum, ash, walnut, maple and birch.
- 3-03. Soils. Greers Ferry Lake is located entirely within the outcrop area of the Atoka Formation. The rock strata in this formation are principally sandstone, shale, sandy shale, and shaley sandstone. Except in the active flood plain of the river, where soils consist of alluvial silts and sands, overburden is derived from the in-place weathering of the underlying rock strata. Soils formed in this manner vary from clay to sandy silt, dependent on the nature and characteristics of the parent rock. Where bedrock is sandstone, the soil mantle formed will consist of sandy silt containing fragments of sandstone and will range from 0 to 5 feet in thickness. Where bedrock is shale, the soil mantle will be principally clayey and contain few rock fragments. Thickness in these areas varies from 4 to as much as 20 feet, depending on the depth to which weathering has been active. The rock-like characteristics of the overburden in these areas become more pronounced with depth, reflecting the gradational change from soil to rock. Soils in some areas contain varying amounts of detrital, or washed-in materials, the amount and nature of which are controlled by the topography of the area.
- 3-04. Water characteristics. The upper Little Red River and its tributaries upstream of the dam are not generally subject to pollution by industrial or municipal waste. However, the South Fork arm of the lake is subject to pollution from municipal sewage and chicken processing plants. Proper treatment systems can prevent this pollution. The stream is clear except for brief periods immediately following heavy rains. Runoff from the rough, steeply rolling watershed is very rapid until it reaches the relatively flat lands of the river valley.

3-05. Scenic quality. Greers Ferry Lake has year-round photogenic character. Angular mountains form the perimeter of the lake, exposed bluffs, and rock outcroppings create a photographers paradise. Seasonal color is provided by the spring and summer flora. During the fall, the mixed upland hardwoods provide many varied hues of yellow and red.

There are several vantage points from which the photographer can take panoramic shots, but few can exceed Sugar Loaf Mountain. Sugar Loaf is a flattopped island rising 540 feet above the conservation pool.

A trail, Sugar Loaf Mountain National Nature Trail, takes the hiker from the conservation pool elevation to 1,001 feet. Not only is the climb breathtaking, but the view from all points of the compass provides an aweinspiring spectacle. A photomap of the trail is shown on Plate 29.

3-06. Health:

- a. <u>Mosquito control</u>. The present rate of incidence of malaria among the resident population is neglible. Due to the steep nature of the shoreline and the fluctuating water level of the lake, there are very few places suitable for mosquito propagation. The mosquito control program has consisted of the establishment and periodic observation of mosquito-counting stations. No serious problem has, or is expected to develop. However, should it become necessary, a larviciding program will be initiated. Martin houses have been constructed, and the resulting Martin population assists in mosquito control.
- b. <u>Control of flies</u>. A liquid fly poison is used around the restroom areas and a granular-type fly bait is sprinkled in the park areas as necessary to control flies during infestation. Mechanical fly traps are also used when required.
- c. <u>Poisonous plant control</u>. Poison ivy, poison oak and poison sumac are controlled in the park areas by the use of registered herbicides or other suitable methods as necessary.
- d. <u>Sewage facilities</u>. All materials removed from vault-type restrooms, trailer dump stations or marine dump stations are disposed of in State approved municipal sewer systems. Waterborne restrooms have septic tanks and disposal fields or are connected to an approved sewage disposal system.
- e. <u>Solid waste disposal</u>. All solid waste is disposed of in private and public sanitary land fills operated in accordance with the Department of Pollution Control and Ecology and the **Ar**kansas Department of Health.
- 3-07. Climate. In general, the climate is moderate with an average mean annual temperature of 60 degrees Fahrenheit. Short periods of unusually cold weather during the winter months and high temperatures in the summer are experienced. The average annual rainfall is about 50 inches, with most of the precipitation occurring during the winter and spring seasons.

3-08. <u>Vegetative analysis</u>. The Greers Ferry Lake area is an excellent example of the typical Arkansas Hill Country. The major forest types are the Upland Hardwood and Shortleaf Pine association. The Bottomland Hardwoods cannot be considered a major forest association although the formation of the Greers Ferry Lake has created a micro-environment which will support species of this forest association.

It is evident that the vegetative species common to the Bottomland Hardwood will become prominent along the coves and tributaries of the lake margin. Blackgum (Nyssa sylvatica) Sweetgum (Liquidambar styraciflua), Black Willow (Salix nigra), and American Sycamore (Platanus occidentalis) will become the dominant species along the lake margin because of the fluctuation of the holding pool. A typical characteristic of the Bottomland Hardwood association is their ability to survive with 10 to 20% of their root system covered with water.

The Upland Hardwood and Shortleaf Pine associations can partially be attributed to the physiographic variations from stream and river valleys to the steep, rocky slopes and benches created in the flood plain. The vegetation can be classified by its location within these variations. The Shortleaf Pine - Oak - Hickory association will be more prominent on the mountanous, rocky slopes, while the Maple-Sycamore-Gum association will be found on the lower benches and stream valleys.

The following list is a composite of the major forest species found in this area in either mixed or pure stands:

White Oak Post Oak Blackjack Oak Chinkapin Oak Southern Red Oak Black Oak Shortleaf Pine Eastern Red Cedar Sweetgum Blackgum Black Hickory Mockernut Hickory Shagbark Hickory Black Walnut Sugar Maple Red Maple White Ash Green ash

American Elm Slippery Elm Winged Elm

Quercus alba Quercus stellata Quercus marilandica Quercus muehlenbergi Quercus falcata Quercus velutina Pinus echinata Juniperus virginiana Liquidambar styraciflua Nyssa sylvatica Carya texana Carya tomentosa Carya ovața Juglans nigra Acer saccharum Acer rubrum Fraxinus americana Fraxinus pennsylvanica var. lanceolata <u>Ulmus</u> americana <u>Ulmus</u> rubra Ulmus alata

Some mention should be made of the typical understory associated with the Upland Hardwood and Shortleaf Pine forests. The Downy Serviceberry (Amelanchier arborea) will be found in common association with the White, Red and Chinkapin Oaks and Upland Hickories. The Pawpaw (Asimina triloba) is a typical understory tree commonly found in stands of Oak, Maple, and Hickory in most areas. The Hawthorn (Crataegus species) adapts to diverse environs. It can be found in the wet forest flood plains to the exposed, rocky slopes. The Sassifras (Sassifras albidum) is similar to the Hawthorn in that it has a diverse growth range, but will mostly be found in the areas with rich, moist soil. Southern Wax Myrtle (Myrica cerifera) is a common semi-evergreen shrub found mostly along the stream banks and marsh areas.

A more complete analysis of the existing vegetation at each of the park sites can be found in the "Recreational Forest and Vegetation Management Plan" for Greers Ferry Lake prepared by the Arkansas Forestry Commission.

3-09. <u>Cultural resource</u>. As early as 1906, Federal agencies were required to consider the cultural resources on public lands. Since that time, numerous acts have clarified these responsibilities. The Secretary of Interior has been designated as the office of primary responsibility, and it wasn't until May, 1974, with the enactment of P. L. 93-291, the Archaeological Conservation Act, that other Federal agencies were authorized to submit a separate line item on a budget submission for cultural resource consideration. This Act allows up to one percent of the project funds to be allocated for cultural resource identification and management.

Consideration is being given to having training sessions on identifying and managing the cultural resources in the District. This training will be made available to resource managers in the field as well as selected employees of the District Office. Upon completion of an inventory survey, a plan will be developed to insure the protection and management of this non-renewable resource.

Archeology. The early history of occupation by man of the Greers Ferry Lake area began more than 1,000 years before the Birth of Christ with the settlement of the area by Indians. These people were primarily hunters as is evidenced by the well-made projectile points and scrapers found in the area. There were three other distinct periods of occupation ending with the last Indian inhabitation in the Nineteenth Century. University of Arkansas and National Park Service published "An Archaeological Survey of the Greers Ferry Reservoir in North Central Arkansas" in 1959. The publication lists a total of 93 sites recorded during the investigation. Limited test excavations were performed at 29 of the sites and the results are recorded in the publication. A later publication, "The Poe Ranch Site (3VB23) in Greers Ferry Reservoir, North Central Arkansas" by Hester A. Davis, dated January, 1968, describes the material recovered from several surface surveys and from two test excavations of the site. These publications are on file at the University Museum, University of Arkansas, Fayetteville, Arkansas.

b. <u>Historical sites</u>. Several houses of historical significance are located near the Greers Ferry lake. Located in Van Buren County just south of the southwest corner of the Corps property is the Mack Evins house. The house was built about 1877 and is a two-story frame structure built with square nails and hand-ripped lumber. There are chimneys on each end and a two-story porch. The house is in poor condition.

In Cleburne County, the Arkansas Historic Preservation Commission lists two houses in the vicinity of the lake. The Barrett house is adjacent to Route 25 north of Heber Springs. The two-story, ell-shaped house was constructed in 1890 and features three chimneys and a two-story porch. The residence is in good condition. The Sipes house, circa 1867, is on Highway 92 near the junction with Route 263. It is a one-story house with a loft and was built soon after the land was settled under the Homestead Act. It is in very poor condition.

The National Register of Historical Places does not list any sites in either Cleburne or Van Buren counties.

c. Cherokee Boundary Line. The Cherokee Boundary Line which passes through Greers Ferry Lake is an imaginary line established in 1817 by the Congress of the United States. At present, no attempts have been made to develop or mark the points where this imaginary line crosses the lake. The Northeast Point can be reached by taking Arkansas Highway 92 and turning south at Brownsville to Cherokee Park. From there, it is necessary to take a boat to the geographic location of the line. The Southwest Site is accessible by boat and can also be reached by land with great difficulty. These points have historical significance and as such will be appropriately marked. A marker such as shown in 1-6607 and 1-6704 of "Park Practice Design" would be appropriate for this purpose.

The following is a brief historical summary of the Cherokee Boundary Line and may be adequately brief for the narrative on the proposed markers:

"The Cherokee Boundary Line was established in 1817 by the Treaty of Turkestown between the United States and the Cherokee Indians. According to the Treaty, all Cherokees were to be moved north of the line, and the white settlers were to remain south of it. This imaginary line did not halt the white advance. In 1828, the Cherokees were once again moved, this time out of Arkansas altogether.

"The Cherokee boundary was surveyed by William Rector and continues to be of use today in locating old land holdings. The Cherokee Boundary is used as a reference line for original land surveys. The line ran from Point Remove near what is now Morrilton, Arkansas, to Batesville, passing through what is now Greers Ferry Lake".

Music has always been one of the most delightful resources of the mountain people. The songs were rich in adaptability and in creativity. Like the family history, the songs were handed down from parent to child, and some are several centuries old.

3-10. <u>Population</u>. Population trends for the past 50 years are presented in Table 3-01. (It should be mentioned here that "township" as used by the U. S. Census is a subdivision of the county and should not be confused with the township system used in surveying.) The formation of the lake has obviously had a positive effect on population growth. Both the counties and the townships surrounding the lake had experienced population declines in the two decades preceeding 1960. But, following the formation of the lake all areas recorded population increases.

TABLE 3-01
POPULATION TRENDS
GREERS FERRY VICINITY

·	1930	1940	1950	1960	1970	
						_
CLEBURNE COUNTY						
County Population	11,373	13,134	11,487	9,059	10,349	
Township Population*	5,452	6,221	5,843	4,885	5,758	
Percent of County	47.9	47.4	50.9	53.9	55.6	
VAN BUREN COUNTY						
County Population	11,962	12,518	9,687	7,228	8,275	
Township Population*	2,972	3,279	3,144	2,618	3,393	
Percent of County	24.8	26.2	32.4	36.2	41.0	

*Cleburne County:

Center Post, Francis, Giles, Heber, Morgan, Peter

Creek, Saline, Valley

Van Buren County:

Choctaw, Davis, Griggs, Red River

SOURCE: U. S. Census of Population, Number of Inhabitants, 1970 and 1950

The White River Planning and Development District, the State regional planning agency for Cleburne, Van Buren and eight other counties, issued a population projection that indicated continued growth for the Greers Ferry area. The projection is supported by expected growth in service industry employment and an expanding retirement home market. Table 3-02 lists the projection figures.

TABLE 3-02
POPULATION PROJECTION

CLEBURNE AND VAN BUREN COUNTIES

Year	Cleburne County	Van Buren County		
1970	10,349	8,275		
1975	10,887	8,552		
1980	12,322	9,182		
1985	14,756	10,168		
1990	17,777	11,405		

SOURCE: White River Planning and Development District, "Population and Economics", 1971

3-11. Economy. The Directory of Manufacturers in Arkansas lists the opening of only three major employers in Clinton and Heber Springs in the last 15 years. These are Clinton Cord Products, and E & W. and Aero Quip of Heber Springs. The economic growth of the counties must, therefore, be linked to small business expansion and tourism associated with the lake.

TABLE 3-03
ECONOMIC INDICATORS

Cleburne County		<u>Van Bure</u>	en County
% of ·			% of
Number	Change	Number	Change
2,650		1,875	•
	12.3	-	28.0
3,425	15.2	2,800	16.6
2,450		1,700	
2,675	9.2	2,150	26.5
3,175	18.7	2,500	16.3
170		196	
450	62,3	367	87.2
513	12.8	211	-42.5
\$ 36.70		\$ 32.47	
68.45	86.6	•	120.0
73.31	7.1	91.64	28.3
	2,650 2,975 3,425 2,450 2,675 3,175 170 450 513 \$ 36.70 68.45	% of Number Change 2,650 2,975 12.3 3,425 15.2 2,450 2,675 9.2 3,175 18.7 170 450 62.3 513 12.8 \$ 36.70 68.45 86.6	Number % of Change Number 2,650 1,875 2,975 12.3 2,400 3,425 15.2 2,800 2,450 1,700 2,675 9.2 2,150 3,175 18.7 2,500 170 196 450 62.3 367 513 12.8 211 \$ 36.70 \$ 32.47 68.45 86.6 71.45

	Cleburne County % of		Van Bure	n County % of
	Number	Change	Number	Change
Retail Sales (millions)				
1963	\$ 7.7		\$ 4.5	
1967	11.2	45.6	6.6	46.7
Bank Deposits (millions)				
1960	\$ 4,735		\$ 2,487	
1970	15,281	222.7	8,314	234.3
1972	23,120	51.3	11,633	39.9
Value Added by Manufacture				
(millions)				
1963	\$ 1.2		\$ 0.6	
1967	1.8	50.0	D	

^{*} Employment and earnings for firms subject to the provisions of the Arkansas Employment Security Law.

SOURCE: University of Arkansas, IREC, "State and County Economic Data for Arkansas", 1974

Table 3-03 Economic Indicators, records positive gains in nearly every category surveyed. In many cases, the gains made between 1970 and 1972 either totally or proportionately exceed those made in the previous decade.

Future employment in Cleburne and Van Buren Counties should be largely influenced by utilization of Greers Ferry Lake and, therefore, be dependent upon the service industry-at-large. The White River PDD anticipates a slow decrease in agricultural employment, and a gradually expanding manufacturing segment. It is in the service industry that most of the employment growth is expected to occur. Approximately two-thirds of the Cleburne and Van Buren County employment takes place in the industry, and an even more substantial percentage is predicted during the next two decades. The majority of this increase should occur in Cleburne County (see Table 3-04) as most of the lake activity is associated with it; and the larger, more established retirement and recreation development lie within Cleburne's boundaries.

3-12. Education. The educational climate in Cleburne and Van Buren Counties has been improving in the last five years. Data from the "House Concurrent Resolution No. 58" report by the Department of Education shows increases in average daily attendance (ADA), assessed valuation, approved mills, expenses per ADA and teachers' salaries between 1967-68 and 1972-73. While the school districts have been making progress, the relative position of the county school districts to the State, especially in terms of ADA

D Information withheld to avoid individual company disclosures.

expenditures, one of the more effective educational parameters is declining. In 1972-73, the districts were farther from the State average than they were in 1967-68.

TABLE 3-04
EMPLOYMENT PROJECTIONS

	Cleburne County	Van Buren County	Total _
Agriculture			•
1970	350	325	675
1980	250	232	482
1990	242	225	467
Manufacturing			•
1970	45 0	375	825
19 80	620	458	1,078
1990	875	578	1,453
Service			
1970	1,875	I,450	3,325
1980	3,203	2,047	5,250
1990	6,755	3,227	9,982

SOURCE: White River Planning and Development District, "Population and Economics", 1971

3-13. Fish and wildlife. The segment of the Little Red River inundated by the impoundment areas was frequently subject to near cessation of flows during dry periods; and for this reason, it was less attractive for fishing than the other major streams in the White River Basin. However, on a seasonal basis, usually during each spring and fall, fishing success was good and the stream was considered locally as a good fishing stream. Important game fish species present in the streams in the lake area were smallmouth, largemouth and spotted bass, walleye, sunfish, and channel catfish. All of these species have thrived in the impoundment. In addition, white bass and crappie have now become important. The Arkansas Game and Fish Commission has stocked the lake with the populations of walleye, Florida bass and rainbow trout. Commercial fishing is not permitted on the lake.

The U. S. Fish and Wildlife Service prepared a report on the fish and wildlife resources of this project. A copy of this report was appended to Design Memorandum No. 19-1, Reservoir Management, approved 4 September 1959. In summary, the report reflects a net annual gain in fishery benefits resulting from the project in the amount of \$31,000, and a net annual loss in wildlife values of \$24,000, or a net annual overall gain to fish and wildlife of \$7,000. A statement was made that the water discharges from the dam would normally be too cold to support warm-water fish and that the

characteristics of the river were not conducive to the support of a trout fishery. No further explanation was given as to why trout could not be successfully introduced into the river below the dam, as has been done below other dams in this general area. The Service recommended in this report that design of the dam be modified to provide warm-water discharges through the turbines to preserve the existing warm-water fishery in the Little Red River downstream from the dam. Extensive studies were carried out relative to this problem. Ultimately, the Corps determined that compliance with this recommendation was not feasible. Subsequently, the Service changed its position relative to the practicality of the establishment of a trout fishery in the Little Red River and completed the construction of a modern trout hatchery in 1965 at a total cost of about \$800,000. This hatchery was constructed on project lands which were licensed to the Department of the Interior, downstream from the dam.

In 1974, approximately 175,000 trout were stocked in the Little Red River and 88,000 were stocked in Greers Ferry Lake. Also, approximately 240,800 trout were stocked in Lake Ouachita, Lake Hamilton, Beaver Dam trailwater, and in the Illinois River in Oklahoma from this hatchery.

The lake supported approximately 1,097,000 fishing activity occasions in 1974. It is expected that the number of fishing activity occasions will increase to about 1,500,000 in the lake and in the downstream trout waters within the next few years.

Hunting is popular in this general area. Important game species include deer, squirrels, turkey, quail, doves, rabbits, and fur bearers. There is intense interest in fox hunting for recreation. The rugged topography, with resultant pattern of small farms and extensive forest areas, provides excellent habitat for forest and upland game. With the exception of hunting opportunities for migratory waterfowl, which have been substantially increased by the project, other types of hunting opportunities have been reduced to some extent due to inundation of land.

SECTION IV

FACTORS INFLUENCING RECREATIONAL DEVELOPMENT

4-01. Regions served. The lake and allied resort developments are widely advertised in vacation and sporting publications and at sport shows throughout central USA. The lake is located in a long-popular vacation area, and visitors are attracted from all parts of the United States. However, 80% of the visitors originate within a 150-road-mile radius, while only 48% of the visitors originate within the 75-road-mile radius of this project.

4-02. Related recreation areas.

a. Corps of Engineers. There are ten other Corps of Engineers lakes within a 150-mile radius of Greers Ferry Lake. In addition, the newly completed McClellan-Kerr Arkansas River Navigation System lies partially within the 150-mile radius of this project. These projects and their visitation in 1973 are furnished in Table No. 4-01.

TABLE NO. 4-01

VISITATION TO CORPS OF ENGINEERS LAKE PROJECTS

WITHIN 150-ROAD-MILE RADIUS OF GREERS FERRY LAKE

Project	1973 Visitation		
Blakely Mountain (Ouachita)	2,855,000		
Blue Mountain	265,000		
Bull Shoals	3,066,300		
Dardanelle	2,128,400		
Nimrod	514,100		
Norfork	2,984,400		
Table Rock	5,754,800		
Beaver	3,227,000		
DeGray	2,096,400		
Ozark	490,9 00		
Arkansas River	3,255,800		
Pools 1, 2, 3, 4, 5, 6, 7, 8, 9,	13		

b. Other. Other Federally-owned recreational facilities within the 150-mile radius of Greers Ferry Lake include the Ozark National Forest, Mark Twain National Forest, St. Francis National Forest and Ouachita National Forest. The Department of Agriculture has recently developed the Blanchard Springs Caverns and is currently studying the feasibility of the development of Mt. Magazine. Both facilities are in the Ozark National Forest. Hot Springs National Park, Pea Ridge National Military Park, Arkansas Post National Monument and Buffalo National River are under the management of the Department of Interior, National Park Service. Arkansas

state parks located within the 150-road-mile radius include Mt. Nebo, Petit Jean, Bull Shoals, Lake Catherine, Russellville, Ouita, Lake Dardanelle, Lake Ouachita, Lake Poinsett, Withrow Springs, Lost Valley, Crowleys Ridge, Devils Den, Mammoth Springs and Lake Fort Smith. Lakes constructed by the Arkansas Game and Fish Commission within the 150-road-mile radius include Conway, Des Arc, Hogue, Overcup, Pine Bluff, Atkins, Harris Brake and Greenlee.

- 4-03. <u>Determination of estimated recreational demand</u>. Determination of the demand was based on studies of the population and per capita income and an examination of the available visitation statistics.
- 4-04. Method of visitation projection. The method used to project visitation to the Greers Ferry Lake project is based on the relationship between personal income and recreation participation. Past observations have indicated that the population and the personal income of the zone of influence of a recreational facility serve as a relatively reliable index for the frequency of recreational usage. The rise in personal income is usually accompanied by a proportionate rise in visitation frequency. This correlation between population, personal income and visitation frequency is the basis for estimating the future projected usage of the Greers Ferry Lake recreational facilities.
- 4-05. <u>Basic assumptions</u>. The following assumptions were utilized in projecting future visitation loads for Greers Ferry Lake:
- a. Per capita usage of outdoor recreation will continue to show a directly proportional relationship to per capita personal income (PCPI).
- b. Project visitation is proportional to the population residing within the Greers Ferry Lake zone of influence.
- c. The major percentage of visitors to the Greers Ferry Lake project will continue to be generated from an area around the project site. This area is defined as the zone of influence.

4-06. Procedure.

- a. The zone of influence of the Greers Ferry Lake project was determined to include 76 counties within the 150-road-mile radius of the site. Approximately 80% of the visitors originate within this 150-road-mile radius.
- b. Population and PCPI data for the zone of influence were derived from the following sources:
- (1) 1970 Census of Population (for Arkansas, Mississippi, Missouri, Tennessee)

(2) OBERS Projections, Economic Activity in the United States $1,\ 2,\ 3,\ 4,\ 5$

The zone of influence includes parts of Water Resource Subareas 0801, Hatchie; 0802, St. Francis; 0803, Yazoo; 0804, Ouachita; 1029, Osage-Gasconade; 1107, Verdigris-Neosho; 1111, Lower Arkansas; and all of Subarea 1101, White, as delineated by the U. S. Water Resource Council in the <u>OBERS Projections</u>. Data derived and extrapolated from the Census tabulations was adjusted or used to form a common statistical base and a statistical relationship with <u>OBERS Projections</u> for population and per capita income.

¹U. S., Bureau of the Census, <u>General Social and Economic Characteristics</u>-Arkansas, 1970 Census of Population, Social and Economic Statistic Administration, U. S. Department of Commerce, 1972.

²U. S., Bureau of the Census, <u>General Social and Economic Characteristics-Missouri</u>, 1970 Census of <u>Population</u>, Social and Economic Statistic Administration, U. S. Department of Commerce, 1972.

³U. S., Bureau of the Census, <u>Geheral Social and Economic Characteristics-Mississippi</u>, 1970 Census of Population, Social and Economic Statistic Administration, U. S. Department of Commerce, 1972.

⁴U. S., Bureau of the Census, <u>General Social and Economic Characteristics</u>—<u>Tennessee</u>, 1970 Census of Population, Social and Economic Statistic Administration, U. S. Department of Commerce, 1972.

⁵U. S. Water Resources Council, <u>OBERS Projections</u>, <u>Regional Economic Activity in the U. S.</u>, U. S. Government Printing Office, 1972.

- c. The Census population estimates were updated by reference to current sources. 6, 7, 8, 9
- d. Population of each county was multiplied by PCPI of the water resource subarea, containing that county, for the years 1970*, 1980, 1990, and 2000 to obtain total personal income for each county. The total personal income of the zone of influence was calculated by addition of the county totals.
- e. Multipliers representing the increase from base year 1970 to 1980, 1990, and 2000 were calculated. (See Table 4-02.)
- f. The appropriate multipliers were applied to the calculated average summer sunday visitation figures for base year 1970 to project visitation for 1980, 1990, and 2000. (See Table 4-03.)

Missouri, State Highway Department, <u>Forecast of Socio-Economic Data</u>, <u>Missouri Counties 1975-2000</u>, University of Missouri, Columbia.

⁷University of Tennessee, Knoxville, <u>Projection of Population and Labor</u> Force 1975-2000, (Series B), Center for Business and Economic Research.

⁸University of Arkansas at Little Rock, <u>Arkansas Population Projection</u>, <u>1970-1990</u>, (Series I), Industrial Research and Extension Center, June, 1973.

⁹Environmental Protection Agency, <u>Population By County, Historic</u> (1940-1970) and <u>Projected</u> (1980-2020), <u>Region IV</u>, Atlanta, Georgia, July, 1972.

^{*} Note: Due to the lack of statistical data, 1969 per capita income figures were adopted for 1970 statistical base.

TABLE 4-02
POPULATION - INCOME PROJECTIONS

FOR THE 76-COUNTY, 150-ROAD-MILE RADIUS, ZONE OF INFLUENCE

FOR GREERS FERRY LAKE

Year	Estimated Population	PCPI*	Total Personal Income (Thousands)	Multiplier As Percentage
1970	2,646,260	\$ 2,485	\$ 6,576,384	
1980	2,927,204	3,632	10,632,529	62%
1990	3,327,011	4,497	14,962,339	128%
2000	3,805,833	6,689	25,457,202	287%
1990	3,327,011	4,497	14,962,339	1 28%

*1967 Dollars

Note: The PCPI was calculated by dividing the total personal income by the population of the 76 counties, and rounding off this quantity to the nearest whole dollar.

TABLE 4-03
TOTAL ANTICIPATED VISITATION

TO GREERS FERRY LAKE

Year	·		Multiplier	Anticipated Totals
1970	Given Base			2,741,500*
1980	2,741,500	x	1.62	4,441,200
1990	2,741,500	x	2,28	6,250,600
2000	2,741,500	х	3.87	10,609,600

^{*}From monthly recreational visitation data provided by the Corps of Engineers.

4-07. Calculation of average summer Sunday visitation for 1970 base year.

a. Summer visitation for 1970

 June
 429,771

 July
 607,615

 August
 389,039

Total 1,426,425 = 52% of annual visitation

b. Weekly visitation

 $1,426,425 \div 13 \text{ weeks} = 109,725$

c. Weekend visitation

 $109,725 \times 0.61 = 66,932$

d. Average summer sunday visitation $66,932 \div 2 = 33,466$

TABLE 4-04

AVERAGE SUMMER SUNDAY VISITATION PROJECTION

UTILIZING MULTIPLIERS OBTAINED FROM TABLE 4-02

Percent of Project

	Visitation	1970	1980	1990	2000
Total Project*	100	33,466	54,215	76,302	129,513
14 Parks	76	25,434	41,203	57,990	98,430

*Note: Based on 1973 visitation data, 24 percent of project visitation occurs at Eden Isle Dock, unimproved access roads, the overlook, power plant, and as walk-in visitors around the lake.

4-08. <u>Calculation of activity occasions</u>. The activity occasions which are generated within the 14 parks are computed by multiplying the appropriate activity occasion percentages by the average summer sunday visitation for the 14 parks. Table 4-05 contains the projected activity occasions at the 14 parks. This projection will provide the basis for computing the facilities required within the parks.

6, 111, 876 Jay 600,000

4,068,662 = 7,977,800

WE CAMP % (ENG 4378) = (12447+35423) = (TOTAL CAMPSITES 3425) (5 CAMPERS ISITE) = 17125 50 .60 65865 TO TARK = 73,151 TO PROJECT = 95457 WE DAY VISITS TOTAL WELL TO CONT. PROJECTS 146 262 73131 WE (2 Day) VISITS TO TROJET = 95457x2= 190914 239,774 312,974 SUMMER WEEK VISITATION TO PARK = 3,117067 Summer VISITATON TO PROJECT = (312, 974) (13 wics) = 4068662

EST. ANNUAL VISITATON=

VISITS

7

JUNE

756751

Jucy

877812

A. 1 Km

537 127

TOTAL SUMMER - 2,173,672

=.5/ 4,238,700

TABLE 4-05
CALCULATION OF ACTUAL AND PROJECTED

ACTIVITY OCCASIONS ON AN AVERAGE

SUMMER SUNDAY FOR THE 14 PARKS'

Activity	Activity Occasion Percentages	1970 (25,434)*	1973 (32,471)	1980 (41,203)	199 0 (57,990)	2000 (98,430)
		<u> </u>	(32) 172)	(11,203)	(3,,3,2,0)	730111307
Fishing	26	6,613	8,442	10,713	15,077	25,592
Hunting	0	0	0	0	0	0
Picnicking	12	3,052	3,897	4,944	6,959	11,812
Swimming	55	13,989	17,859	22,662	31,895	54,136
Water Skiing	20	5,087	6,494	8,241	11,598	19,686
Pleasure Boating	19	4,832	6,169	7,829	11,018	18,702
Sightseeing	26	6,613	8,442	10,713	15,077	25,592
Camping on Project	4.2	10,682	13,638	17,305	24,356	41,341
Staying in Area	9	2,289	2,922	3,708	5,219	8,859
Total	209	53,157	67,863	86,115	121,199	205,720

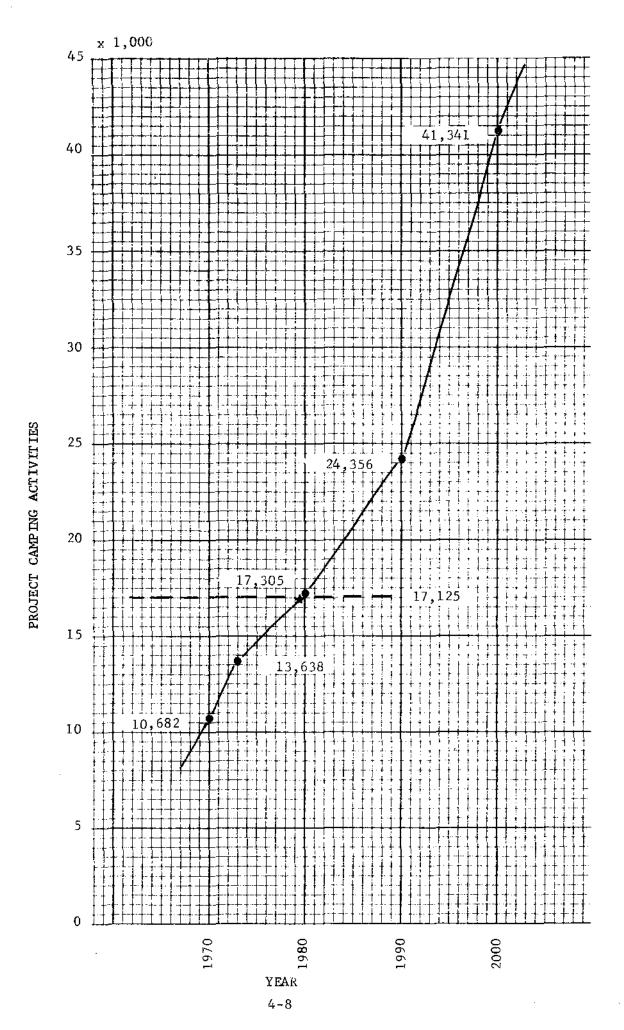
^{*}Numbers in parenthesis are the actual or projected average summer sunday visitation of the 14 parks.

Note: The activity occasion percentages were determined from the latest visitor surveys conducted during the summer of 1969 at Cove Creek, Dam Site, and Shiloh Parks.

4-09. Determination of carrying capacity. The carrying capacity of the Greers Ferry Lake project is determined by the camp units' spatial requirements and the high percentage of camping demand (42%). By computing the total number of existing camp spaces and the proposed camp spaces shown on Plates 10 through 24, a base of 3.425 units is derived. Multiplying this base figure times five will give 17,125 which is the visitation capacity of these camp units on an average summer Sunday. This determination is based on the assumption that the design of the park get maximum utilization from existing land and that no additional recreational facilities would be accommodated.

By utilizing this method, it can be predicted that Greers Ferry Lake may reach its saturation point or carrying capacity by 1979-80. This projection is illustrated graphically on page 4-8 using the projected camping visitation occasions from Table 4-05.

Several factors must be noted that may affect the plotted date projected as the point of saturation. First, observations by the Corps of Engineers have determined that visitation to lake projects has a tendency to level after



the first 10-15 years of use. Second, as the lake becomes more developed with recreational facilities, the outdoor experience is reduced; this in turn reduces the number of activity occasions. Third, new recreational developments constructed within the zone of influence will compete with Greers Ferry Lake.

4-10. <u>Calculation of optimum visitation</u>. The following calculations determine the total lake project visitation that can be accommodated without deterioration of the project's natural and manmade resources.

Summer Sunday visitation (parks) =
$$\frac{17,125 \text{ camping activity}}{0.42 \text{ camping activity}} = \frac{40,773}{0.42 \text{ camping activity}}$$
Summer Sunday visitation (project) =
$$\frac{40,773}{0.76 \text{ visits}} = 53,650$$
Summer weekend visitation (project) =
$$53,650 \times 2 = 107,300$$
Summer week visitation (project) =
$$\frac{107,300}{0.61} = 175,900$$
Summer visitation (project) =
$$175,900 \times 13 = 2,286,700$$
Annual visitation (project) =
$$\frac{2,286,700}{0.52} = 4,397,500$$

4-11. <u>Calculation of facility requirements</u>. Determination of the projected facility requirements was based on the projected activity occasions of the park visitors, as indicated in Table 4-05 and the facility design criteria. The facility design criteria are as established in EM 1110-2-400 dated 1 September 1971. The launch ramp requirement was modified based on visitor surveys made in 1966, 1967, 1968 and 1969. Approximately 12% of all surveyed vehicles entering the parks had boat trailers.

Table 4-06 exhibits a comparison between the existing facilities and calculated facility requirements for Greers Ferry Lake in 1973. This table indicates deficiencies that exist for all facilities.

Table 4-07 contains the projected facility requirements for the years 1970, 1980, 1990 and 2000. Also, it contains the proposed development under this plan as shown on Plates 10 through 24.

Table 4-06

COMPARISON OF EXISTING FACILITIES* WITH CALCULATED FACILITY REQUIREMENTS GREERS FERRY LAKE - 1973

	Number existing Jan. 1973	:	Calculated 1973 Requirements	:	Deficiency
Picnic units (d) Group Picnic Shelters (d) Camp Units (e) Swimming Beach (LF) (a) Change Shelters-1 per beach Launching Ramps (b) Restrooms (c)	27 14 1,073 1,850 4 21 33	: : : : : : : : : : : : : : : : : : : :	433 144 2,728 2,977 13 36 34		406 130 1,655 1,127 9 15

^{*}In retrospect, the Projected Activity Occasions Per Summer Sunday Per Site (Table 4-04) indicates projected facility requirements for the individual parks within the project.

Notes:

- a. <u>Swimming beaches</u>. Assuming that 55% of the visitors on the average summer Sunday will participate in swimming or sunbathing, an allotment of 25 linear feet of shoreline will be designed to accommodate 50 persons at one time. An optimum day "turnover" or "time use" factor of "3" will be used in computing design capacities. (EM 1110-2-400) One foot of shoreline will accommodate 6 swimming activity occasions.
- b. <u>Launching ramps</u>. Ramps will be provided on a distribution basis of one lane at any one area for each 40 boat launchings per normal weekend day (EM 1110-2-400). This corresponds to one lane per 72,500 annual visitation or one lane per 900 summer Sunday visitation at Greers Ferry Lake.
 - c. Restrooms.

Picnic areas - provide one waterborne restroom for each 2,500 average summer Sunday visitors

Camping areas - one waterborne restroom or washhouse for every 50 camp spaces.

d. Picnic areas.

Picnic tables - 1 for each 75 average summer Sunday visitors Group-type shelter - I for each 225 picnickers per average summer Sunday.

SECTION V

COORDINATION WITH OTHER AGENCIES

5-01. Original coordination. Development of Greers Ferry Lake was coordinated with all interested Federal, State and local governmental agencies. In order to make the best use of the lake, such agencies as the National Park Service, the U. S. Fish and Wildlife Service, the Arkansas Game and Fish Commission and the Soil Conservation Service were contacted during the preparation of the plan.

A public hearing was held at Heber Springs, Arkansas, on 24 May 1960. There were no objections to the general development plan proposed by the Corps nor to the proposed park areas.

- 5-02. <u>Subsequent coordination</u>. An Updated Master Plan was submitted in January, 1968. It was not felt that a public hearing was required.
- 5-03. Recent coordination. During the preparation of this Updated Master Plan, interested local, State and Federal agencies were notified that the Master Plan was going to be updated and were requested to furnish their comments and recommendations concerning the Master Plan and operation of the project. The replies from these agencies are included in this section.



STATE OF ARKANSAS DEPARTMENT OF PLANNING

DALE BUMPERS
GOVERNOR

CHARLES T. CROW

400 TRAIN STATION SQUARE - VICTORY AT MARKHAM

LITTLE ROCK 72201

May 2, 1974

Mr. Calvin W. Shelton Acting Chief, Engineering Division Department of the Army Little Rock District, Corps of Engineers Post Office Box 867 Little Rock, Arkansas 72203

Dear Mr. Shelton:

This is in response to your letter dated 26 February 1974 reference code SWLED-PV, requesting pertinent planning information on Beaver and Greers Ferry Lake. Although we do not have any information which might prove beneficial in the development and management of the Greers Ferry Lake area, we are able to furnish you with a report on the Devil's Eyebrow, an area located adjacent to Beaver Lake.

Enclosed is information on the location and description of the Devil's Eyebrow with added recommendations for preservation of this natural area. Also included is a map showing the relationship of this ravine to Beaver Lake. The area of primary concern which is worthy of preservation is outlined in Sections 22 and 27 (owned by Dale Legg, Gateway, Arkansas), while the land in Sections 23 and 26 is an additional area for possible protection (ownership unknown). We do believe that the Corps owns at least part of the land in Section 26. More precise information on ownership is being gathered, and boundaries for a preservation unit are being defined.

If the Department of Planning can be of any further assistance, please feel free to contact us.

Sincerely,

Z....

Ranny Cullom

Manager, Environmental Planning

RC/bas

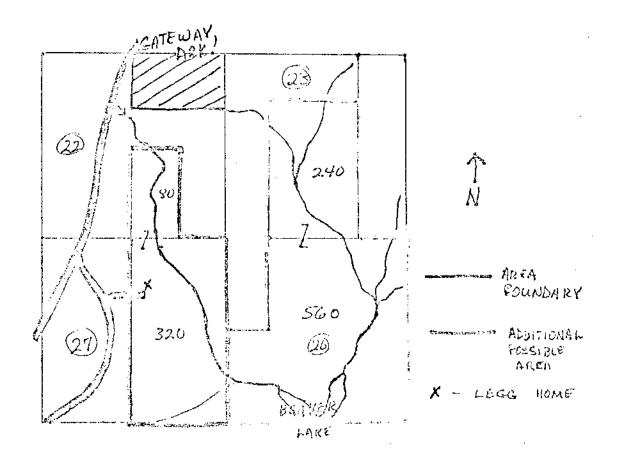
Enclosures

DEVILS EYEBROW BENTON CO. SEC. 22, 23, 27, 28, T 21N & 28W

s.	T.	R.	OWNERSHIP	DESCRIPTION	ACREAGE
22	21	28	Dale Legg	W} SE	80
27	21	28	Dale Legg	E1/2	320

OWNER'S ADDRESS

Dale Legg; Gateway, Arkansas



DEVIL'S EYEDROW

Benton County

Summary

The Devil's Eyebrow is an extremely steep and rugged ravine running in a southerly direction into Beaver lake. There is a very pretty small stream at the bottom of it, fed by other small streams and springs coming to it form 90 degree angles.

Heavy woodland is found only along a very narrow flood plain in the bottom of the ravine, the slopes contain little soil, are very rocky, and have vegetation typical of cedar glades. On upper slopes and on top, there appears to have been some clearing. Trees are scattered but at times very large.

The area contains two species of trees not known in any other area.

This is a spectacular redeeming feature for an otherwise mediocrc ravine.

Recommendations

Due to the steepness, poor soil and location, the Devil's Eyebrow ravine should be very inexpensive as far as cost per acre.

The lower portion, near the lake is owned by the U.S. government as a buffer strip to Beaver lake. The upper portion, which is in private ownership, apparently would only include from 2 to 3 hundred acres. Due to the presence of extremely rare species of plants, this area must be

highly regarded. But it is also true that it is unlikely that any act of the landowner would endanger the presence of these species, simply because the terrain does not lend itself to extensive logging or farming.

If acquired, this area would best be administered by the University of Arkansas nearby, as a scientific area.

Introduction

Location:

Devil's Eyebrow begins one mile south of Gateway, Arkansas, and extends into Beaver lake, which is about 2 to 3 miles south of Gateway. State Highway 62 from Gateway to Rogers, Arkansas runs parallel to the ravine about 2 miles to the west. Entrance to the area can be obtained through the property of Mr Dale Legg, who lives at the end of a gravel road off of the highway.

Character:

The ravine is approximately 130 feet deep, and very narrow at the bottom. There are several small caves along the slopes, and springs feed the stream. According to a local citizen, a sow Black Bear (Ursus americanus) has lived in the ravine for years and raised cubs there. The stream is small, with small pools up to 3 feet in depth. These are occupied only by small minnows, yet in one, which was nearly too large for the small pool. He was about 2 1/2 feet in diameter. He was so large and old he could hardly move out of the pool, and likely his presence indicates the influence of the nearby lake. It was one of nature's strangest oddities.

There is another oddity in the Devil's eyebrow area, and that is the presence of a typical northern species of tree that is known nowhere else in Arkansas. It is the Black Maple (Acer Migrum), and seems to be the dominant species of tree in the Devil's Eyebrow ravine, both in the creek bottom, and on the slopes and top. This tree is one of the prettiest species imagineable. It grows quite large apparently. The average size in Devil's Eyebrow is about 3 to 10 inches in diameter and approximately 35 feet in height. However, several specimens were observed much larger, up to 18 or 20 inches in diameter.

The foilage of the tree is a deep bluish-green, and thicker than foilage of other hardwoods, even the Sweet Gum (<u>Liquidambar styraciflua</u>). The leaves are distinctly-shaped maple leaves except they have deep narrow lobes.

Another rare species found in the area, not as common as the Black
Maple, was the Rock Elm (Ulmus Thomasi). This species was identified by Gary Tucker, professor of botany at Arkansas Tech College at
Russellville.

Glade species are numerous at Devil's Eyebrow. It has abundant rock outcroppings and little soil high on the slopes, and they are studded with Red Cedar (Juniverus virginianus). Common glade wildflowers are abundant.

Most of the woodland is in the very narrow bottom and on lower slopes.

(Liquidamber styraciflus)

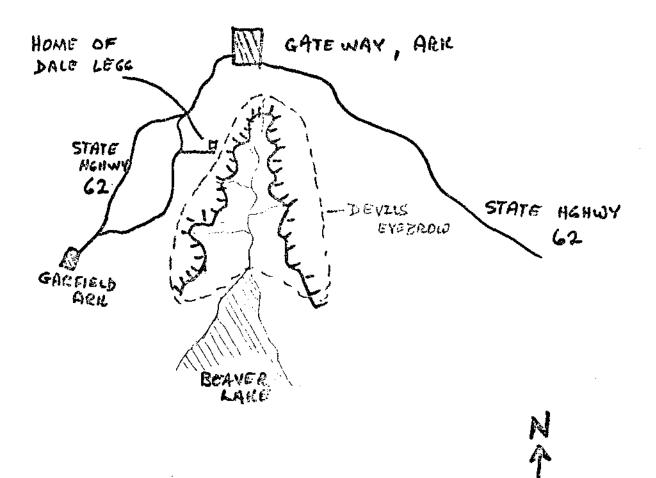
Red Oak, (Querous rubra) and Sweet Gum, and Sycamore (Platanus occidentalis)

are common there.

On the ridge tops, some large White Caks (Quercus alba) and Degwoods (Comus floridas) were observed.

Comership:

The lower portion of the ravine is in government ownership, and the upper portion is owned by Mr. Dale Logg, Gateway, Arkansas.



OYD MCCOLLUM CHAIRMAN STUTTGART

JOE D. SCOTT VICE CHAIRMAN NASHVILLE

RALPH B. GRIFFIN JONESBORO

> R. A. NELSON BLYTHEVILLE

> GUY FENTER CHARLESTON

DR. RALPH H. BOWERS HARRISON

MICHAEL F. MAHONY EL DORADO

DR. P. M. JOHNSTON FAYETTEVILLE



Arkansas Game and Fish Commission



LITTLE ROCK, ARKANSAS 72201

March 1, 1974

Mr. Calvin W. Shelton
Acting Chief
Engineering Division
Department of the Army
Little Rock District
Corps of Engineers
Post Office Box 867
Little Rock, Arkansas 72203

Re: SWLED-PV

Dear Mr. Shelton:

Reference is made to your letter dated February 26, 1974, requesting pertinent information for further development and use of Greers Ferry and Beaver Lakes.

The following are practices which the Arkansas Game and Fish Commission would like to see implemented on these Corps Lakes.

- The construction of a nursery pond on Beaver Lake to enable the Commission to raise and stock desirable fish species to be released into Beaver Lake.
- 2. More use of wildlife management practices on the lands surrounding these lakes, such as controlled burning, planting of food and cover plots, selective thinnings of trees, bushhogging and disking, particularly in areas open to hunting.

3. Refrain from letting more grazing leases than are now in effect, and not renewing grazing leases when they expire, as grazing does not assure preservation of the scenic, biological, historical and recreational resources of these lake areas.

Very truly yours,

Andrew H. Hulsey Director

AHH:LJ;lr



United States Department of the Interior

FISH AND WILDLIFE SERVICE BUREAU OF SPORT FISHERIES AND WILDLIFE

17 EXECUTIVE PARK DRIVE, N. E. ATLANTA, GEORGIA 30329

June 10, 1974

District Engineer U.S. Army Corps of Engineers P.O. Box 867 Little Rock, Arkansas 72203

Dear Sir:

This responds to Mr. Calvin W. Shelton's letter (SWLED-PV) dated February 26, 1974, and is for your consideration in planning for the further development and use of Beaver Lake, Arkansas.

The objective of your fish and wildlife program should be to sustain the maximum number and diversity of plants and animals on a quality basis for the use and enjoyment of the public. Since the land acquired in fee title around the perimeter of the lake is narrow in most places, the prospects for management of terrestrial flora and fauna are somewhat limited. Aquatic habitat, however, is much greater in extent and offers more opportunity for improvement.

In regard to the current Master Plan dated May 1969, paragraph 3-05, Fish and Wildlife, we have the following comments by subparagraph:

- A. After impoundment, smallmouth bass and rock bass have not thrived. Smallmouth bass may reappear in the future, but have not yet through the 10 years of impoundment. Northern pike have virtually disappeared. Walleye are of minor importance. "Bream" is a redundant term, inasmuch as "sunfish" was used in the previous sentence. Add striped bass as "trophy fish" being stocked periodically. Add blue catfish.
- B. The statement that, "... the overall benefits to fish and wildlife have offset upland game losses many times over" should be deleted. We refer you to paragraph llc in ER 1105-2-129, dated August 15, 1973, which says in part, "One type of fish and wildlife benefit will not be used as an offset for another type of fish and wildlife damage, nor will only the net effect be shown.

- C. This discussion cites an estimate of 282,000 man-days of recreational fishing in 1968. Our National Reservoir Research Program survey estimates of lake-angler days have ranged from 125,000 to 212,000, with a mean of about 175,000 days. About 20 percent could be added for nightfishing (175,000 + 35,000 = 210,000). No estimate was made for tailwater fishing. To the best of our knowledge, there has not been a survey to determine how much of this activity would have occurred in other water bodies in the absence of Beaver Lake. Tail-water fishing could be significantly increased with additional stocking of trout.
- D. While it is true that the Corps complied with the State's and Bureau's recommendation for a pipe in the dam for future water supply for a fish hatchery and for use in augmenting downstream flows, no further action has been taken to provide a hatchery or low-flow augmentation.
- G. The title of South Central Reservoir Investigations is scheduled to be changed to White River Reservoir Studies on July 1, 1974.

Appendix D of the Master Plan, entitled Fish and Wildlife Management Plan and dated April 1972, includes many relevant and appropriate comments for the conservation and use of fish and wildlife resources. It does not document any coordination with this Bureau, and in fact, our file indicates your last correspondence for Beaver Lake was dated January 1962.

The following general recommendations are listed for your consideration in the further development and use of fish and wildlife resources at Beaver Lake.

Wildlife Resources

- 1. Provide for an appraisal of the status of all wildlife species, particularly rare forms. Evaluate wildlife habitat, prepare a plan prescribing practices for improving or maintaining habitat, and annually evaluate the success of the plan.
- 2. Exclude livestock from project lands because they generally destroy forest reproduction, compact the soil, cause erosion and reduce wildlife food.
- 3. Manage the flora to favor an interspersion of food, nesting, and cover-producing vegetation. Mast- and cavity-producing trees should be preserved and encouraged. Plant trees or groupings of shrubs with high wildlife values such as red oak, beech, dogwood, autumn clive, red cedar, honeysuckle, and elderberry.

- 4. Special effort should be made to provide protection for nesting areas of the bald eagle.
- 5. Provide nesting boxes for wood ducks, squirrels, and other animals as needed at appropriate sites around the lake. Consider purple martin houses near public use areas for insect control and esthetics.

Fishery Resources and Utilization

- 1. Provide for immediate development of Big Clifty, Pine Top, and Blackburn public use areas.
- 2. Provide for immediate development of boat-launching access at:
 - (a) Monte Ne (End of Highway 945)
 - (b) Neill's Bluff
 - (c) Hickory Flat Hollow on War Eagle Embayment
 - (d) Highway 45 bridge area
- 3. Provide for immediate development of a public use area including boat launching on project lands approximately 1 mile below the dam.
- 4. Provide additional boat-launching ramps at Rocky Branch and Hickory Creek public use areas.
- 5. Institute an immediate moratorium on permitting additional private boat docks and houses until this problem can be studied by an interagency group and guidelines developed. This Bureau and the Arkansas Game and Fish Commission should be afforded an opportunity to participate in developing these guidelines.
- 6. Provide for some flexibility in water-level fluctuation to enhance sport fish production.
- 7. Construct and maintain two nursery subimpoundments: (1) an approximately 100-acre pond for native fish production to insure against loss of year-class spawn caused by unfavorable water level and fluctuation; (2) an approximately 40-acre pond for production of non-native fishes such as striped bass to fill vacant niches in Beaver Lake.
- 8. Provide for stocking of about 1,000,000 striped bass fry annually.

- 9. Modify existing fixed-level intake on water supply pipe to multiple level intake to alleviate the low water temperature problem and toxicity attributable to manganese in solution because of low dissolved oxygen.
- 10. Explore means to establish and maintain a trout fishery to fill cold water niches in the lake and tail-water habitats.
- 11. Aerate waters released from the dam when dissolved oxygen falls below b milligrams per liter, which is the minimum required for healthy cold-water fishes.
- 12. Reserve a small area of the lake for cage-fish rearing operation for supplemental fish stocking of project waters.
- 13. Provide safe-use facilities for bank fishing in the tail-water immediately below the dam.
- 14. Give consideration to removing or limiting the restriction on fishing immediately above the dam.

We appreciate this opportunity to provide information for your consideration in planning for the further development and use of Beaver Lake. We have informally coordinated our recommendations with the Arkansas Game and Fish Commission in the development of specific measures for fish and wildlife resources.

Sincerely yours,

Kay R. Taughu

Deputy Regional Director

United States Department of Agriculture Forest Service

Southeastern Area, State and Private Forestry
Atlanta, Georgia 30309

March 18, 1974

3520



Mr. Calvin W. Shelton
Acting Chief, Engineering Division
Department of the Army
Little Rock District, Corps of Engineers
Post Office Box 867
Little Rock, Arkansas 72203

Dear Mr. Shelton:

At this office, we have no information that would be pertinent to updating your project master plan for Beaver and Greers Ferry Lakes.

We are forwarding a copy of your 26 February letter to Mr. Robert Baker, our field representative in Little Rock. If he has any pertinent information, we are asking him to contact you directly.

If you have any specific questions concerning the forest resources in the area of these lakes, please contact Mr. Baker. His address and phone number are:

> Little Rock Zone Office 3508 Federal Office Building Little Rock, Arkansas 72201 501 378-5814

Sincerely,

CARTER P. QUALLS

Acting Area Director



ARKANSAS ARCHEOLOGICAL SURVEY

DIRECTOR • CHARLES R. McGIMSEY III
STATE ARCHEOLOGIST • HESTER A. DAVIS

Coordinating Office University of Arkansas Museum Fayetteville, Arkansas 72701 April 10, 1974

Mr. D. R. Rippey Chief, Engineering Division Little Rock, District, Corps of Engineers P. O. Box 867 Little Rock, AR 72203

Dear Mr. Rippey:

This is in response to your letter of 25 March concerning the updating of your master plans for Beaver and Greers Ferry Lakes. We haven't been to look of course, but we must assume that if sites are in public use areas or where they are on the shore line that there has been another year or so of damage. It would probably be realistic to say the 'archeological condition" at the lake is detereorating rather than remaining stable.

If we can provide any further information, please let me know.

Sincerley,

Hester A. Davis State Archeologist

HAD/aps

cc: Southwest Region, NPS

SECTION VI

GENERAL DEVELOPMENT PLAN

6-01. General description of the plan. In an overall analysis of the resource created by the impounding of water at Greers Ferry Lake, adequate consideration has been directed at flood control, generation of hydroelectric power, and water supply. These resources remain relatively stable and will create additional demands on future development.

At a projected point in the future, recreational demand at Greers Ferry Lake will reach a saturation level, or carrying capacity, which if exceeded will deteriorate the recreational resource for the lake visitor. Careful attention has been given in the design process of the park plans not to exceed the physical carrying capacity of the specific recreational areas.

The health and safety of the visiting public has been a primary consideration. Maintenance and management techniques have been developed and implemented to assure a safe and healthy recreation area.

To cope with changing recreation demands, this plan is considered sufficiently flexible to meet these conditions.

The lands required for project operation purposes and recreation have been indicated on the Land Use Maps, Plates 3 through 9. The lands described in the various designations throughout the lake are very similar in general characteristics of soil, topography, and vegetative cover typical of the foothills of the Ozark Mountains.

- 6-02. Location of areas. The general locations of all parks are shown on Plate 2. The outline and relative size of each area as well as lands designated for other use are shown on Plates 3 through 9.
- 6-03. Allocation of lands. Lands allocated for project operations, lands reserved for recreational purposes, and lands reserved for preservation of natural resources are indicated by color coding on the Land Use Maps (Plates 3 through 9).

The various land allocations are described in the following paragraphs:

a. <u>Project operations</u>. Approximately 40,500 acres are allocated for project operations. Most lands included in this allocation lie below the flood-control elevation of 487 or the fee acquisition line. On the Land Use Maps, Plates 3 through 9, project operations shows up as dark blue, which is the conservation pool below elevation 461, and light blue which is the flood control pool below elevation 487 or fee acquisition.

- b. <u>Easement land</u>. Easement lands lie above the fee acquisition but below the top of the flood control pool, elevation 487. Indicated by the color brown on the Land Use Maps (Plates 3 through 9), these lands are under private ownership but controlled by the Corps of Engineers through easements.
- c. Recreation area. Two categories of recreational use are indicated on the Land Use Maps. The categories are described as follows:
- (1) Recreation Intensive Use. Recreation Intensive Use, designated with the color red on the Land Use Maps, are lands that have been acquired for park development. At Greers Ferry Lake, 15 parks containing 2,684 acres have been allocated for intensive recreational activities by the visiting public. Areas for concession and quasi-public development are included. No agricultural uses have been permitted on these lands allocated for intensive recreational activities. A verbal description of terrain and existing and proposed development has been outlined in Section VII of the plan. A graphic description has been presented in Plates 10 through 24.
- (2) Recreation Low Density Use. These lands, designated with the color yellow, were acquired for project operations and allocated for low density recreational activities in areas between intensive recreational developments. These areas are designated for ecological workshops and forums, hiking, limited camping, or similar low density use. These activities are designed to play a significant role in promoting public understanding and appreciation of the environment. Private floating facilities may be permitted in accordance with ER 1130-2-406 and the Lakeshore Management Plan when such use will not detract from the natural setting of the shoreline. Tramways may be allowed by license agreement after due consideration of the compatibility with the desired natural setting of the shoreline. Requests for private floating facilities and tramways will not be given favorable consideration on lands allocated for Recreation Low Density Use when such allocation is for park buffering, development of trails, public access, or will in any way restrict use of the shoreline.

At this time, there are five tramways licensed and existing on the peninsula on which the town of Higdon is located. These tramways are interfering with the use of this area for walking and bank fishing which are considered higher forms of use as Recreation Low Density lands. Therefore, a moratorium is declared on future tramways in this location, and it is planned to require removal of these existing tramways upon expiration of the current licenses.

d. <u>Natural areas</u>. These are lands, indicated with the color green, acquired for project operations and allocated for preservation of scenic, scientific, ecological, historical, or archaeological values. To retain the value and character of these lands, little or no development is planned in these areas. All development will be discouraged on these areas. However, individual requests for minor development will be weighed against environmental consideration.

e. Fish and wildlife management.

- (1) Greers Ferry National Fish Hatchery, located downstream from the dam structure, covers 32 acres and is licensed to the U. S. Fish and Wildlife Service, Department of Interior. This modern trout hatchery was constructed in 1965. Annual production is 600,000 10-inch trout, or about 150,000 pounds of trout. The trout are stocked in the lake and downstream in the Little Red River.
- (2) The Arkansas Game and Fish Commission has been licensed approximately 34 acres of the Mill Creek Park for the operation of a fish nursery pond. A dam and spillway have been constructed across a tertiary drainage area creating a 20.7 acre impoundment of water. Fingerlings are raised in the nursery pond until they are of sufficient size to stock in the lake.
 - (3) All fee-owned land with exception of parks, Dam Site work area, and Resident Office are licensed to the Arkansas Game and Fish Commission. Approximately 37,525 acres are included in the license for the purpose of fish and wildlife management.
 - f. Reserve forest land. On lands allocated for low-density use, timber will be harvested only when required to achieve other management objectives, such as wildlife habitat improvement. Timber planting and vegetation manipulation may be required for erosion control.
 - g. <u>Collateral use</u>. Lands in the categories described above are used on a collateral basis, where suitable, for such uses as wildlife management, reserve forest management, and ecological purposes.
 - 6-04. Shoreline control. Nine concessionaire-operated leases have been granted by the Corps of Engineers for the development of public marinas. These marinas offer storage and rental of floating craft, bait, tackle, and petroleum products. All lease operators are required to maintain the areas within the limits of their leases.

Two areas of Greers Ferry Lake have restrictive zones. Approximately 200 yards upstream from the dam structure is a buoy line. No pleasure boat traffic or swimming is permitted within this area. A second area downstream of an imaginary line connecting location marker No. 1 and the northwest corner of Old Highway 25 Park is an area zoned to eliminate stationary traffic. This regulation is primarily directed at house boats to keep them from tying up and creating a traffic hazard and to reduce the possibility of pollution.

A Lakeshore Management Plan is currently being developed for Greers Ferry Lake. Section XVI of this Master Plan explains the purpose and status of this plan. 6-05. <u>Interim use</u>. At present, there are six agricultural and grazing lease plots totaling 608 acres. These lands will remain available for leasing as agricultural and grazing plots until the land is needed for development of project operations.

6-06. Preservation of existing vegetation, reforestation and beautification. Greers Ferry Lake is basically surrounded by forested areas preserved for aesthetic value. These forests provide part of the outing experience for those who visit the lake. It is important to note that the resident engineer has adopted a policy of preserving as much site vegetation as possible during new construction. Additionally, Title 36, Chapter III, part 311 of the Code of Federal Regulations provides for the enforcement of rules regarding visitors destroying existing vegetation. The implementation of these policies and regulations has assisted in preserving the natural character of the Greers Ferry Lake.

The present procedure for revegetating large areas within the project boundary that were originally agricultural land is to plant pure stands of shortleaf pine. Although in most instances, this provides rapid revegetation, the monoculture is not conducive to attracting wildlife species. A more natural process of plant succession is to revegetate with the pioneer plant species. These species provide quick cover and produce the necessary elements of shade and mulch for the establishment of climax vegetation. The pioneer species consist primarily of the common persimmon, sumac, sweet gum, sycamore, cottonwood, and black locust associations. Although these species are not typical timber-type vegetation, they do provide habitat for wildlife and a good cover until the oak-hickory association, climax vegetation can establish. These pioneer species can be mixed with the shortleaf pine and form a more complementary unit of vegetation.

A point of interest and problem has developed with the impounding of water. As mentioned in the vegetative analysis, a new environment has been created along the lake perimeter with this impoundment of water. The fluctuating water level has practically eradicated all trees between the contour lines 461 and 470. Presently, the species that have survived this fluctuating water level are the sweet gum and willow oak. Additional aquatic vegetation will need to be introduced to correct this void created by the fluctuating water. Black willow, sycamore, common witch hazel, eastern cottonwood, and tupelo gum are species commonly found in areas where occasional flooding will inundate their root systems. Introducing these species along the shores of Greers Ferry Lake will accelerate the re-establishment of vegetation in this zone.

The ornamental characteristics of vegetation should also be discussed for use around areas of pedestrian and vehicular concentration. Indigenous plant materials will be used for ornamentals because of their hardiness. Small trees and shrubs that produce spring and summer flowers are the dogwoods, redbuds, common smoketree, buttonbush and red buckeye. Fall color can generally be attributed to the changing of the leaves, but certain plant materials have fruiting characteristics that are worth

mentioning. The sumac is topped with a large cluster of crimson fruit that persists into the winter after the leaves have dropped. The yaupon hollies have a red berry that lines the branches giving an interesting contrast with the evergreen leaves. Although the deciduous hollies loose their leaves, a striking contrast is created between the bright orange berries and the light gray branching structure.

6-07. Recommended acquisition of additional land. In an effort to preserve the environmental and scenic quality of the Dam Site Area, it will be necessary to acquire 208 acres on the right bank below the dam structure. One area designated for acquisition is indicated by the color orange on Plate 3. The acquisition of this land will provide the Corps of Engineers with the regulatory power needed to retain these lands in their natural state and prevent commercial or residential development from encroaching the bluff line of the Little Red River opposite the National Fish Hatchery and Dam Site Park (left bank).

To calculate the additional acreage required to meet the recreational facility demand, the following assumptions will need to be considered as constants. It is assumed that the intensity of use will remain the same and the percentage of activity occasions will remain as present for each activity. Also, the lands proposed for acquisition will be of similar topography to the existing 15 parks.

Acreage required for each camp unit can be determined by dividing the existing and proposed camp units into the total acreage of the 15 parks.

Total acreage of 15 parks

Number of acres per camp unit = Total existing and proposed camp units

Number of acres per camp unit = $\frac{2,684 \text{ total acreage}}{3,425 \text{ total camp units}}$

Number of acres per camp unit = .78

The projected camping activity occasions for the year 2000 will be 41,341 (Table 4-05). Dividing this projected camping activity by 5 will determine the number of camping units required to accommodate the demand.

Number of camping units for year 2000 = Number of individual campers per site

Number of camping units for year $2000 = \frac{41,341}{5}$

Number of camping units for year 2000 = 8,268

Multiplying the number of acres (.78) times the number of camping units for the year 2000 (8,268) will determine the total number of acres to accommodate the anticipated visitation for the year 2000.

Total acreage = $.78 \times 8,268$

Total acreage = 6,449

By subtracting the present project acreage (2,684 acres) from the total acreage required for the year 2000 (6,449 acres), a difference of 3,765 acres is obtained. This number represents the total land acquisitions required to properly accommodate the projected demand.

6-08. <u>Use agreements</u>. Easements, licenses and leases are noted and numerically identified on the Land Use Maps, Plates 3 through 9. These use agreements are for rights-of-way, installation of utilities, and structures for access to the water. As noted, most leases, licenses, and easements are for a specific period or term and must be reinstated for continued use. Permits are issued for private floating facilities and other forms of lakeshore use as set forth in ER 1130-2-406.

SECTION VII

PLAN OF DEVELOPMENT

- 7-01. <u>General</u>. Greers Ferry Lake is a multi-purpose project constructed for flood control and generation of hydro-electric power. Recreation is a third resource created by the impounding of water, but this resource must not conflict with the regulation of the lake for the two primary purposes for which it was authorized.
- a. The primary concept in planning Greers Ferry Lake was for public use and benefit. This concept has been implemented, and first among priorities for public use are stringent standards for public health, safety and sanitation. This multi-purpose lake benefits the State of Arkansas with hydro-electric power, flood control, and water-oriented recreational activities.
- b. To provide the greatest possible recreational/outdoor experience, safeguards have been implemented over the use of Government-owned land adjacent to the lakeshore. At Greers Ferry Lake, much of the shoreline is being retained in its rugged, natural state. (See Plate 33.) Forest management practices are implemented to maintain existing vegetation in a healthy state while juvenile plant material is being planted to revegetate open spaces.

Ownership of land adjacent to Government-owned land is not considered sufficient reason to allow the adjacent owner to have private and exclusive access to the lake across Government-owned land. To satisfy the public demand for access to the lake, access roads and docks of quasi-public nature are permitted provided that the nature and extent of these facilities may be considered supplying a demand that is in harmony with the overall development of the lake and not in conflict with management practices as determined by the District Engineer.

- c. Public health and safety are prime considerations in preparing this plan of development. Sanitary drinking water is or will be supplied from deep wells or local municipal water supplies. At present, sanitary facilities are a combination of vault restrooms and waterborne restrooms. This plan proposes that all restrooms be developed as waterborne and existing vault restrooms be converted to waterborne restrooms. All effluent will be processed at tertiary treatment plants located within the recreation area, with the exception of Heber Springs Park. Its sewage treatment system will be connected to the Heber Springs municipal system. Sanitary dumping stations will be located within close proximity to the entrance of parks to receive effluent from recreational vehicles.
- d. Leases for commercial enterprises on Government-owned land around the lake are granted in a fair and impartial manner. The prices charged for facilities and services provided by concessionaires are subject to the approval of the District Engineer.

e. Hiking trails are existing, and additional trails are proposed in several areas throughout the project. These trails are proposed as a recreational as well as educational experience.

Existing trails (see Plate 29) include the Sugar Loaf Mountain National Nature Trail. Sugar Loaf Mountain, an island rising 540 feet above Greers Ferry Lake and 1,001 feet above sea level, is visited annually by some 35,000 visitors. Scenic vistas and a self-guiding nature trail provide the stimulus for visiting Sugar Loaf Mountain.

A second trail, although not of national acclaim but equally as important, is the trail for the physically limited at the Dam Site Area adjacent to the project operations area. This is a paved trail for wheelchair patients, providing scenic vistas of the dam structure and National Fish Hatchery and a self-guiding botanical survey of typical vegetative species of the area.

The third trail originates close to the parking area of the physically limited trail. It follows a ledge for approximately 3/4 of a mile and terminates at a scenic overlook shelter. See Plate 10 for a diagramatic alignment of the trails.

Proposed trails include an extension of the ledge trail from the physically limited trail parking area to the parking area at the Resident Engineer's office. A general site survey of vegetation along the proposed alignment (see Plate 10) indicates 40 different species varying from those adapted to dry conditions of rock outcroppings to aquatic plants along the stream beds.

A twelve-mile project trail is proposed at the shoreline (see Plate 6) connecting Cove Creek Park with Salt Creek Future Park. This trail will cross the old Cherokee Boundary Line just beneath Millers Point. The Old Cherokee Boundary Line exits the lake near Cherokee Park. Appropriate markers will be installed at these two points to document their historical significance.

Two parks, Cove Creek and Cherokee, have short trails proposed within the boundaries of the park that either take the hiker to scenic points or along the shoreline.

Because of the limited Government-owned land along the perimeter of the lake, it is difficult to develop trails. Existing and proposed trails are for foot traffic only. No motorcycle or equestrian trails are proposed.

f. The Arkansas Game and Fish Commission's wildlife officers provide surveillance and enforcement of game laws and boating regulations. Motorcycle and automotive regulations, and general rules and regulations governing public use of the lake are enforced by the Corps of Engineers ranger staff. These rules and regulations are published in Title 36, Chapter III, part 311 of the Code of Federal Regulations and applicable pamphlets prepared by the State of Arkansas.

g. The advice, assistance, and cooperation of various Federal, State, and local governmental agencies, which are familiar with recreational programs and the management of public water and land areas, are sought periodically to the fullest extent practicable in the development, maintenance and management of the project.

7-02. Design Criteria.

- a. General. Criteria applicable to overall facility development planned for Corps parks are contained in the following references:
- (1) EMI110-2-400 dated 1 September 1971, Recreation Planning and Design Criteria.
- (2) ER 1110-2-400 dated 1 February 1971, Design of Recreation Sites, Areas and Facilities.
 - (3) ER 1120-2-400 dated 1 November 1971, Recreation Resources Planning.
- (4) ER 1130-2-400 dated 28 May 1971, Recreation Resource Management of Civil Works Water Resource Projects.
- (5) ER 1165-2-400 dated 3 August 1970, Recreational Planning, Development, and Management Policies.
 - (6) Park Practice Design Manual.
- (7) Public Law 93-303, enacted 7 June 1974, which provides for collection of fees at Corps of Engineers parks.
- (8) ER 1130-2-406 dated 13 December 1974, Lakeshore Management at Civil Works Projects.
- b. Special considerations. Paramount in our planning process is the preservation of existing features and integrating these features into the site development plan. A good example of integrating existing features into the development plan can be seen in the photograph on Plate 30. Efforts have been made to identify unique features although many may have been overlooked. Prior to the development of a proposed feature in the Updated Master Plan, a field biologist, a geologist, and landscape architect should make a detailed site survey and note any desirable existing festures for preservation.
- (1) <u>Sleeping cabins</u>. Sleeping cabins for organized camp areas at Dam Site Park shall be similar to those indicated in the "Park Practice Design Manual", Plate 564 B. A suggested alteration to the shelter is open sides covered with mosquito screen and a roll-down canvas cover for inclement weather.
- (2) Play equipment. In an effort to create a harmonious recreational atmosphere, play equipment and structures should be of wood to blend with the surrounding landscape. A recommended style of play equipment is that

similar to the play equipment produced by Timber Form Company, 1727 N.E. 11th Avenue, Portland, Oregon 97212.

Play areas are designated on the park plans as either Play Area A or Play Area B.

Play Area A is planned to offer activities for all age groups. This play area will be approximately two acres in size offering recreational facilities from multi-purpose courts for playing either tennis, volleyball or hadminton, or horseshoe pits for more passive recreation. Youngsters will have a combination of activities, swings, climbing pods and bars, see-saws and slides. Sandboxes are planned for the toddler and nearby benches for parental supervision. Plate 27 provides a plan of the proposed recreation facility.

Play Area B is designed for the younger age groups. It will cover approximately one-half acre and contain swings, climbing pods, bars, see saws, and slides. Again, sandboxes are planned for toddlers with nearby benches for parental supervision. See Plate 28 for a detailed description of facilities.

- (3) Group camp pavilion. Group camp pavilions are to be located in reservation basis group camp areas only. Shiloh and Dam Site are the two parks at Greers Ferry Lake designated to receive these pavilions. These pavilions are designed to seat and provide eating space for 200 people. The function of the pavilions is to provide a gathering place for club or camping organizations to hold meetings or have mass cookouts. See Plate 26 for a detailed plan of the facility.
- (4) 200-person picnic shelter. These shelters are designed to seat and provide eating space for 200 people. They are identical in design to Group Camp Pavilion, see Plate 26, but will generally be located in day-use recreation areas. They will be used by local community organizations on a reservation basis only.
- (5) Physical structures. Plans for existing physical structures previously used at Corps of Engineers projects were approved by this District. New designs will be reviewed to ascertain if they blend aesthetically and harmoniously with the site being developed. Approval of these new designs will be obtained prior to advertisement for bids.
- (6) <u>Foot trails</u>. The foot trails will be primitive in character but will be constructed similar to that shown in the "Park Practice Design Manual", Plates 341-B, 342-B, 343-B, and 339-B.
- (7) <u>Multipurpose courts</u>. Multipurpose courts will be developed for varied activities requiring a paved surface and facilities for erecting nets will be provided. These courts may be used for either informal volleyball, badminton, basketball, or tennis games. Multipurpose courts will be similar or equal to the

multiple recreation court shown in drawing No. 14-01-03 of the Outdoor Sports Facilities dated July, 1974, Corps of Engineers.

- (8) <u>Tent pads</u>. Where terrain permits, selected sites will have tent pads designated. Pad designations will be decided during the drafting of construction drawings after a careful on-site inspection. Tent pads will be furnished at each designated camp space similar to those indicated in the Corps of Engineers Facility Design, Index No. 0-5700.
- (9) <u>Multi-family camp spaces</u>. In an effort to satisfy the growing demand for multiple-family camping, multi-family camp loops have been developed. Approximately 25% of the camp spaces in most parks has been designated for this purpose. On the park plans, a "Y" symbol indicates the use as multi-family, although in actual construction, these may be two forty-foot pads side by side depending on the topography of the site. This system of multi-family camp spaces has been implemented in all parks except South Fork Park.
- (10) <u>Primitive camp areas</u>. To stimulate a different form of camping experience, primitive campsites have been proposed for development at Old Highway 25 Park and South Fork Park. Primitive camp sites will be developed as outlined in EM 1110-2-400 except that the cleared space has been increased to 20' x 20' to allow adequate area for larger tents.
- (11) Electric power. Electric hookups have been designated for installation in 50% of the existing and proposed camp loops. Hookups will be 110 volt alternating current at the exposed socket panel immediately adjacent to the paved parking pad. All lines will be placed underground unless conditions make installation impractical or impossible.
- (12) <u>Water hydrants</u>. A water hydrant will be placed so that every eight camp spaces will share one hydrant. The water hydrant proposed for installation shall be similar to the Model 6 A Fordilla. Its purpose is to provide, without waste, an ample supply of safe water.

The Fordilla operates on the following principle:

- 1. Discharge water when the button is pressed down.
- 2. Stop the flow of water when the push button is released.
- 3. Stop the flow of water after several seconds when the button is held down.
- 4. Discharge water again immediately when the push button is released and allowed to rise, then pushed again.
- (13) Control house. The control house found at each of the entrances to the parks will be similar to the control house shown in the Corps of Engineers "Recreational Facility Design" Index No. P-2004.

- (14) Entrance complex. This area is composed of the following elements: a control house, a locking gate, a stacking lane, a by-pass lane, exit lane, a welcome sign, and a series of information panels. These entrance complexes will vary from park to park because of different topographic features, but each will be similar to the Typical Park Entrance Concept Plan for Little Rock District Parks (SWLED-PV 18 March 1974). (See Plate 25.)
- (15) Courtesy docks. Courtesy docks for providing access to launched boats will be similar in design to the floating dock illustrated in the Park Practice Design Manual, Index No. P-4851.
- (16) Reservation group camping areas. A demand has been experienced for large areas designated for group camping facilities. Camping associations such as the Comet Campers, Air Stream, Knights of Columbus and National Camping Association, have requested reservation camp space where their camping associations can park and congregate at one centralized point. Two areas have been proposed at Greers Ferry Lake to satisfy this demand. Dam Site Park and Shiloh Park each have an area designed to handle approximately 80 recreation vehicles. These areas are separated from the individual overnight camping areas to assure privacy. Each reservation group camping area has a proposed group camp pavilion to accommodate 200 persons. These pavilions are for group meetings and cookouts.

A third area established for group camp reservation is located in Old Highway 25 Park. This area is designated to accommodate smaller groups requiring less than 20 spaces.

- (17) <u>Signs and information panels</u>. Signs and information panels shall be similar to those specified in the Corps of Engineers Southwestern Division "Sign Handbook". (See Plate 31.)
- (18) <u>Historical markers</u>. A sturdy interpretive device is needed to mark the points where the Old Cherokee Boundary Line exits Greers Ferry Lake. One similar to the roadside easel illustrated in "Park Practice Design", Index No. I-6614, is adequate.
- (19) <u>Visitor Centers</u>. Three small interpretive visitor centers are proposed for construction at Greers Ferry Lake. Exhibits are proposed which lead the visitor through a graphic/pictorial description of the project. This center will not require a full-time interpreter, but surveillance or interpretive personnel will make periodic stops to deter vandalism. The proposed locations of these exhibit-type visitor centers are at Old Highway 25, Narrows and Choctaw Parks.
- (20) Interpretive Center. The site for a major interpretive visitor center is adjacent to the project operations/Resident Engineer's Office at Dam Site Park. This center will be maintained by a full-time staff of interpretive specialists whose function will be to prepare and update the audio-visual and self-interpretive exhibits at the four centers. A second responsibility of these interpretive specialists will be to provide evening programs to the visiting public during the peak recreational season.

As prescribed by ER 1130-2-401, a Visitor Center Plan will be developed in a separate feature design memorandum which will discuss the materials, market and media for the visitor centers. One of the most important administrative responsibilities is to keep the communication flow between the visitor and the management at a level that provides an understanding and appreciation of the project.

- (21) <u>Firewood</u>. To reduce costs to operations and maintenance, all firewood will be sold either by the concessionaire at the marinas or by the attendant at the entrance complex.
- (22) Amphitheater. In order to provide evening interpretive programs, an amphitheater is a must. The amphitheater illustrated in the "Park Practice Program", Index No. 4306, is more than adequate to meet the needs for Greers Ferry Lake. The seating capacity should be developed for an expected attendance of 100 persons. An exception to this is at Dam Site Park. The proposed development of this area will require two amphitheaters with a seating capacity for 200 persons.

The construction of the amphitheater seats may be of native logs sawn in half and placed on notched posts set in the ground, or more conventional seating may be provided. An effort will be made to provide a rustic atmosphere in the total development. Electricity will be provided for the audio-visual equipment.

- 7-03. <u>Developed Parks</u>. Fourteen parks have been developed on Corps of Engineers land. Eight of these parks contain commercial boat docks which provide boats, motors, bait and allied merchandise and services under a lease agreement. The developed areas are described in subsequent paragraphs and are shown on Plates 10 through 23.
- a. Dam Site Park and Project Administrative Area. Located in Cleburne County, Sections 5, 6, 7 & 8, TlON, R9W, and Section 1, TlON, R10W.

This area contains approximately 884 acres, 220 of which were acquired solely for public use. Approximately 160 acres adjacent to the dam and appurtenant works have been set aside for project administrative purposes. Thirty-two acres of the Dam Site Area have been licensed to the U. S. Fish and Wildlife Service for a national fish hatchery.

The project boundary surrounding the Dam Site Area encompasses several different types of activity. These activities can be identified in their relationship to the dam and river and the major vehicular circulation, Highway 25. The Little Red River crosses the Dam Site Park in a north to south pattern, while Highway 25, running east and west, intersects the river at a point that is about the center of the Dam Site Park. At this point of intersection is the dam structure, with Highway 25 traversing the breast.

The dam structure lies east and west across the Little Red River at river mile 79.0. The total structure length is 1,704 feet, and height above the streambed is 243 feet. It impounds the water of the Little Red River north of the dam structure covering 31,500 acres at the top of the conservation pool, elevation 461, and covering 40,500 acres at the top of the flood control pool, elevation 487. The structure houses two hydro-electric generators capable of producing 48,000 kilowatts each and a switchyard for power transmission.

Below the structure and on the east bank of the Little Red River is the National Fish Hatchery operated by the U. S. Fish and Wildlife Service. The hatchery operating at capacity is able to produce annually approximately 150,000 pounds of trout or 600,000 ten-inch trout. The trout are then released into the Little Red River downstream from the dam structure and also into the lake.

Dam Site Park (left bank) is a linear recreational development along the edge of the Little Red River. This camping area lies between the National Fish Hatchery and the river. One restroom, one boat launch ramp, and 36 camp units are available for public use. A gatehouse at the entrance to the camping area and fish hatchery stops vehicular movement to collect the use fee for camping privileges. Access to the Dam Site Park (left bank) is by a one-half mile paved road from Highway 25.

A scenic overlook was developed on the east bank of the Little Red River overlooking the dam structure, power station, dam and river. Greers Ferry Dam was dedicated on 3 October 1963 by the late President John F. Kennedy. The ceremony was held on the left bank of the river immediately downstream and overlooking the dam. A bronze plaque with an engraved profile of the President, has been permanently installed in the overlook structure. local citizens who assisted and participated in the dedication ceremony felt that a permanent memorial should be erected on the site of the speaker's stand used for the dedication ceremony. Through the efforts of the Heber Springs Chamber of Commerce, \$5,000 was appropriated by the Arkansas State Legislature to construct an appropriate memorial. Through the combined efforts of the local Chamber of Commerce, Arkansas Department of Parks and Tourism and the Corps of Engineers, an attractive memorial was completed in The memorial consists of a one-sixth larger than life size bronze bust of the President and bronze plague mounted on a block of granite which is surrounded by shrubs and flowers in a semicircular cut stone planter. Spotlights are mounted near the base of the stone for viewing at night. The memorial is visited and appreciated by thousands of visitors annually. A photograph of the memorial is shown on Plate 32.

Immediately north of the scenic overlook, across Highway 25 and adjacent to the impounded water is a tract of approximately 92 acres designated for future camping facilities. The tract is 75% covered with mixed vegetation. The site profile is relatively gentle sloping to within 200 feet of the water's edge. The gradient of this 200-foot strip is between 20% and 50% creating a vertical element between the camping area and lake. This gradient almost negates the possibility of access to the lake for boat ramps and/or beaches.

Across the lake from this proposed camp area and north of Highway 25 is the major recreation area of the Dam Site Park. This area consists of approximately 172 acres, providing camping facilities, boat ramps, beaches and a marina for public use. The following list quantifies the facilities present at the recreation area:

Restrooms	5
Wells	4
Boat ramps	2
Picnic shelters	2
Change houses	1
Sanitary disposal station	1
Tables with fireplaces or	
charcoal grills	10
Camp spaces	196
Beaches	2
Marina	1

This area has excellent potential for future expansion. Approximately 50% of this area has been developed, the additional 50% is land with a gentle gradient ideal for camp space development. A day-use recreation area is planned within this camp area. Proposed activities will be softball, volleyball and tennis, and adjacent to these activity areas will be picnic shelters and picnic tables with grills and fireplaces for day-use recreation.

The interior topography of this portion of this major recreation area, as previously mentioned, is very gentle. In some areas, the average gradient does not exceed 1%, but some portions of the shoreline are cliff-like in character with heights exceeding 30 feet from the water level. Intermittent rock outcroppings and steep slopes along the perimeter of this recreation area have created problems in developing access to the water. See Plate 33.

Immediately south of Highway 25 and extending to the Little Red River is a section of property divided into three functional units. The most western unit is proposed for future camping development. The physical characteristics of the site can be readily altered to permit the development of camp spaces and sanitary facilities. But, the single drawback of this site is that it lacks access to water. For a camper to participate in water-related activities, he will have to cross Highway 25. Supervision of the area will be difficult unless an additional gatehouse is placed at the entrance.

The middle section of this southern portion is set aside for project administrative purposes. The Resident Engineer's office, maintenance, service, and storage are located here. This project administrative area serves as a collecting point for all Corps personnel who provide the services necessary for the Greers Ferry project to function. A side road of the project administrative area's circulation system takes the visitor along the western side (right bank) of the Little Red River.

This 3/4-mile crestline drive offers excellent qualities for scenic and interpretive development. One project already in the construction phase is

a trail for the physically limited. This 200-yard trail will provide scenic overlooks of the dam structure and the Little Red River Valley. Also planned is a self-guiding, interpretive classification of the flora of this area.

A second proposed trail will meander along the entire length of this 3/4-mile scenic drive. Again, this will be a self-guiding trail providing scenic overlooks and a review of the botanical elements found in the Greers Ferry area. A cross section of the flora will be experienced along this trail. The three botanical classifications of plant environments, xeric, mesic and hydric can be interpreted. Additionally, geologic formations will also provide a theme along the self-interpreting trail.

A brief discussion of the proposed development at Dam Site Park is necessary. Presently, there are two entrances to this major recreation area. To provide access control and separation of day use and overnight camping, the western entrance will be used for visitors participating in camping activities and for the visitors going to the marina. This section will be controlled by a park attendant located in the gatehouse at the entrance complex. Visitors using the eastern entrance will not encounter an entrance complex. The day-use area will be composed of existing Camp Loops J and K (see Plate 10). The existing public launching area will be used solely by the day-use visitor. An additional public launching area will be developed immediately north of the existing launching area specifically for the overnight camper. Existing camping units in Camp Loops J and K will be converted to picnic facilities when the day-use area is separated from the overnight camp area.

The existing beach which is part of the public launch area will be moved downstream on the right bank to separate the swimming activity and boat launching. This is to reduce the possibility of an accident.

Three major parking areas capable of handling a combination of 450 cars or cars and boat trailers will separate the day-use area and the overnight camping area. Day-use visitors and overnight campers will share the use of these parking areas. Access control will be by gates at either end of the parking areas and along the existing road of Camp Loop J.

A major circulation loop will be developed in the overnight camp area. Along this major loop will be proposed minor Camp Loops N, O, P, Q, S, and T. Proposed Camp Loops M and R are accessible from the existing access road. Of the minor Camp Loops, N, R, and T will be designated for multi-family camping only.

Play areas will be developed throughout the overnight camp area. Two Play Area B's and three Play Area A's have been designated. The Play Area A located in the most western section of the park will be more intensely developed than the typical Play Area A discussed in the Design Criteria, Section 7-02. An informal baseball field will be developed plus three multi-purpose courts, a 200-person picnic shelter, an amphitheater, plus the additional play features discussed in the Design Criteria.

The parking area at the second Play Area A will serve a dual purpose. Immediately north of this Play Area is the proposed location of the amphitheater. Since evening activities in this Play Area are expected to be minimal, this parking area can serve the visitor to the amphitheater.

Camp Loop U will be one of three reservation-basis overnight camp areas located at Greers Ferry Lake. Ninety-two camp spaces will be available for reservation by group camping associations. A group camp pavilion, capable of seating 200 people, will be provided for group meals and meetings. Access to Camp Loop U will be regulated through the attendant at the entrance complex to the Dam Site Park.

At the project operations area, a visitor center will be developed adjacent to the existing Resident Engineer's Office and maintenance center. The visitor center will provide work space for the naturalists and interpretive specialists as well as an exhibit display or interpretive program for the visiting public.

Across the dam structure on the east side of the lake, Camp Loop V will be developed to handle several variations of the camping activity. Multifamily camping spaces will be the primary type of facility. A second function of Camp Loop V will be to provide camping facilities for disadvantaged youth. Group camp facilities 1 and 2 will be developed with tent cabins described in Design Criteria 7-02 a. A group camp pavilion capable of seating 200 people will serve as an eating area, crafts area, or meeting area. Group camp areas 3 and 4 will be developed as described in EM 1110-2-400 for scouting and social groups.

Immediately across State Highway 25 on the paved county road will be a 10-car parking area for 7 walk-in campsites. These campsites are for the camper desiring to isolate himself from the visiting public. A restroom, well, tables, and fire pits are the proposed facilities.

Camp Loop W is an expansion of the Dam Site Park (left bank). Proposed facilities will be single camp spaces, waterborne restrooms, showers, a washhouse, and a Play Area B.

This major recreation area presently qualifies as a Class A park according to the guidelines established in Public Law 93-303, 7 June 1974.

b. Old Highway 25 Park. This area contains 239 acres above the top of the conservation pool and is located in Sections 1 and 2, TlON, RlOW, Sections 35 and 36, TllN, RlOW, Cleburne County, Arkansas.

State Highway 258 (severed) provides paved access to this park from the new rerouted State Highway 25. The new State Highway 25 crosses Greers Ferry Dam connecting the east side of Little Red River with Heber Springs, Arkansas. Highway 258 extends 2.8 miles west to the park from the town of Tumbling Shoals.

At the entrance to the park, a gatehouse has been erected to collect the use fee for overnight camping. Immediately to the right after passing this gatehouse is a 12-acre gravel quarry. Rock quarried from this pit was used in the construction of the dam structure. The pit, no longer in use, has 40 to 50 foot vertical walls and a floor that slopes 3%. (See Plate 34.)

A proposed use for the quarry and area immediately adjacent to it is to develop an interpretive display area/day-use complex. The quarry is large enough to allow the development of a regulation-size softball diamond, basketball courts and volleyball courts. Outside the quarry, an interpretive display area is proposed to exhibit and discuss the hydrological aspects of Greers Ferry Lake and the effect it has produced on the community and environment. Adjacent to this area will be picnic tables and a picnic shelter for family or group picnicking.

The general configuration of Old Highway 25 Park is like the palm of a hand with three fingers extending into the lake. Two of these fingers have been developed with camping facilities and areas for access to the water. The third undeveloped finger is proposed for development as a primitive camping area.

This primitive camping area will contain a restroom facility, two trash receivers, and 24 campsites. A dual purpose gravel trail will double as a service road and extend from the restrooms to the parking area. At the restrooms, this dual-purpose road will become foot trails radiating to the campsites. The trails and camp spaces will be selectively cleared for ease of circulation and erection of tents, but no paving of trails or campspaces will be required.

Old Highway 25 Park is furrowed with drainage patterns creating undulating highs and lows. This requires that most development be concentrated at the crest of ridges which is the general trend of development at this park.

Existing facilities at this recreation area include:

Restrooms	2
Wells	2
Picnic shelters	1
Camp or trailer spaces	92

Immediately after crossing the project boundary of Old Highway 25 Park, the vegetation thins to almost a barren landscape along the right side of the access road and encompassing three sides of the gravel quarry. An attempt to revegetate this area was initiated with little success. This large open area is spotted with stands of Shortleaf Pine planted for reforestation. The three fingers or ridges that extend into the lake are covered with a dense mat of mixed Shortleaf Pine and upland hardwood.

Aside from the proposed day-use development at the gravel quarry and the primitive camping area, additional development will primarily be camp loops.

Existing Camp Loop A (see Plate 11) will be severed at its juncture with Old Highway 25S, and then proposed additional camp spaces will make a continuous loop of this camp facility. This requires that access to Camp Loop A will be from the main artery within the park boundary providing an access control point at the entrance to the camp loop. Existing Camp Loop B will be used as a reservation group camping area as needed.

Proposed Camp Loops, G, H, I, J, K, L, and M will similarly provide additional camp spaces. Camp Loops I and L are to be developed as multi-family camping areas. The total proposed development will provide an additional 103 camp spaces.

Adjacent to Camp Loop K, an area has been set aside for a 200-person picnic shelter to be used on a reservation basis. The parking area at this picnic shelter will be shared by those visitors using the primitive camping facilities. Also, a Play Area A will be developed between the parking area and the 200-person picnic shelter to provide activity space for the visitors.

As mentioned previously, the geographic configuration of Old Highway 25 Park is that of a palm with three fingers extending into the lake. On the left finger, a parking area and amphitheater will be constructed. The parking area will not only serve the amphitheater, but will also be a supplementary parking area for periods of high water.

After Camp Loop A has been severed from Old Highway 25S, the only access and egress to the park will be through the proposed entrance complex. This complex will provide visitor protection control and a gatehouse for personal fee collection for overnight camping.

Under the present classification system set out by Public Law 93-303, Old Highway 25 Park will receive a Class C rating. When all proposed development has been executed, this park will qualify for a Class A rating.

c. <u>Heber Springs Park</u>. This area contains 203 acres above the top of the conservation pool and is located in Cleburne County, Arkansas, Section 16, T10N, R10W.

Access to the park is by a one-mile paved road from State Highway 110. Heber Springs Park is located within three road miles of the community of Heber Springs and within two road miles of the resort community of Eden Isle.

The undulating terrain of the site varies from relatively level to steep. Although the topography is generally moderate, not exceeding 10%, some areas of the site exceed 25%, negating the possibility of development without major changes to the site. An interesting site characteristic that provides scenic quality are the rock outcroppings that occur along the water's edge.

Approximately 75% of the site is covered with vegetation typical of the Shortleaf Pine-Upland Hardwood Association. The remaining 25% was originally, prior to acquisition by the Corps of Engineers, agricultural land. This open space has been revegetated by the Corps with Shortleaf Pines.

An existing marina located on a 3.25 acre commercial lease provides storage areas for float craft, rental float craft, fishing supplies and accessories, and petroleum products for the park visitor. These marinas offer snack and some short-order food items.

Existing facilities include the following:

Restrooms	4
Wells	3
Camp spaces	125
Public boat launching ramps	2
Drinking fountains	2
Picnic tables	8
Picnic shelter	1
Change house	1

Major changes have been proposed to the existing site development. These changes have been proposed to develop better access control and circulation within the park. An entrance complex is proposed for the purpose of visitor control, protection, and collection of camping fees. Existing Camp Loops A, B, and C will be converted to picnic facilities as proposed camp loops are developed. This will make the northwestern section of the park entirely day-use recreation.

The existing Camp Loop D will be severed at three points to create three new Camp Loops H, G, and P. The physical process of severing Camp Loop D to form these three individual units will necessitate the removal of several existing camp units and the obliteration of some existing road. Also, existing Camp Loop F will be severed at the northeastern end and a cul-desac formed to provide better control of this camp area and more privacy for the camper.

Proposed Camp Loops J, K, L, and M will be developed on presently undeveloped land in the park. These camp loops will be developed from a new proposed circulation artery that will connect with the existing major artery at the existing marina. Additionally, a drive-through parking area is proposed between the commercial lease and proposed Camp Loop M. This parking area will be for overflow traffic from the marina and for parking during periods of high water. Additionally, a similar parking area located between Camp Loops E and C will be provided for car and boat trailer parking during periods of high water.

No tertiary treatment plant will be required at Heber Springs Park. All sewer and waste water lines will be connected to the municipal freatment system of the City of Heber Springs.

The proposed new development will provide an additional 265 camp spaces, an amphitheatre, four Play Area B's and one Play Area A, and a picnic shelter. These proposed facilities will raise the rating of Heber Springs Park from a Class B Park to a Class A Park. These ratings are based on the classification designations in Public Law 93-303.

d. <u>Cherokee Park</u>. This area contains 139 acres above the top of the conservation pool and is located in Cleburne County, Sections 28 and 29, TllN, RlOW.

A four mile, all-weather gravel road is the main traffic artery for access to Cherokee Park. This gravel road intersects State Highway 92 at the town of Brownsville, Arkansas, directly north of the park. No use fee is collected for overnight camping.

The park takes the form of a peninsula extending into the lake. Prior to the impounding of water, this peninsula was a ridge accented on the east by the Drip Creek tributary of the Little Red River and also on the west by a similar unnamed creek. Today, these old creek channels provide a protective cove for boaters during inclement weather.

A cross section from east to west through this peninsula would show a relatively flat-topped ridge with steep slopes (many exceeding 15-20%) along the perimeter of the peninsula. The exception to this statement is at the very tip of the peninsula where the gradient is moderate and access to the water can be provided for a boat launch and beach area.

Cherokee Park contains a 40-acre plot on the eastern half of the peninsula that is ecologically significant. This 40-acre area is an exposed, low profile rock outcropping unsuitable for development but in need of protection from active recreational use. The outcropping (Plate 35) is partially covered with a 2 to 4 inch collection of soil held in place by a stand of native grasses. Some small trees persist where the roots have been able to find a crack in the rock layer. All vegetation is of a species that is indicative of a dry environment. Facility development has been designated for the perimeter area only for protection of this site.

Site vegetation is a mixed stand of upland hardwoods and native Shortleaf Pine. Approximately one-third of the site was originally agricultural land before acquisition by the Corps of Engineers. A reforestation project was initiated after the land was acquired. All tillable lands were planted with seedling Shortleaf Pines, which have grown with moderate success.

The existing facilities include a public launching ramp, one restroom, and 33 camp units.

An entrance complex is proposed for the purpose of visitor control, protection, and collection of camping fees. Existing Camp Loops A and B will be converted to a day-use recreation area as additional camp loops are developed. A large Play Area A and 2 picnic shelters are proposed for this day-use area. All existing camp spaces in Camp Loops A and B will become picnic facilities.

Because of the steep shoreline of the park, the only area suitable for a beach and public launching area is in the proposed day-use recreation area. Additional parking areas are proposed to handle the expected concentration of vehicles at the area.

238

Proposed Camp Loops D, E, F, G, H, and I will add an additional 238 camp spaces to Cherokee Park. Four Play Area B's and one Play Area A will be located throughout the park in the camp loops and proposed picnic area for the tots to pre-teens.

A proposed one and one-fourth mile trail will be located around the perimeter of the park for the campers and visitors to the park. Another two and one-half mile trail will spur off of this perimeter trail in the eastern section of the park. This trail will take the hiker along the shoreline of the lake to a foot bridge crossing Drip Creek and then to a historical marker denoting the point where the Old Cherokee Boundary Line exits Greers Ferry Lake.

Under the present classification system designated by Public Law 93-303, Cherokee Park would receive a Class C rating. When the proposed construction is complete, this park will receive a Class A rating.

e. <u>Cove Creek Park</u>. This area contains 108 acres above the top of the conservation pool and is located in Cleburne County, Arkansas, Sections 27 and 34, T10N, R11W.

Cove Creek Park suffers from severe terrain limitations. Either the terrain is too steep to provide accommodations, or the remaining land lies below the flood control pool, elevation 487. Both aspects create difficulties in providing recreational features for the park.

Access to the park is by a one-mile narrow, steep and crooked road from State Highway 16. This paved access to the park may be hazardous for large recreational vehicles or automobiles pulling boats and trailers. The hazard lies in negotiating the sharp turns. When large recreational vehicles negotiate these turns, they are forced to cross the center line of the road producing a dangerous condition for approaching traffic.

Existing development at Cove Creek is basically along the lake edge at the park. Two restrooms, 53 camping spaces, a well, beach, and picnic shelter are the present facilities for public use.

The proposed development has been designed to regulate use and provide access control. Three major areas have been separated by use. Immediately after passing the entrance complex, Camp Loops A, F, and G are located on the left. On the right are Camp Loops B, C, D, and E, and straight ahead is the day-use area.

The left side, or western development, includes existing Camp Loop A and proposed Camp Loops G and F. Camp Loop A has been severed at the northern end and a cul-de-sac formed. This will discourage through traffic and create more privacy for the camper. Proposed Camp Area G will have a beach,

change house, and Play Area B plus restroom facilities and 25 camp spaces for users of the western section.

Crossing to the right side, or the eastern development, existing Camp Loops B and C are inter-connected. Access to Camp Loop C is through Camp Loop B. Additional proposed access control will require that the northern end of Camp Loop B be severed and a cul-de-sac formed. This proposed action will create a large functional camp loop with optimum access control and privacy for the camper.

Proposed Camp Loop D is a 34 camp space multi-family development. At the northern end of the camp loop is a proposed public launching area specifically planned for the campers in the eastern section of the park. Also included in the multi-family area is a Play Area B designed for the tot to pre-teen age group.

Camp Loop E provides 29 single camp spaces and a public beach for campers in this eastern section. Again, privacy and access control are the primary features.

The middle development, day-use area, has an existing picnic shelter, picnic tables, public launching area and beach. Proposed development will relocate the beach, moving it closer to the proposed change house. An additional ramp is proposed for the existing public launching area. Also included in the proposed day-use development is a Play Area A. This Play Area may be modified to meet the expected demand.

A one-half mile trail is proposed to a scenic viewpoint 250 feet above the conservation pool. This viewpoint will provide a vista to the north framed on the east by Eden Isle and on the west by Millers Point.

A second proposed trail, the Salt Creek Trail, will exit the park in the western section and parallel the shoreline to Salt Creek Future Park. This trail will pass Round Mountain, Gaff Point, Stark Point, Millers Point, and the historical marker designating the location of the Old Cherokee Boundary Line. This eight-mile trail is proposed as a day hike. The expected users of this trail will be scouting groups and social organizations. To provide interest along the hike, certain vegetative, hydrologic and geologic features will be marked and a brief explanation of their significance will be provided.

Cove Creek will receive a Class C rating under the designation provided in Public Law 93-303. Upon completion of the proposed features, this park will receive a Class A rating.

f. Shiloh Park. This area contains 126 acres above the top of the conservation pool and is located in Cleburne County, Arkansas, Section 1, T10N, R12W.

Shiloh Park, located adjacent to the old channel of Shiloh Creek, offers much to the visiting public. The gentle terrain allows for the development

of relatively level campsites. The old channel of Shiloh Creek, now a cove, protects the marina. The marina, located on a 4.0 acre lease, offers a full range of rental floating craft as well as petroleum products and fishing supplies. These combined with the easy access of State Highway 110 (severed) southeast of Stark, Arkansas, create a pleasant recreation atmosphere.

Existing facilities include 105 camp spaces, 3 restrooms, 1 picnic shelter, a change house, and a public launching area (see Plate 14). These existing tacilities are located in Camp Loops A, B, C, D, E, F, G, H, and I.

Proposed development includes Camp Loops K, L, M, N, O, and P. Camp Loops J and P are for multi-family use. These proposed camp loops will add a total of 211 new camp units. Additionally, Camp Loop P can be used for reservation basis camping for large, organized camping associations.

Camp Loop P is an isolated area offering privacy for the camping organizations. Proposed development for this isolated area will include a beach and change house, public launching ramp, restroom, 68 camp spaces, a Play Area B and group camp pavilion capable of seating 200 people for meals or meetings.

Existing Camp Loop I will be converted to day-use recreation when additional camp loops have been developed. Existing camp spaces will be converted to picnic facilities. Additional facilities will be an amphitheater, Play Area A, public launching area, and a beach and change house.

Under the present classification system set out by Public Law 93-303, 7 June 1974, Shiloh Park will receive a Class C rating. At the completion of proposed facilities (see Plate 14), this area will receive a Class A rating.

g. <u>Narrows Park</u>. This area contains 61 acres above the top of the conservation pool and is located in Cleburne County, Arkansas, Sections 29 and 30, T11N, RIIW.

The Narrows Park is situated on 61 acres at the mid-point of Greers Ferry Lake. A natural narrow channel aligned north and south connects the two major bodies of water that compose Greers Ferry Lake. This narrow channel, less than a quarter of a mile wide, is spanned by a bridge on Highway 16-92. This highway provides the only north-south access across the lake.

This park occupies three of the quadrants of the axis formed by the intersection of Highway 16-92 and the Narrows channel. Partial development has been initiated on the western side of the Narrows channel in both the northern and southern quadrants.

Beginning July 10, 1974, an overnight camping use fee was assessed each overnight camper. A problem exists with access control because this park is divided into three quadrants. One entrance complex is proposed for the northwestern quadrant to control access and collect use fees for this camping area.

The site development to this stage has been a direct result of the influence of Highway 16-92. The northwest quadrant has been developed extensively for overnight camping. A limited number of camp sites can still be developed within this area, but for further expansion, additional lands should be acquired.

The southwest quadrant has been developed for day-use recreation and a 7.2 acre commercial lease has been extended for a marina and dinner theater. The marina offers float craft rental and boat slips for boat storage. They also carry a full supply of fishing tackle and water-related recreation equipment.

Immediately adjacent to the dinner theater on the west is an area designated for proposed recreational facilities such as a combination baseball field-football field and multi-purpose play court. These facilities can be developed and used by the day visitors, overnight campers and social and community organizations from the surrounding communities of Higden and Greers Ferry. In this manner, the area is capable of serving three separate areas of public use.

The third area, in the northeast quadrant, again lacks the acreage to justify overnight camp facilities. This area will be limited to day-use recreation oriented toward water-related activities. The commercial lease for this area has been deleted from the Master Plan. A more justifiable use of the shoreline is, as mentioned previously, public use and water-related activities.

Prior to impoundment of water, the Narrows was the flow channel for the Little Red River. As the river cut through this bed of sedementary rock, it created the vertical rock outcroppings that the visitor now experiences on the shores of the Narrows Park. These huge flat-surfaced rocks make ideal platforms for lounging, sunbathing and diving.

Existing site vegetation is a thin stand of upland hardwoods interspersed with native Shortleaf Pines. As the site was developed, areas that were originally agricultural lands were revegetated with the native Shortleaf Pine.

Existing site facilities for the Narrows Park area consist of the following:

Restrooms	2
Wells	2
Drinking fountain	1
Sanitary dump station	1
Picnic tables and accessories	10
Group picnic shelters	2
Public boat launching ramps	2
Camp or trailer spaces with	
table and fireplace	47
Commercial lease for marina	1
Commercial lease for private	
dinner theater	1

Narrows Park is a Class B park according to designated rating provided by Public Law 93-303, 7 June 1974. At the completion of the proposed facilities, this park will have a Class A rating.

h. <u>Devils Fork Park</u>. This area contains 88 acres above the top of the conservation pool and is located in Cleburne County, Section 17, TllN, RllW.

Access to Devils Fork Park is by the Old Highway 16 which was severed with the impoundment of water. New Highway 16 parallels the park on the east and crosses the northern section of the lake providing access to the town of Edgemont and points north.

The topography of this site is moderate. The average gradient rarely exceeds ten percent. The site is a gentle ridge with two tributary streams adjacent to the property boundary. This creates a triangular-shaped piece of land with the base of the triangle as shoreline fronting the lake. The site topography allows maximum utilization of space for development.

The entire park is densely wooded with the Upland Hardwood-Shortleaf Pine Association. No species appears to be the dominant overstory, but it can be assumed that the Oak-Hickory Association will comprise the major portion of the deciduous trees. The Shortleaf Pines are the major conifers present although some Loblolly Pine and Eastern Red Cedar may be encountered. Immediately after entering the Devils Fork Park, the road meanders through two individual pure stands of Shortleaf Pine. These are the only two pure stands of vegetation that can be found within the Devils Fork project boundary.

The existing facilities for the Devils Fork Park are as follows:

Restrooms	2
Well	1
Picnic shelter	1
Camp or trailer spaces with	
table and fireplace	54
Public boat launching ramps	3
Beach .	1

Extensive development is proposed for the Devils Fork Park. The existing main access to the park will be severed west of the existing public launching area to create a day-use facility separated from the overnight camping facilities. Camp Loop A, presently camping spaces, will be converted to picnic facilities. A 200-person picnic shelter will be constructed to handle reservation-basis group outings. A Play Area A is proposed to provide activities for all ages. Additionally, a public beach is proposed adjacent to the existing public boat launching area.

A secondary artery for vehicular circulation is proposed for the overnight camping area. This will provide circulation control points at existing Camp Loops B and C and proposed Camp Loops D, E, F, G, H, and I. Circulation through Camp Loops C and D to the existing public launching area will

be severed to discourage through traffic. Similarly, Camp Loop B will be severed and a cul-de-sac developed to discourage through traffic.

Proposed Camp Loops D, E, F, G, H, and I will increase available camp spaces by 120 units. Three Play Area B's will be interspersed throughout the proposed camp loop development to provide play facilities for the tots to pre-teens.

The existing public launching area located at the western side of Devils Fork Park will have an access road from the secondary artery. This will reduce car and boat trailer traffic in the camp loops. The parking area at this public launching area will serve a dual purpose. During the evening, this parking area can be used by those people attending the interpretive program at the proposed amphitheatre.

Access to the park will be controlled by the proposed entrance complex. (See prototype on Plate 25.) This complex will provide access control to the camping and day-use recreation area.

Upon completion of the proposed development, Devils Fork Park will receive a Class A rating according to the designations set out by Public Law 93-303. At present, Devils Fork Park can only receive a Class C rating.

i. <u>Hill Creek Park</u>. This area contains 104 acres above the top of the conservation pool and is located in Cleburne County, Arkansas, Section 3, TllN, RllW.

Hill Creek Park is somewhat isolated from the main traffic flow. Access to the site can be attained from two directions: going north approximately four miles by all-weather gravel road from State Highway 92, or by going seven miles directly south by all-weather gravel road from State Highway 263. The all-weather gravel roads have advantages and disadvantages. They are advantageous in that they discourage some visitation which reduces the congestion and provides a more pleasing recreational experience. The disadvantages, for those who venture out upon these all-weather gravel roads, are the mud, dust, slow driving and rough ride.

Two steep-sided ridges are the dominant features of the Hill Creek Park. The average gradient of these steep slopes ranges between 10 and 30 percent. The crests remain relatively flat producing good areas for development. The western boundary of the park is defined by the cove created along the Hill Creek Stream. Similarly, the eastern boundary is defined by a cove of an unnamed stream. The stream which produced the divide between the two ridges also forms a protective cove for the marina, buffering it from severe winter winds.

Rock outcroppings are frequently associated with steep slopes. Shallow soils and cherty bedrock produce these rock outcroppings through the natural process of erosion. There are several of these rock outcroppings on the western exposure of the Hill Creek Park.

The site is covered with dense vegetation, except for an area at the crest of the western-most ridge. This area was developed for agricultural purposes prior to procurement by the Corps of Engineers. An effort has been made to revegetate this open area with pine, but the survival of the pine has been nominal. Further efforts should be extended to revegetate this bald crest. The eastern ridge is a mixed stand of vegetation with approximately 30% Shortleaf Pine.

The existing facilities are as follows:

Restroom	1
Wells	1
Camp or trailer spaces	30
Beach	1

A 2.9 acre commercial lease has been extended for the development of a marina. The concessionaire stocks fishing tackle and supplies, provides floating craft for rental, and provides petroleum products for sale. Some boat storage is also available. The lessee has temporarily suspended all operations due to the condition of the access roadway.

Hill Creek is one of the four free access parks at Greers Ferry Lake.

Proposed facilities at Hill Creek Park include an additional 88 camp units with 30 of these units developed for multi-family use. Two play areas will be developed in the park. One will be a small-scale play area (Play Area B) designed for the pre-teens. The second play area will be located in Camp Loop E. This play area, designated Play Area A, will have activities for all ages, multi-purpose courts intended for tennis, volleyball or badminton.

The proposed day-use area will have 8 picnic tables, ‡ picnic shelter, and 1 200-person picnic shelter for large groups. Also proposed will be an additional public launching ramp and beach with change house. To take advantage of the parking at the day-use area, the amphitheater is located at the southwestern tip of the park.

Hill Creek Park, at its existing stage of development, is a Class C park according to the designations set out by Public Law 93-303 dated 7 June 1974. At the completion of the proposed development, this park will have a Class A rating.

j. Mill Creek Park. This area contains 221 acres above the top of the conservation pool and is located in Cleburne County, Arkansas, Sections 13, 23 and 24, TllN, R12W.

Mill Creek Park is part of a peninsula extending into Greers Ferry Lake. Development has been minimal, but Mill Creek has the potential of becoming one of the nicest parks on Greers Ferry Lake. The present drawback is the access to the park. A two-mile gravel road from State Highway 92 could discourage the most ardent camper.

The terrain slopes gently from south to north with the existing development in the northeastern section. The gradient of the shoreline is steep. A 200-foot belt along the perimeter slopes between 15 and 30% producing some difficulty in providing access to the water. Mill Creek Park has a dense cover of existing vegetation. This vegetation is a mixed stand of Shortleaf Pine and Upland Hardwoods, a common association of the Greers Ferry area.

The existing development is 27 camp spaces in Camp Loops A and B, 1 restroom, a well, a picnic shelter and public launching area.

Extensive development is proposed throughout the remaining acreage. Camp Loops C, D, E, F, G, and H will produce an additional 218 camp spaces. Two additional launch ramps are proposed plus expansion of the existing launching area. Two beaches and change houses have been proposed. Camp Loop C will consist of 56 multi-family camp spaces and a Play Area B. Additionally, Camp Loops F and H will have Play Area B recreational facilities.

The proposed day-use area will have the above-mentioned beach plus a Play Area A, a 200-person picnic shelter, 2 smaller picnic shelters, 15 picnic tables, and an amphitheater. Immediately adjacent to the day-use area will be the proposed public launching area.

Access control is one of the primary criteria for design of the additional facilities. Each camp loop and day-use area can be controlled by a gate or chain across the entrance to the area without affecting circulation to the other facilities.

A license was granted to the Arkansas Game and Fish Commission for the development of a 20.7 acre fish nursery pond. Fingerling and fry fish are introduced into the nursery pond and raised to an age suitable for stocking in the lake. One aspect of the lease is the control of the park property adjacent to the limit of lease. The Game and Fish Commission requires a buffer zone to control the watershed of the nursery pond. This negates the development of recreational facilities east of the major artery through the park and above the earthen dam.

A one-quarter mile hiking trail is proposed to pass through the buffer zone and across the earthen dam of the nursery pond.

At the present stage of development according to Public Law 93-303, Mill Creek would receive a Class C rating. Upon completion of the proposed developments, Mill Creek Park will receive a Class A rating.

k. <u>Sugar Loaf Park</u>. This area contains 65 acres above the top of the conservation pool and is located in Van Buren County, Section 33, TllN, R12W.

Sugar Loaf Park is popular to lake visitors as the shuttle point to the Sugar Loaf Mountain National Nature Trail. This popularity is bolstered by the extensive development of the park's camping facilities. The 79 spaces

in Camp Loops A, B, C, D, and E provide area for parking and setting up camp. Two additional proposed Camp Loops F and G, Plate 18, will provide 48 multifamily camp spaces.

Because of Sugar Loaf Park's popularity as a shuttle point for the national nature trail, three group camp spaces at Camp Area H have been proposed for scouting or social organizations. When proposed Camp Loops F and G and Camp Area H have been constructed, almost no land at Sugar Loaf Park will be available for further development of camping spaces.

Heavy day-use recreation is experienced at Sugar Loaf. To accommodate this heavy use, Camp Loop D will be converted for day-use recreation. All existing camp spaces will become picnic sites and proposed picnic shelters will be developed as indicated on Plate 18.

The existing marina sheltered in the protective cove of the old channel of Lazy Creek offers rental float craft and a full range of fishing supplies to the visiting public. This marina is located on a 3.7 acre commercial lease site.

An interesting topographic feature of the park is its shoreline. Most of the shoreline is steep, rugged and strewn with bolders, while the interior slopes at a gentle gradient of less than five percent.

The park site prior to acquisition was used partially as agricultural land and part was forested. To create a park-like atmosphere, the agricultural land was revegetated with Shortleaf Pines. The existing forest land is a mixed stand of Shortleaf Pine and Upland Hardwood Association.

Sugar Loaf Park in its present stage of development has a Class C rating as designated by Public Law 93-303. When the proposed features have been developed, Sugar Loaf Park will receive a Class A rating.

1. <u>Van Buren Park</u>. This area contains 127 acres above the top of the conservation pool and is located in Van Buren County, Sections 19, 20, 29 and 30, T11N, R12W.

State Highway 330 provides access to the Van Buren Park and Fairfield Bay areas from State Highway 16. Fairfield Bay is a large-scale land development on the north and east sides of Van Buren Park. At present, this land development covers in excess of 5,000 acres with continuous growth potential.

The Corps of Engineers controls access to the lake, which requires the residents of Fairfield Bay to use this park for launching their floating craft. The combination of capacity camping visitors and Fairfield Bay residents may have the tendency to exceed the carrying capacity of the site during peak recreational seasons.

This congestion problem may be accentuated by the site topography, which limits development due to steep slope gradients. These gradients range from a minimum of 10% to cliff-like in character, creating

problems in developing areas for boat launching and adequate parking. problems in developing areas for boat launching and adequate parking.

As mentioned previously, rock outcroppings can be found throughout the site. Preservation of such features is encouraged. (See Plates 36 and 37.) Camp units and the road system have been integrated with these outcroppings to enhance the outdoor experience.

The vegetative species found on the Van Buren site are indicative of the mixed association of Upland Hardwoods and native Shortleaf Pine.

The site has been developed to about 60% capacity. Existing features include:

Restrooms	2
Wells	2
Drinking fountains	2
Public boat launch	1
Picnic shelters	2
Camp or trailer spaces	67

A 2.9 acre commercial lease has been extended to a concessionaire to develop a marina. The owner carries a full line of fishing equipment, rental float craft, petroleum products, and other accessories for water-related activities.

Proposed development will convert existing Camp Area A into picnic facilities when additional camp loops are developed. When this conversion occurs, the area surrounding the existing marina will be used for day-use recreation only.

Proposed Camp Loops F, G. H, J, and K and Walk-in Camp Area I will provide an additional 113 camping spaces. Camp Loop J will have 44 spaces for multi-family camping while Walk-in Camp Area I will have 5 spaces for the visitor who wants to be away from the more compact conditions of the camp loops.

Under the present classifications designated by Public Law 93-303, Van Buren Park has a Class C rating. When the proposed development is complete, this park will receive a Class A rating.

m. South Fork Park. This area contains 94 acres above the top of the conservation pool and is located in Van Buren County, Sections 25 and 36, T11N, R13W.

Minimal development has been executed at South Fork Park. The eight-mile all-weather gravel road providing access to the park from State Highway 16 discourages public use. Consequently, until such time as this access road is paved, public use of South Fork Park will be minimal.

South Fork Park is a peninsula extending into Greers Ferry Lake. The north shoreline of the park, along the old channel of Thompson Creek, is almost bluff-like in character. This bluff rises to over 100 feet above the conservation pool creating a scenic vista for campers using Camp Loop C. The site slopes in a southeastern direction with an average 10-12% gradient.

The site is covered with a mixed stand of pines and hardwoods typical of the Shortleaf Pine-Upland Hardwood Association.

The site is bisected by an existing paved road running west to east. At the eastern terminus is a public launching area. Immediately north of the road and launching area is an existing Camp Loop A, consisting of 13 camp spaces. Adjacent to this camp loop, but south of the paved road, is the restroom and well.

Proposed development consists of two additional camp loops with 54 camp spaces, a beach and change house, vault restroom, wells, and two areas, D and E, designated for primitive camping. Primitive Camp Areas D and E will provide 40 camping spaces. An entrance complex is proposed although no fee will be collected for the use of this area.

As prescribed by Public Law 93-303, one camp facility at each Corps lake will be free to the public. For Greers Ferry Lake, South Fork Park will be designated as the free public park.

n. Choctaw Park. This area contains 118 acres above the top of the conservation pool and is located in Van Buren County, Section 4, T10N, R13W.

Choctaw Park is located at the western-most extremity of Greers Ferry Lake. Originally, this area was licensed to the State of Arkansas for a State Park, but at the request of the State, the license was terminated. All development of Choctaw Park has been initiated by the Corps of Engineers.

Access to the park is by paved State Highway 330, 3.7 miles east of the juncture of State Highway 65. At the entrance to the park is a fee collection station. A fee is charged to all overnight campers for use of a camp space.

The project boundary on the east and west is defined by tributaries of the old channel of the Choctaw Creek. With the impounding of water, this channel is now a protective cove for the boat dock and commercial marina. A cross section or site profile would show the site gently sloping from the west to east. Maximum utilization of the site can be expected because the slopes are conducive to development. The rock outcropping along the southwestern shoreline of the park is a prominent geologic feature. This rock outcropping, bluff-like in character, was originally formed by the natural erosion process of the Choctaw Creek.

Approximately 75% of the site is presently developed. Existing facilities include the following:

Restrooms	3
Wells	2
Drinking fountain	2
Public boat ramp	1
Picnic shelter	2
Change house	1
Camp spaces or trailer spaces	122

An approximate three-acre commercial lease has been extended for the development of a marina. The concessionaire offers float craft rentals, petroleum products sales, and sale or rental of most supplies needed in water-related activities. A paved and buoyed beach provides a safe swimming feature protected from boat traffic.

The western half of the Choctaw Park is covered with a dense stand of native pines. The eastern half of the area is a 50-50 combination of native pine and upland hardwoods. In areas that were originally agricultural areas, the Corps of Engineers has revegetated the site with Shortleaf Pine.

Several revisions have been made in the existing development at Choctaw Park to provide better circulation and access control. Existing Camp Loops A and C have been connected to form one large camp loop. Existing Camp Loop B has been severed and a cul-de-sac formed at the western end to discourage all through traffic.

A similar process has been implemented at existing Camp Loop D. Camp Loop D has been segmented and now consists of existing Camp Loops D, H and I. The southern portion of Camp Loop H has been severed and a cul-de-sac formed to provide access control and privacy. The western portion of Camp Loop D has been combined with Camp Loop E to form one large camp area with easy access control.

The southern portion of existing Camp Loop D (Segment I) will be converted to day-use activities. This existing camp loop is attached to the beach creating a conflict of activities. Additional day-use facilities will be developed immediately east of the beach and adjacent to the public launching area. Proposed features will be additional picnic facilities, a Play Area A, a 200-person picnic shelter, and a small visitor center for display purposes.

Two Camp Loops, F and G, have been proposed as multi-family camp spaces. These camp loops will provide an additional 86 camping spaces.

Choctaw Park currently has a Class C rating as designated by Public Law 93-303. When the proposed construction is complete, Choctaw Park will qualify for a Class A rating.

7-04. Salt Creek Future Park. This area contains 107 acres above the top of the conservation pool and is located in Cleburne County, Sections 1 and 12 T10N, R12W.

To date, no Federal money has been spent on developing this park. In accordance with the current cost sharing policy, development of this park will require 50% cost sharing by a non-Federal agency.

An entrance complex similar to the prototype illustrated in Plate 25 will be used at the entrance of the park to collect camp space use fees. This complex will serve the dual function of access and security control for the park visitor.

Present access to the site is by a 1 1/2 mile all-weather gravel road from State Highway 16. Upon reaching the park boundary, all roads and camp loops and spaces will be paved. The public launching and parking area will be paved as well as the parking area at the group camp spaces.

To stimulate interest in developing Salt Creek Park, extensive development is proposed to offset construction and operations and maintenance costs. There are 147 camp sites proposed in five camp loops. Additionally, three group camp spaces have been proposed to accommodate scouting and/or social organizations. It is anticipated that these areas will be heavily used because of the eight-mile Salt Creek Trail.

The Salt Creek Trail will be a self-guiding nature trail identifying typical examples of the flora of the Greers Ferry area. Food plots may be developed in accordance with the <u>Fish and Wildlife Management Plan</u>, <u>Section XIV</u>, of this report, along the trail to attract the fauna of the area. At a point about midway along the trail is one of the two points where the Old Cherokee Boundary Line exits Greers Ferry Lake. A proposed historical marker will denote this point.

Site characteristics are an important feature of Salt Creek Park. The terrain is moderate and will provide few problems in development. Several shallow tertiary drainage patterns flow from west to east into the lake, creating water flows during wet periods. The most detrimental characteristic of the site is the gradual slope of the shoreline. Approximately 40 percent of the site could be inundated if the water level increased to the top of the flood control pool. Camp Loop C and portions of B, D, and E would be inundated when the water level reaches the top of the flood control pool.

The vegetation is a dense mixed stand of pines and hardwoods. Principal members of this association are the Shortleaf Pines and Upland Hardwoods.

When Salt Creek is developed as proposed, it will receive a Class A rating according to the designations set out by Public Law 93-303.

SECTION VIII

BENEFITS AND ECONOMIC VALUES OF THE PROJECT

8-01. Benefits and Economic Values. Prior to construction of Greers Ferry Lake, recreational use of the Little Red River consisted of bank fishing, float fishing, and swimming primarily by residents of the area. Hunting of deer, waterfowl, and upland game were popular fall and winter sports. There is no recorded estimate of the number of people who utilized the area for recreation pursuits prior to construction of the project. Between the years 1961, the year of initiation of impoundment, and 1973, visitation to the lake increased from 55,000 to 3,419,900. Based upon standards for the evaluation of recreational benefits contained in Supplement No. 1, Senate Document No. 97, 87th Congress, June 1964, the estimated value of an average visitor day to Greers Ferry Lake is \$1.66. Application of unit values to the annual number of recreation days for each activity, results in a gross benefit of \$5,678,000 in 1973. An overview of the full economic impact of Greers Ferry Lake may be better visualized through the following comparison:

TABLE 8-01 DATA RELATING TO COLLATERAL BENEFITS OF PROJECT

	<i>,</i>	Year Pric to Impound (1960)	ent
1.	Number of vacation resorts, cottages, camps, lodges, hotels and similar accommodations, where overnight facilities are provided in vicinity of lake.	9	41
2.	Number of overnight accommodations available in above establishments.	258	1,206
3.	Number of real estate transfers in counties in which lake is located.	775	4,196
4.	Number of restaurants, cafes, and public dining rooms in vicinity of lake.	9	44
5.	Assessed valuation of all taxable property in counties in which lake is located: Cleburne Van Buren Total	\$3,680,876 2,751,630 \$6,432,506	8,179,908

SECTION IX

COST ESTIMATES

9-01. General. The following paragraphs and tables are presented to facilitate review of estimates of costs for public use facilities and the expenditures for existing facilities completed through Fiscal Year 1976.

9-02 Cost sharing policy.

- a. Policy subsequent to Public Law 89-72. Current administration policy, beginning with the Fiscal Year 1975 Code 710 Program, requires cost sharing with a non-Federal public agency except where urgently needed sanitary facilities are required to meet requirements of applicable State and Federal laws.
- b. Ozark National Recreation Area. A study is being prepared to determine if Bull Shoals, Norfork, Beaver, Table Rock, Greers Ferry and the authorized Bell Foley Lake should be made the Ozark Unit of the National Recreation Area. If the Ozark National Recreation Area in created, future recreational development and operation will be carried out by the Federal Government. Cost sharing under policy developed subsequent to PL 89-72 will not be applicable.
- 9-03. Recreation User Fee Analysis. Under the current user fee program as outlined in ER 1130-2-404 Dam Site Park could be developed to the level necessary to recover operation and maintenance costs through the collection of user fees. Following is an analysis of the user fee potential and operation and maintenance costs that can be expected upon development of Dam Site Park as provided for under this master plan.
- a. Considerations for the selection of Dam Site Park for development to recover operation and maintenance costs.
- (1) This park is within about 150 miles of such Standard Metropolitan Statistical areas as Memphis, Tennessee, Springfield, Missouri, Fort Smith, Little Rock, and Pine Bluff, Arkansas.
- (2) Dam Site Park has received extensive development having 232 existing camp sites. Site conditions permit further development which will include 490 additional camp sites, making this a prime site for an efficient user fee operation.

b. Assumptions.

- (1) The camping demand experienced at Dam Site Park will continue to be at least at the present levels, and it is expected to increase.
- (2) Development of this Park to recover Operation and Maintenance costs under this program will require deviations from current cost sharing policies.

- (3) Visitor control and other park amenities will provide the public with protection which they will value to be worth at least the fee charged.
- c. Analysis. The following tables contain fee potential and operation and maintenance costs under existing and proposed development. These comparative analyses reveal that a potential exists for efficient development to recover operation and maintenance costs under the user fee program.

TABLE 9-01
REVENUES - EXISTING FACILITIES

Season	: :	Days	:	-	:			: : Revenue	:	Number Electrical Outlets
	:		:		:		:	:	:	
Jun-Aug	:	100	:	232	:	90	:\$2.00	:\$41,700	:	None
May-Sep	:	55	;	232	:	45	: 2.00	: 11,500	:	None
Oct-Apr	:	210	:	232	:	22.5	: 2.00	: 21,900	:	None
	:		;		:		:	:	:	
	:		:		:	TOTAL	:	:\$75,100	:	
	:		:		;		:	:	:	

TABLE 9-02

REVENUES - REQUIRED FACILITIES TO RECOVER O&M COSTS

	:	: N1	umber	:		:		- " -	:			: Num	ber	:		:		:	
Season	:Days	: Ca	amp	:Pe	rcei	nt:	Fε	èе	:R	ever	nue	:Ele	ctrical	L:P	ercent	:	Fee	:Reve	nue
	:	: S:	ites	:0cc	upi	ed			:			:Out	lets_	:0	ccupied	:		:	
	:	;		:		-:			:		•	:		:		:		:	
Jun-Aug	:100	:	450	:	90	:	\$2.	75	:\$	111,	,400	:	218	:	45	:\$	0.50	:\$4,9	00
Мау∽Ѕер	: 55	:	450	:	45	:	2.	75	:	30,	,600	:	218	:	22.5	:	0.50	: 1,3	00
Oct-Apr	:210	:	450	:	22.	5:	2.	75	:	58,	,500	:	218	:	11	:	0.50	: 2,5	00
	:	:		:		:			:-			:		:		:		:	
				SUI	BTOT	`AL			\$	200,	,500							\$8,7	00
				TO	TAŁ	RE	VEN	Œ									\$	209,2	:00

TABLE 9-03

COST OF OPERATION AND MAINTENANCE
DAM SITE PARK

	:	Ex	isti	ng	Faci	liti	es	:		ima ili	te ties
	:	:		Ų	nit					:	
	:Uni	t: :	No.	:C	ost_	:A:	moun	<u>t</u> :	No.	; A	mount
	:	:		:		:		:		:	
Labor-Rangers-Fee Collection	:L.S	.:	-	;	~	:\$	17,2	00:	-	:\$	17,200
Labor-Sewage Treatment Plants	:L.S	.:		1:	-	;(1)3,0	00:		2:(2)8,900
Operating Equipment	:L.S	.:	-	:	-	:	2,8	00:	_	:	2,800
Clean-Up, Waste Disposal &	:ea.	:	24	41:\$	110.	00:	26,5	00:	75	57:	83,300
Mowing (includes Materials & Supplies)	:	:		:		:		:		:	
Parking Areas (Flex. Pav.)	:S.Y	.:1	0,40	00:	0.	14:	1,5	00:	51,20	00:	7,200
Buildings	:ea.	:	24	41:	5.0	:00	1,2	00:	75	57:	3,800
Roadways	:S.Y	.:6	5,60	00:	0.1	14:	9,2	00:	151,50	00:	21,200
Signs & Buoys	;еа,	:	24	41:	10.0	00:_	2,4	<u>00</u> :	75	57:_	7,600
	:	:								_	
Subtotal	:	:				\$	63,8	00		\$	152,000
Direct District Costs (20%)	:	:				_	12,8	00		-	30,400
Subtotal							76,6			\$	182,400
District & Field Office O.H. & S&A (16%)					_	10,2	<u>00</u>		_	24,300
TOTAL						\$	86,8	00		\$	206,700

- (1) 1/10 of WG9 @ \$10,753 + 10% District Costs
- (2) 1/2 of WG9 @ \$10,753 + 10% District Costs

 A unit is defined as one picnic or camp unit

9-04. Facility costs.

- a. All cost estimates shown in this master plan are based on December 1974 price levels. Costs for facilities not previously constructed were based on other sources.
- b. A resume of allocation and expenditure to date and a schedule of funds by Fiscal Years for the recreational development are shown in Table 9-04.

TABLE 9-04

ALLOCATION AND EXPENDITURES OF FUNDS

Item	:	Cost
Cost of initial construction	:	\$ 1,662,000
Total 710 funds allocated through FY 75	;	1,259,000
Allocations through FY 75 including	:	•
initial construction	:	2,921,000
Cost after FY 75	:	29,618,000
	:	
Total project cost	:	\$35,460,000
	:	

SCHEDULE OF FUNDS REQUIRED BY FISCAL YEARS FOR RECREATION FACILITIES

	:	1976	:	1976T	:	1977	:	1978	-:	1979	:	1980
	:		:		:		;		:		:	
Urgently Required	:	10 00	. : ^ : (22 000	:	-0-	:	0	:	-0-	:	0
Sanitary Facilities	: ; ;	30,00	U:3	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-0-	•	0-	•	-0-	•	-0-
Recovery of O&M Cost	•				•				•			
via user fee progra			:		;		:		:		:	
Dam Site Park	:	-0-	:	-0-	:	\$2,210,000	:\$	2,210,0	00:	\$2,210,0	000:	-0-
	:		:		:		:		:		:	
Needed Development	:		;		;		:		:		:	
for public demand	:		:		:		:		:		:	
Federal	:	-0-	:	-0-		2,865,000						
Non-Federal	:	-0-	:	-0-	:	2,865,000	:	2,865,0	00:	2,865,0	000:	2,866,

c. A summary of the operation and maintenance costs are shown in Table 9-05. The estimated total cost of construction for the proposed public use facilities is \$29,618,000. A summary of estimated cost for additional development by parks is shown in Table 9-06. A summary of estimated cost for the additional development by facilities planned is shown in Table 9-07. A detailed cost estimated for additional recreational facilities in each park are shown in Tables 9-08 through 9-22.

TABLE 9-05

SUMMARY OF OPERATION AND MAINTENANCE COSTS FOR RECREATIONAL FACILITIES AND REAL ESTATE MANAGEMENT SERVICES

Item	Public Use	Real Estate Activities
scal Year 1974	:	;
Real Estate	: -0-	: ; \$ 28,041
Recreational Facilities	: \$ 581,000	
S&I Overhead 17.8 (RE)	: 80,000	5,000
Total	: 661,000	33,041
scal Year 1979	;	: :
Real Estate	: : -0-	74,000
(5 years lease renewal)	:	•
Recreational Facilities	: 725,000	: -0-
&I and Overhead 23%	: 100,000	: 17,000
Total	825,000	91,000
<u>imate</u> (2000)	:	:
Real Estate	: : -0-	: : 150,000
Recreational Facilities	: 1,000,000	-0-
G&I and Overhead 25%	: 175,000	37,500
Total	: : 1,275,000	187,500

TABLE 9-06

SUMMARY OF ESTIMATED COST FOR ADDITIONAL RECREATIONAL FACILITIES BY PARKS

Account	:		:	
No.	;	Area	:	
	•		:	
	:		:	
14	:	Recreational Facilities	:	
	:	Dam Site	:	\$ 5,715,700
	:	Old Highway 25	:	1,993,400
	:	Heber Springs	:	1,992,10
	:	Cove Creek	:	1,292,900
	:	Shiloh	:	2,198,900
	:	Narrows	:	738,000
	:	Hill Creek	:	1,175,000
	:	Mill Creek	:	2,043,70
	:	Sugar Loaf	:	695,000
	:	Van Buren	:	1,277,00
	:	Choctaw	:	1,116,60
	:	Devils Fork	:	1,354,10
	:	South Fork	:	480,90
	:	Cherokee	:	1,779,80
	:	Salt Creek	:	1,449,90
	:	Project Trails between parks	:	229,70
	:	Total direct cost	:	\$25,532,70
	:		:	1
30	:	Engineering and design	:	2,553,30
31	:	Supervision and administration	:	1,532,00
	; ;	TOTAL	:	\$29,618,00

TABLE 9-07

ITEMIZED COST ANALYSIS FOR DEVELOPMENT OF PROPOSED FACILITIES

GREERS FERRY LAKE

SUMMARY

Trem		:	:	: Existing	•
Roads a. 22 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (a) New construction (b) Existing pavement (a) New construction (b) Existing pavement (c) Flexible pavement (d) New construction (d) Existing pavement (e) New construction (f) Gravel (f) Gravel (g) Flexible pavement (g) New construction (g) Existing pavement (g) Flexible pavement (g) Existing pave		:	: Unit	: facilities	: Proposed facilities
a. 22 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement b. 18 feet wide (1) Gravel (2) Flexible pavement (3) New construction (4) New construction (5) Existing pavement (6) Existing pavement (7) Flexible pavement (8) New construction (9) Existing pavement (1) Gravel (1) Gravel (2) Flexible pavement (3) New construction (4) Existing pavement (5) Flexible pavement (6) Existing pavement (7) Flexible pavement (8) New construction (9) Existing pavement (1) New construction (1) Existing pavement (1) New construction (2) Existing pavement (3) New construction (4) Sy 5.90 (5) Existing pavement (6) Existing pavement (7) New construction (8) Existing pavement (9) Existing pavement (1) New construction (2) Existing pavement (3) Waterborne (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Washhouse (8) Washhouse	Item	: Unit	: Cost	: Jan. '75	: Quantity : Cost
a. 22 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement b. 18 feet wide (1) Gravel (2) Flexible pavement (3) New construction (4) New construction (5) Existing pavement (6) Existing pavement (7) Flexible pavement (8) New construction (9) Existing pavement (1) Gravel (1) Gravel (2) Flexible pavement (3) New construction (4) Existing pavement (5) Flexible pavement (6) Existing pavement (7) Flexible pavement (8) New construction (9) Existing pavement (1) New construction (1) Existing pavement (1) New construction (2) Existing pavement (3) New construction (4) New construction (5) Existing pavement (1) New construction (2) Existing pavement (3) Waterborne (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Washhouse (8) Wash		:	:	:	:
(1) Gravel (2) Flexible pavement (3) New construction (b) Existing pavement (1) Gravel (2) Flexible pavement (3) New construction (b) Existing pavement (1) Gravel (2) Flexible pavement (3) New construction (4) New construction (5) Existing pavement (6) Existing pavement (7) Gravel (8) New construction (9) Existing pavement (1) Gravel (1) Gravel (2) Flexible pavement (3) New construction (4) New construction (5) Existing pavement (6) Existing pavement (7) Gravel (8) New construction (9) Existing pavement (1) Flexible pavement (1) Flexible pavement (2) Flexible pavement (3) New construction (4) Existing pavement (5) Flexible pavement (6) Existing pavement (7) Flexible pavement (1) New construction (2) Existing pavement (3) Waterborne (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Waterborne (8) Gravel (9) Flexible pavement (1) Vault (1) Vault (2) Waterborne (3) Waterborne (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Waterborne (8) Waterborne (9) Waterborne (9) Waterborne (9) Washhouse (9) Washhouse (9) Washhouse (9) Waterborne (9) Washhouse (10) Waterborne (11) Wault (12) Waterborne (13) Waterborne (14) Convert to waterborne (15) Washhouse (15) Washhouse	Roads	:	•	:	: .
(2) Flexible pavement (a) New construction (b) Existing pavement (c) Existing pavement (d) Gravel (d) Flexible pavement (e) Flexible pavement (f) Flexible pavement (g) Flexible pavement (h) Existing		:	:	:	:
(a) New construction (b) Existing pavement b. 18 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (c) Existing pavement (d) New construction (e) Existing pavement (f) Existing pavement (g) Existing paveme	(l) Gravel	: mile	: 68,000	:	: :
(b) Existing pavement b. 18 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (c) Existing pavement (d) Existing pavement (e) Existing pavement (f) Existing pavement (g) Flexible pavement (g) Flexible pavement (g) Flexible pavement (g) Flexible pavement (g) Existing pavem		:	:	:	:
b. 18 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (1) Gravel (1) Gravel (1) Gravel (2) Flexible pavement (2) Flexible pavement (3) New construction (4) New construction (5) Existing pavement (1) Gravel (2) Flexible pavement (3) New construction (4) Existing pavement (5) Existing pavement (1) New construction (2) Existing pavement (1) New construction (2) Existing pavement (3) New construction (4) Convert to waterborne (5) Washhouse (1) Vault (2) Waterborne/showers (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (1) Washhouse (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (2) Existing pavement (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Washhouse (8) Septions (9) Se		: mile	:100,000	1.12	6.78 678,000
(1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (1) Gravel (1) Gravel (2) Flexible pavement (3) Existing pavement (4) Sexisting pavement (5) Flexible pavement (6) Existing pavement (7) Flexible pavement (8) New construction (9) Existing pavement (1) Existing pavement (2) Flexible pavement (3) Existing pavement (4) New construction (5) Existing pavement (6) Existing pavement (7) Flexible pavement (1) New construction (2) Existing pavement (3) Existing pavement (4) Vault (5) Existing pavement (6) Existing pavement (7) Flexible pavement (8) Flexible pavement (9) Existing pavement (1) New construction (2) Existing pavement (3) Existing pavement (4) Vault (5) Washrouse (5) Washhouse (6) Washrouse (7) Washrouse (8) Sextonom (8) Sextonom (9) Waterborne (9) Washrouse (9) Washrouse (10) Washrouse (11) Washrouse (12) Washrouse (13) Washrouse (14) Convert to waterborne (15) Washhouse (16) Washrouse (17) Washrouse (18) Sextonom (18) Sextonom (18) Sextonom (18) Sextonom (18) Sextonom (18) Sextonom (19) Sexto		:	:	:	:
(2) Flexible pavement (a) New construction (b) Existing pavement (c) 12 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (c) Flexible pavement (a) New construction (b) Existing pavement (c) Existing pavement (c) Existing pavement (d) New construction (e) Existing pavement (f) New construction (f) (f)		:	:	:	: :
(a) New construction (b) Existing pavement (c) 12 feet wide (1) Gravel (2) Flexible pavement (a) New construction (b) Existing pavement (a) New construction (b) Existing pavement (c) Existing pavement (d) New construction (e) Existing pavement (f) New construction (g) Existing pavement (g) SY	• •	: mile	: 56,000	:	: :
(b) Existing pavement c. 12 feet wide (1) Gravel		:	:	:	:
C. 12 feet wide (1) Gravel	· ·	: mile	: 82,000	:	26.89: 2,204,900
(1) Gravel		;	:	25.6	: :
(2) Flexible pavement (a) New construction (b) Existing pavement Parking areas a. Gravel b. Flexible pavement (1) New construction (2) Existing pavement SY 8.00 (2) Existing pavement SY 7.60 108,199 Launching ramps, concrete each 25,000 Restrooms a. Masonry (1) Vault (2) Waterborne (3) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse each 18,500 each 40,000 each 40,000 each 1,600,000		:	:	:	:
(a) New construction (b) Existing pavement i	• •	: mile	: 37,000	:	: 0.24: 8,800
(b) Existing pavement 7.43 Parking areas		:	:	•	:
Parking areas a. Gravel b. Flexible pavement (1) New construction (2) Existing pavement SY 8.00 111,547 892,400 (2) Existing pavement SY 7.60 108,199 Launching ramps, concrete each 25,000 22 19 475,000 Restrooms a. Masonry (1) Vault (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse each 18,500 each 40,000 28 518,000 (5) Washhouse		: mile	: 55,000	:	2.00 109,800
a. Gravel b. Flexible pavement (1) New construction (2) Existing pavement Example 1: SY	(b) Existing pavement	:	:	7.43	:
a. Gravel b. Flexible pavement (1) New construction (2) Existing pavement Example 1: SY					
b. Flexible pavement (1) New construction (2) Existing pavement (2) Existing pavement (3) Existing pavement (4) SY (5) SY (6) SY (7) SY	•				
(1) New construction (2) Existing pavement (3) Existing pavement (4) Existing pavement (5) Existing pavement (6) Existing pavement (7) Existing pavement (8) Existing pavement (8) Existing pavement (9) Existing pavement (1) Existing pavement (1) Existing pavement (2) Existing pavement (3) Existing pavement (4) Convert to waterborne (5) Washhouse (1) SY (2) Existing pavement (2) Existing pavement (3) Existing pavement (4) Existing pavement (5) Existing pavement (1) SY (108,199 (2) Existing pavement (2) Existing pavement (2) Existing pavement (3) Existing pavement (4) Existing pavement (5) Existing pavement (5) Existing pavement (5) Existing pavement (5) Existing pavement (6) Existing pavement (7) Existing pavement (8) Existing pavement (9) Existing pavement (108,199 (1		: 51	. 5.90	4,944	•
(2) Existing pavement		. 037			• • • • • • • • • • • • • • • • • • • •
Launching ramps, concrete : each : 25,000 : 22 : 19 : 475,000 Restrooms a. Masonry (1) Vault (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse : each : 40,000 : : 28 : 518,000 (6) Washhouse : each : 40,000 : : 40 : 1,600,000	` ,				892,400
Restrooms a. Masonry (1) Vault (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse Convert to waterborne Each 18,500 Each 18,500 Each 18,600,000 Each	(2) Existing pavement	: 51	. 7.60	108,199	
Restrooms a. Masonry (1) Vault (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse Convert to waterborne Each 18,500 Each 18,500 Each 18,600,000 Each	·	ما مومد	. 25 000	•	
a. Masonry (1) Vault (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (1) Washhouse (2) Uaterborne/showers (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Uault (8) Each (8) 16,000 (9) 25 (9) 144,000 (4) 16 (6) 448,000 (6) 47 (7) 1,433,500 (7) 28 (8) 18,000 (9) 19,000 (10) 19,000 (11) 19,000 (12) 19,000 (13) 19,000 (14) 19,000 (15) 19,000 (16) 19,000 (17) 19,000 (18) 19,000	Launching ramps, concrete	• eacn	. 23,000	• 22	. 19 . 4/5,000
a. Masonry (1) Vault (2) Waterborne (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (1) Washhouse (2) Uaterborne/showers (3) Waterborne/showers (4) Convert to waterborne (5) Washhouse (6) Washhouse (7) Uault (8) Each (8) 16,000 (9) 25 (9) 144,000 (4) 16 (6) 448,000 (6) 47 (7) 1,433,500 (7) 28 (8) 18,000 (9) 19,000 (10) 19,000 (11) 19,000 (12) 19,000 (13) 19,000 (14) 19,000 (15) 19,000 (16) 19,000 (17) 19,000 (18) 19,000	D. stranger	:		•	•
(1) Vault : each : 16,000 : 25 : 9 : 144,000 (2) Waterborne : each : 28,000 : 4 : 16 : 448,000 (3) Waterborne/showers : each : 30,500 : 4 : 47 : 1,433,500 (4) Convert to waterborne : each : 18,500 : : 28 : 518,000 (5) Washhouse : each : 40,000 : : 40 : 1,600,000 : : : : :		•	•	•	•
(2) Waterborne : each : 28,000 : 4 : 16 : 448,000 (3) Waterborne/showers : each : 30,500 : 4 : 47 : 1,433,500 (4) Convert to waterborne : each : 18,500 : : 28 : 518,000 (5) Washhouse : each : 40,000 : : 40 : 1,600,000 : : : : :		: each	: 16 000	• 25	: 9 : 144 000
(3) Waterborne/showers : each : 30,500 : 4 : 47 :1,433,500 (4) Convert to waterborne : each : 18,500 : : 28 : 518,000 (5) Washhouse : each : 40,000 : : 40 :1,600,000 : : : : :	· -				
(4) Convert to waterborne : each : 18,500 : : 28 : 518,000 (5) Washhouse : each : 40,000 : : 40 :1,600,000 : : : : :	` •				
(5) Washhouse : each : 40,000 : : 40 :1,600,000 : : : : :	, ,				
	• •				-
Electrical service (aluminum) : LF : 8.50 : 87,845 :176,332 :1,498,800	(2) "" " " " " " " " " " " " " " " " " "	:	: .0,000	:	:
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Electrical service (aluminum)	;].F	: 8.50	. 87.845	:176.332 :1.498.800
	Trouble bor were furnished	:	:	*	: :

<u>TABLE 9-07</u> (cont.)

SUMMARY

						
	:	:		: Existing	: _	
	:	9	Unit	: facilities		facilities
Item	:	Uni <u>t</u> :	Cost	: Jan. <u>'7</u> 5	: Quantity	: Cost
_	:			:	:	:
Sewage system	:			:	:	:
a. Sewer lines, 4" gravity	-	LF :	6.50	•	: 31,955	207,700
6" gravity	:	LF :	8.00		: 59,573	: 476,600
b. Outfall lines, 6" steel	:	LF :	10.00	: 400	: 6,850	: 38,500
in lake	:	:		:	:	:
8" steel	:	LF :	12.00	•	: 2,350	: 23,200
in lake	:	:		:	:	:
c. Force Main, 4"	:	LF :	6.50	: 1,800	: 19,430	: 126,300
6 ''	:	LF :	8.00	:	: 5,475	: 43,800
d. Lift stations	:	each:			35	: 700,000
e. Manholes	•	each :	450		197	: 88,400
f. Treatment plant, tertiary	•	:		:	•	
	•	each :		· 1	14	1,212,000
g. Electrical, outside	:				• - ·	
Contingencies, 15%	•	LS :		• •	•	:
h. Treatment plant, tertiary				•	•	443,600
26,000 GPD		each :	72,000		<u>.</u>	
Water system	•	each;	72,000		•	:
a. Waterline, 3/4" PVC	•	LF :	2 50	.	. 01 000	
b. Waterline, 1" PVC	-	LF :	2.50		: 21,880	: 54,700
	-	-	3.25		22,923	: 74,500
c. Waterline, 1 1/2" PVC	-	LF :	4.00		9,475	: 37,900
d. Waterline, 2" PVC	•	LF :	4.50		73,088	: 328,900
e. Waterline, 2 1/2" PVC	-	LF :	5.00		: 400	: 2,000
f. Waterline, 3" PVC	-	LF :	5.50	_	: 63,109	: 347,100
g. Waterline, 4" PVC	-	LF :	6.00		: 23,867	: 143,200
h. Waterline, 6" PVC	-	LF :	7.50		: 774	: 5,800
i. Water wells		each :	3,500		: 5	: 17,500
j. Water hydrants	: (each :	450	:	395	: 177,900
k. Wellhouse, pump &	:	;	:	:	}	: 0
pressure system	: 0	each :	8,000	:	:	:
 Electrical, outside 	:	:	,	:	:	:
Contingencies, 15%	;]	LS :	:	:		: 178,300
·	:	:	. :	:		:
	:	:				•
Picnic units	: (each :	1,400	32	173	242,200
Camp units (total)		each :	2,000	· ·		:4,642,000
Camp units with electric service		each:	400		1,549	: 619,600
Primitive camp spaces		each :	100 :		76	7,600
Group camp		each :	2,000		15	: 30,000
Table canopies		each :	-		18	27,000
Table campies	• '	eacii ;	1,500	:	10	27,000
	:	:	:	:		;

<u>TABLE 9-07</u> (cont.)

SUMMARY

		<u> </u>				 		
	:		:		:		:	
	:		:	Unit	:			Proposed facilities
Item	<u>:</u>	Unit	:	Cost	:	Jan. '75	:	Quantity : Cost
	:		:		:		:	:
Picnic shelters	:		:		:		:	:
 a. 30-person picnic shelter 	:	each	:	12,000	:	15	:	21 : 252,000
b. Group camp pavilion or	:		:		:		:	:
200-person shelter	:	each		65,000			:	£0 : 650,000
Amphitheaters	:	each		3,100			:	13 : 40,300
Drinking fountains	:	each	:	1,200	:	14	:	51 : 61,200
Changehouses	:	each	:	10,000	;	5	:	18 : 180,000
Convert existing sanitary station	:	each	:	1,000	;		:	1: 1,000
Sanitary stations	:		:		:		:	;
(travel trailer)	;	each	:	5,000	:	2	:	15 : 75,000
Marine dump station	:	each	:	10,000	:		:	5 : 50,000
Swimming beaches	:	each	;	9,500		10	:	20 : .190,000
Mercury vapor lights	:	each	:	500	:	28	:	38 : 19,000
Trail system (parks)	:	LF	:	3.00	:	2,900	:	45,167 : 135,500
Playground equipment	:		:		:		:	:
Play Area A	:	each	:	64,000	:		:	16 :1,024,000
Play Area B	;	each	:	9,600	:		;	35 : 336,000
Foot bridge	:	each	:	15,000	:		:	2: 30,000
Reforestation	:	acre	;	1,000	:		;	84.7: 84,700
Landscaping & beautification	:	acre	:	2,500	:		:	96 : 240,000
Entrance complex	:	each	:	50,000	:	2	:	13 : 650,000
Project trails	:	Sta.	:	300	:		:	46 : 13,800
Courtesy docks	:	each	:	6,000	:		:	10 : 60,000
Interpretive display area	:	each	:	20,000	:		:	2: 40,000
Visitor center	:	each	:	750,000	:		;	1 : 750,000
Multi-purpose court	:			18,500			:	4 : 74,000
Baseball field	:	each		2,000			:	2 : 4,000
Overlook		each		•	:	2	:	: 0
Project trails between parks	:	each	:				:	229,700
Total	:		:		:		:	25,532,700

TABLE 9-08

ITEMIZED COST ANALYSIS FOR DEVELOPMENT OF PROPOSED FACILITIES

GREERS FERRY LAKE

DAM SITE PARK

	:	:	Existing	:	
		: Unit	: facilities	: Proposed 1	facilities
Item	: Unit			Quantity	
	:	:	:	:	:
Roads	:	:	:	:	:
a. 22 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 68,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	:100,000	:	: 1.63	: 163,000
(b) Existing pavement	:	;	:	:	:
b. 18 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 56,000	: .13	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	: 82,000	:	6.14	503,500
(b) Existing pavement	:	:	4.70	:	:
c. 12 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 37,000	:	:	:
(2) Flexible pavement	:	:	•	:	:
(a) New construction	: mile	: 55,000	:	:	:
(b) Existing pavement	:	:	2.27	:	:
	:	:	:	:	:
Parking areas	: ′	:	•	:	
a. Gravel	: SY	: 5.90	: 4,944	:	:
b. Flexible pavement	:	:	:	:	:
(1) New construction	: SY	: 8.00	:	: 41,075	: 328,600
(2) Existing pavement	: SY	:	: 10,444	:	•
	:	:	•	:	5 0 000
Launching ramps, concrete	: each	: 25,000	: 3	: 2 :	50,000
_	:	:	•	:	•
Restrooms	:	: -	:	:	;
a. Masonry			. 2		
(1) Vault		: 16,000		: 0 :	106 000
(2) Waterborne		: 28,000		. 7	196,000
(3) Waterborne/showers		30,500	· -	; 7 ; ; 3 ;	213,500
(4) Convert to waterborne		: 18,500		. 3	55,500
(5) Washhouse	each	: 40,000		. 9 :	360,000
71					i 0/0 700
Electrical service (aluminum)	: LF	• 8.50 •	39,020	40,318	342,700
	:	•	•	: :	,

TABLE 9-08 (cont.)

DAM SITE PARK

	DARI SILE FARK												
		;		:	: Existing	:							
		:		: Unit	: facilities	: Proposed	facilities						
Item		:	Unit	: Cost	: Jan. '75	: Quantity							
		-:		:	:	:	:						
Sewag	e system	:		•	·	•	•						
a.	Sewer lines, 4" gravity	:	LF	: 6.50		7,692	: 50,000						
	6" gravity	:	LF	: 8.00		: 14,912	: 119,300						
ъ.	Outfall lines, 6" steel	:	LF	10.00	. ,	: 200	: 2,000						
	in lake	:		•	•	:	. 2,000						
	8" steel	:	LF	: 12.00	•	•	•						
	in lake	:		:	•	•	•						
c.	Force Main, 4"		$\mathbf{L}\mathbf{F}$: 6.50	1,800	•	. 22 200						
	6"		LF	: 8.00		5,800	37,700						
đ.	Lift stations		each			•	. 100 000						
e.	Manholes	•	each			• 5	: 100,000						
f.	Treatment plant, tertiary		Ç		:1-10,000 GPD	31	: 14,000						
	90,000 GPD		each	: 100,000	.1-10,000 GPD	: 1	: 140,000						
g.	Treatment plant, tertiary	:	caen	. 200,000	•	•	•						
٠.	26,000 GPD	:	a m a h	• 72 000	•	•	•						
h.	Electrical, outside	:	e a ch	72,000	•	1	72,000						
	Contingencies, 15%	:	T C	•		•	•						
Water	system	:	LS	•			80,200						
a.	Waterline, 3/4" PVC	:	LF	. 250	•	i 4 /	i						
ь.	Waterline, 1" PVC	:	LF	2.50		4,400	11,000						
c.	Waterline, 1 1/2" PVC	:	LF	3.25		1,938	6,300						
d.	Waterline, 2" PVC	:	LF	4.00		7,300	29,200						
e.	Waterline, 2 1/2" PVC	•	LF	4.50		16,222	73,000						
f.	Waterline, 3" PVC	•	LF :	5.00		_	:						
	Waterline, 4" PVC	•	LF	5,50		9,055	49,800						
g. h.	Waterline, 6" PVC		LF :	6.00	,	11,500	69,000						
i.	Water wells	:		7.50		:	•						
		•	each :	3,500		1	3,500						
j.	Water hydrants	;	each :	450	:	56	25,200						
k.	Wellhouse, pump &	:			:	:	:						
,	pressure system	:	each :	8,000	:	:							
1.	Electrical, outside	:		:	:	:							
	Contingencies, 15%	:	LS :	:	:	:	40,100						
		:		;	:	: :	:						
		:	. :	;	;	:	:						
	c units	:	each :	.,		26	36,400						
Camp		:	each :	,			980,000						
	units with electric service	:	each :			423	169,200						
	tive camp spaces	:	each :			7 :	700						
Group	•	:	each :	,	:	4 :	8,000						
Table	canopies	:	each :	1,500 :	:		,,,,,,						
		:	:	:	:	:							

TABLE 9-08 (cont.)

DAM SITE PARK

	:		:		:	Existing	:		
	:		;	Unit	:	facilities	:		
Item	:	Unit	:	Cost	:	Jan. '75	:	Quantity	: Cost
	:		:		:		:		:
Picnic shelters	:		;		:		:		:
a. 30-person picnic shelter	:	each	:	12,000	:	2	:	3	: 36,000
 b. Group camp pavilion or 	:		:		:		:		:
200-person shelter	:			65,000			:	3	: 195,000
Amphitheaters	:	each		•			:	2	: 6,200
Drinking fountains	:	each		1,200		2	:	7	: 8,400
Changehouses	:	each	:	10,000	:	1	:	1	: 10,000
Convert existing sanitary station	:	each	:	1,000	:		:		:
Sanitary stations	:		:		:		:		:
(travel trailer)	;	each	:	5,000	:	1	:	3	: 15,000
Marine dump station	:	each	:	10,000	:		:	1	: 10,000
Swimming beaches	:	each	:	9,500	:	2	:		:
Mercury vapor lights	:	each	:	500	:	5	:	6	: 3,000
Trail system (parks)	:	$_{ m LF}$:	3.00	:	2,900	:	14,100	: 42,300
Playground equipment	:		:		:		:		:
Play Area A	:	each	:	64,000	:		:	3	: 192,000
Play Area B	:	each	:	9,600	:		:	4	: 38,400
Foot bridge	:	each	:	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:		:
Landscaping & beautification	:	acre	:	2,500	:		:	14	: 35,000
Entrance complex	:	each	:	50,000	:	1	:		:
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:	1	: 6,000
Interpretive display area	:	each	:	20,000	:		:		:
Visitor center	:	each	:	750,000	:		:	1	: 750,000
Multi-purpose courts	:	each	:	18,500	-		:	2	: 37,000
Baseball field	:	each		2,000	:		:	1	2,000
Overlook	:	each	:		:	2	:		:
Total	:		:		:		:		5,715,700
	:		:		:		:		:

TABLE 9-09

ITEMIZED COST ANALYSIS FOR DEVELOPMENT OF PROPOSED FACILITIES

GREERS FERRY LAKE

OLD HIGHWAY 25 PARK

	:	:	: Existing	•	
	٥	: Unit	: facilities		
Item	: Unit	: Cost	: Jan. '75 :	Quantity	: Cost
	:	:	:	:	:
Roads	:	:	:	:	:
a. 22 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 68,000	;	;	:
(2) Flexíble pavement	:	:	:	•	:
(a) New construction	: mile	:100,000	:	•	:
(b) Existing pavement	:	: ,	:	:	:
b. 18 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 56,000	:	:	:
(2) Flexible pavement	:	:	;	:	:
(a) New construction	: mile	: 82,000	:	1.55	: 127,100
(b) Existing pavement	:	:	2.4	:	*
c. 12 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 37,000	:	:	:
(2) Flexible pavement	:	:	;	:	:
(a) New construction	: mile	: 55,000	: .	1	: 24,700
(b) Existing pavement	:	;	: .36		•
	:	:	:	i	:
Parking areas	:	:	:	:	.
a. Gravel	: SY	: 5.90	:	1	:
b. Flexible pavement	:	:	:	•	:
(1) New construction	: SY	: 8,00	:	8,750	: 70,000
(2) Existing pavement	: SY	:	: 5,460 :	,	:
.,	:	:	:	}	:
Launching ramps, concrete	: each	: 25,000	: 2 :	1	: 25,000
, ,	:	:	:	;	:
Restrooms	:	:	:		:
a. Masonry	:	:	:	:	:
(1) Vault	: each	: 16,000	: 1 :	!	:
(2) Waterborne	: each	: 28,000	: 1 :	3	: 84,000
(3) Waterborne/showers	: each	: 30,500	:	3	: 91,500
(4) Convert to waterborne		: 18,500	:	1	: 18,500
(5) Washhouse	: each	: 40,000	:	5	200,000
• •	:	:	:		;
Electrical service (aluminum)	: LF	: 8.50	: 2,780 :	17,953	: 152,600
	:	:	; .		;

TABLE 9- 09 (cont.)
OLD HIGHWAY 25 PARK

	:			: Exist	ing	<u> </u>	
	:		Unit	: facili		Proposed_	facilitie
Item	; 1	Unit:	Cost	Jan.	'7 5	Quantity	
	:		;	:		:	:
Sewage system	:	:	;	:		:	:
 a. Sewer lines, 4" gravity 	:	LF :	6.50	: .		2,615	: 17,000
6" gravity	:	LF :	8.00	:		3,350	: 26,800
b. Outfall lines, 6" steel	:	LF :	10.00	:		:	:
in lake	:	:		:		:	:
8" stee1	:	LF :	12.00	:		1,250	: 15,000
in lake	:	:		:		:	:
c. Force Main, 4"	•	LF :	6.50	*		1,800	: 11,700
6"	: 3	LF :	8.00	•		3,375	27,000
d. Lift stations	-	each :	•		;	: 7	: 140,000
e. Manholes	:	each :	450	:	;	15	6,700
f. Treatment plant, tertiary	:	:		:	:	:	: 100 000
none	:	each :		:	:	1	100,000
g. Electrical, outside	:	:		:	:	;	: 51 (00
Contingencies, 15%	:	LS :		:	:	•	51,600
	:	:		:	. :	•	:
	:	:	;	:	;	:	:
Water system	:	:	:	:	:		. 2 500
a. Waterline, 3/4" PVC	•	LF :	2.50	:	:	1,400	3,500
b. Waterline, 1" PVC	•	LF :	3.25	:	;	3,108	: 10,100
c. Waterline, 1 1/2" PVC	•	LF :	4.00	:	:	200	: 800
d. Waterline, 2" PVC	•	LF :	4.50	:	:	11,244	: 50,600
e. Waterline, 2 1/2" PVC	•	LF :	5.00	:	:	400	2,000
f. Waterline, 3" PVC	•	LF :	5.50	:	:	4,000	: 22,000
g. Waterline, 4" PVC	-	LF :	6.00 :	:	:	:	:
h. Waterline, 6" PVC	•	LF :	7.50	;	:	:	:
i. Water wells	: •	each:	3,500	: 2	· :	:	: '
j. Water hydrants	: (each :	450 :	;	:	. 28	: 12,600
k. Wellhouse, pump &	:	:	:	}	:		:
pressure system	: 4	each :	8,000 :	}	:		:
 Electrical, outside 	:	•	:	;	:		:
Contingencies, 15%	:]	LS :	:	;	:		: 15,200
	:	:	:	}	:		:
	:	:	:		:		:
Picnic units		each :	,		:	9	: 12,600
Camp units		each :	,		:	123	•
Camp units with electric service		each:	400 :		:	125	- •
Primitive camp spaces		each :	•		:	24	2,400
Group camp	-	each :	-,		:	:	:
Table canopies	: (each :	1,500:		:	:	•
	:	:	:		:	;	:

TABLE 9-09 (cont.)
OLD HIGHWAY 25 PARK

	:		:		:	Existing	:		
•	:		:	Unit	:	facilities	:	Proposed	facilities
Item	:	Unit	:	Cost	:	Jan. '75	:	Quantity	: Cost
•	:		፡		:		:		:
Picnic shelters	:		:		:	•	:		:
 a. 30-person picnic shelter 	:	each	:	12,000	:	1	:	1	: 12,000
 Group camp pavilion or 	;		:		:		:		:
200-person shelter	:	each	:	65,000	:		:	1	: 65,000
Amphitheat	:	each	÷	•			:	1	: 3,100
Drinking fountains	:	each	:	1,200	:		.:	3	: 3,600
Changehouses	:	each	:	10,000	:		:	2	: 20,000
Convert existing sanitary station	:	each	:	1,000	:		:		:
Sanitary stations	:		:		:		:		:
(travel trailer)	:	each	:	5,000	:		:	1	: 5,000
Marine dump station	:	each	:	10,000	:		:		:
Swimming beaches	:	each	:	9,500			:	2	: 19,000
Mercury vapor lights	:	each	:	500	:		:	2	: 1,000
Trail system (parks)	:	LF	:	3.00	:		:	6,300	: 18,900
Playground equipment	:		:		:		:		:
Play Area A	:	each	:	64,000	:		:	1	: 64,000
Play Area B	:	each	:	9,600	:		:	3	: 28,800
Foot bridge	:	each	:	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:	40	: 40,000
Landscaping & beautification	:	acre	:	2,500	:		:	8	: 20,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:	1	: 6,000
Interpretive display area	:	each	:	20,000	:		:	1	: 20,000
Visitor center	:	each	:	750,000	:		:		: ,
	:		:		:		:		:
	:		:		:		:		:
	:		:		:		:		:
Total	:		:		:		:		1,993,400
	:		:		:		:		1,773,400

TABLE 9-10

ITEMIZED COST ANALYSIS FOR DEVELOPMENT OF PROPOSED FACILITIES

GREERS FERRY LAKE

HEBER SPRINGS PARK

	:	•	Existing .		
	2	: Unit	: facilities		
Item	: Unit	: Cost	: Jan. 75	: Quantity	: Cost
	:	:	:	:	•
Roads	•	•	•	:	:
a. 22 feet wide	:	:	•	•	:
(1) Gravel	: mile	: 68,000	:	•	:
(2) Flexible pavement	•		• -	:	
(a) New construction	: mile	:100,000		. 79	79,000
(b) Existing pavement	:			:	
b. 18 feet wide			•	:	
(1) Gravel	mile	: 56,000	:	:	
(2) Flexible pavement			.		
(a) New construction	: mile	: 82,000	<u>.</u>	2,91	238,600
(b) Existing pavement	•		2.82	•	
c. 12 feet wide		. 27 000	•		
(1) Gravel	· mile	: 37,000 :	•		
(2) Flexible pavement	•			•	•
(a) New construction	· mile	: 55,000	• 0.70	•	•
(b) Existing pavement	•	:	0.70	•	•
Parking areas	:	:	· :	:	:
a. Gravel	: SY	5,90	:	: :	• •
b. Flexible pavement	:	:	:	:	:
(1) New construction	: SY	: 8.00	:	· 5,900	47,200
(2) Existing pavement	: SY	:	: 14,155	:	: 47,200
(z) zazocina povement	:	:	;	:	:
Launching ramps, concrete	each	: 25,000	• 2	:	:
	:	:	:	:	:
Restrooms		:	:	:	:
a. Masonry	:	:	:	:	:
(1) Vault	: each	: 16,000	; 3	: 1	: 16,000
(2) Waterborne		: 28,000		•	:
(3) Waterborne/showers		: 30,500		: 5	: 152,500
(4) Convert to waterborne	: each	: 18,500	:	: 4	74,000
. (5) Washhouse	: each	: 40,000	:	: 4	: 160,000
	:	:	:	:	•
Electrical service (aluminum)	: LF	: 8.50	7,860	:15,671	: 133,200
•	:	:	:	:	•

<u>TABLE 9-10</u> (cont.)

HEBER SPRINGS PARK

		-		<u> </u>	-	Existing	<u></u>		
		:		: Unit	:		Prop	osed	facilities
Item		:	Unit :	Cost	:	Jan, '75			: Cost
		:		;	:		:		:
Sewag	e system	:		•	:		:		:
a.	Sewer lines, 4" gravity	:	LF	6.50	:		2,9	985	: 19,400
	6" gravit y	:	LF	8.00	:		: 5,4	475	: 43,800
ъ.	Outfall lines, 6" steel	:	LF :	10.00	:		:		:
	in lake	:	:	•	:		:		:
	8" steel	:	LF :	12.00	:	:	:		:
	in lake	:	;	1	:	:	:		:
c.	Force Main, 4"	:	LF :	6.50	:	;	2,6	31	: 17,100
	611	:	LF :	8.00	:		:		:
ď.	Lift stations	:	each :	20,000	:	:	:	3	: 60,000
e.	Manholes	:	each ;	450	:	;	;	14	: 6,300
f.	Treatment plant, tertiary	:	:	:	:	;	;		•
	none	:	each :	:	:	:	!		:
g.	Electrical, outside	:	:	:	:	:	:		:
-	Contingencies, 15%	:	LS :	1	:	;	:		:
h.	Sewer line, 8" gravity	:	LF :	9.50	:	:	;		22,000
		:	:	:	:	:			:
Water	system	:	:	:	:	:			:
a.	Waterline, 3/4" PVC	:	LF :	2.50	:	•		220	2,300
ъ.	Waterline, 1" PVC	:	LF :	3.25		:	3,6	500	: 11,700
c.	Waterline, 1 1/2" PVC	:	LF :	4.00	:	:			:
d.	Waterline, 2" PVC	:	LF :	4.50		:	7,6	667	: 34,500
e.	Waterline, 2 1/2" PVC	:	LF :	5.00	:	;			:
f.	Waterline, 3" PVC	:	LF :	5.50		:	7,3	364	: 40,500
g.	Waterline, 4" PVC	:	LF :	6.00	:	6,280			:
h.	Waterline, 6" PVC	:	LF :	7.50	:	:			:
i.	Water wells	:	each :	3,500	:	3:			:
j.	Water hydrants	:	each :			:	4	¥5	20,300
k.	Wellhouse, pump &	:	;	;	:	:			:
	pressure system	:	each :	8,000	:	:			:
1.	Electrical, outside	:	:	;	:	:			:
	Contingencies, 15%	;	LS :	;	:	:			: 16,400
		:	:	;	:	:			:
		:	:	:	:	:			:
	c units	:	each:	1,400 :	:	8 :		6	: 8,400
-	units with parking	:	each:	2,000		125 :		55	530,000
-	units with electric service	:	each:	400	:	:	16	56	66,400
	tive camp spaces	:	each:	100 :	:	:			:
Group	~	:	each:	2,000:	:	:			:
Table	canopies	:	each :	1,500 :	:	:			:
		:	:	:	:	:			:

TABLE 9-10 (cont.)
HEBER SPRINGS PARK

	:		:		:	Existing	:		
	:		:	Unit	:	facilities			
Item	:	Unit	:	Cost	<u>:</u>	Jan. '75	:_	<u>Quantity</u>	: Cost
	:		:		:		:		:
Picnic shelters	:		:		:	_	:	_	:
a. 30-person picnic shelter	:	each	:	12,000	:	1	:	1	: 12,000
b. Group camp pavilion or	:		:	4	:		;		:
200-person shelter	:			65,000			:	_	:
Amphitheat	:	each		3,100			:	1	: 3,100
Drinking fountains	:	each		1,200		2	:	5	: 6,000
Changehouses				10,000		1	:		:
Convert existing sanitary station	:	each	:	1,000	:		:		:
Sanitary stations	:		:		:		:	_	:
(travel trailer)	:	each		5,000			:	1	: 5,000
Marine dump station	:	each		10,000			:	1	: 10,000
Swimming beaches	:	each		9,500		2	:	1	: 9,500
Mercury vapor lights		each	:	500		5	:	2	: 1,000
Trail system (parks)	:	\mathbf{LF}	:	3.00	:		:		;
Playground equipment	:		:		;		:		:
Play Area A	:			64,000			:	1.	: 64,000
Play Area B	:	each		9,600			;	4	: 38,400
Foot bridge	:	each	:	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:		:
Landscaping & beautification	:	acre	:	2,500	:		:	10	: 25,000
Entrance complex	:	each	;	50,000	;	1	:		:
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:		:
Interpretive display area	:	each		20,000			:		:
Visitor center	:			750,000			:		;
Multi-purpose court	:	each	:	18,500	:		:	Ī	: 18,500
	:		:		:		:		:
	:		:		:		:		:
Total	:		:		•		:		1,992,100
	:		;		:		:		:

TABLE 9-11
ITEMIZED COST ANALYSIS FOR DEVELOPMENT
OF PROPOSED FACILITIES

GREERS FERRY LAKE

CHEROKEE PARK

	•		:	-	: Evi	sting	:		
	:		:	Unit			:	Pronosed	facilities
Item	•	Unit		Cost		. '75		Quantity	
	:		:		:		÷	(44.422)	:
Roads	:		:		:		:		:
a. 22 feet wide	:		:		:		:		:
(1) Gravel	:	mile	: 6	68,000	:		:		:
(2) Flexible pavement	:		:		:		:		:
(a) New construction	9	mile	:10	000,000	:		:	.18	: 18,000
(b) Existing pavement	:		:		:		:		:
b. 18 feet wide	:		:		:		:		:
(1) Gravel	:	mile	: 5	56,000	:		:		:
(2) Flexible pavement	:		:		:		:		:
(a) New construction	:	míle	: 8	32,000	:		:	2.26	: 185,300
(b) Existing pavement	:		:		:	.87	:		:
c. 12 feet wide	:		:		:		:		:
(1) Gravel	:	mile	: 3	37,000	:		:	.04	: 1,500
(2) Flexible pavement	:		:		:		:		:
(a) New construction	:	mile	: 5	55,000	:		:	. 28	: 15,400
(b) Existing pavement	:		:		:	.38	:		:
	:		:		:		:		:
Parking areas	:		:		:		:		:
a. Gravel	:	SY	:	5.90	:		:		:
b. Flexible pavement	:	_	:		:		:		:
(1) New construction	:	SY	:	8.00			:	1,687	: 13,500
(2) Existing pavement	:	SY	:		: 4	,422	:		T : 9
	:		:		:	_	:	_	:
Launching ramps, concrete	:	each	: 2	25,000	:	1	:	1	: 25,000
7			:		:		:		:
Restrooms							:		:
a. Masonry	•	1.	. 1	6 000		1	:		:
(1) Vault	:			6,000		1	•		
(2) Waterborne(3) Waterborne/showers	:			28,000 30,500			:	-	. 152 500
	:			18,500			:	5	: 152,500
(4) Convert to waterborne(5) Washhouse	:			0,000				1	: 18,500
()) washnouse	:	еасп	. 4	· · · · · · · · · · · · · · · · · · ·	•		:	3	: 120,000
Electrical service (aluminum)	:	LF	:	0 50	• າ	,800	:	8,706	: 74,000
mieculical service (aluminum)	:	LIE	:	8.50	. 4	, 000	:	9,700	. 74,000
	•		•		•		•		•

<u>TABLE 9-11</u> (cont.)

CHEROKEE PARK

	;	:	: Existing	:		
	:	: Unit		: Proposed facilities		
Item	: Unit	: Cost		: Quantity		
	:	:	:	:	:	
Sewage system	:	:	:	:	:	
a. Sewer lines, 4" gravity	: LF	: 6.50	_	: 2,923	: 19,000	
6" gravity	: LF	: 8.00	_	2,250	: 18,000	
b. Outfall lines, 6" steel	: LF	: 10.00	:	: 550	: 5,500	
in lake	:	:	:	:	:	
8" steel	: LF	: 12.00	•	:	:	
in lake	:	:	:	:	:	
c. Force Main, 4"	: LF	: 6.50	:	: 1,523	: 9,900	
6"	: LF	: 8.00	:	:	:	
d. Lift stations	: each	: 20,000	:	: 3	: 60,000	
e. Manholes	; each	: 450	:	: 9	: 4,100	
f. Treatment plant, tertiary	:	:	:	:	:	
50,250 GPD	: each	: 95,000	:	: 1	95,000	
g. Electrical, outside	:	:	:	:	:	
Contingencies, 15%	: LS	:	- :	· :	: 31,700	
,	:	:	:	• •	:	
•	:	:	:	!	•	
Water system	:	•	•	:	•	
a. Waterline, 3/4" PVC	· LF	· 2.50	•	1,720	: 4,300	
b. Waterline, 1" PVC	LF	3, 25		: 862	2,800	
c. Waterline, 1 1/2" PVC	· — · LF	· 4.00		• 602	. 2,000	
d. Waterline, 2" PVC	LF	4. 50		: 3,711	: 16,700	
e. Waterline, 2 1/2" PVC	LF	5.00		. 3,711	. 10,700	
f. Waterline, 3" PVC	: LF	5.50		: 8,691	. 47,800	
g. Waterline, 4" PVC	: LF			2,217	: 13,300	
h. Waterline, 6" PVC	: LF	6.00		: 507	: 3,800	
i. Water wells	each	7.50			; 5,000	
j. Water hydrants	each	- 2,500	•	. 21	. 1/. //00	
k. Wellhouse, pump &	: each	: 450		32	: 14,400	
	. agah		•	•	:	
pressure system	: each	8,000	:		•	
I. Electrical, outside	:	•	:	:	:	
Contingencies, 15%	: LS :		:		: 15,500	
	: ;	;	;	•	:	
	: ; :	:	:	:	•	
Picnic units	: each :	. , , , , ,			177.000	
Camp units	: each :	,		: 238	: 476,000	
Camp units with electric service	: each :			90	: 36,000	
Primitive camp spaces	: each :			;	•	
Group camp	: each :	.,	:	:	:	
Table canopies	: each	: 1,500 :	:	:	:	
	: :	: :		;	•	

TABLE 9-11 (cont.)

CHEROKEE PARK

	:		:		:	Existing	:	- 		
	:		:	Unit	:	facilities			_	
<u>Item</u>	:	Unit	:	Cost	<u>:</u>	Jan, '75	_:	Quantity	:	Cost
	:		:		;		:		:	
Picnic shelters	:		:		:		:		:	
 a. 30-person picnic shelter 	:	each	:	12,000	:		:	2.	:	24,000
b. Group camp pavilion or	:		:		:		:		:	
200-person shelter	:			65,000			:		:	
Amphitheater	:	each		•			:	1	:	3,100
Drinking fountains	:	each					:	5	:	6,000
Changehouses				10,000	:		:	1	:	10,000
Convert existing sanitary station	:	each	:	1,000	:		;		:	
Sanitary stations	:		:		:		:		:	
(travel trailer)	;	each	:	5,000	:		:	1	:	5,000
Marine dump station	:	each	:	10,000	:		:		:	
Swimming beaches	:	each		9,500	:		:	1	:	9,500
Mercury vapor lights	:	each	:	500	:	1	:	1	:	500
Trail system (parks)	;	\mathbf{LF}	:	3.00	:		:	7,800	:	23,400
Playground equipment	:		:		:		:		:	
Play Area A	:	each	:	64,000	:		;	1	:	64,000
Play Area B	:	each	:	9,600	:		:	4	:	38,400
Foot bridge	:	each	:	15,000	:		:	1	:	15,000
Reforestation	:	acre	;	1,000	:		:		:	
Landscaping & beautification	:	acre	:	2,500	:		:	10	:	25,000
Entrance complex	:	each	;	50,000	:		:	1	:	50,000
Project trails	:	Sta,	:	300	:		:	8	:	2,400
Courtesy docks	:	each	:	6,000	•		:	1	:	6,000
Interpretive display area	:	each	:	20,000	:	•	:		:	
Visitor center	:	each	:	750,000	:		:		:	
	:		:		:		:		;	•
	:		:		:		:		:	
	:		:		:		:		:	
Total	:		:		:		:		1	770 000
	:		:		:		:		ι,	779,800

TABLE 9-12

ITEMIZED COST ANALYSIS FOR DEVELOPMENT
OF PROPOSED FACILITIES

GREERS FERRY LAKE

COVE CREEK PARK

			<u></u>	<u> </u>
•	•		:	
: Unit	: Cost	: Jan. '/5	: Quantity	_: Cost
•	:		:	:
•	5	:	:	:
•	:	;	:	:
imile	: 68,000	•	:	:
•	:	:	:	:
mile	:100,000	:	. 82	82,000
	:	•	:	•
	. 56 000	:	:	:
: mile	: 56,000	:	:	:
:	:	:	:	:
: mile	: 82,000		: 1.04	85,300
:	:	: 1.25	:	:
:	:	:	:	:
: mile	: 37,000	:	: .03	: 1,100
:	:	:	:	;
: mile	: 55,000	:	: .51	: 28,000
:	:	:	;	:
•	•	•		
. ev	. 5 an	•	•	•
. 21	• 5.50		:	:
• ev	. 8 00	•	. 6 350	• 50 000
	. 0.00		• 0,330	: 50,800
. 51	:	. 2,411	•	•
: each	• 25.000	: 1		: 75,000
:	:	:	:	: 75,000
:	:	:	:	3
:	:	:	:	:
: each	: 16,000	: 1	:	:
			:	:
			: 2	: 61,000
	•		: 1.	: 18,500
	•		: 2	: 80,000
:	:	:	:	:
: LF	: 8.50	: 1,480	: 7,953	: 67,600
:	:	:	:	:
	mile mile mile mile mile mile mile mile	<pre>: mile : 100,000 :</pre>	<pre>: Unit : Cost : Jan. '75 :</pre>	Unit : Cost : Jan. '75 : Quantity mile : 68,000

<u>TABLE 9-12</u> (cont.)

COVE CREEK PARK

		:		:		Existing	:		
		•		: Unit	:	facilities	:	Proposed	facilities
Item		:	Uni <u>t</u>	: Cost	_:	Jan. <u>'</u> 75	:	Quantity	
_		:		:	:		:		:
_	ge system	:	T 13	:	:		:		:
a.	Sewer lines, 4" gravity	:	LF	: 6.50			:	1,631	: 10,600
	6" gravity	:	LF	: 8.00			:	2,162	: 17,300
ъ.	Outfall lines, 6" steel in lake	:	LF	: 10.00	;		:	1,150	: 11,500 :
	8" steel	:	LF	: 12.00	:		:		:
	in lake	:		:	:		:		:
c.	Force Main, 4"	:	LF	: 6.50			:	2,323	: 15,100
_	6"	:	LF .	8.00			:	_	:
d.	Lift stations	:	each				:	2	: 40,000
e.	Manholes	:	each	: 450	:		:	9	: 4,000
f.	Treatment plant, tertiary 29,000 GPD	:	each	: : 80,000	:		: :	1	80,000
g.	Electrical, outside	:		:	:		:		:
	Contingencies, 15%	:	LS	:	:		:		: 26,800
		:		:	;		:		;
		:		:	;		:		:
Water	system	:		:	:		:		: .
a.	Waterline, 3/4" PVC	:	\mathbf{LF}	: 2.50	:		:	1,400	: 3,500
ъ.	Waterline, 1" PVC	:	LF	: 3.25	:		:	1,323	: 4,300
c.	Waterline, 1 1/2" PVC	:	LF'	: 4.00	:		:		:
d.	Waterline, 2" PVC	:	LF	: 4.50	:		:	3,178	: 14,300
e.	Waterline, 2 1/2" PVC	:	LF	: 5.00	:		:	•	:
f.	Waterline, 3" PVC	:	\mathbf{LF}	: 5.50	:		:	5,382	: 29,600
g.	Waterline, 4" PVC	:	\mathbf{LF}	: 6.00	:		:	1,650	: 9,900
h.	Waterline, 6" PVC	:	\mathbf{LF}	: 7.50	:		:	267	: 2,000
i.	Water wells	:	each	: 3,500	;	1	:		:
j.	Water hydrants	:	each	450	;		:	21	: 9,400
k.	Wellhouse, pump &	:		:	:		:		:
	pressure system	:	each	8,000	;		:		:
1.	Electrical, outside	:		:	;		:		:
	Contingencies, 15%	;	LS	:	:		:		: 10,900
		:		:	:		:		:
		:		:	:		:		:
	c units	:	each		:	4	:	4	: 5,600
	units	:	each		:	53	:	102	: 204,000
	units with electric service	:	each :	400	:		:		:
	tive camp spaces	:	each				:		:
	camp	:	each :	2,000	;	;	:		:
Table	canopies	:	each	: 1,500	:		:	3	: 4,500
		:	;	:	:		:	-	:

<u>TABLE 9-12</u> (cont.)

COVE CREEK PARK

	:		:		:	Existing	:		
•	:		:	Unit	:	facilities	:	Proposed	facilities
Item	:	Unit	:	Cost	_;	Jan. '75	:	Quantity	: Cost
	:		:		:		:		:
Picnic shelters	:		:		:		:		:
 a. 30-person picnic, shelter 	:	each	:	12,000	:	1	:		:
b. Group camp pavilion or	:		:		:		:		:
200-person shelter				65,000			:		:
Amphitheate _{rs}		each		,			:	1	: 3,100
Orinking fcontains		each					:	3	: 3,600
Changehouses	:	each	:	10,000	:		:	3	: 30,000
Convert existing sanitary station	;	each	:	1,000	:		:		:
Sanitary stations	:		:	-	:		:		:
(travel trailer)	:	each	:	5,000	:		:	1	: 5,000
Marine dump station	:	each	:	10,000	:		:		:
Swimming beaches	:	each	:	9,500	:	1	:	3	: 28,500
Mercury vapor lights	:	each	:	500	:		•	4	: 2,000
Trail system (parks)	;	$\mathbf{L}\mathbf{F}$:	3.00	:		:	3,200	: 9,600
Playground equipment	:		:		:		:		:
Play Area A	:	each	:	64,000	:		:	1	: 64,000
Play Area B	:	each	:	9,600	:		:	2	: 19,200
Toot bridge	:	each	:	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:	8.5	: 8,500
Landscaping & beautification	:	acre	:	2,500	:		:	6	: 15,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:		:	300	:		:	6	: 1,800
Courtesy docks	:	each	:	6,000	:		:		;
Interpretive display area	:	each	:	20,000	:		:		:
/isitor center	:	each	:	750,000	:		:		:
	:		:		:		:		:
	:		:		:		:		:
	:		:		:		:		:
Total	:		:		•		;		1,292,900
	:		:		:		:		:

TABLE 9-13

GREERS FERRY LAKE

SHILOH PARK

	:		:		:	Existing	;		
	;		:	Unit	:	facilities			
Item	:	Unit	:	Cost	:	Jan. '75	:	Quantity	: Cost
	:		:		:		:		:
Roads	:		:		:		:		:
a. 22 feet wide	:		:		:		:		:
(1) Gravel	:	mile	:	68,000	:		:		:
(2) Flexible pavement	:		:		:		:	- 4	:
(a) New construction	8	mile	:	100,000	:		:	. 34	: 34,000
(b) Existing pavement	:		:		:		:		:
b. 18 feet wide	:		:		:		:		:
(1) Gravel	:	mile	:	56,000	•		:		:
(2) Flexible pavement	:		:		:		:		:
(a) New construction	:	mile	:	82,000	:		:	2.74	: 224,700
(b) Existing pavement	:		;		:	2.27	:		:
c. 12 feet wide	:		:		:		:		:
(1) Gravel	:	mile	:	37,000	:		:	.02	: 700
(2) Flexible pavement	:		:	55 000	:		:		:
(a) New construction	:	mile	:	55,000	:		:		:
(b) Existing pavement	•		:		:	1.33	:		•
T 1 '	•		:		:		:		
Parking areas	•	C.V.	:	r 00	•		:		•
a. Gravel	•	SY	•	5.90	:		:		•
b. Flexible pavement	•	CV	:	0.00	•		:		
(1) New construction	•	SY	:	8.00	:	14 200	:	10.060	:
(2) Existing pavement		SY	•		•	14,700	:	10,262	82,100
I supplied warms apparents	:	each	:	25 000	:	1	:	0	
Launching ramps, concrete	:	eacn	:	25,000	:	1	:	2	: 50,000
Restrooms	•				:		:		
a. Masonry	•		:		:		:		
(1) Vault	:	each	:	16,000	:	3	:		
(2) Waterborne	:			28,000		J	:	2	: 56,000
(3) Waterborne/showers	:			30,500			:	4	: 122,000
(4) Convert to waterborne	:			18,500			•	3	: 55,500
(5) Washhouse	:			40,000			:	2	: 80,000
(-)	:		:	,	:		:	~	:
Electrical service (aluminum)	:	LF	;	8.50	:	4,830	:	15,094	: 128,300
(aramenam)	:	_	:	-,	:	.,	:	10,004	:

<u>TABLE 9-13</u> (cont.)

SHILOH PARK

		:		: Existing	· · · · · · · · · · · · · · · · · · ·				
		:	: Unit	: facilities	: Proposed	facilities			
Item		: Uni <u>t</u>	-	: Jan. '75	: Quantity				
		;	:	:	:	:			
Sewag	e system	:	:	:	:	:			
a.	Sewer lines, 4" gravity	: LF	: 6.50	:	: 1,831	: 11,900			
	6" gravity	: LF	: 8.00	:	: 6,687	: 53,500			
ь.	Outfall lines, 6 ¹¹ steel	: LF	: 10.00	:	900	: 9,000			
	in lake	:	:	:	:	:			
	8" steel	: LF	: 12.00	•	:	:			
	in lake	:	:	:	:	:			
c.	Force Main, 4"	: LF	: 6.50		: 1,015	: 6,600			
	6"	: LF	: 8.00		:	:			
d.	Lift stations	: each			: 2	: 40,000			
e.	Manholes	: each	: 450	:	: 28	: 12,600			
f.	Treatment plant, tertiary	:	:	:	:	:			
	42,750 GPD	: each	: 92,000	:	: 1	: 92,000			
· e.	Electrical, outside	:	:	:	:	:			
	Contingencies, 15%	: LS	:	:	:	: 33,900			
		:	:	:	:	:			
		:	:	:	:	:			
Water	system	:	:	:	:	:			
a.	Waterline, 3/4" PVC	: LF	2.50	:	: 2,920	: 7,300			
ъ.	Waterline, 1" PVC	: LF	: 3.25	•	: 4,092	: 13,300			
C.	Waterline, 1 1/2" PVC	; LF	: 4.00	:	:	:			
d.	Waterline, 2" PVC	: LF	: 4.50	:	: 5,867	: 26,400			
e.	Waterline, 2 1/2" PVC	: LF	: 5.00	:	:	:			
f.	Waterline, 3" PVC	: LF	: 5.50	:	: 2,491	: 13,700			
g.	Waterline, 4" PVC	: LF	: 6.00	: 4,290	; 983	: 5,900			
h.	Waterline, 6" PVC	: LF	: 7.50	:	:	:			
i.	Water wells	: each	: 3,500	; 2	:	:			
j.	Water hydrants	: each	: 450	:	: 38	: 17,100			
k.	Wellhouse, pump &	:	:	:	:	:			
	pressure system	: each	: 8,000	;	:	:			
1.	Electrical, outside	:	:	;	:	:			
	Contingencies, 15%	: LS	:	:	:	: 12,600			
		:	:	:	:	:			
-		:	:	:	:	:			
	c units	: each	,	:	: 23	: 32,200			
	units	: each	,	: 105	: 211	: 422,000			
	units with electric service	: each		:	: 147	: 58,800			
	tive camp spaces	: each	: 100	:	:	:			
	camp	: each	,	:	:	:			
Table	canopies	: each	: 1,500	:	:	:			
		:	:	:		:			

<u>TABLE 9-13</u> (cont.)

SHILOH PARK

	:		:		:	Existing	:			
	:		:	Unit	:	facilities	:	Proposed	£	acilities
Item	:	Unit	:	Cost	:	Jan. '75	:	Quantity	:	Cost
	:		:		:		:		:	
Picnic shelters	:		:		:		:	_	:	
 a. 30-person picnic shelter 	:	each	:	12,000	:	1.	:	2	:	24,000
 b. Group camp pavilion or 	•		:		:		:	_	:	
200-person shelter	:	each		•			:	1	:	65,000
Amphitheaters	;	each			:	_	:	1	:	3,100
Drinking fountains	:	each		*	:	2	;	5	:	6,000
Changehouses	:	each	:	10,000	:	1	:	3	:	30,000
Convert existing sanitary station	:	each	:	1,000	:		:		:	
Sanitary stations	:		:		:		:		:	
(travel trailer) .	:	each	:	5,000	:		:	1	:	5 ,00 0
Marine dump station	:	each	:	10,000	:		:	1	:	10,000
Swimming beaches	:	each	:	9,500	:		:	3	:	28,500
Mercury vapor lights	:	each	:	500	:	2	:	6	:	3,000
Trail system (parks)	:	$\mathbf{L}\mathbf{F}$;	3.00	:		:		:	
Playground equipment	:		:		:		:		:	
Play Area A	:	each	;	64,000	;		:	3	:	192,000
Play Area B	;	each	:	9,600	:		:	2	:	19,200
Foot bridge	;	each	:	15,000	:		:	-	:	
Reforestation	:	acre	:	1,000	:		:	30	:	30,000
Landscaping & beautification	:	acre	:	2,500	:		:	10	:	25,000
Entrance complex	:	each	:	50,000	;		:	1	:	50,000
Project trails	:	Sta,	:	3 0 0	:		:		:	
Courtesy docks	:	each	:	6,000	:		:	1	:	6,000
Interpretive display area	:	each		20,000	:		:	<i>:</i>	:	
Visitor center	:	each	:	750,000	:		:		:	
	:		:		:		:		:	
	:		:		:		:		:	
	:		;		:		:		:	
Total	:		:		:		:		2	,198,900
	:		:		:		:		:	, == = ,,,,,,,

TABLE 9-14

GREERS FERRY LAKE

NARROWS PARK

	:	:	:	Existing	:		
	3	: Unit	:	facilities	:	Proposed	facilities
Item	: Unit	: Cost	:	Jan'75_	:	Quantity	: Cost
	:	:	;		:		:
Roads	:	•	:		:		:
a. 22 feet wide	:	:	:		:		:
(1) Gravel	: mile	: 68,000	:		:		:
(2) Flexible pavement	:	:	:		:		:
(a) New construction	: mile	:100,000		•	:		:
(b) Existing pavement	:	:	:		:		:
b. 18 feet wide	:	:	:		:		:
(1) Gravel	: mile	: 56,000	:		:		:
(2) Flexible pavement	:	:	:		:		:
(a) New construction	: mile	: 82,000	:		:	.25	: 20,500
(b) Existing pavement	. :	:	:	1.30	:		:
c. 12 feet wide	:	:	:		:		•
(1) Gravel	: mile	: 37,000	:		:		:
(2) Flexible pavement	:	:	:		:		:
(a) New construction	: mile	: 55,000	:		:	0.13	: 7,100
(b) Existing pavement	:	:	:	.53	:		:
	:	:	:		;		:
Parking areas & Paved areas	:	:	:		:		:
a. Gravel	: SY	: 5.90	:		:		:
b. Flexible pavement	:	:	:		:		:
(1) New construction	: SY	: 8.00	:	5,860	:	1,975	: 15,800
(2) Existing pavement	: SY	: 7.60	:		:		:
	:	:	:		:		:
Launching ramps, concrete	: each	: 25,000	;	2	:	2	: 50,000
	:	:	:		:		:
Restrooms	:	:	:		:		:
a. Masonry	:	:	;		:		:
(1) Vault		: 16,000		2	:	2	: 32,000
(2) Waterborne		: 28,000			:		:
(3) Waterborne/showers		: 30,500			:	1	: 30,500
(4) Convert to waterborne		: 18,500			:	3	: 55,500
(5) Washhouse	: each	: 40,000	:		:	1	: 40,000
	:	:	:	_	:		:
Electrical service (aluminum)	: LF	8.50	:	7,200	:	2,153	: 18,300
	:	:	:		:		:

<u>TABLE 9-14</u> (cont.)

NARROWS PARK

					_	17343	_		
		:		: : Unit	:	Existing facilities	:	Proposit	facilities
Item			Unit		:				facilities
TUEM		•	OILLE	· COSE	÷	Jan. 75	÷	Quantity	· COSE
Sewas	se system	:		•	:		•		
a.	Sewer lines, 4" gravity	•	LF	6.50	:		:	1,708	: 11,100
	6" gravity	:	LF	8.00	•		:	1,750	: 14,000
ъ.	Outfall lines, 6" steel	•	LF	10.00	-		:	320	: 3,200
	in lake	:		•	:		:	320	. 5,200
	8" steel	•	LF	12.00	•		:		
	in lake	:		:	•		:		•
с.	Force Main, 4"	:	LF	6.50	•		•		
	6"	:	LF	8.00	-		:		•
d.	Lift stations	:	each		•		:		•
e.	Manholes	:	each	•			:	. 7	3,100
f.	Treatment plant, tertiary	:		•	:		:		,
	16,500 GPD	:	each	60,000	:		•	1	60,000
g.	Electrical, outside	:		•	:		:		
Ŭ	Contingencies, 15%	:	LS	•	:		:		13,700
h.	Sewer line, 8" gravity	:	LF	9.50	:		:		•
	, , ,			•	:		:		•
Water	system	:			:		:		•
a.	Waterline, 3/4" PVC	:	LF :	2.50	:		:	1,280	: 3,200
b.	Waterline, 1" PVC	:	LF :	3.25			•	892	: 2,900
c.	Waterline, 1 1/2" PVC	:	LF	4.00			:	0,2	: 2,500
ď.	Waterline, 2" PVC	:	LF :	4.50			•	1,000	4,500
e.	Waterline, 2 1/2" PVC	:	LF :	5.00			:	•	:
f.	Waterline, 3" PVC	:	LF :	5,50			:	2,309	12,700
g.	Waterline, 4" PVC	:	LF :	6.00			:	1,250	7,500
h.	Waterline, 6" PVC	:	LF :	7.50	;	:	:	-,-30	: 7,500
i,	Water wells	:	each:			2	:		
j.	Water hydrants	:	each :			:	:	18	8,100
k.	Wellhouse, pump &	:	:		:	:	:		:
	pressure system	:	each :	8,000	:	:	:	:	
1.	Electrical, outside	:	:		:	:	:	:	:
	Contingencies, 15%	:	LS :	;	:	:	:	:	:
		:	:	;	:	:		;	:
		:	:	;	:	;	:	:	
	c units	:	each :	1,400	:	10 :	:	51 :	71,400
Camp		:	each:	2,000		47 ;	;	18	36,000
_	units with electric service	:	each :	400	:	:	:	18	7,200
	tive camp spaces	:	each:			:	;	-	.,200
Group	-	:	each:	.,		:		:	
Table	canopies	:	each :	1,500 :	:	:		15 :	22,500
		:	:	:	:	;		:	-,

<u>TABLE 9-14</u> (cont.)

NARROWS PARK

	:		:		:	Existing	:	-	
	:		:	Unit	:	facilities			
Item	<u>:</u> ,	Unit	:	Cost	:	Jan. '75	:	Quantity	: Cost
	:		:		:		:		:
Picnic shelters	:		:		:		:		:
a. 30-person picnic shelter	:	each	:	12,000	:	2	:	2	: 24,000
b. Group camp pavilion or	:		:		:		:		:
200-person shelter	:			65,000			:	1	: 65,000
Amphitheaters				3,100			:		:
Drinking fountains		each		,		1	:	4	: 4,800
Changehouses	:	each	:	10,000	:		:		:
Convert existing sanitary station	:	each	:	1,000	:		:	1	: 1,000
Sanitary stations	:		:		:		:		:
(travel trailer)	:	each	:	5,000	:	1	:		:
Marine dump station	:	each	:	10,000	:		:		:
Swimming beaches	:	each	:	9,500	:		:		:
Mercury vapor lights	:	each	:	500	:	3	:	3	: 1,500
Trail system (parks)	:	$_{ m LF}$:	3.00	:		:		:
Playground equipment	:		:		;		:		:
Play Area A	:	each	:	64,000	:		:		:
Play Area B	:	each	:	9,600	:		:	1	9,600
Foot bridge	:	each	;	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:		:
Landscaping & beautification	:	acre	:	2,500	:		:	2	: 5,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:		:
Interpretive display area	:	each	:	20,000	:		:		:
Visitor center				750,000			:		:
Multi-purpose court	:	each	:	18,500	:		:	1	: 18,500
Ball field		each			:		:	1	: 2,000
	:		:	-	:		:		:
Total	:		:				:		: 738,000
	:		:		:		•		:

TABLE 9-15

GREERS FERRY LAKE

DEVILS FORK PARK

				···	<u> </u>	
	:		:	Existing	:	
_			Unit			facilities
Item	; U	Jnit_	Cost	: Jan. '75 _	: Quantity	: Cost
	:		:	:	:	:
Roads	:				• -	•
a. 22 feet wide	:				.	:
(1) Gravel	: 10	ille	68,000		:	:
(2) Flexible pavement	:		. 100		:	:
(a) New construction	: m	ille	:100,000	;	.17	: 17,000
(b) Existing pavement	:		:	:	:	:
b. 18 feet wide	:			•	:	:
(1) Gravel	: m	nile	56,000	:	:	
(2) Flexible pavement	:		:	:	:	:
(a) New construction	: II	ille	82,000	:	: 1.41	: 115,600
(b) Existing pavement	:			.97	:	:
c. 12 feet wide	:	;	•	:	:	:
(1) Gravel	: m	ile	37,000	:	:	:
(2) Flexible pavement	:	:	:	: ′	:	:
(a) New construction	: m	ile :	55,000	:	:	:
(b) Existing pavement	:	:	;	: .42	:	:
	:	:	:	:	:	:
Parking areas	:	:	•	:	:	
a. Gravel	: S	Y :	5,90	:	:	:
 b. Flexible pavement 	:	:	•	:	:	:
New construction	: s	Y	8.00	:	: 3,612	: 28,900
(2) Existing pavement	: S	Y	:	: ∅,650	:	:
	:	;	:	:	:	:
Launching ramps, concrete	: e	ach 3	25,000	: 3	:	:
	:	:	:	:	:	:
Restrooms	:	;	:	:	:	:
a. Masonry	:	:	:	:	:	:
(l) Vault	: e	ach :	16,000	: 2	:	:
(2) Waterborne	: e	ach :	28,000	:	:	;
(3) Waterborne/showers	: e	ach :	30,500	:	: 4	: 122,000
(4) Convert to waterborne	: e	ach :	18,500	:	: 2	: 37,000
(5) Washhouse	: е	ach :	40,000	:	2	: 80,000
	:	:		:	•	:
Electrical service (aluminum)	: L	F :	8.50	: 2,100	8,553	: 72,700
	:	:		:	:	:

<u>TABLE 9-15</u> (cont.)

DEVILS FORK PARK

		-		_			Existing	•	
		•		•	Unit	:	facilities	· Proposed	facilities
Item		:	Uni <u>t</u>	:	Cost	:		: Quantity	
		:		:		÷		:	*
Sewag	e system	:		:		:		•	:
a.	Sewer lines, 4" gravity	:	$\mathbf{L}\mathbf{F}$:	6.50	:		938	6,100
	6" gravity	:	\mathbf{LF}	:	8.00	:		3,600	: 28,800
ъ.	Outfall lines, 6" steel in lake	:	LF	:	10.00	-		1,200	12,000
	8" steel	:	LF		12.00	:		•	•
	in lake	:		:	12,00			•	•
c.	Force Main, 4"	:	$\mathbf{L}\mathbf{F}$:	6.50			1,600	10,400
•	6"	:	LF	:	8.00	:			, 100
đ.	Lift stations	•	each	:	20,000	:		• • 3	: 60,000
e.	Manholes	:	each	-	450			. 12	5,400
f.	Treatment plant, tertiary	:		:		•		• •	•
	35,000 GPD	:	each	:	86,000	:		: 1	. 86, 0 00
g.	Electrical, outside	:		:	,	:		·	:
0	Contingencies, 15%	:	LS	:		:		:	31,300
h.	Sewer line, 8" gravity	:	LF	:	9.50	:		:	:
	, ,	:		:		:		:	:
Water	system	:		:		:		:	:
a.	Waterline, 3/4" PVC	:	$_{ m LF}$:	2.50	:		: 840	: 2,100
Ъ.	Waterline, l" PVC	:	\mathbf{LF}	:	3.25			: 1,446	4,700
c.	Waterline, 1 1/2" PVC	;	LF	:	4.00	:		:	.,
d.	Waterline, 2" PVC	:	LF	:	4.50			: 4,733	21,300
e.	Waterline, 2 1/2" PVC	:	\mathbf{LF}	:	5.00	:		:	:
f.	Waterline, 3" PVC	:	$_{ m LF}$:	5.50	:	1,400	3,800	20,900
g.	Waterline, 4" PVC	:	LF	:	6.00	:	600	:	:
h.	Waterline, 6" PVC	:	\mathbf{LF}	:	7.50	:		:	:
i.	Water wells	:	each		3,500	:	1	:	}
j.	Water hydrants	:	each	:	450	:		22	9,900
k.	Wellhouse, pump &	:		:		:		:	:
	pressure system	:	each	:	8,000	:		:	:
1.	Electrical, outside	:		:		:		: :	:
	Contingencies, 15%	:	LS	:		:		: :	8,800
		:		:	:	:		:	:
. .		:	-	:	;	:		; ;	
	c units	:	each		1,400		:	; 6 ;	8,400
-	units	:	each	-	2,000		54	120	240,000
	units with electric service	:	each	-	400			; 71 ;	28,400
	tive camp spaces	:	each	-	100		:	:	
•	camp .	:	each		2,000		;	: 4 :	8,000
rable	canopies	:	each	:	1,500	:	;	:	
		:		:	:	:	;	: ;	

TABLE 9-15 (cont.)

DEVILS FORK PARK

	:		:		:	Existing	:			
	;		:	Unit	:	facilities	:	Proposed	f	<u>acilities</u>
Item	:	Unit	:	Cost	:	<u>Jan. '75</u>	:	Quantity	:	Cost
	;		:		:		:		:	
Picnic shelters	:		:		:		:		:	
 a. 30-person picnic shelter 	:	each	:	12,000	:	1	:		:	
b. Group camp pavilion or	:		:		:		:		:	
200-person shelter	:	each		•			:	1	:	65,000
Amphitheatres -	:	each		,			:	1	:	3,100
Drinking fountains	:	each		1,200			:	4	:	4,800
Changehouses	:	each	:	10,000	:		:	2	;	20,000
Convert existing sanitary station	:	each	:	1,000	:		:		:	
Sanitary stations	:		:		:		:		:	
(travel trailer)	:	each	:	5,000	:		:	1	:	5,000
Marine dump station	:	each	:	10,000	:		:		:	
Swimming beaches	:	each	;	9,500	:	1	:	1	:	9,500
Mercury vapor lights	:	each	:	500	:		:		:	
Trail system (parks)	:	LF	:	3.00	:		:	2,067	:	6,200
Playground equipment	:		:		;		:	-	:	,
Play Area A	:	each	:	64,000	:		:	1	:	64,000
Play Area B	:	each	;	9,600	:	,	:	3	:	28,800
Foot bridge	:	each	:	15,000	:		:		:	_
Reforestation	:	acre	:	1,000	:		:		:	
Landscaping & beautification	:	acre	;	2,500	:		:	8	:	20,000
Entrance complex	:	each	:	50,000	:		:	1	:	50,000
Project trails	:	Sta.	:	300	:		:		:	•
Courtesy docks	:	each	:	6,000	:		:	2	:	12,000
Interpretive display area	:	each	:	20,000	:		:		:	-
Visitor center	:	each	:	750,000	:		:		:	
	;		:	,	:		:		:	
	:		:		:		:		:	
	:		:		:		:		:	
Total	:		:		:		:		1	25/ 100
	:		:		:		:		:	,354,100

TABLE 9-16

GREERS FERRY LAKE

HILL CREEK PARK

	:	:	: Existing	:			
	:	: Unit	: facilities	: Proposed	facilities		
Item	: Unit		: Jan. 175	: Quantity			
	:	;	:	:	:		
Roads	:	4	:	:	:		
a. 22 feet wide	:	:	:	:	:		
(1) Gravel	: mile	: 68,000	:	:	:		
(2) Flexible pavement	:	:	:	:	:		
(a) New construction	: mile	:100,000	:	: .80	: 80,000		
(b) Existing pavement	:	:	:	:	:		
b. 18 feet wide	:	:	:	:	:		
(1) Gravel	: mile	: 56,000	:	:	:		
(2) Flexible pavement	:	:	:	:	:		
(a) New construction	: mile	: 82,000	:	: 1.10	90,200		
(b) Existing pavement	:	:	: .91	:	:		
c. 12 feet wide	:	:	:	:	:		
(1) Gravel	: mile	: 37,000	:	:	:		
(2) Flexible pavement	:	:	:	:	:		
(a) New construction	: mile	: 55,000		:	:		
(b) Existing pavement	:	:	: .49	•	;		
	:	:	:	:	:		
Parking areas	:	:	:	:	:		
a. Gravel	; sy	: 5.90	:	:			
b. Flexible pavement	:	:	•	:	:		
(1) New construction	: SY	: 8 00		: 4,138	33,100		
(2) Existing pavement	: SY	:	6,450	:	:		
T	:	: 25,000	: 1	: : 2	•		
Launching ramps, concrete	• eacn	. 25,000		• 2	50,000		
Restrooms	:	:	:	:	:		
a. Masonry	:	:	:	:	:		
(1) Vault	: each	: 16,000	: 1	:	:		
(2) Waterborne		: 28,000		:	:		
(3) Waterborne/showers		: 30,500		: 2	: 61,000		
(4) Convert to waterborne		: 18,500		: 1	: 18,500		
(5) Washhouse		: 40,000		; 2	: 80,000		
(-)	:	:	:	:	:		
Electrical service (aluminum)	: LF	: 8.50	: 3,585	: 11,400	: 96,900		
,	:	:	:	;	:		

TABLE 9-16 (cont.)

HILL CREEK PARK

	<u> </u>	:		:	: Exist:	ing		
	·	:		: Unit			Proposed	facilities
Item		:	Unit	: Cost	: Jan.		Quantity	
		:		:	:		;	:
Sewag	e system	:		:	:		:	:
a.	Sewer lines, 4" gravity	:	LF	: 6.50	•	:	877	: 5,700
	6" gravity	:	LF	8.00	-	:	2,225	: 17,800
b.	Outfall lines, 6" steel	:	LF	: 10.00	:	:	570	: 5,700
	in lake	:		:	:	:	:	:
	8" steel	:	LF.	: 12.00	•	:	:	:
	in lake	:		:	:	:		:
c.	Force Main, 4"	:	LF	: 6. 50	:	:	523	: 3,400
	6"	:	LF	8.00	:	:	500	4,000
d.	Lift stations		each		:	:	3	: 60,000
e.	Manholes	:	each	: 450	:	:	12	: 5,400
f.	Treatment plant, tertiary	:		:	:	:		:
	27,500 GPD	:	each	: 75,000	:	:	1	: 75,000
g.	Electrical, outside	:	:	:	:	:		:
	Contingencies, 15%	:	LS	:	:	:		: 26,500
h.	Sewer line, 8" gravity	:	LF :	9.50	:	:		:
		:	;	:	:	:		:
Water	system	:	;	:	:	:		:
a.	Waterline, 3/4" PVC	:	LF :	2.50	:	:	520	: 1,300
ъ.	Waterline, 1" PVC	:	LF ;	3.25	:	:	1,108	; 3,600
c.	Waterline, 1 1/2" PVC	:	LF :	4.00	:	:	275	: 1,100
d.	Waterline, 2" PVC	:	LF :	4.50	:	:	89	: 400
e.	Waterline, 2 1/2" PVC	:	LF :	5.00	:	:		:
f.	Waterline, 3" PVC	:	LF :	5.50	:	:	4,600	: 25,300
g.	Waterline, 4" PVC	:	LF :	6.00 :	•	:		:
h.	Waterline, 6" PVC	:	LF :	7.50	:	:	717	: 4,300
i.	Water wells	:	each:	-,	;	1 :	;	:
j.	Water hydrants	:	each ;	450 :	:	:	15	6,800
k.	Wellhouse, pump &	:	:		: ·	:	1	;
	pressure system	:	each:	8,000:	:	:	,	:
1.	Electrical, outside	:	:	:	:	:	:	•
	Contingencies, 15%	:	LS :	:	:	:	:	6,400
		:	:	•	:	:	;	•
		:	:	:		:	:	
	c units	:	each :	-,		:	8 :	: 11,200
-	units	:	each :	.,		0 :	88 :	176,000
-	units with electric service	:	each:			:	67	26,800
	tive camp spaces	:	each:			:	:	;
_	camp	:	each :	3		:	· · ·	:
Table	canopies	:	each :	1,500:		:	:	!
		:	:	:		:	:	:

<u>TABLE 9-16</u> (cont.)

HILL CREEK PARK

	:		:		:	Existing	:		
	:		:	Unit	:	facilities			
Item	:	Unit	:	Cost	:_	Jan. '75	:	Quantity	: Cost
	:		:		;		:		:
Picnic shelters	:		:		:		:		:
 30-person picnic shelter 	:	each	:	12,000	:		:	2	: 24,000
Group camp pavilion or	:		:		:		:		:
200-person shelter	:			65,000			:		:
Amphitheat	:	each		,			:	1	; 3,100
Drinking fountains		each		1,200			:	2	: 2,400
Changehouses				10,000			:	1	: 10,000
Convert existing sanitary station	:	each	:	1,000	:		:		:
Sanitary stations	:		:		:		:		:
(travel trailer)	:	each		5,000			:	1	: 5,000
Marine dump station	;	each	:	10,000			:		:
Swimming beaches	:	each	:	9,500		1	:	1	: 9,500
Mercury vapor lights	:	each	:	500		3	:	3	: 1,500
Trail system (parks)	:	$\mathbf{L}\mathbf{F}$:	3.00	:		:		:
Playground equipment	:		:		:		:	•	•
Play Area A	:			64,000			:	1	: 64,000
Play Area B	;	each		•			:	1	9,600
Foot bridge	:	each	:	15,000			:		:
Reforestation	:	acre	:	1,000	:		:	3.5	: 3,500
Landscaping & beautification	:	acre		2,500			:	4	: 10,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:	1	: 6,000
Interpretive display area	:			20,000			:		:
Visitor center	:	each	:	750,000	:		:		:
	:		:		:		:		:
	:		:		:		:		;
	:		:		፡		:		:
Total	:		:		4		:		1,175,000
	:	_	:		:		:		

TABLE 9-17

GREERS FERRY LAKE

MILL CREEK PARK

	-:		:	: Existing	•	
	:		: Unit	: facilities	: Proposed	facilities
Item	:	Unit			: Quantity	
	:		:	:	:	:
Roads	:		:	:	:	:
a. 22 feet wide	:		:	:	:	:
(1) Gravel	:	${\tt mile}$: 68,000	:	:	:
(2) Flexible pavement	:		:	:	:	:
(a) New construction	8	mile	:100,000	:	: .67	: 67,000
(b) Existing pavement	:		:	:	:	:
b. 18 feet wide	:		:	:	:	:
(1) Gravel	:	mile	: 56,000	:	:	:
(2) Flexible pavement	:		:	:	:	:
(a) New construction	:	mile	: 82,000	:	2.61	: 214,000
(b) Existing pavement	:		:	1.86	:	:
c. 12 feet wide	:		:	:	:	:
(1) Gravel	:	mile	: 37,000	:	: .05	: 1,800
(2) Flexible pavement	:		:	:	:	:
(a) New construction	:	mile	: 55,000	:	:	:
(b) Existing pavement	:		:	: .31	:	:
	:		:	:	:	:
Parking areas	:		:	:	:	• ' '
a. Gravel	:	SY	: 5.90	:	:	:
b. Flexible pavement	:		:	•	:	:
(1) New construction	:	SY	: 8.00	:	: 8,875	: 71,000
(2) Existing pavement	:	SY	:	: 4,489	:	•
	:		:	:	:	:
Launching ramps, concrete	:	each	: 25,000	1	: 2	: 50,000
	:		:	•	:	:
Restrooms	:		:		•	:
a. Masonry	:		:		:	:
(1) Vault	:		: 16,000	1	<u>.</u>	:
(2) Waterborne	:		: 28,000		: 1	: 28,000
(3) Waterborne/showers	:		: 30,500		: 5	: 152,500
(4) Convert to waterborne	:		: 18,500		: 1	: 18,500
(5) Washhouse	:	each	: 40,000	;	: 3	: 120,000
	:			1	1.5.550	:
Electrical service (aluminum)	:	LF	8. 50	;	: 15,553	: 132,200
	;		:	:		:

TABLE 9-17 (cont.)

MILL CREEK PARK

		:		:		:	Existing	:	
		:		:	Unit	:	facilities	Proposed	facilities
Item		:	Unit	:	Cost	<u>:</u>	Jan. '75	: Quantity	
_		:		;		:		:	:
Sewag	e system	:		:		:		:	:
a.	Sewer lines, 4" gravity	:	LF	:	6.50	-		: 3,323	: 21,600
	6" gravity	:	LF	:	8.00	_		: 3,575	: 28,600
ъ.	Outfall lines, 6" steel	:	LF	:	10.00	:		720	7,200
	in lake	:		:		:		:	:
	8" steel	:	LF	:	12,00	;		: .	:
	in lake	:		:		:	!	:	:
С.	Force Main, 4"	:	$\mathbf{L}\mathbf{F}$:	6.50			:	:
	611	:	LF'	:	8.00	:		1,600	: 12,800
d.	Lift stations	:	each	-	20,000	:	-	2	: 40,000
e.	Manholes	:	each	:	450	:		: 13	: 5,800
f.	Treatment plant, tertiary 52,250 GPD	:	each	: : 9	2,000	:	;	; : 1	: 92,000
g.	Electrical, outside	:		•	•			-	. 52,000
5 -	Contingencies, 15%	•	LS	-		:		•	31,200
h.	Sewer line, 8" gravity	•	$_{ m LF}$		9.50	:		•	• ′
•		•		•	,,,,,	:		•	•
Water	system	:		:		:		•	•
a.	Waterline, 3/4" PVC	•	LF	•	2.50	:		2,000	• E 000
b.	Waterline, 1" PVC	•	LF	:	3.25			1,046	5,000
c.	Waterline, 1 1/2" PVC	•	$\mathbf{L}\mathbf{F}$:	4.00			600	3,400
d.	Waterline, 2" PVC	÷	LF	:	4.50			6,933	2,400 31,200
e.	Waterline, 2 1/2" PVC	:	LF	:	5.00			. 0,933	. 31,200
f.	Waterline, 3" PVC	:	LF	:	5.50		•	3,109	17,100
g.	Waterline, 4" PVC	:	LF	:	6.00		:	-	=
h.	Waterline, 6" PVC	:	LF	:	7.50		•	3,750	22,500
i.	Water wells		each	•	3,500		1 :	,	•
j.	Water hydrants	:	each	_	450		L .	37	16 700
k.	Wellhouse, pump &	:		•	470	•	•	3/	16,700
· = *	pressure system	:	each	•	8,000	:			•
1.	Electrical, outside	:	~ ~ ~ ~ ~	•	0,000	•		•	•
	Contingencies, 15%	:	LS	•		:		•	14,700
	2011 2 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•		:		:	ā	1	14,700
		:		:		•	•		;
Pieni	c units	:	each	:	1,400	•	;	1-	
	units	:	each		2,000		97 -	15	21,000
	units with electric service	:	each	-	400		27 :	218	436,000
	tive camp spaces	:	each :		100		ï	160	64,000
	camp	:	each					:	
•	canopies	•	each		2,000		:	:	
rante	canobies	÷	each		1,500		:	:	
		:	,	:		•	:	:	

<u>TABLE 9-17</u> (cont.)

MILL CREEK PARK

	;		:		:	Existing	:		
	:		:	Unit	:	facilities	:	Proposed	facilities
Item	:	Unit	:	Cost	:	Jan. 175	:	Quantity	: Cost
	:		:		:		:		:
Picnic shelters	:		:		:		:		:
 a. 30-person picnic shelter 	:	each	:	12,000	:	1	:	2	: 24,000
b. Group camp pavilion or	:		:		:		:		:
200-person shelter	:	each	:	65,000	:		:	1	: 65,000
Amphitheat	;	each	:	3,100	:		:	1	: 3,100
Drinking fountains	:	each	:	1,200	:		:	4	: 4,800
Changehouses	:	each	:	10,000	:		:	2	: 20,000
Convert existing sanitary station	:	each	:	1,000	;		:		:
Sanitary stations	:		:		:		:		:
(travel trailer)	;	each	:	5,000	:		:	1	: 5,000
Marine dump station	:	each	:	10,000	:		:		:
Swimming beaches	:	each	:	9,500	:		:	2	: 19,000
Mercury vapor lights	:	each	:	500	:		:	2	: 1,000
Trail system (parks)	:	$\mathbf{L}\mathbf{F}$:	3.00	:		:	1,600	: 4,800
Playground equipment	:		:		:		;		:
Play Area A	:	each	•:	64,000	:		:	1	: 64,000
Play Area B	:	each	:	9,600	:		:	3	: 28,800
Foot bridge	:	each	;	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:		:
Landscaping & beautification	:	acre	:	2,500	:		:	8	: 20,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:	Sta.	:	300	:		;		:
Courtesy docks	:	each	:	6,000	:		:	1	: 6,000
Interpretive display area	:	each	:	20,000	:		;		:
Visitor center	:	cach	:	750,000	:		:		:
	:		;		:		:		:
	:		:		:		:		:
	:		:		:		:		•
Total	:		:		;		:		2,043,700
	:		:		:_		:		<u> </u>

TABLE 9-18

GREERS FERRY LAKE

SUGAR LOAF PARK

	:	:	: Existing	:	
	3	: Unit	: facilities	: Proposed	facilities
Item	: Unit	: Cost	: Jan. '75	: Quantity	: Cost
	:	:	:	:	´ :
Roads	:	•	:	:	:
a. 22 feet wide	:	:	:	;	•
(1) Gravel	: mile	: 68,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	:100,000	:	:	:
(b) Existing pavement	:	:	:	:	:
b. 18 feet wide	:	:	:	:	:
(l) Gravel	: mile	: 56,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	: 82,000	:	: .22	: 18,000
(b) Existing pavement	:		: 1.38	:	:
c. 12 feet wide	:	•	:	:	:
(l) Gravel	: mile	: 37,000	:	:	:
(2) Flexible pavement	7	:	:	:	:
(a) New construction	: mile	: 55,000	:	: .22	: 12,100
(b) Existing pavement	:	:	: .64	:	:
• • • • • • • • • • • • • • • • • • • •	:	:	:	:	:
Parking areas	:	;	:	:	:
a. Gravel	: SY	: 5.90	:	:	:
b. Flexible pavement	:	:	:	:	:
(1) New construction	: SY	: 8.00	:	: 1,037	: 8,300
(2) Existing pavement	: SY	:	7,600	:	:
	:	:	:	:	:
Launching ramps, concrete	: each	: 25,000	: 2	:	:
	;	:	:	:	:
Restrooms	:	:	:	:	:
a. Masonry	:	:	:	:	:
(1) Vault	: each	: 16,000	: 2	: 1	: 16,000
(2) Waterborne		: 28,000		:	:
(3) Waterborne/showers		: 30,500		:	:
(4) Convert to waterborne	: each	: 18,500	:	: 3	: 55,500
(5) Washhouse	: each	: 40,000	;	: 1	: 40,000
	:	:	:	:	:
Electrical service (aluminum)	: LF	: 8.50	; 4,290	: 4,989	: 42,400
	4	:	•	:	

TABLE 9-18 (cont.)

SUGAR LOAF PARK

-		:	•	:		:	Existing	•	
		:		•	Unit	:	facilities	• Proposed	facilities
<u>Item</u>		:	Unit		Cost	_:	Jan. 75	: Quantity	: Cost
		:		:		:		:	:
_	ge system	:		:		:		. 005	:
a.	Sewer lines, 4" gravity	:	LF	:	6.50	-		985	6,400
	6" gravity	:	LF	:	8.00	_		1,462	: 11,700
ь.	Outfall lines, 6" steel	:	$\mathbf{L}\mathbf{F}$:	10.00	:		: 540	: 5,400
	in lake	:		:		:		:	:
	8" steel	:	LF	:	12.00	9		:	:
_	in lake	:		:	4 EA	:		:	:
c.	Force Main, 4"	:	LF	:	6.50	-		: 215	: 1,400
+	v	:	LF	: `	8.00	•		:	:
ď.	Lift stations	:	each		0,000			: 1	: 20,000
e.	Manholes	:	each	:	450	:		: 5	2,200
f.	Treatment plant, tertiary	:	,	: ,,		:		:	:
	16,500 GPD	:	each	: 6	0,000	:		: 1	: 60,000
g.	Electrical, outside	:		:		:		:	: 16 100
_	Contingencies, 15%	:	LS	:		:		:	16,100
h.	Sewer line, 8" gravity	:	LF	:	9 .50	:		:	:
Matan		:		:		:		•	:
	system	:	7 17	:		:		:	1 500
a.	Waterline, 3/4" PVC	:	LF	:	2.50		;	: 600 ;	1,500
ь.	Waterline, 1" PVC	:	LF	:	3.25		;	369	1,200
c.	Waterline, 1 1/2" PVC	:	LF	:	4.00			1 0//	12 000
d.	Waterline, 2" PVC	:	LF	:	4.50		;	2,844	12,800
e.	Waterline, 2 1/2" PVC	:	LF	:	5.00		:	3 / 10	10 000
f.	Waterline, 3" PVC	:	LF	:	5.50		:	3,418	18,800
g.	Waterline, 4" PVC	:	LF	:	6.00		3,300	:	
h. i.	Waterline, 6" PVC Water wells	:	LF	:	7.50		:	:	
		:	each		3,500		2	:	5 000
j.	Water hydrants	:	each	:	450	:	;	13 :	5,800
k.	Wellhouse, pump &	:	anah	:		:	:	:	
1	pressure system	:	each	: {	3,000	:	:	:	
1.	Electrical, outside	:	* C	:		:	:	:	6,000
	Contingencies, 15%	:	LS	:		:	=	:	0,000
		:		:		:	:	:	
Diani	c units	:		:	400	:	:	:	
Camp		;	each		,400		70	:	
-		:	each		2,000		79 :	48 :	96,000
_	units with electric service	:	each		400		:	26 :	10,400
	tive camp spaces	:	each :		100		:	:	_
Group	camp canopies	:	each :	-	2,000		:	4 :	8,000
тарте	canoptes	•	each	: 1	,500	:	:	:	
		:	;	:		:	:	:	

<u>TABLE 9-18</u> (cont.)

SUGAR LOAF PARK

	:		:		:	Existing	:	<u> </u>	
•	:		:	Unit	:	facilities	:	Proposed	facilities
Item	:	Unit	:	Cost	:	_Jan. '75	:	Quantity	: Cost
	:		:		:		:		:
Picnic shelters	:		:		:		:		:
 a. 30-person picnic shelter 	:	each	:	12,000	:	1	:	3	: 36,000
b. Group camp pavilion or	:		:		:		:		:
200-person shelter	:	each	:	65,000	:		:		:
Amphitheaters	:	each	:	3,100	:		:	1	: 3,100
Drinking fountains	:	each	:	1,200	:	3	:	1	: 1,200
Changehouses	:	each	:	10,000	:	1	:		:
Convert existing sanitary station	:	each	:	1,000	:		:		:
Sanitary stations	:		:		:		:		:
(travel trailer)	;	each	;	5,000	:		:	1	: 5,000
Marine dump station	:	each	:	10,000	:		:	1	: 10,000
Swimming beaches	:	each	:	9,500	:	1	:	1	: 9,500
Mercury vapor lights	:	each	:	500	:	2	;	1	: 500
Trail system (parks)	;	\mathbf{LF}	:	3.00	:		:	1,700	: 5,100
Playground equipment	:		:		:		:		:
Play Area A	:	each	:	64,000	:		:	1	: 64,000
Play Area B	:	each	:	9,600	:		:	1	9,600
Foot bridge	:	each	:	15,000	:		:	1	: 15,000
Reforestation	:	acre	:	1,000	:		:		:
Landscaping & beautification	:	acre	:	2,500	:		:	4	: 10,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:	Sta.	:	300	:		;		:
Courtesy docks	;	each	:	6,000	:		:		:
Interpretive display area	:	each					:		:
Visitor center	:	each	:	750,000	:		:		:
	:		:		:		:		:
	:		;		:		:		:
	:		:		:		:		:
Total	:		:		•		:		: 695,000
	:		:		<u>:</u>		<u>:</u>		:

TABLE 9- 19

GREERS FERRY LAKE

VAN BUREN PARK

		:	: Existing	;	
	:	: Unit	: facilities	: Proposed	facilities
Item	: Unit	: Cost		: Quantity	
	:	:	:	:	:
Roads	:	:	:	:	:
a. 22 feet wide	:	:	:	:	:
(l) Gravel	: mile	: 68,000	:	:	:
(2) Flexible pavement	;	:	:	:	:
(a) New construction	: mile	:100,000	:	: .03	: 8,000
(b) Existing pavement	:	:	:	:	:
b. 18 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 56,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	: 82,000	:	: 1.2	: 98,400
(b) Existing pavement	:	:	: 2,39	:	:
c. 12 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 37,000	:	: .03	: 1,100
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	: 55,000	:	: .15	: 8,200
(b) Existing pavement	:	:	:	:	:
Parking areas	•	•	•		
a. Gravel	: SY	· · 5.90	• •	•	•
b. Flexible pavement	:	:	• •	•	
(1) New construction	: SY	: 8,00	• •	: 3,087	: 24,700
(2) Existing pavement	: SY	. 0,00	: 7,730	. 5,007	. 24,700
(2) hardering pavement	:	:	: ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• •	•
Launching ramps, concrete	: each	: 25,000	: 1	: 1	: 25,000
	:	:	<u>.</u>	:	:
Restrooms	:	:	•	:	:
a. Masonry	:	:	:	:	:
(1) Vault	: each	: 16,000	: 2	:	:
(2) Waterborne	: each	: 28,000	:	: 1	: 28,000
(3) Waterborne/showers		: 30,500		: 5	: 152,500
(4) Convert to waterborne	: each	: 18,500	:	: 2	: 37,000
(5) Washhouse		: 40,000		: 1	: 40,000
	:	:	:	:	:
Electrical service (aluminum)	: LF	: 8.50 :	4,800	: 9,353	: 79,500
	:	:	:	:	:

<u>TABLE 9-19</u> (cont.)

VAN BUREN PARK

	: : Existing : Unit : facilities				:				
	:		: Un:	it :	: facil	lities	: Pr	oposed	facilities
Item	:	Unit	: Co:	st :	Jan.	<u>'75</u>	: Qu	antity	: Cost
	:		:	:	:		:		:
Sewage system	:		:	;	:		:		:
a. Sewer lines, 4" gravity	:	${ m LF}$: 6	.50	:		: 1	,323	: 8,600
6" gravit y	:	\mathbf{LF}	: 8	.00 :	:		; 7	,600	: 60,800
b. Outfall lines, 6" steel	:]	LF	: 10	.00 ;	;		:	300	: 3,000
in lake	:		:	:	:		:		:
8" steel	:	LF	: 12	.00 ;	:		:		:
in lake	:		:	:	;		:		:
c. Force Main, 4"	:	LF	: 6.	50 :	:		:	200	: 1,300
6"	:	LF	: 8.	00 :	:		:		:
d. Lift stations	:	each	: 20,	000 :	:		:	1	: 20,000
e. Manholes	:	each	:	÷50 :	:		:	21	: 9,400
f. Treatment plant, tertiary	:		:	:	;		:		:
40,500 GPD	:	each	: 90,	000:	:		:	1	: 90,000
g. Electrical, outside	:		:	:	:		:		:
Contingencies, 15%	:	LS	:	:	:		:		: 29,000
h. Sewer line, 8" gravity	:	LF	: 9	.50 :	!		:		:
, , , , , , , , , , , , , , , , , , , ,	:		:	:	:		:		:
Water system	:		:	:	:		:		:
a. Waterline, 3/4" PVC	:	LF	: 2	50 :	;		: 1	,000	: 2,500
b. Waterline, 1" PVC	:	LF		25 :			2	585	: 1,900
c. Waterline, 1 1/2" PVC	:	LF		00 :			:	800	3,200
d. Waterline, 2" PVC	:	LF		50 :			: 4	,622	: 20,800
e. Waterline, 2 1/2" PVC	:	LF		00 :			:	•	:
f. Waterline, 3" PVC	: 1	LF		50 :			: 2	,545	: 14,000
g. Waterline, 4" PVC	:]	LF		00:		000	:	,	:
h. Waterline, 6" PVC		LF		50 :		000	:		
i. Water wells	:	each		500 :		2	:		·
j. Water hydrants		each		50 :			•	23	: 10,400
k. Wellhouse, pump &	:		:	:			:	~~	• =0, 400
pressure system	: 1	each	: 8.0	000 :			:		•
l. Electrical, outside	:		:	:			•		:
Contingencies, 15%	: 1	L\$:	:					7,900
, , , , , , , , , , , , , , , , , , , ,	:		:	:			:		. 7,500
	:		:	•			:		·
Picnic units	- • (each	: 14	: 00			•	12	: 16,800
Camp units		each	- ,	000 :		67	:	113	: 226,000
Camp units with electric service		each		00 :		0,	:	92	: 36,800
Primitive camp spaces		each		00:			:	5	: 50,500
Group camp		each	-	000:			•	_	. 500
Oloup camp			, `				•		•
Table canopies		each	: 1	00 :		•	•		•

<u>TABLE 9-19</u> (cont.)

VAN BUREN PARK

	- <u>-</u> -	·			-:-	Frieties	-		
	:		:	Vnit	:	Existing facilities	:	Drangad	facilitica
The contract of the contract o	:	IIn i ⊢	:		:				facilities
Item		Unit	÷	Cost	÷	Jan. '75	÷	Quantity	: COST
Picnic shelters	•		•		•		:		•
a. 30-person picnic shelter	÷	aach	:	12,000		2	:		;
	•	each	:	12,000	:	2	:		•
b. Group camp pavilion or 200-person shelter	:	each	:	65,000	:		:	1	. 65 000
- · · · · · · · · · · · · · · · · · · ·	:	each		3,100			:	L	: 65,000
Amphitheaters	:			1,200		2	:	2	. 2 (00
Drinking fountains	:	each				2	•	3 1	: 3,600
Changehouses	٠			10,000			•	1	: 10,000
Convert existing sanitary station	•	each	•	1,000	•		:		:
Sanitary stations	:	,	•	5 000	•		•	-	
(travel trailer)	:	each		5,000			:	1	; 5,000
Marine dump station	:	each		10,000		-	፡		:
Swimming beaches	:	each		9,500		Ţ	:	2	: 19,000
Mercury vapor lights	:	each	:	500		2	:	3	: 1,500
Trail system (parks)	:	$\mathbf{L}\mathbf{F}$:	3.00	:		:	1,700	: 5,100
Playground equipment	:		:		;		:		:
Play Area A	:	each	:	64,000			:		:
Play Area B	:	each	:	9,600	;		:	3	: 28,800
Foot bridge	:	each	:	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:	2.75	: 2,700
Landscaping & beautification	:	acre	:	2,500	:		:	6	: 15,000
Entrance complex	:	each	;	50,000	;		:	1	: 50,000
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:	1	: 6,000
Interpretive display area	:	each	:	20,000	:		:		:
Visitor center	:	each	:	750,000			:		:
	:		:	•	:		:		:
	:		:		:		:		:
	:		:		:		:		:
Total	:		:		:		:		1,2.77,000
	:		:		<u>:</u> .		:		:

TABLE 9-20
ITEMIZED COST ANALYSIS FOR DEVELOPMENT OF PROPOSED FACILITIES

GREERS FERRY LAKE

SOUTH FORK PARK

	:	:	: Existing	;	
		: Unit	: facilities	Proposed	facilities
Item	: Unit	: Cost	: Jan, '75 _:		
	:	:	:	:	:
Roads	:	:	:	:	:
a. 22 feet wide	:	:	:	:	:
(I) Gravel	: mile	: 68,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	:100,000	:	.03	: 3,000
(b) Existing pavement	:	:	:	:	:
b. 18 feet wide	:	:	:	;	: .
(1) Gravel	: mile	: 56,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	: 82,000		.96	: 78,700
(b) Existing pavement	:	:	: .51	:	:
c. 12 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 37,000	:	:	:
(2) Flexible pavement	:	:	:	•	:
(a) New construction	: mile	: 55,000	:	:	:
(b) Existing pavement	:	:	:	:	:
	:	:	:	:	:
Parking areas	:	:	:	:	:
a. Gravel	: SY	: 5.90	:	:	:
b. Flexible pavement	:	:	:	:	:
New construction	: SY	: 8.00	:	5,212	: 41,700
(2) Existing pavement	: SY	; 7.60	2,828	•	:
	:	:		:	:
Launching ramps, concrete	: each	: 25,000	: 1	1	: 25,000
	:	:	:	:	:
Restrooms	:	:	:	:	:
a. Masonry	:	:	:	•	:
(l) Vault		: 16,000		4	: 64,000
(2) Waterborne		: 28,000		:	:
(3) Waterborne/showers		: 30,500		:	:
(4) Convert to waterborne		: 18,500		:	:
(5) Washhouse	: each	: 40,000	:	:	:
	:	:	:	•	:
Electrical service (aluminum)	: LF	: 8.50	: 1,600	2,506	: 21,300
	:	:	:	:	:

TABLE 9-20 (cont.)

SOUTH FORK PARK

	<u> </u>	:		:		Existing	•	<u> </u>
		:		2 Unit	:	facilities	· Proposed	facilities
Item		:	Unit	-		Jan. '75		
		:		:			:	•
Sewag	e system	. :		:	:	•	:	:
a.	Sewer lines, 4" gravity	:	LF	: 6.5	0 :	1	:	1
	6" gravit y	:	LF	: 8.00) :	}	:	:
ь.	Outfall lines, 6" steel	:	LF	: 10.00) :	:	:	:
	in lake	:		:	:		:	:
	8" steel	:	LF	: 12.00) ;	:	:	:
	in lake	:		:	:	;	:	:
c.	Force Main, 4"	:	LF	: 6.50) :		:	:
	6"	:	\mathbf{LF}	: 8.00) :		:	:
d.	Lift stations	:	each	: 20,000) :		:	:
e.	Manholes	:	each	: 450) :		:	:
f.	Treatment plant, tertiary	:		:	:		: none	:
		:	each	:	:		:	:
g.	Electrical, outside	:		:	:		:	·
0	Contingencies, 15%	:	LS	:	:		- :	:
h.	Sewer line, 8" gravity	:	LF	9.50) :		· •	•
	, , ,	:		:	:		:	•
Water	system	:		:	:		• •	•
	Waterline, 3/4" PVC	:	LF	2.50	·		• •	:
ъ.	Waterline, 1" PVC	:	LF '	: 3.25			•	:
с.	Waterline, 1 1/2" PVC	:	LF	: 4.00			•	:
đ.	Waterline, 2" PVC	:	\mathbf{LF}	: 4.50			•	•
e.	Waterline, 2 1/2" PVC	:	LF	5.00			•	•
f.	Waterline, 3" PVC	:	LF	: 5.50			•	:
g.	Waterline, 4" PVC	:	LF	• 6.00			•	•
ħ.	Waterline, 6" PVC	:	LF	· 7.50		'	•	•
i.	Water wells	•	each				4	: 14,000
j.	Water hydrants		each	,		1	• •	. 14,000
k.	Wellhouse, pump &	•		• 130	•		•	
	pressure system	•	each	: 8,000	•	·	•	•
1.	Electrical, outside	•		• 0,000	•		•	•
	Contingencies, 15%	:	LS	• •	•		•	2,100
		÷		•	:			. 2,100
		:		•	:	•	•	•
Pieni	c units	·	each	: 1,400	•		6	: 8,400
Camp		•	each			13	54	: 108,000
	units with electric service	•	each			1.5		. 100,000
-	tive camp spaces	•	each			•	40	: 4,000
Group		:	each .			•	70	. +,000
	canopies	:	each	.,				
TUDIC	ours bree	:	cacii	: 1,500	:			•
		•		•	-	:		:

<u>TABLE 9-20</u> (cont.)

SOUTH FORK PARK

	:		-:	· · · · · · · · · · · · · · · · · · ·	:	Existing	:		
	:		:	Unit	:	facilities	:	Proposed	facilities
Item	:	Unit	:	Cost	:	Jan. '75		Quantity	
	;		:		:	· · · · · · · · · · · · · · · · · · ·	:		:
Picnic shelters	:		:		:		:		:
a. 30-person picnic shelter	:	each	:	12,000	:		:		:
b. Group camp pavilion or	:		:		:		:		:
200-person shelter	:	each	:	65,000	:		:		:
Amphitheat ers	:	each	:	3,100	:		:		:
Drinking fountains	:	each	;	1,200	:		:		;
Changehouses	:	each	:	10,000	:		;	1	: 10,000
Convert existing sanitary station	:	each	:	1,000	:		:		:
Sanitary stations	:		:	•	:		:		:
(travel trailer)	:	each	:	5,000	:		:		:
Marine dump station	:	each	:	10,000	:		:		:
Swimming beaches	:	each		9,500			:	1	: 9,500
Mercury vapor lights	:	each	:	500	:	2	:	1	: 500
Trail system (parks)	:	LF	:	3.00	:		:	6,700	: 20,100
Playground equipment	:		:		;		:		:
Play Area A	:	each	:	64,000	:		:		:
Play Area B	:	each	:	9,600	:		:	1	; 9,600
Foot bridge	;	each	:	15,000	:		:		:
Reforestation	:	acre	:	1,000	:		:		:
Landscaping & beautification	:	acre	:	2,500	:		:	2	: 5,000
Entrance complex	:	each	:	50,000	:		:	1	: 50,000
Project trails	:	Sta.	:	300	:		:		:
Courtesy docks	:	each	:	6,000	:		:	1	: 6,000
Interpretive display area	:	each	:	20,000	:		:		:
Visitor center	:	each	:	750,000	:		:		:
	:		:	•	:		:		:
	:		:		:		:		:
	:		:		:		:		:
Total	:		:		=		:		: 480,900
	:		;		:		:		:

TABLE 9-21

GREERS FERRY LAKE

CHOCTAW PARK

	:		:	: Existing	:	
	:		: Unit	: facilities	: Proposed	facilities
Item	:	Unit	: Cost		Quantity	
	:		:	•	:	:
Roads	:		:	:	:	:
a. 22 feet wide	:		:	:	:	:
(1) Gravel	:	mile	: 68,000	:	:	:
(2) Flexible pavement	:		:	:	:	:
(a) New construction	A	mile	:100,000	:	: 0.14	: 14,000
(b) Existing pavement	:		:	: 1.08	:	:
b. 18 feet wide	:		•	:	:	:
(1) Gravel	:	mile	: 56,000	:	:	:
(2) Flexible pavement	:		:	:	:	:
(a) New construction	:	mile	: 82,000	:	.81	66,400
(b) Existing pavement	:		:	: 1.97	:	:
c. 12 feet wide	:		:	:	:	:
(1) Gravel	:	mile	: 37,000	:	.02	: 700
(2) Flexible pavement	:		:	:	:	:
(a) New construction	:	mile	: 55,000	:	.26	: 14,300
(b) Existing pavement	:		:	:	:	:
	:		:	:	:	:
Parking areas	:		:	•	:	:
a. Gravel	:	\$Y	: 5.90	:	:	:
b. Flexible pavement	:		:	:	:	:
(1) New construction	:	SY	: 8.00		: 1,187	: 9,500
(2) Existing pavement	:	SY	:	: 14,000		:
	:		:	:		:
Launching ramps, concrete	:	each	: 25,000	: 1	1	: 25,000
	:		:	:		:
Restrooms	:		:	:		:
a. Masonry	:	,	. 16 000	:		;
(1) Vault	:		: 16,000		1	: 16,000
(2) Waterborne	:		: 28,000	1 :	1	: 28,000
(3) Waterborne/showers	:		: 30,500		1	: 30,500
(4) Convert to waterborne	•		: 18,500		3	: 55,500
(5) Washhouse	:	eacn	: 40,000		2	: 80,000
Electrical gardina		T D	. 0.50	2 700	9 024	: 68,200
Electrical service		LF	8. 50	3,700	8,024	. 00,200
			•		,	•

TABLE 9-21 (cont.)

CHOCTAW PARK

	:	:	: Existing	:		
	:	: Unit	: facilities			
Item	: Unit	: Cost	: Jan. '75	: Quantity	: Cost	
	:	:	:	:	:	
Sewage system	:	:	:	:	:	
a. Sewer lines, 4" gravity	: LF	: 6.50	_	: 1,078	; 7,000	
6" gravity	: LF	: 8.00	•	: 2,725	: 21,800	
b. Outfall lines, 6" steel	: LF	: 10.00	:	: 400	: 4,000	
in lake	:	:	:	:	:	
8" steel	: LF	: 12.00	;	:	:	
in lake	:	:	:	:	:	
c. Force Main, 4"	: LF	: 6.50	:	1,400	: 9,100	
6"	: LF	: 8.00	:	:	•	
d. Lift stations	: each	: 20,000	:	: 2	: 40,000	
e. Manholes	: each	•	=	. 9	: 4,000	
f. Treatment plant, tertiary	:	:	: :	· ·	.,,,,,,,,	
30,300 GPD	: each	: 80,000	•	•		
g. Electrical, outside		. 00,000	•	: 1	: 80,000	
Contingencies, 15%	LS	•	•	•	24,900	
h. Sewer line, 8" gravity	: LF	· 9.50	•	•	: 24,500	
n. Bewel line, o gravity	i Lif	: 9.30	:	:	:	
Nater system	:		:	:	:	
	. 717		:	:	:	
a. Waterline, 3/4" PVC	: LF	: 2.50		: 1,240	: 3,100	
b. Waterline, 1" PVC	: LF	: 3.25		: 1,600	: 5,200	
c. Waterline, 1 1/2" PVC	: LF	: 4.00		300	: 1,200	
d. Waterline, 2" PVC	: LF	: 4.50 :		2,178	9,800	
e. Waterline, 2 1/2" PVC	: LF	: 5.00	:	:	:	
f. Waterline, 3" PVC	: LF	: 5.50	:	2,945	: 16,200	
g. Waterline, 4" PVC	: LF	: 6.00 :	4,000	:	:	
h. Waterline, 6" PVC	: LF	: 7.50 :	:	:	:	
i. Water wells	: each	: 3,500 :	: 2	:	:	
j. Water hydrants	: each	: 450 :		28	: 12,600	
k. Wellhouse, pump &	:	: :	:	•	:	
pressure system	: each	: 8,000 :	:	•	:	
l. Electrical, outside	:	: :	:	<u>:</u>	:	
Contingencies, 15%	: LS	: :	· •		. 7 200	
	:		•		7,200	
	:		- •	•	•	
Picnic units	each	: 1,400 :	•	•		
Camp units	: each			86	. 172 000	
Camp units with electric service	: each				: 172,000	
Primitive camp spaces	: each			100	: 40,000	
Group camp	: each			.	•	
Table campies		,			:	
rante camobies	: each	: 1,500:	i :		:	
	:	; ;	;		:	

<u>TABLE 9-21</u> (cont.)

CHOCTAW PARK

	;		:		:	Existing	:		•	
	:		:	Unit	:	facilities	:	Proposed	fá	acilitíes
Item	:	Unit	<u>:</u>	Cost	:	Jan. '75	:	Quantity	:	Cost
	:		:		:		:		:	
Picnic shelters	:		:		:		:		:	
 a. 30-person picnic shelter 	:	each	:	12,000	:	2	:		:	
b. Group camp pavilion or	:		:		:		:		:	
200-person shelter	:	each	:	65,000	:		:	1	:	65,000
Amphitheaters	:	each	:	3,100	:		:	I	:	3,100
Drinking fountains	:	each	:	1,200	:	2	:	3	:	3,600
Changehouses	:	each	:	10,000	:	1	:		:	•
Convert existing sanitary station	:	each	:	1,000	:		:		:	
Sanitary stations	:		:		:		:		:	
(travel trailer)	:	each	:	5,000	:		:	1	:	5,000
Marine dump station	:	each	:	10,000	:		:	1	:	10,000
Swimming beaches	:	each	:	9,500		1	:	1	:	9,500
Mercury vapor lights	:	each	:	500	:	3	:	2	:	1,000
Trail system (parks)	:	$_{ m LF}$:	3.00	:		:		:	-
Playground equipment	:		:		:		:		:	
Play Area A	:	each	:	64,000	:		:	1	:	64,000
Play Area B	:	each	:	9,600	:		:	2	;	19,200
Foot bridge	:	each	;	15,000	:		:		:	-
Reforestation	:	acre	:	1,000	:		:		:	
Landscaping & beautification	;	acre	:	2,500	:		:		:	
Entrance complex	:	each	:	50,000	:		:	1	:	50,000
Project trails	:	Sta.	:	300	:		:		:	
Courtesy docks	:	each	:	6,000	:		:		:	
Interpretive display area	:	each	:	20,000	:		;	1	:	20,000
Visitor center	:	each	:	750,000	:		:		:	
	:		:		:		:		:	
	:		:		:		:		:	
	:		:		:		:		:	
Total	:		:		:		:		1,	116,600
	ï		<u>:</u>	·	:		:		:	

TABLE 9-22

GREERS FERRY LAKE

SALT CREEK FUTURE PARK

	- :	:	: Existing	:	
	;	: Unit	: facilities	: Proposed	facilities
Item	. Unit			: Quantity	
and the same of th	:	:	:	:	:
Roads	:	.	:	:	:
a. 22 feet wide	:	:	:	;	:
(1) Gravel	: mile	: 68,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	:100,000	:	: 1.13	: 113,000
(b) Existing pavement	:	:	:	:	:
b. 18 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 56,000	:	:	:
(2) Flexible pavement	:	:	:	:	:
(a) New construction	: mile	: 82,000	:	: 1.69	: 138,600
(b) Existing pavement	:	:	:	:	:
c. 12 feet wide	:	:	:	:	:
(1) Gravel	: mile	: 37,000	:	: .05	: 1,900
(2) Flexible pavement	:	:	:	;	:
(a) New construction	: mile	: 55,000	:	:	:
(b) Existing pavement	:	:	:	:	:
	:	:	:	:	:
Parking areas	:	:	:	:	:
a. Gravel	: SY	: 5.90	;	:	:
b. Flexible pavement	:	:	:	:	:
(1) New construction	: SY	: 8.00	:	: 8,400	: 67,200
(2) Existing pavement	: SY	:	:	;	:
	:	;	:	:	:
Launching ramps, concrete	: each	: 25,000	:	: 1	: 25,000
	:	•		•	•
Restrooms	:	•	:	:	
a. Masonry		. 16 000	•		
(1) Vault		: 16,000		: 1	: 28,000
(2) Waterborne		: 28,000 : 30,500		: 3	: 91,500
(3) Waterborne/showers(4) Convert to waterborne		: 18,500		. ,	. 71,500
(5) Washhouse		: 40,000		: 3	: 120,000
(5) washnouse	· eacu	• 40,000	•	•	. 120,000
Electrical service	: LF	· : 8.50	: 1,800	: 8,106	: 68,900
mrecurrar service	• LF	•	. 1,000	. 0,100	. 00,500
	•	•	-	•	•

TABLE 9-22 (cont.)
SALT CREEK FUTURE PARK

		_		<u>-</u>	<u></u>	•	Existing	•	· · · · · · · · · · · · · · · · · · ·	
		•		1	Unit	•	facilities	· • Pr	oposed	facilities
Item		_ :	Unit		Cost	;	<u>Jan. '75</u>			: Cost
		:		-:		:		:		:
Sewag	e system	:		:		:		:		:
a.	Sewer lines, 4" gravity	:	$\mathbf{L}\mathbf{F}$:	6.50	:		: 2	,046	: 13,300
	6" gravity	:	LF	:	8.00	:			,800	: 14,400
b.	Outfall lines, 6" steel	:	LF	:	10.00	:		:		:
	in lake	:		:		:		:		:
	8" steel	:	LF	:	12.00	•		: 1	,100	: 13,200
	in lake	:		:		:		:		:
c.	Force Main, 4"	:	LF	:	6.50	:		:	400	: 2,600
	6"	:	LF	:	8.00	:		:		:
d.	Lift stations	:	each		20,000	:		:	1	: 20,000
e.	Manholes	:	each	:	450	:	:	;	12	: 5,400
f.	Treatment plant, tertiary	:		:		:		:		:
	37,800 GPD	:	each	:	90,000	:	:	:	1	: 90,000
g.	Electrical, outside	:		:		:	;	:		;
	Contingencies, 15%	:	LS	:		:	:	:		: 24,700
h.	Sewer line, 8" gravity	:	$\mathbf{L}\mathbf{F}$:	9.50	:	:	:		:
		:		:		:	;	;		:
Water	system	:		:		:	:	:		:
a.	Waterline, 3/4" PVC	:	\mathbf{LF}	:	2.50	:	:	: 1	1640	: 4,100
ь.	Waterline, 1" PVC	:	$\mathbf{L}\mathbf{F}$:	3.25	:	:	:	954	: 3,100
с.	Waterline, 1 1/2" PVC	:	LF	:	4.00	:	:	}		:
d.	Waterline, 2" PVC	:	$\mathbf{L}\mathbf{F}$:	4.50	:	;	2,	,800	: 12,600
e.	Waterline, 2 1/2" PVC	:	$\mathbf{L}\mathbf{F}$:	5.00	:	:	:		; ´
f.	Waterline, 3" PVC	:	LF	:	5.50	:	:	3,	400	: 18,700
g.	Waterline, 4" PVC	:	\mathbf{LF}	:	6.00	:	:	1,	,800	: 10,800
h.	Waterline, 6" PVC	:	$\mathbf{L}\mathbf{F}$:	7.50	:	:			:
i.	Water wells	:	each		3,500	:	:			:
j.	Water hydrants	;	each	:	450	:	:		19	: 8,600
k.	Wellhouse, pump &	:		:		:	:			:
	pressure system	:	each	:	8,000	:	:			:
1.	Electrical, outside	:		:		:	:			:
	Contingencies, 15%	:	LS	:		:	:			: 8,700
		:		:		:	:			:
		:	_	:		:	:			:
	c units	:	each	-	1,400		:		7	: 9,800
Camp		:	each		2,000		:		147	: 294,000
	units with electric service	:	each		400		:		64	: 25,600
	tive camp spaces	:	each		100		:			:
Group	•	:	each		2,000		:		3	: 6,000
Table	canopies	:	each	:	1,500	:	:			:
		:		:		:	:			:

TABLE 9-22 (cont.)
SALT CREEK FUTURE PARK

	:		:	77 4.	:	Existing	:		
	:		:	Unit	:	facilities			facilities
<u>Item</u>	:	Unit	:	Cost	-	_ Jan, '75	:	Quantity	: Cost
Picnic shelters	:		:		:		:		: •
a. 30-person picnic shelter	•	each	Ī	12,000	:		:	3	: 36,000
b. Group camp pavilion or	:	·cucii	•	12,000	:		•	,	:
200-person shelter	:	each	:	65,000	:		:		:
Amphitheaters	:	each		3,100			:	1	: 3,100
Drinking fountains	:	each		•			:	2	: 2,400
Changehouses				10,000			:	1	: 10,000
Convert existing sanitary station				1,000			:		:
Sanitary stations	:		:	ŕ	:		:		:
(travel trailer)	:	each	:	5,000	:		:	l	: 5,000
Marine dump station	:	each	:	10,000	:		:		;
Swimming beaches	:	each					:	1	: 9,500
Mercury vapor lights	:	each	:	500	:		:	2	: 1,000
Trail system (parks)	:	LF	:	3.00	:		;		:
Playground equipment	:		:		:		:		:
Play Area A	:	each	:	64,000	:		:	1	; 64,000
Play Area B	:	each	:	9,600	:		:	1	: 9,600
Foot bridge	:	each	:	15,000	:		:		:
Reforestation		acre		,			:		:
Landscaping & beautification	:	acre	:	2,500	:		:	4	: 10,000
Entrance complex				50,000			:	1	: 50,000
Project trails	:	Sta.	:				:	32	9,600
Courtesy docks	:	each	:	6,000			:		:
Interpretive display area	:	each		,			:		:
Visitor center	:	each	:	750,000	:		:		:
	:		:		:		:		:
	:		:		:		:		:
	:		;		:		:		:
Total	:		:		•		:		1,449,900
	:		:		:		:		:

SECTION X

ADMINISTRATION AND MANAGEMENT

- 10-01. <u>Policies</u>. The administration and management of the recreational program at Greers Ferry is defined by policies established in manuals, circulars, and regulations that are issued to implement laws passed by Congress. Current guidelines for the administration of project lands and water are set forth in Part 327, Title 36, Chapter III, of the Federal Code of Regulations and SWDR 1130-1-7 dated 25 September 1968. The plan considers the environmental factors existing at Greers Ferry so that they are protected and retained for use by the public.
- 10-02. Ranger training. All lake rangers and new employees recruited for ranger positions receive training for lake management positions in accordance with requirements set forth in SWDR 690-1-36 dated 26 March 1973.
- 10-03. <u>Staffing needs</u>. The Resident Engineer and his staff are aware of the multiple-use aspects of resource management in making daily decisions regarding project resources. Preservation and use are balanced to maximize the benefits derived from the resources for the present as well as the future. This type of management applies a multi-disciplinary approach to the daily administrative decisions. Table 10-1 shows the present requirements for personnel at the Resident Office. As new features are developed, additional personnel will be required for maintenance and surveillance of parks and operational activities.

A visitor center, interpretive areas and self-guiding nature trails will require additional interpretive staff to develop and present the interpretive programs to the public.

10-04. Administration and maintenance. The administration of the Greers Ferry Lake project is carried out jointly by District Office personnel and project office personnel. The District Office personnel are concerned primarily with the planning process and extent of development, planning site layouts, plans and specifications for construction of new facilities, interpretation of policies and regulations, and coordination with other agencies. The Resident Engineer and his staff assist the District Office personnel in these matters and in matters pertaining to preparation of budgets, leases, licenses, easements, permits and public relations. Resident Engineer is directly responsible for administration of the project for the purpose of preservation of the project resources and operation and maintenance of the project facilities. The administration and maintenance functions are performed by personnel under the supervision of the Resident Engineer. Maintenance of existing resources is accomplished on a programmed, systematic basis with flexibility to provide interim maintenance as required. All standard safety precautions are adhered to assuring the safety of the staff and the public.

TABLE 10-01 PROJECT STAFF GREERS FERRY RESIDENT OFFICE

Resident Engineer +Asst. Res. Engineer GS-12 GS-11

	+Asst. Res. Eng	gineer GS-II	
LAKE BRANCH		ADMINISTRATIVE BR	ANCH
Park Manager +Outdoor Rec. Spec. +Engineering Tech.	GS-11 GS-09 GS-09	Administrative Officer Clerk-Typist Clerk-Typist Gardener	GS-07 GS-03 GS-02 WG-04
RANGER & SURVEILLANCE	SECTION -	HYDRO-POWER BRANC	H
Park Manager Park Manager Park Manager Park Technician Park Technician Park Aid	GS-09 GS-07 GS-05 GS-05 GS-04 GS-03	Chief Power Plant Supt. General Clerk 5 PP Shift Opr. PP Senior Elec. PP Senior Mech. PP Mech. A Laborer	GS-11 GS-10 GS-04 W-00 W-00 W-00 W-00 WG-02
PREVENTIVE MAINTENANCE	SECTION —	ENGINEERING AND	
Facility Maint. Supt. +Asst. Fac. Maint. Supt.	GS-09 GS-07	CONTRACT SUPPORT BRANC	Н
Engrg. Equip. Opr. Carpenter Engr. Equip Opr.	WG-10 WG-09 WG-08	Chief (Office Engr.) Construction Inspector	GS-11 GS-07

ractite, maxine, pope,	00 07
+Asst. Fac. Maint. Supt.	GS-07
Engrg. Equip. Opr.	WG-10
Carpenter	WG-09
Engr. Equip Opr.	WG-08
Auto Wkr.	WG-08
Cement Finisher	WG-08
Painting Wkr.	WG-07
Mtr. Veh. Opr.	WG-06
Tractor Opr.	WG-06
Mtr. Veh. Opr.	WG-06
Electrician Helper	₩G05
Auto. Equip. Greaser	WG-05
C&M Worker	₩G-05
Laborer	WG-03
Laborer	WG-02
10 Laborers (temp.)	WG-03
~	

+ Additions to Staff

- 45 Permanent Employees
- 10 Temporary Employees

10-05. Management. Project office personnel are concerned with the direct management and supervision of the project, including supervision of the use of lands and waters of the project; recommending changes in planning and development based on observed use. The project personnel are responsible for inspection and compliance on those out-grants assigned to the project by the District Office and obtaining compliance with the terms of the leases, concessions, permits; protecting and maintaining government property; and maintaining high standards of public health and safety.

The Resident Engineer of Greers Ferry Lake assumes direct responsibility for supervision of all activities associated with the project. In the absence of the Resident Engineer, this responsibility is assumed by the Park Manager. The Resident Engineer is designated the authorized representative of the Contracting Officer for all construction of new facilities. Additional project personnel are listed by function and rating in Table 10-1.

The office for the Resident Engineer is located at the Dam Site Park in an area designated for project operations and maintenance. This area was chosen for its size, close proximity to the dam structure and hydro-electric plant, and accessibility. Although not centrally located, it functions as the maintenance headquarters and primary storage area for the project.

10-06. <u>Signs and markers</u>. Appropriate signs, markers, and exhibit materials are provided at the project to welcome, guide, and inform project visitors. (See Plate 31.) These signs are provided in the interest of optimizing public benefits and properly protecting and administering project resources.

Most existing signs at Greers Ferry Lake are routed wood. The wood is stained or painted brown with the routed letters painted white. This type of signage retains and reflects the rustic character experienced at the Greers Ferry project. There are two other types of signs that vary from this style. The first is the large information panels located at the entrance to the parks. (See Plate 31.) These list the rules and regulations and visitor location. The second type of sign is the metal reflector sign used as a caution or warning device. Although these are not as aesthetically appealing as the routed wood, their function supercedes aesthetics.

SECTION XI

PROJECT RESOURCE MANAGEMENT PLAN

11-01. General. The Project Resource Management Plan was prepared in accordance with the requirements of ER 1130-2-400 dated 28 May 1971. The purpose of this general plan is to establish the operational concepts for management of the project.

Management of the resources to provide recreation, wildlife and fish propagation, timber, scenic and aesthetic values is the primary consideration given the resource base. The coordinated uses of these resources is consistent with project purposes. A dynamic human population and an ever-changing resource base require a flexible resource management plan. The future park site is protected and its values preserved with all interior uses consistent with intended land use. A Project Resource Management Plan was approved on 10 April 1974 and will become Appendix A to this Master Plan approval.

- 11-02. Law enforcement. Rangers have authority to issue citations for designated offenses, however, they do not have the authority to make arrests. A low-key enforcement policy is in use with the visitor being controlled through facility design and non-offensive, suggestion-type signs. Where arrests are required, local, State or Federal law enforcement agencies assist. Cooperative agreements have been made with Cleburne and Van Buren counties law enforcement departments for this assistance. The enforcement personnel perform their duties with little or no disruption to the surrounding visitors.
- 11-03. <u>Safety</u>. Safety of personnel and visitors alike is of primary importance in the project area. Devices and procedures which have been implemented to promote safety include signs, ranger talks for visitors, information folders, news media releases, regular inspection of concession and recreation facilities, periodically scheduled employee safety meetings, and safety and first-aid demonstrations. In addition, various written manuals and directives on safety are kept in the project office for reference. A Project Safety Plan has been prepared and will become Appendix E to this Master Plan upon Master Plan approval.
- 11-04. Concession activities. Concessions are provided for the public for access and convenience to enhance the recreation experience and accommodate the user. Additional commercial leases will be granted only after a market analysis has been made which indicates a need for additional concession facilities and that an additional concession will be economically feasible.
- 11-05. <u>Visitor interpretation and education</u>. The goals of the educational and interpretive facilities and programs are to inform the public of purposes and operational aspects of the project, to interpret the historical and natural features of the area, and to provide opportunities for visitor enjoyment. The methods used to accomplish these goals are: visitor infor-

mation signs, marker buoys, and visitor programs. Examples of visitor programs which are available are: ranger fireside talks, ranger films and slide programs, self-guiding nature trails, and tours of the dam and powerhouse. A visitor center is proposed as discussed in Section VII.

11-06. Other. This management plan also describes management actions concerning a number of additional considerations. Included are pollution control measures, user fee programs, operation and maintenance compound facilities, cooperative agencies, project personnel activities, encroachments, training programs, signs, pest control measures and shoreline improvement permits.

SECTION XII

FOREST MANAGEMENT PLAN

12-01. <u>General</u>. The Forest Management Plan will be prepared in accordance with ER 1130-2-40 dated 28 May 1971, and inserted as Appendix B in this Design Memorandum. It is the objective of the forest management program to increase the value of lake lands for recreation, wildlife, and to promote natural ecological conditions by following accepted silvicultural practices.

At Greers Ferry Lake, the exceedingly narrow band of federally-owned wooded lands is not suitable for intensive forest management and cannot be classified for "commercial forest lands". These perimeter woodlands will be retained and managed for aesthetic, ecological and recreational value.

- 12-02. Objective and Policy. The objective of forest management is to protect water quality through the control of soil erosion, restore the forest to a healthy state, provide forest cover required for recreational use and development, improve wildlife and fisheries habitat, and preserve and improve scenic values. Forest lands are managed for their multiple resources. The removal of vegetation, living or dead, will be done only with sound justification, such as silvicultural needs, urgent disease and insect control, fire hazard reduction, and removal for construction of recreational facilities or specific essential uses. Reforestation will be with plant materials indigenous to the Greers Ferry area with one exception. This exception consists of plants occurring in a new plant community evolving along the perimeter of the lake between the top of the conservation and top of the flood control pool. This area is changing in vegetative character from normal upland hardwoods to plant materials native of stream and lake edges. Along this corridor, special attention is given in selecting only those plant materials that can survive with their root systems inundated 10% to 20% of the year.
- 12-03. <u>Personnel Requirements</u>. Proper implementation of the forest management plan would require the assistance of a landscape architect or a forester and the addition of a laborer to the project staff.
- 12-04. Work Plans. The lake manager will annually prepare a work program of what is to be done to implement the forest management plan and will maintain records reflecting work which has been performed, as well as timber products harvested, and the value of these products.

SECTION XIII

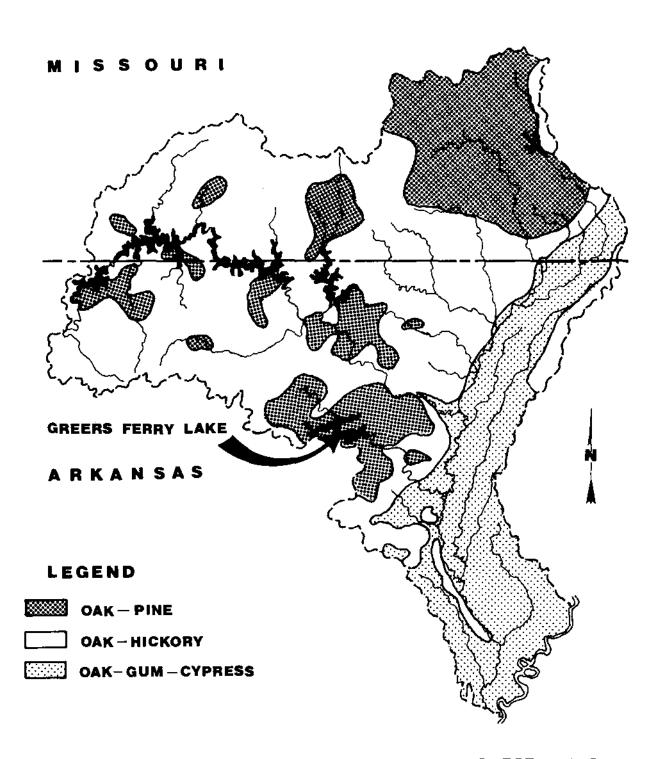
FIRE PREVENTION PLAN

- 13-01. <u>General</u>. As required by ER 1130-2-400, dated 28 May 1971, a Fire Prevention Plan will be prepared for prevention and suppression of grass and forest fires. The plan will provide for training of personnel, proper procedures to initiate fire abatement, and provision of necessary equipment and tools to be readily available for prompt suppression activities. The Fire Prevention Plan, when complete, will be added to this updated Master Plan as Appendix C.
- 13-02. <u>Cooperative Agreements</u>. Additional help can be expected if a major fire occurs. The Resident Engineer has a working agreement with the Heber Springs Fire Department for back-up support in suppressing fires in the vicinity of Heber Springs. The U. S. Forest Service will give support in suppressing fires at any location on the lake.

SECTION XIV

FISH AND WILDLIFE MANAGEMENT

- 14-01. General. The Fish and Wildlife Management Plan being prepared as Appendix D to this Master Plan in accordance with ER 1130-2-400 dated 28 May 1971. It will implement Section 3 of the Fish and Wildlife Coordination Act (P.L. 85-624) which provides for the use of civil works projects for the conservation, maintenance, and management of fish and wildlife resources and wildlife habitat thereon. Lands, waters, and interests thereon have been made available to the Arkansas Game and Fish Commission and the U.S. Department of Interior for fish and wildlife management and areas not managed through licenses or other formal agreements with wildlife agencies will be managed by the Corps of Engineers. This plan will include the major species being managed, wildlife habitat maintenance and enhancement plans, and coordinated efforts with other agencies relative to fish and wildlife management on the project.
- 14-02. Terrestrial. Two types of vegetative cover determine the habitat types and species of wildlife to be managed (see map on page 14-2). They are: (1) Oak-Pine, and (2) Oak-Hickory. These constitute an upland game type of habitat, and this indicates that management for deer, turkey, quail, and rabbits would be successful. Management techniques include, but are not limited to, the following: (1) food plots, (2) controlled burning, (3) timber management, (4) cultivated crops, (5) aeration of soil, (6) fertilization, and (7) enforcement, assistance, or a combination of two or more of these.
- 14-03. Aquatic. Management programs for aquatic fauna are aimed primarily at providing game fish which are desirable for recreational fishing. The Fish and Wildlife Management plan will contain detailed descriptions of the fish propagation, stocking, and research programs which have been conducted, as well as plans for future programs. Fish management and regulation is the responsibility of the Arkansas Game and Fish Commission and the Fish and Wildlife Service, Department of Interior. We will assist by controlling water releases to aid the downstream fishery and fluctuating water levels in the lake as feasible.



MAJOR FOREST TYPES

WHITE RIVER BASIN
ARKANSAS AND MISSOURI
U.S. DEPT. OF AGRICULTURE
SOIL CONSERVATION SERVICE
LITTLE ROCK, ARKANSAS

SECTION XV

PROJECT SAFETY

- 15-01. General. In accordance with ER 1130-2-400 dated 28 May 1971, a Project Safety Plan has been prepared. This plan, approved 14 July 1972, will be inserted as Appendix E to this Design Memorandum. This plan discusses design criteria and precautionary actions to prevent, reduce, or control hazardous situations. Areas considered in the plan include administration facilities, structures, sanitation facilities, access roads, park facilities, public information, and general safety criteria.
- 15-02. General Public. Common recurrent hazards and unsafe conditions have been identified and procedures implemented to protect the public and to take measures which will minimize or eliminate the possibility of personal injury. These procedures include not only the provision of equipment such as handrails for steps and ramps, adequate lighting for sanitary facilities, and warning signs, but also frequent inspection and maintenance of public facilities and the implementation of a continuing program of pollution and disease vector control. Numerous methods are employed to educate the public concerning possible safety hazards, and rules and regulations have been established for visitor protection.
- 15-03. Employee. It is the policy of the Corps of Engineers that no employee shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety. Accordingly, appropriate sanitation procedures and safety precautions have been implemented and an equipment monitoring system instituted in compliance with Corps safety regulations.

SECTION XVI

LAKESHORE MANAGEMENT PLAN

- 16-01. General. A Lakeshore Management Plan for Greers Ferry Lake is being prepared in accordance with the requirements of ER 1130-2-406. The purpose of the plan will be to insure the proper management and protection of the shoreline of Greers Ferry Lake, to establish and maintain acceptable fish and wildlife habitat, aesthetic quality and natural environmental conditions and to promote the safe and healthful use of the shoreline for recreational purposes for all the public. The Shoreline Management Plan will be submitted as Appendix F to the Master Plan.
- 16-02. <u>Public participation</u>. The public was invited to participate in the formulation and preparation of the plan through news releases, public notices, congressional liaison and public meetings. Public meetings to present the Shoreline Management Plan were held at Heber Springs, Arkansas, on 17 September 1973 and 20 January 1975. The plan is generally accepted by the public.

SECTION XVII

CONCLUSIONS AND RECOMMENDATIONS

17-01. Conclusions. It is concluded that the Greers Ferry Lake should be developed in accordance with this general plan. Development and management of the project area for public use and other purposes will permit and create increased use of the project and will assist in preserving the natural resources of the area.

This plan uses the Government-owned lands in a desirable manner, but is flexible and will allow adjustments compatible with future public needs.

17-02. Recommendations. It is recommended that this plan be approved as a basis for further development of the existing parks, retention of the areas for future recreation use, and the development detailed in Section VII and shown on the plates contained in Section XVIII.

SECTION XVIII

PLATES

18-01. Index of plates. The numbers and titles of plates included in this master plan are shown in the following tabulation:

Plate No.	<u>Title</u>
1	Regional Recreation Areas
2	Project Recreation Areas
3-9	Land Use Map
10	Dam Site Park
10A	Dam Site Park Photomap
10B	Dam Site Park Utility Plan
11	Old Highway 25 Park
11A	Old Highway 25 Park Photomap
11B	Old Highway 25 Park Utility Plan
12	Heber Springs Park
1 2A	Heber Springs Park Photomap
1 2B	Heber Springs Park Utility Plan
13	Cove Creek Park
13A	Cove Creek Park Photomap
13B	Cove Creek Park Utility Plan
14	Shiloh Park
14A	Shiloh Park Photomap
14B	Shiloh Park Utility Plan
15	Narrows Park
15A	Narrows Park Photomap
15B	Narrows Park Utility Plan
16	Hill Creek Park
16A	Hill Creek Park Photomap
16B	Hill Creek Park Utility Plan
17	Mill Creek Park
17A	Mill Creek Park Photomap
17B	Mill Creek Park Utility Plan
18	Sugar Loaf Park
18A	Sugar Loaf Park Photomap
18B	Sugar Loaf Park Utility Plan
19	Van Buren Park
19 A	Van Buren Park Photomap
19B	Van Buren Park Utility Plan
20	Choctaw Park
20A	Choctaw Park Photomap
20 B	Choctaw Park Utility Plan
21	Devils Fork Park
21A	Devils Fork Park Photomap
21 B	Devils Fork Park Utility Plan
22	South Fork Park
22A	South Fork Park Photomap

Plate No.	<u>Title</u>
23	Cherokee Park
23A	Cherokee Park Photomap
23B	Cherokee Park Utility Plan
24	Salt Creek Future Park
24A	Salt Creek Future Park Photomap
24B	Salt Creek Future Park Utility Plan
25	Recreation Area Entrance Complex
26	Group Camp Pavilion
27	Play Area A
28	Play Area B
29	Sugar Loaf Mountain Nature Trail Photomap
30	Integrating Facilities with the Site
31	Typical Examples of Signs
32	Memorial to John F. Kennedy
33	Shoreline Dam Site Park
34	Old Highway 25 Park Gravel Quarry
35	Cherokee Park Environmentally Sensitive Area
36	Typical Geological Formations Found Throughout
	the Greers Ferry Lake Area
37	Shoreline Wave Action Exposes Interesting
	Rock Formations
38	Experienced Lake Levels
39	Experienced Lake Levels

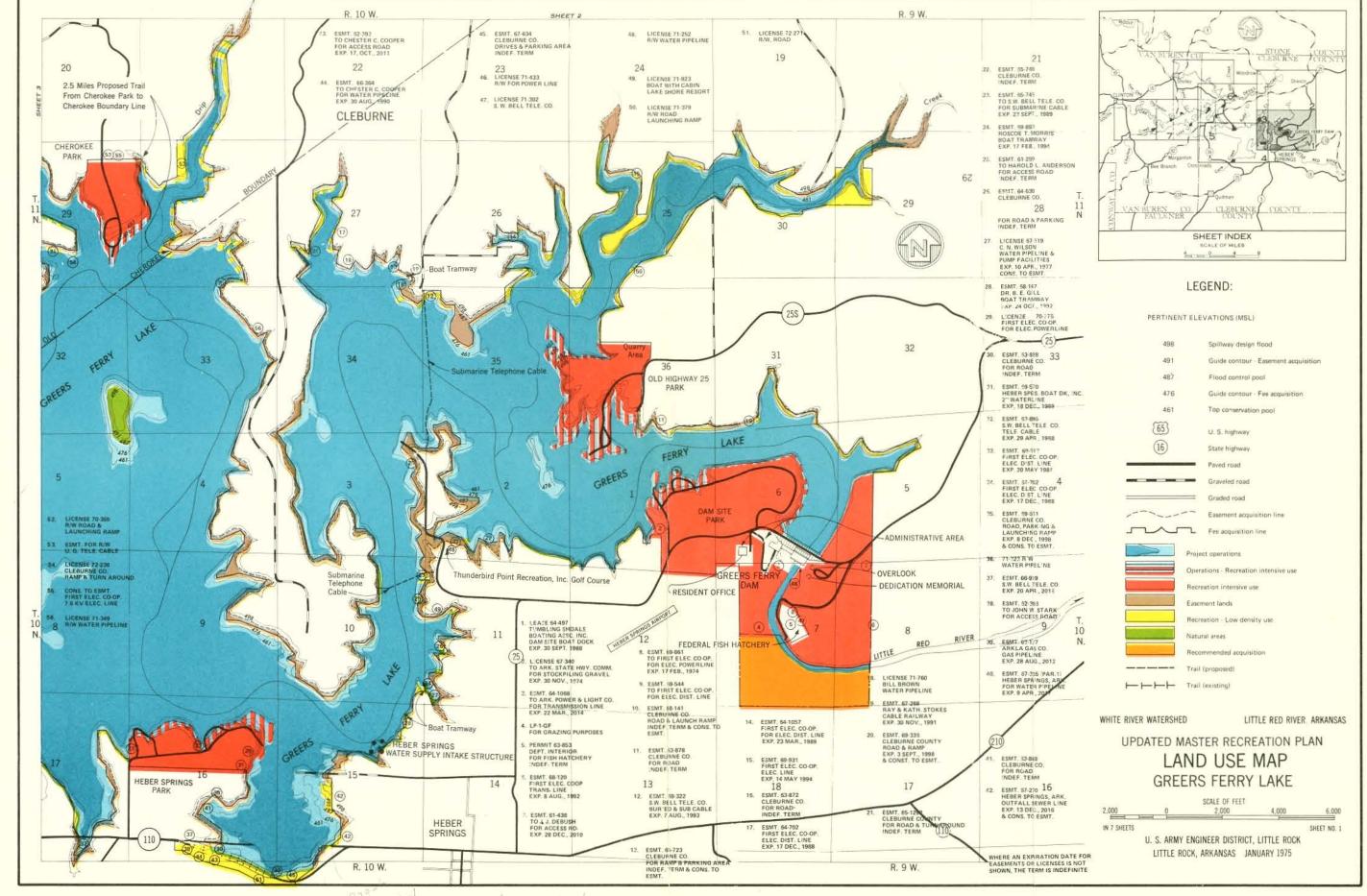
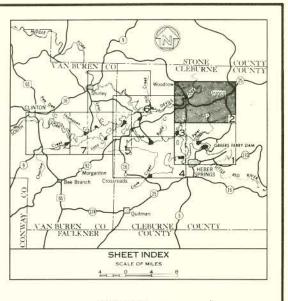


PLATE 3

CORPS OF ENGINEERS



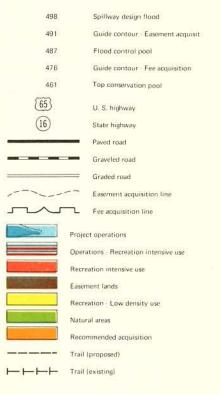




U. S. ARMY

LEGEND:

PERTINENT ELEVATIONS (MSL)



WHITE RIVER WATERSHED LITTLE RED RIVER, ARKANSAS

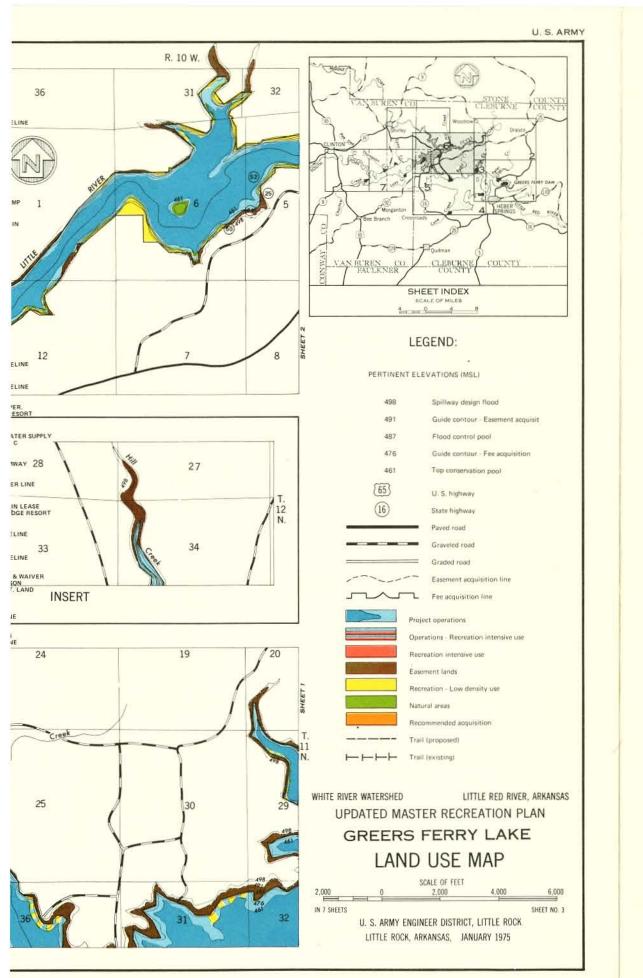
UPDATED MASTER RECREATION PLAN
GREERS FERRY LAKE

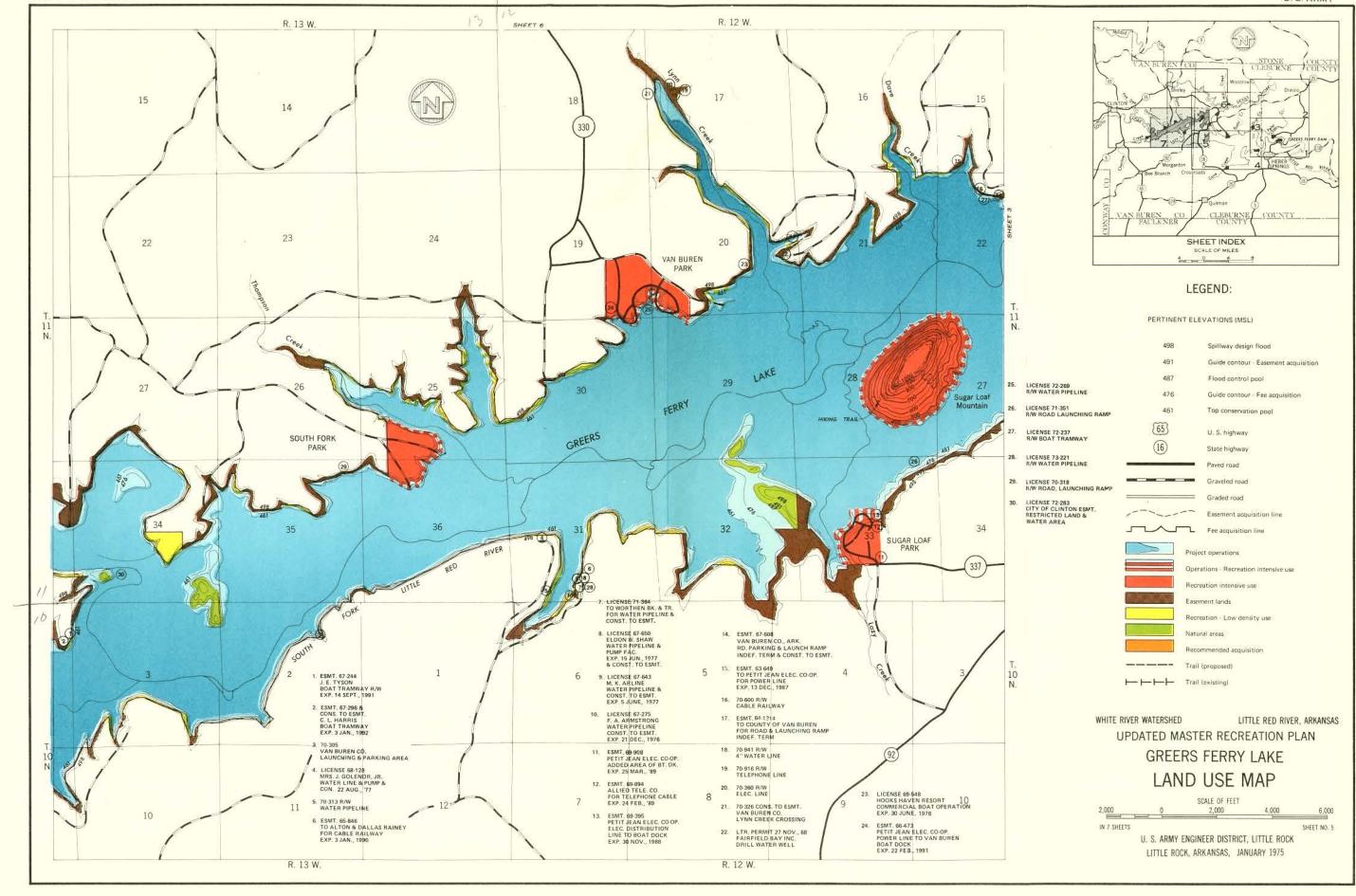
LAND USE MAP



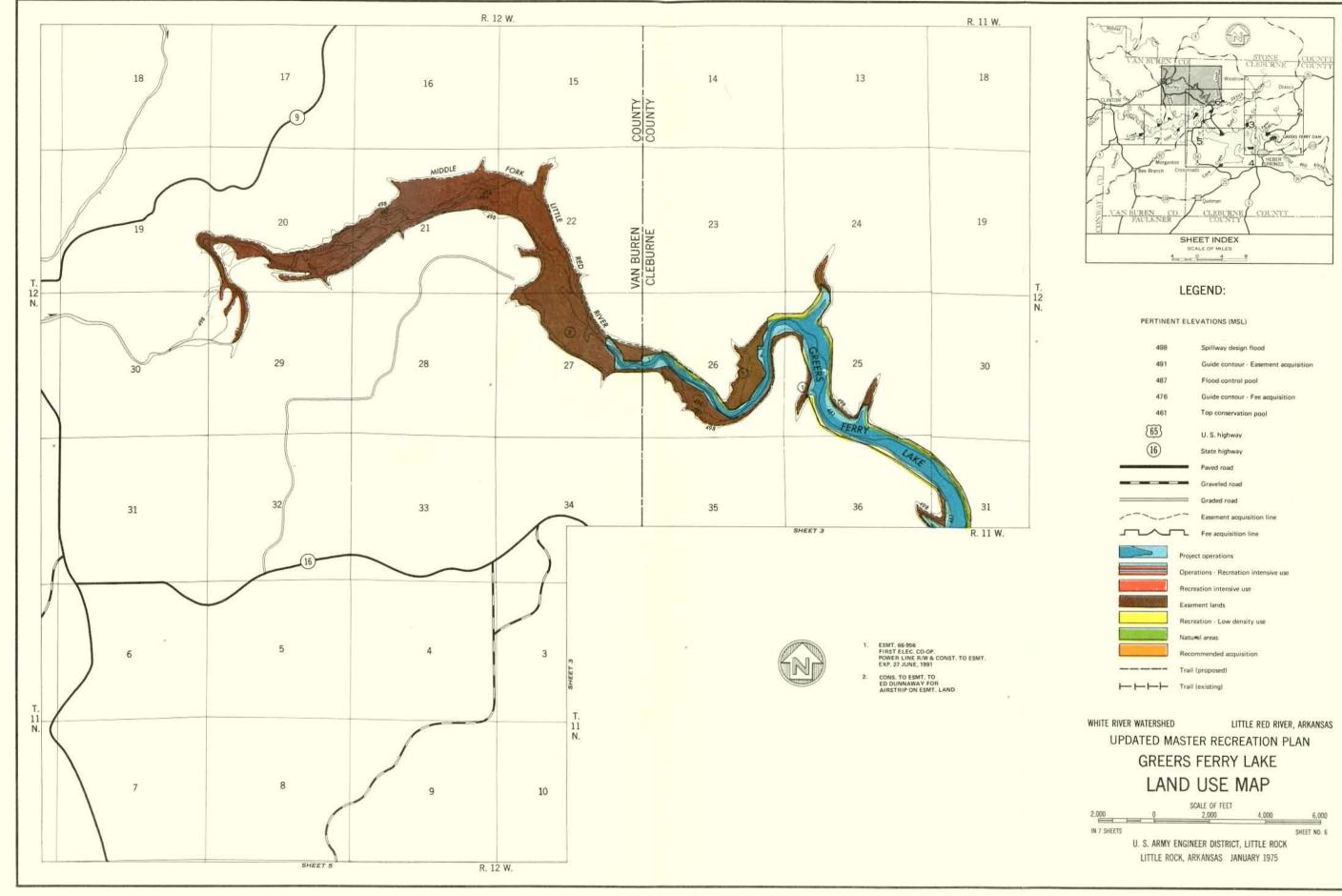
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS. JANUARY 1975

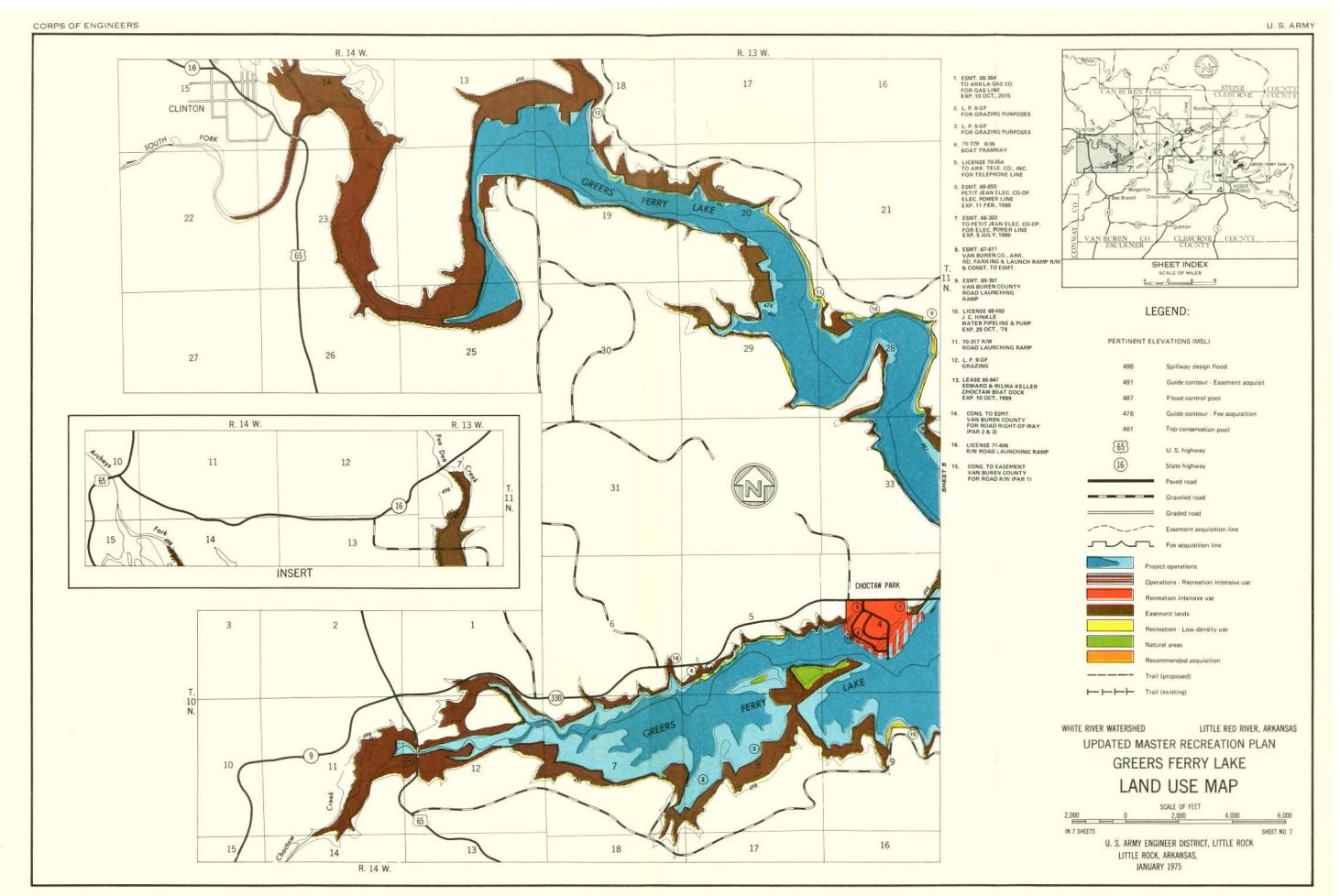
SHEET 4





CORPS OF ENGINEERS





COST OF CONSTRUCTION

In 1971 a detailed estimates was prepared by Estimates Section for the addition of showers and conversion for the waterborne in the amount of \$14,000. Price leveling the construction cost and adding 15% for continguicies increases the estimated cost to \$24,000 per conversion. With an estimated % for engineering and design and supervision and inspection, the fotal cost of est construction would increase to for each conversion. These sigures do not include the cost of a sewage disposal system or the water supply.

Bo compale Trailer draw som com 6. Preme sites woly in your woly in your 150,000 Total-

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H.C. # 10,000

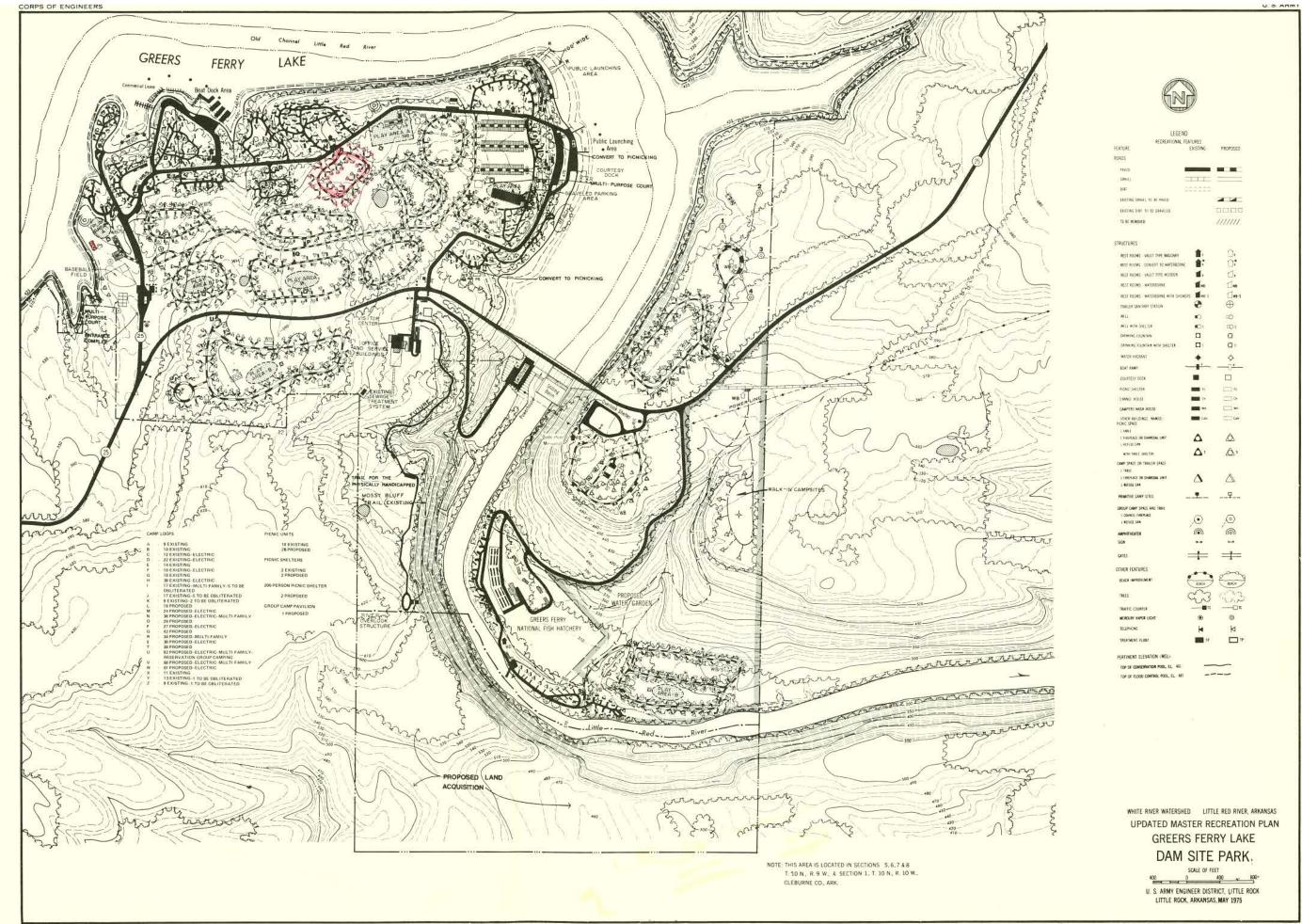
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Con both

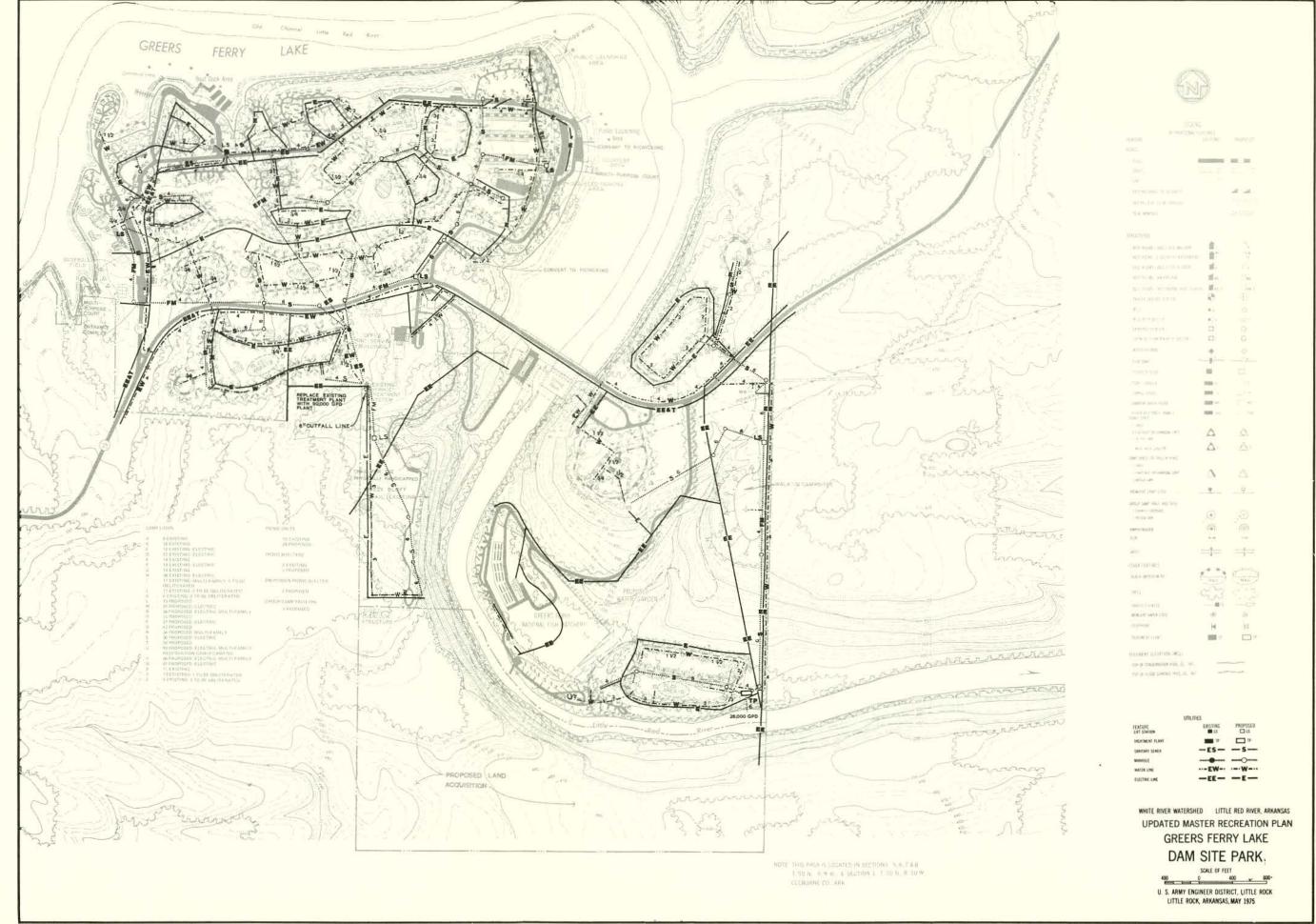
m. Cold water

36

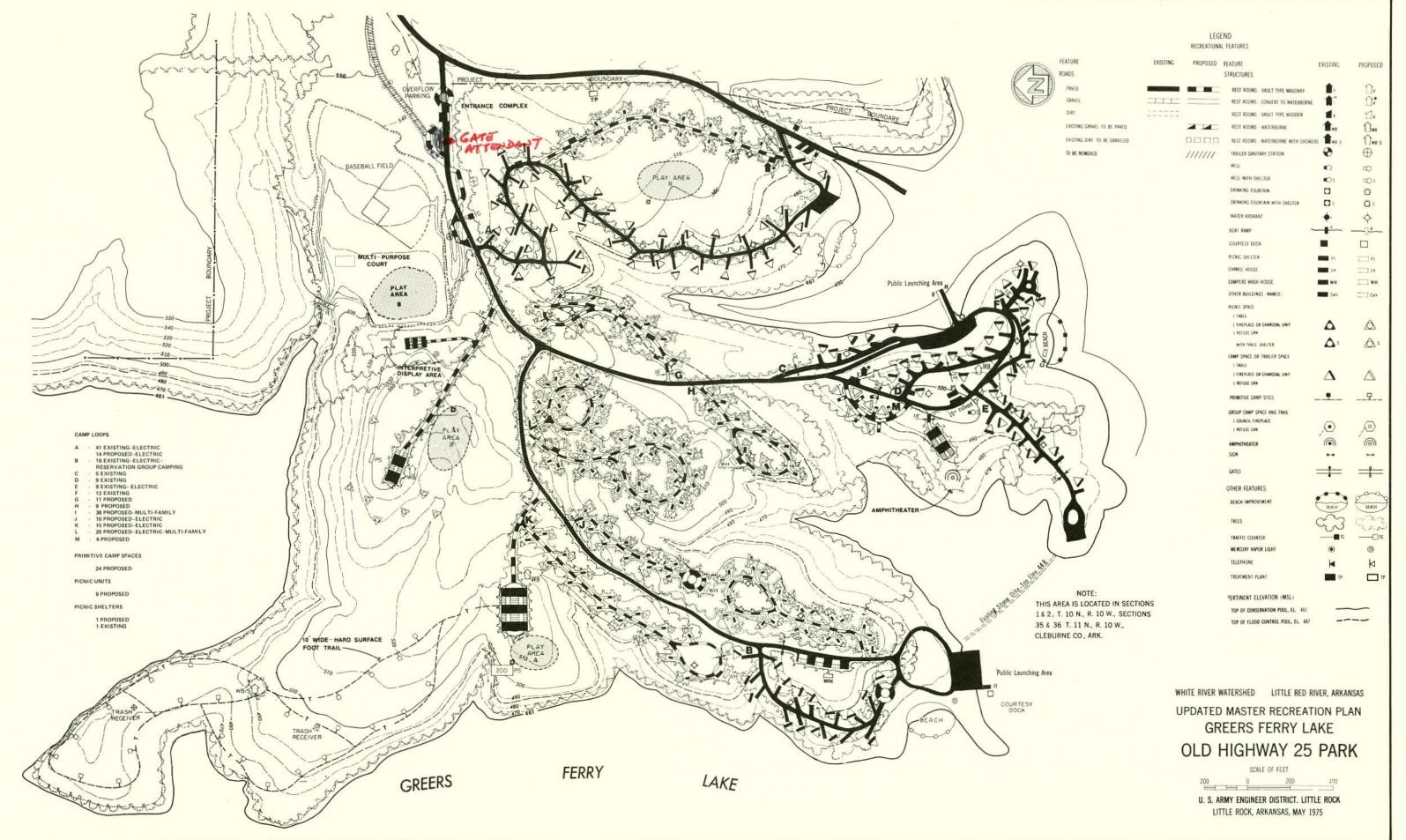
196

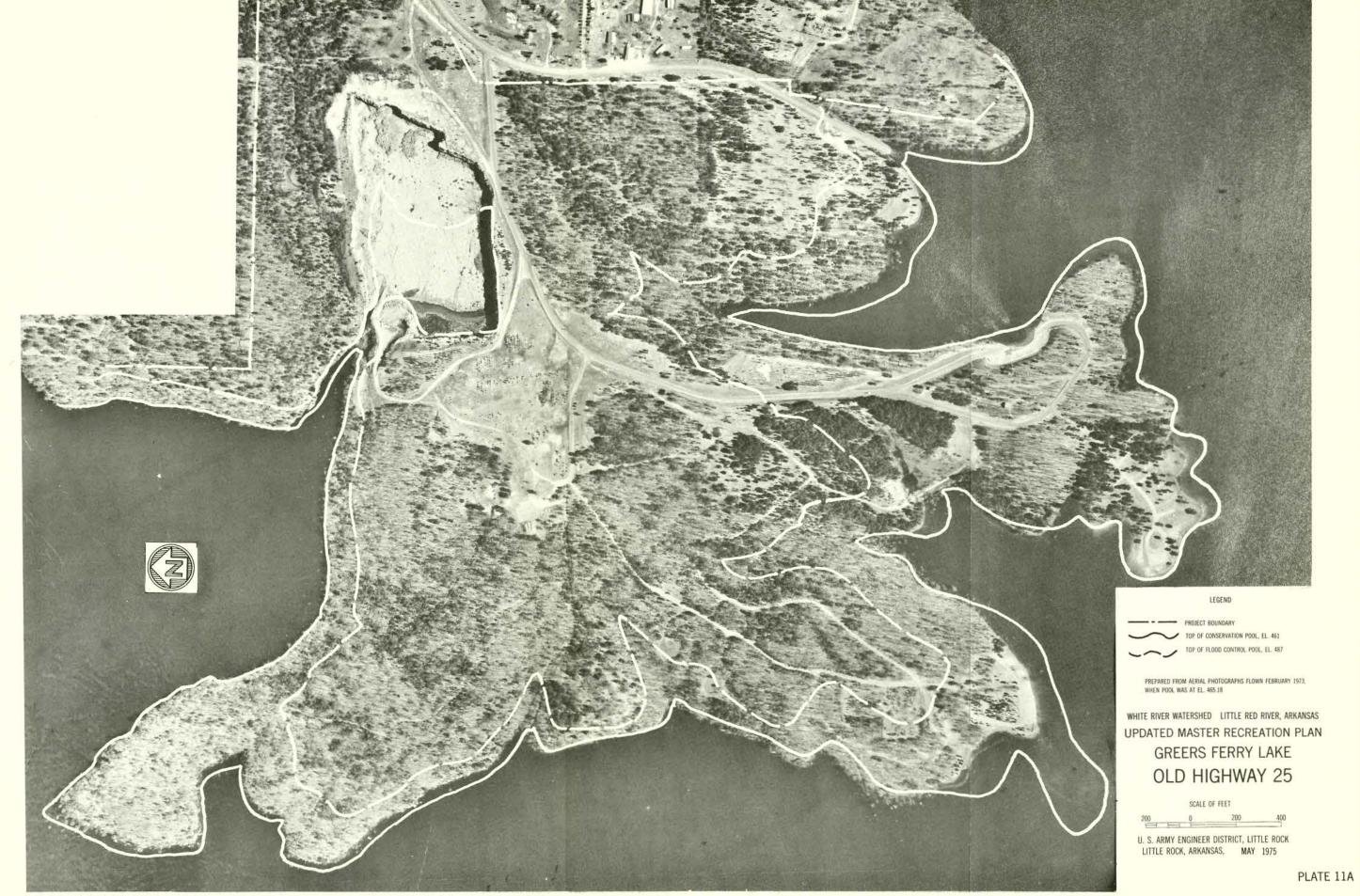




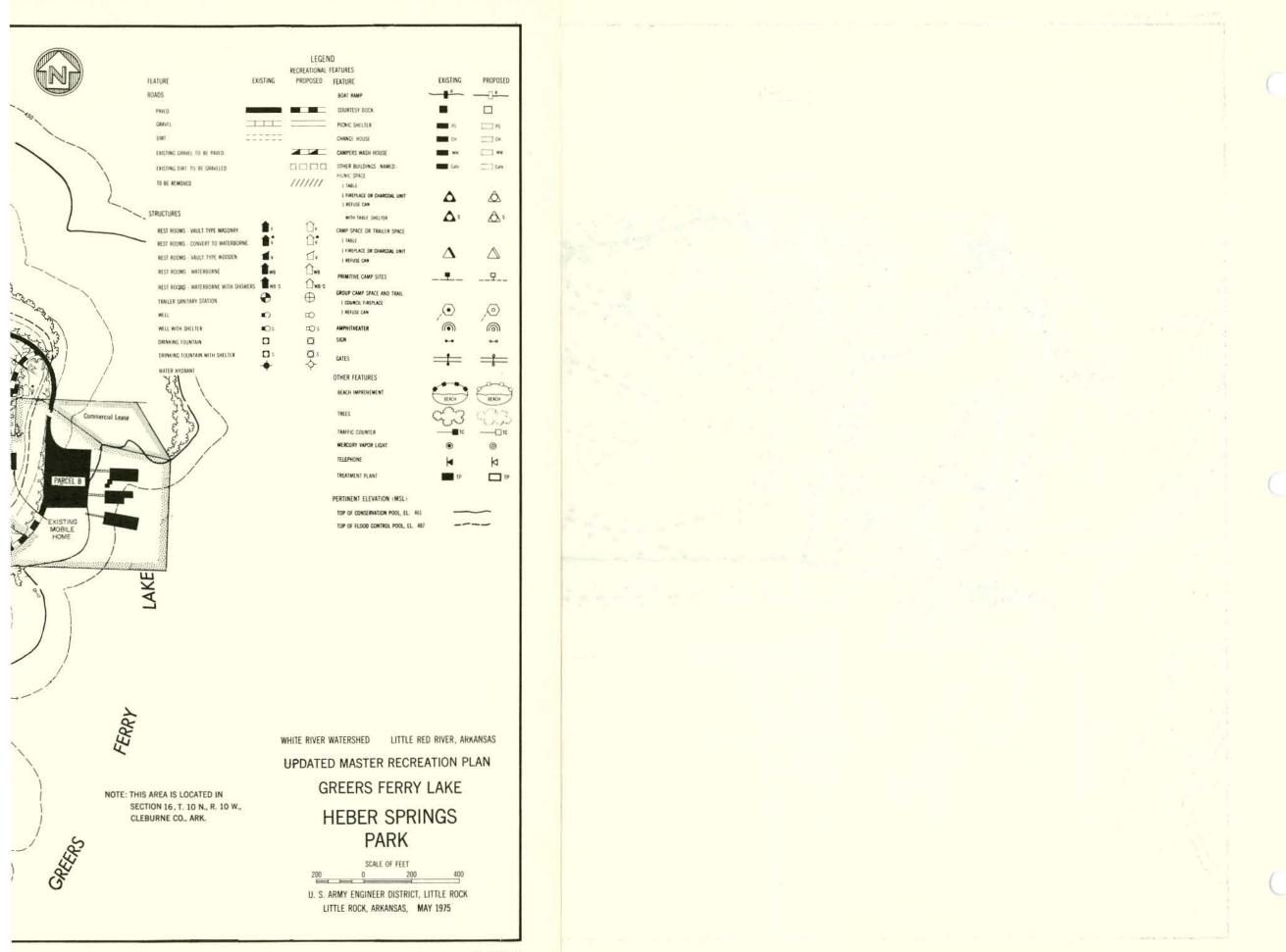


RPS OF ENGINEERS U. S. ARMY

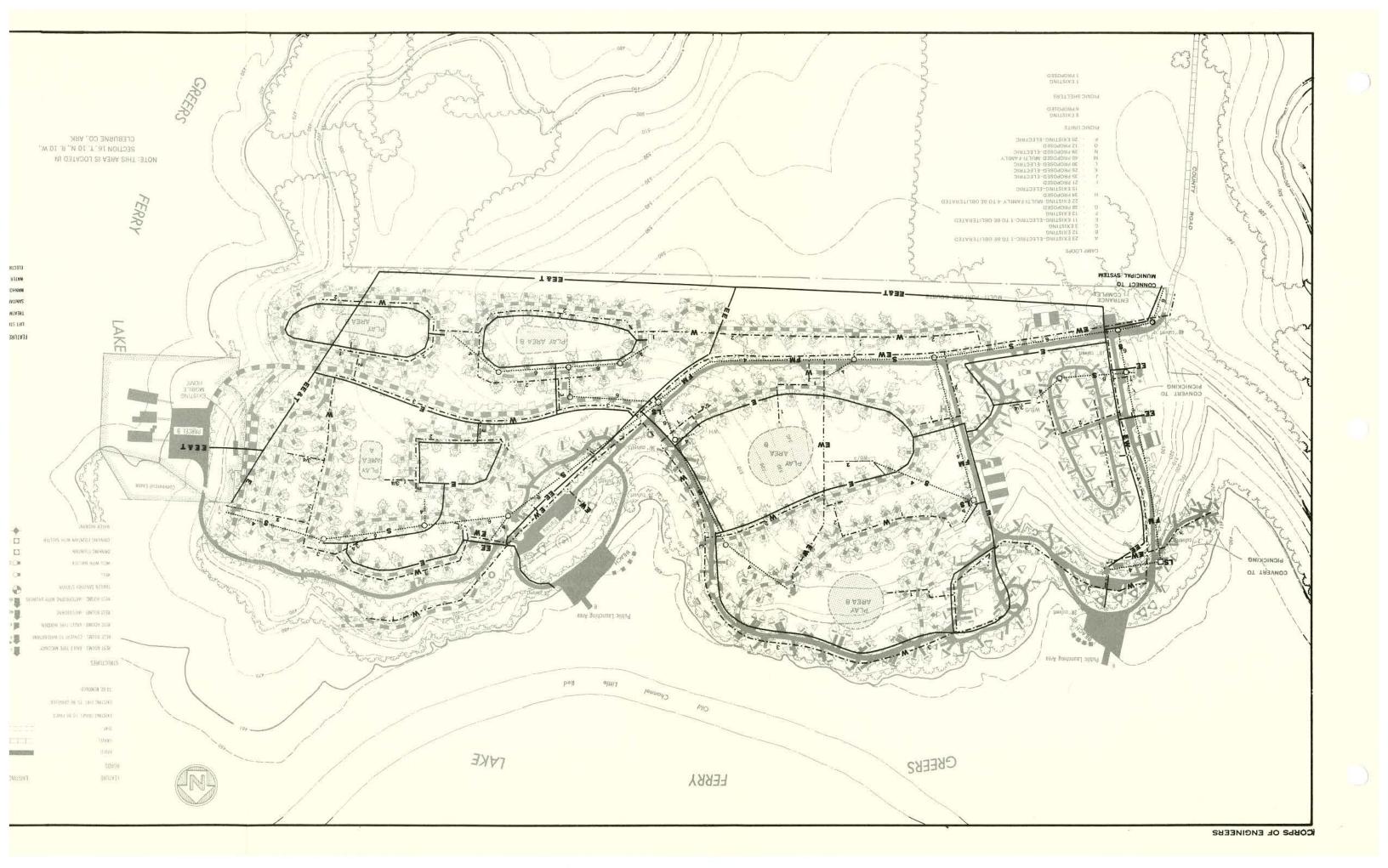


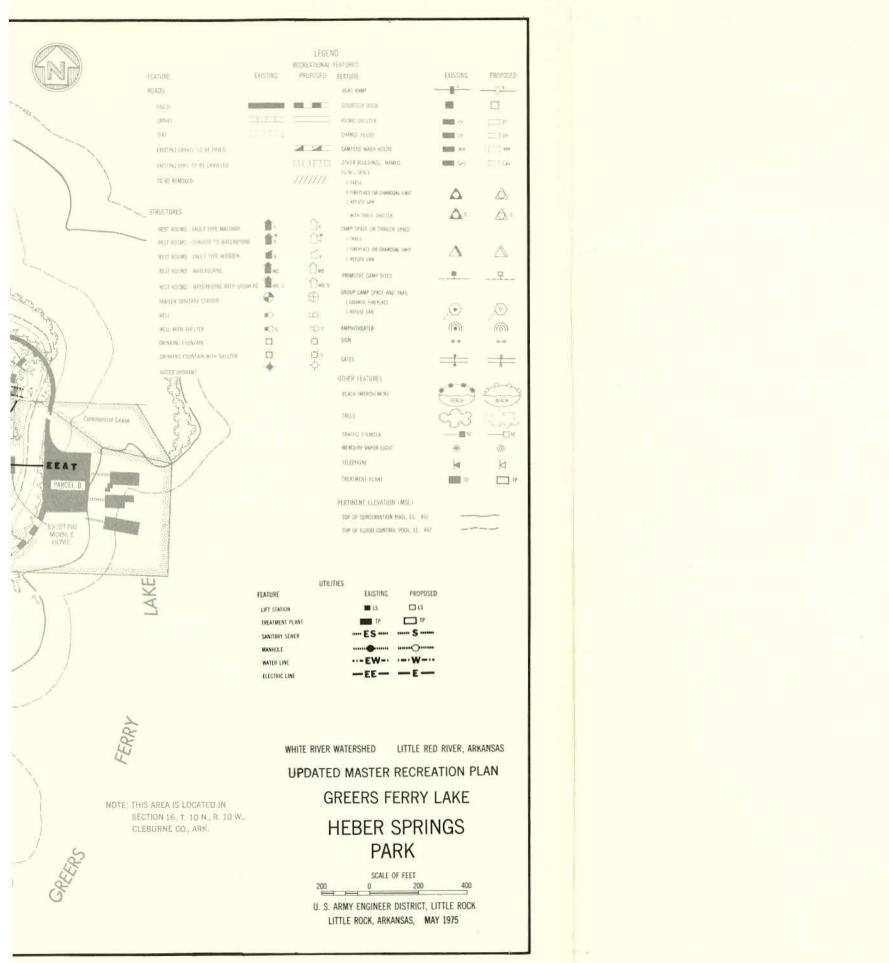


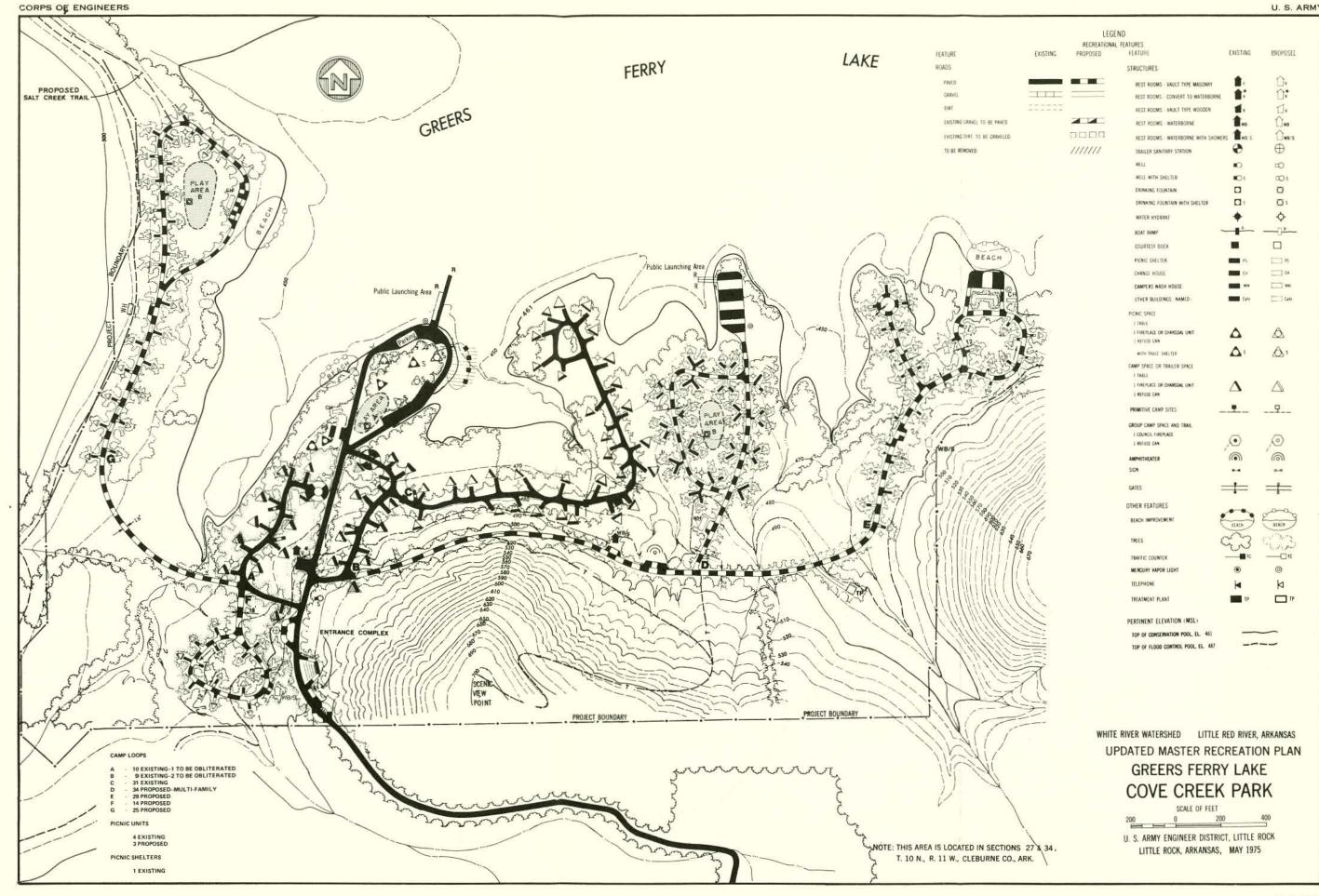
RPS OF ENGINEERS U. S. AKMY LEGENE RECREATIONAL HAPLINES. PROPOSED BYATERS TO BE WENTER WILLIAM SHIPE CHARGE CONTRA TREATMENT PLANT SANITARY SEWER MULTI PURPOSE ··-EW-· ·-·W-·· ELECTRIC LINE CAMPERS WASH HOUSE THE WARM LEADING WARE 0 0 0 OWN DATES THE PER 1 LYMERATE OF GOVERNMENT OF BEFORE CAR GROUP CAMP SPACE AND THE THE PART TAN 41 EXISTING -ELECTRIC 14 PROPOSED -ELECTRIC 16 EXISTING -ELECTRIC 2-6 OTHER FEATURES STACH INFRINTMENT MERCORY VAPOR LIGHT PRIMITIVE CAMP SPACES BREATMENT PLANT PERTINENT ELEVATION (MSL) THIS AREA IS LOCATED IN SECTIONS PICNIC SHELTERS TOP OF CONSERVATION POOL, 11. ATT 1 & 2 , T, 10 N., R. 10 W., SECTIONS 1 PROPOSED 1 EXISTING TOP OF FEDERA CONTROL POOL EL 45/ 35 % 36 T. 11 N., R. 10 W., CLEBURNE CO., ARK. Public Launching Area WHITE RIVER WATERSHED LITTLE RED RIVER, ARKANSAS UPDATED MASTER RECREATION PLAN **GREERS FERRY LAKE** OLD HIGHWAY 25 PARK SCALE OF FEET **FERRY** GREERS LAKE 200 0 200 400 U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975

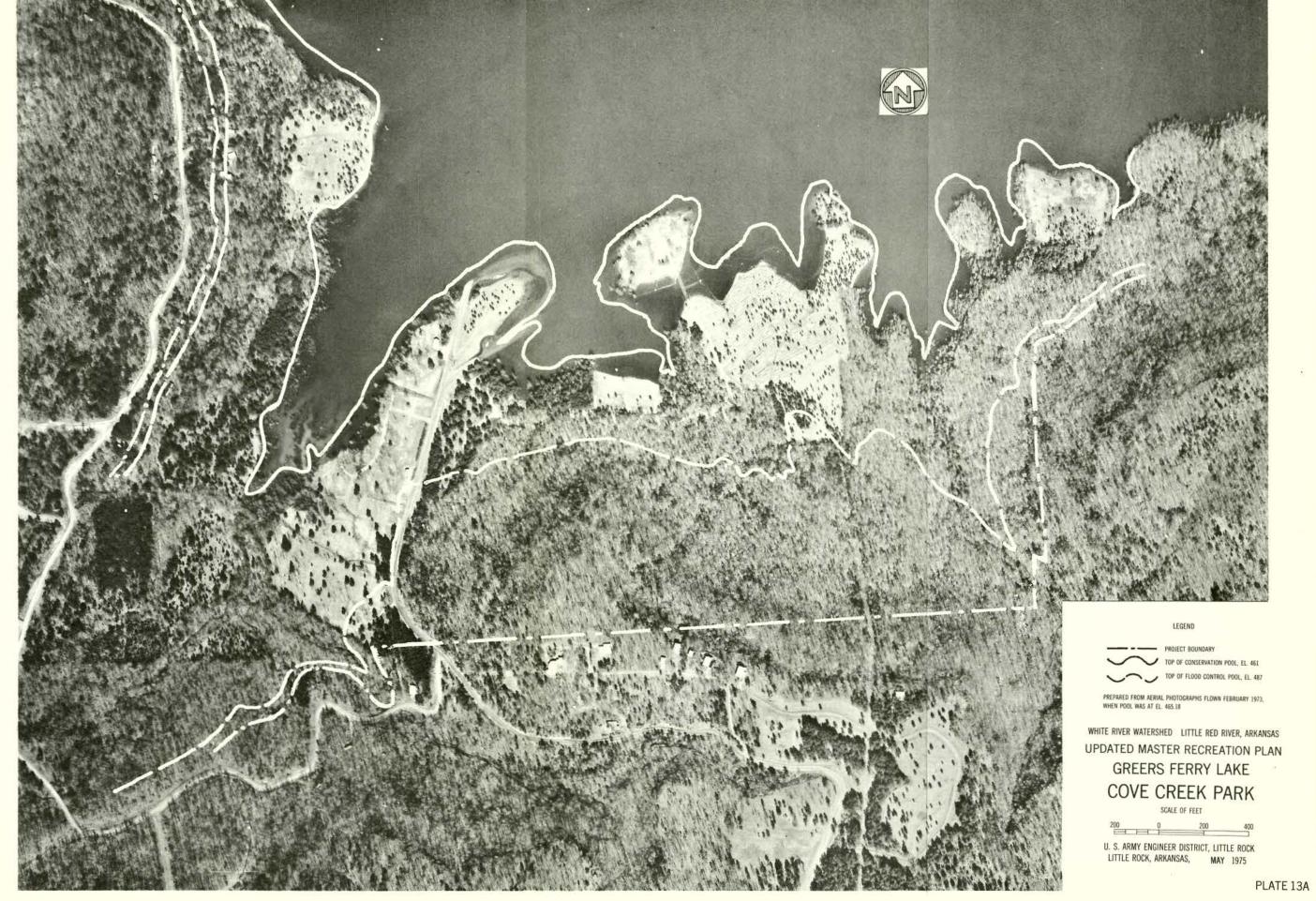


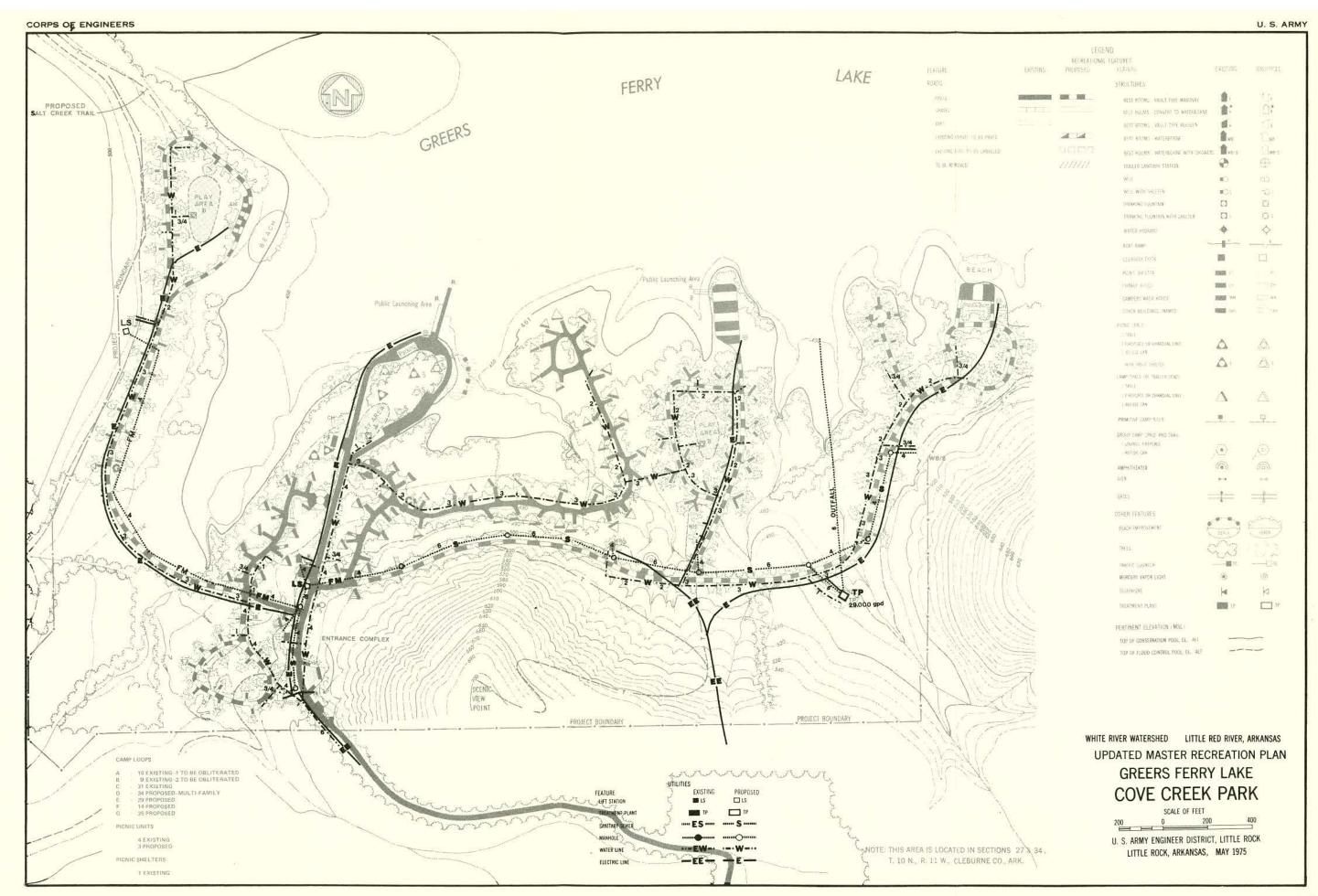










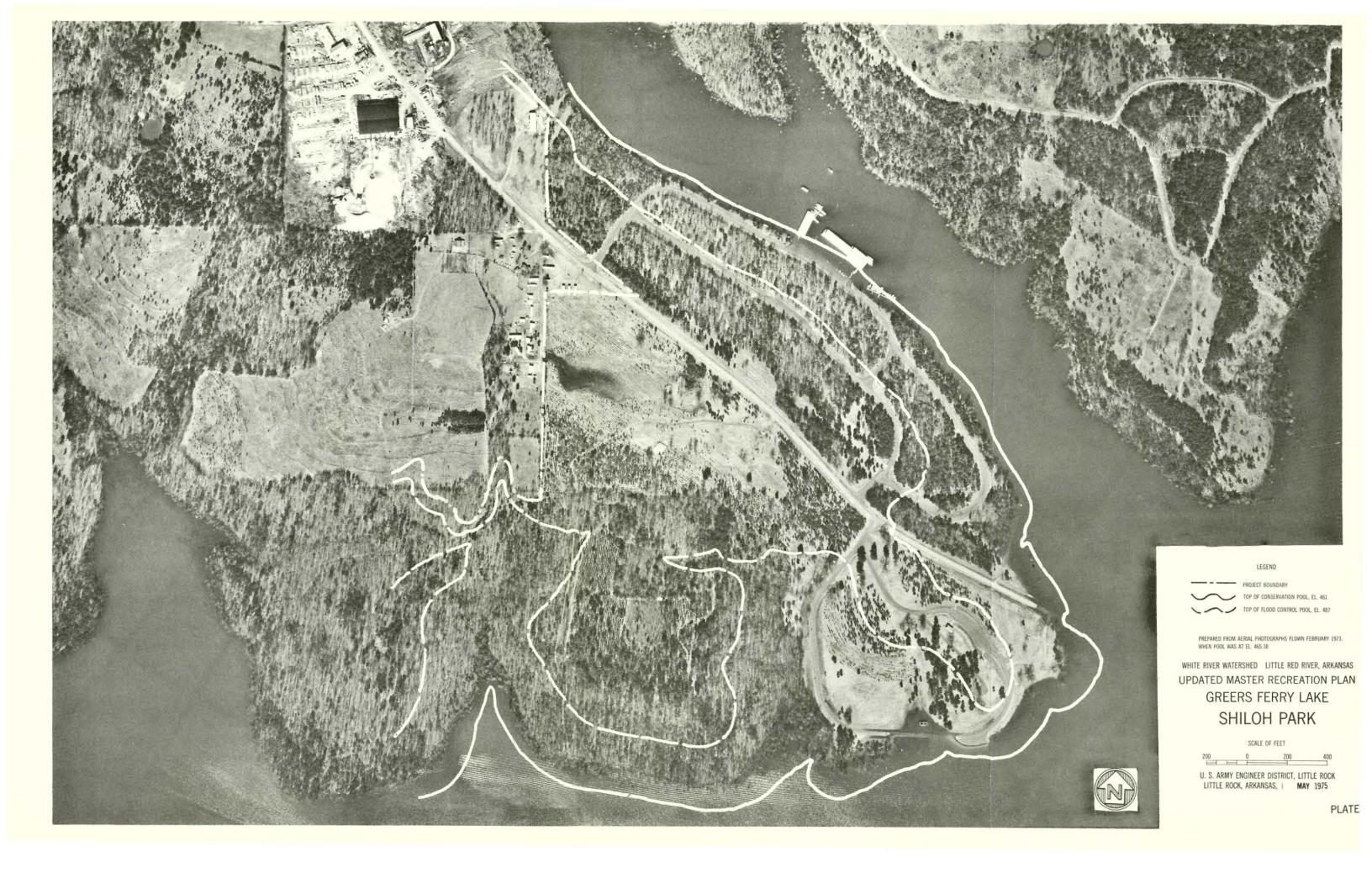


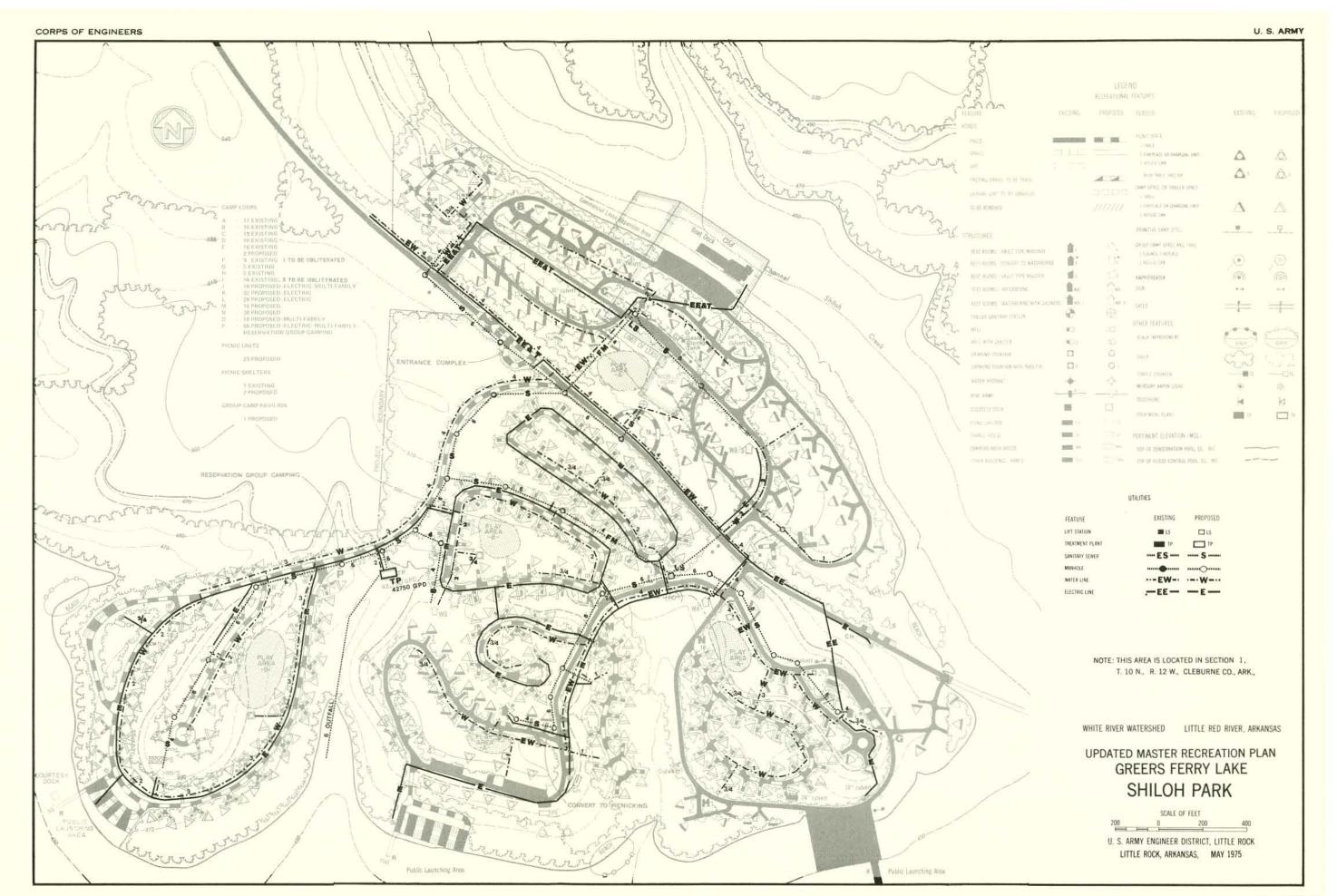
Public Launching Area

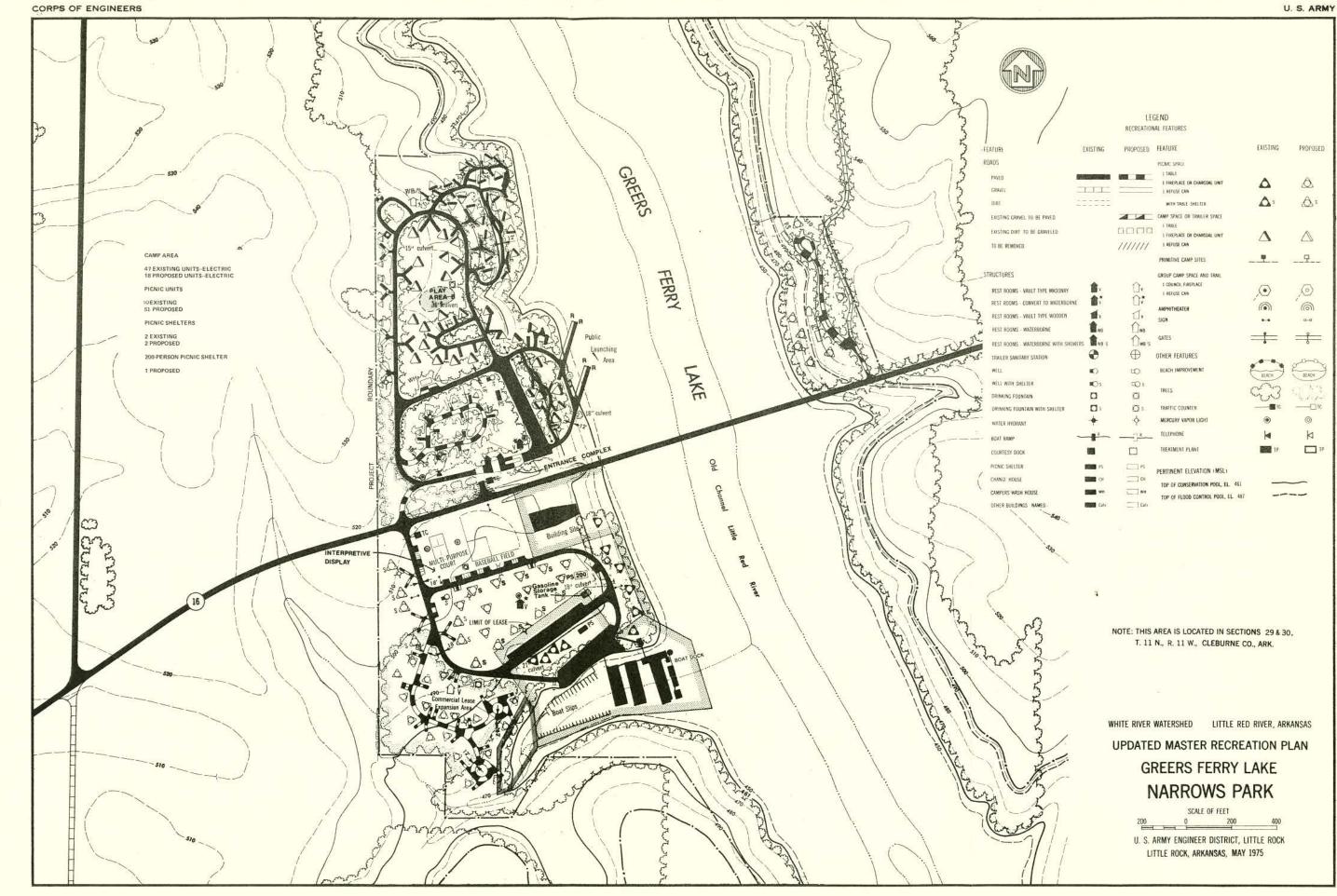
SCALE OF FEET

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975

Public Launching Area

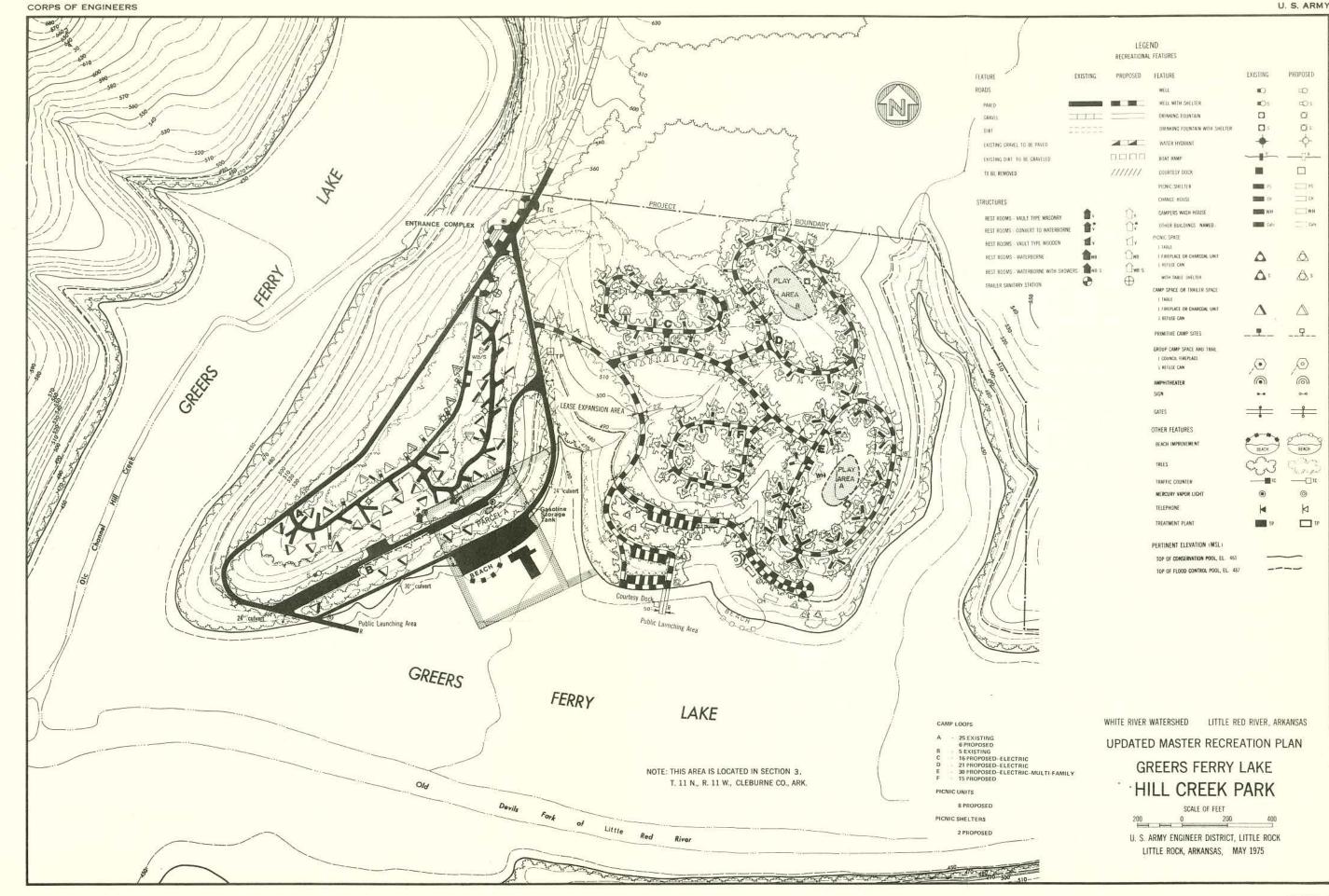




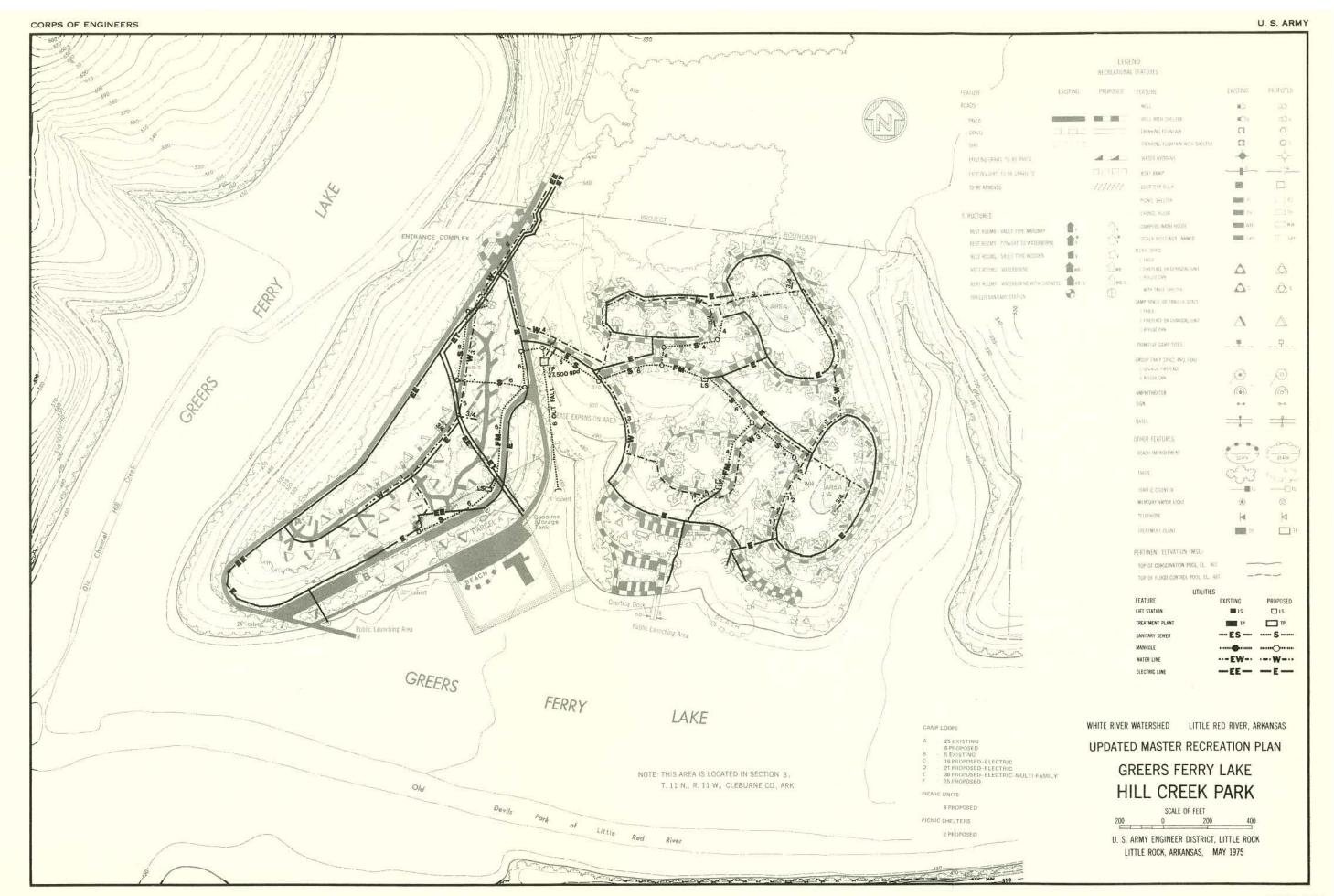


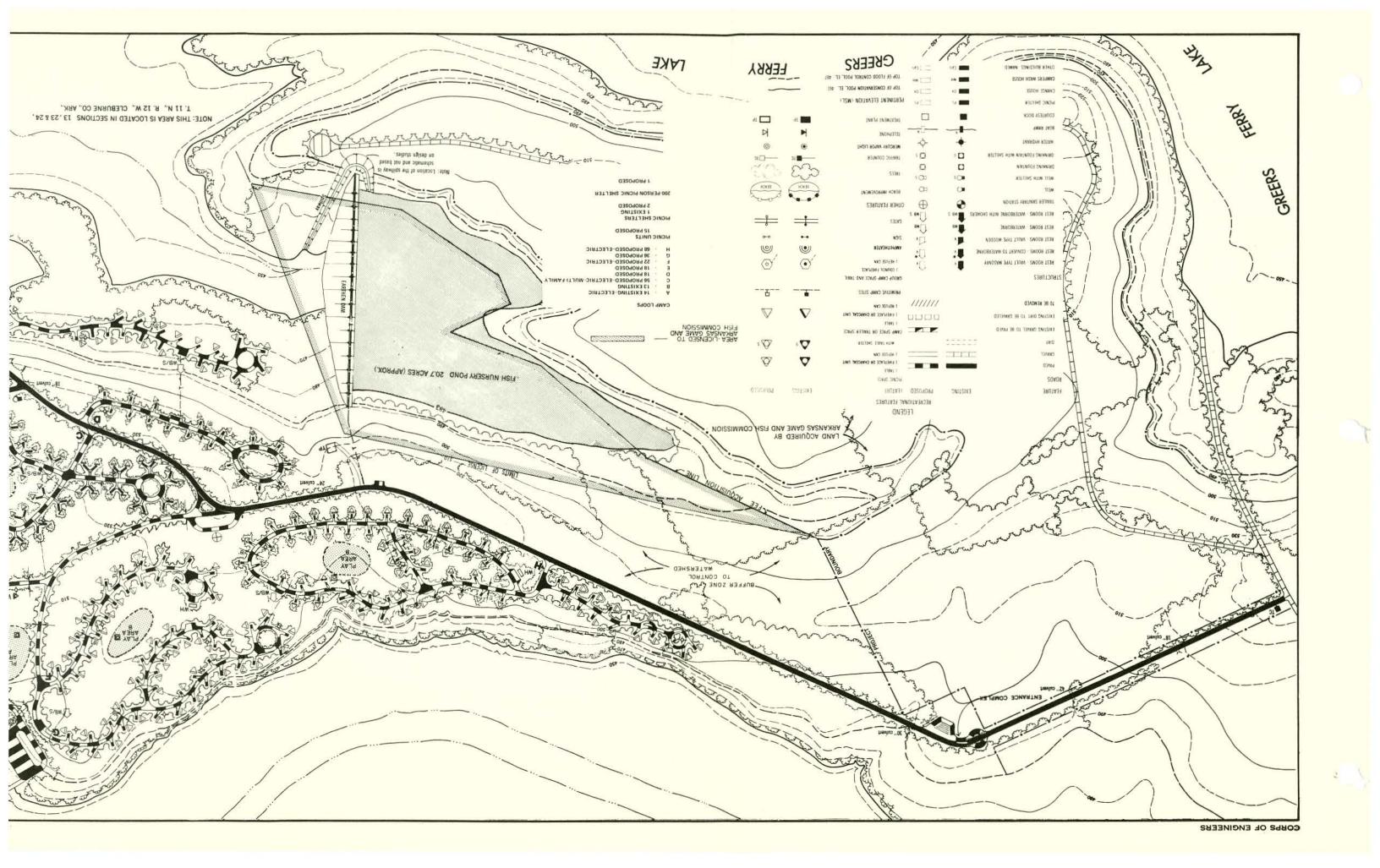


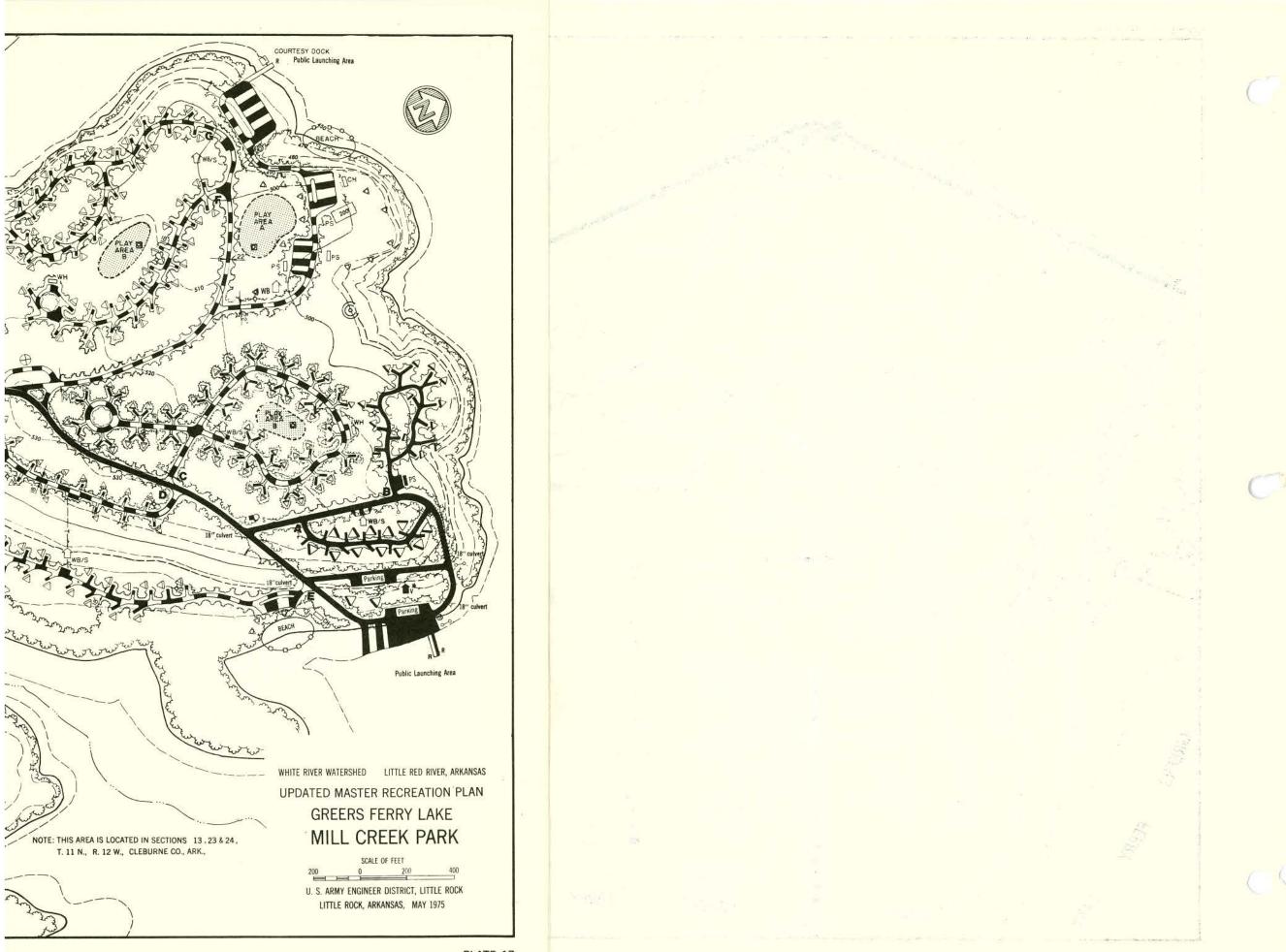
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975

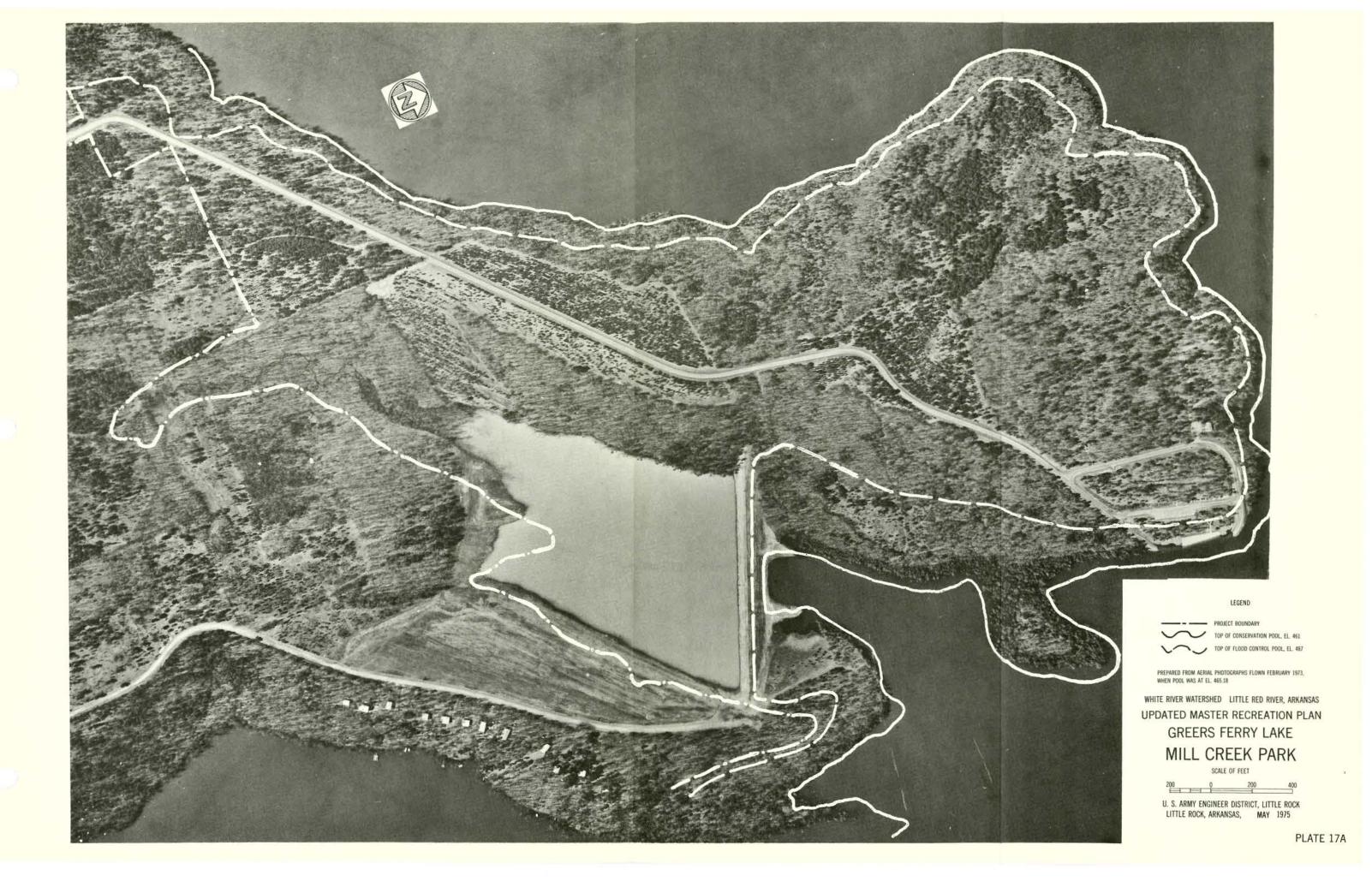


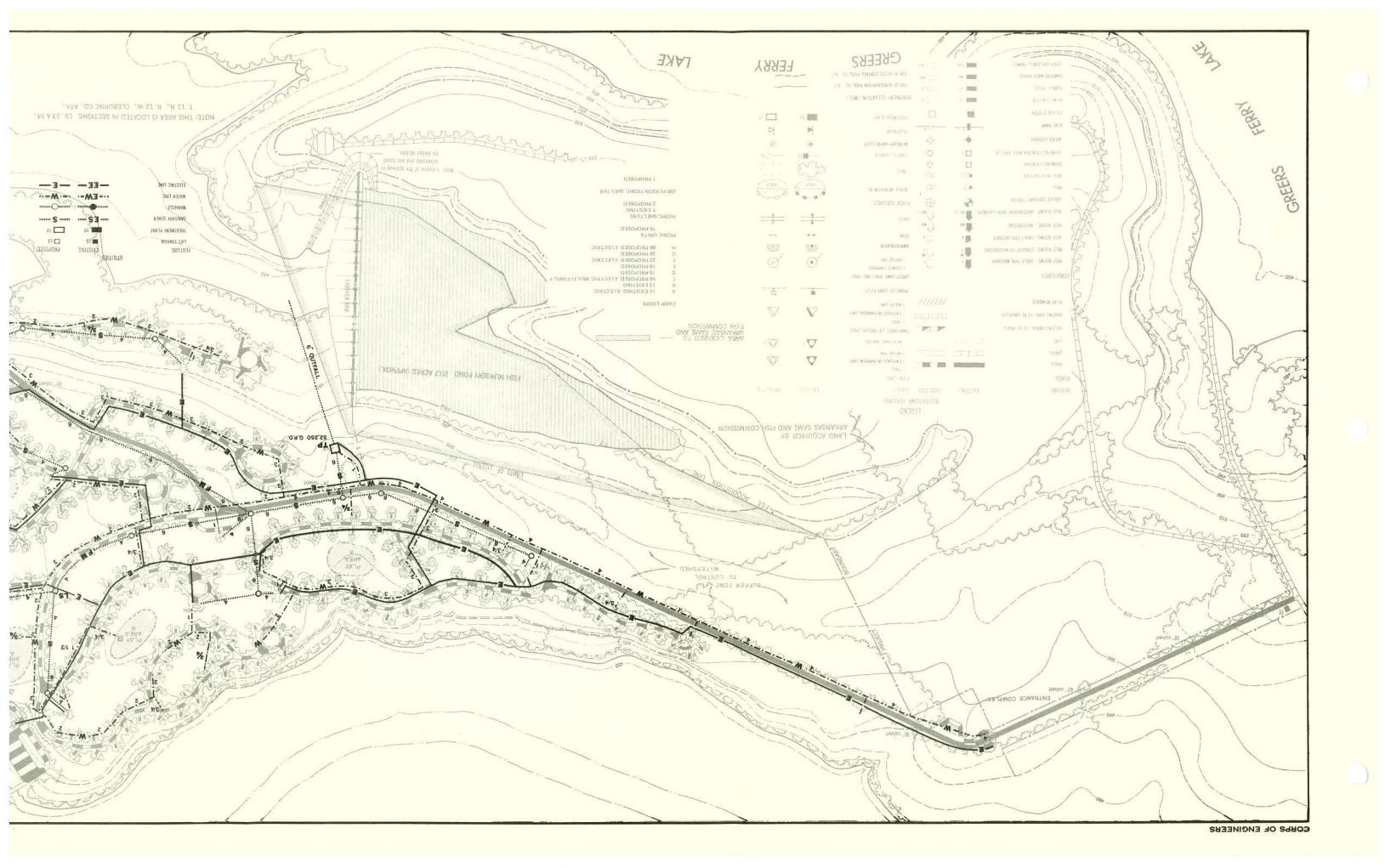


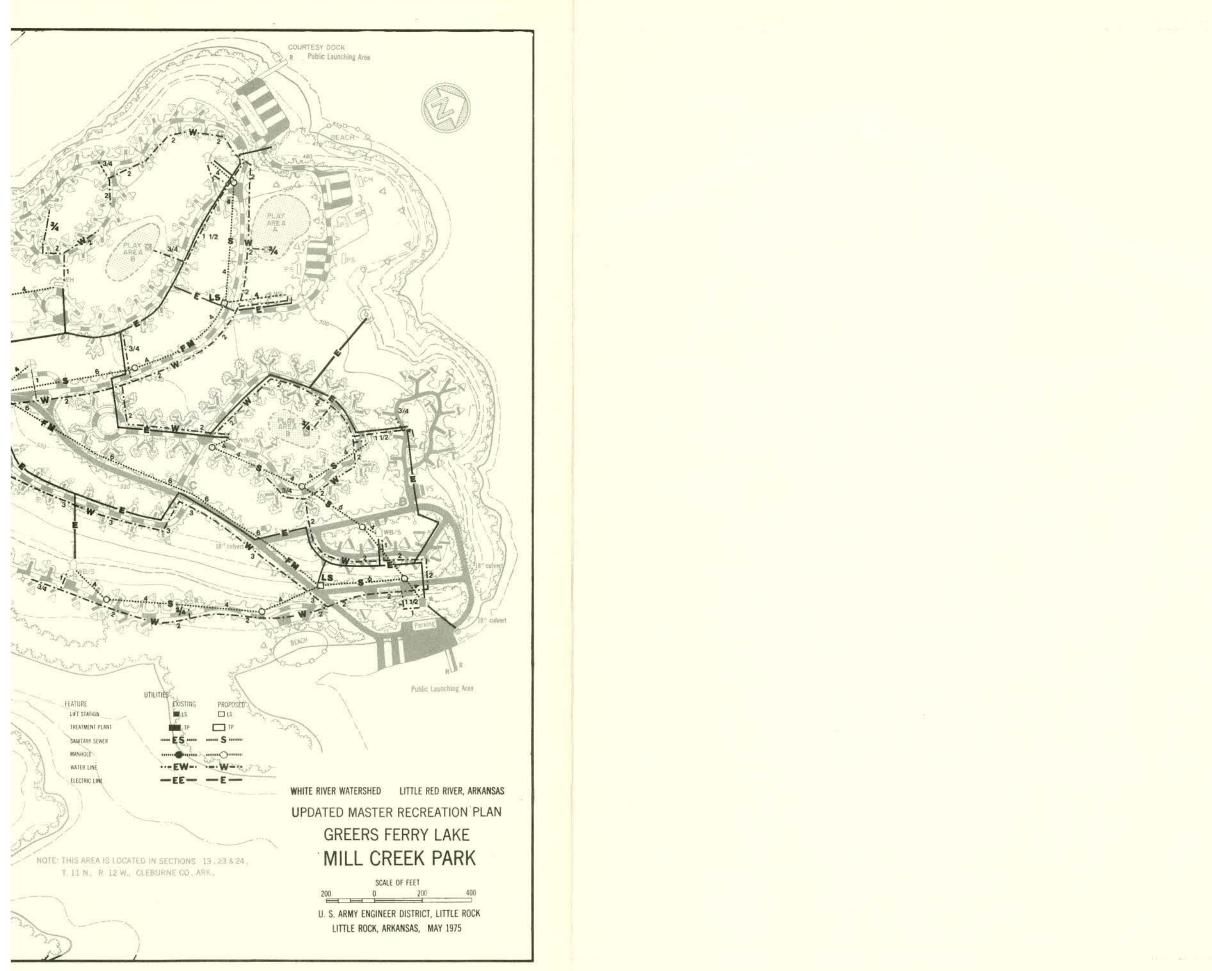


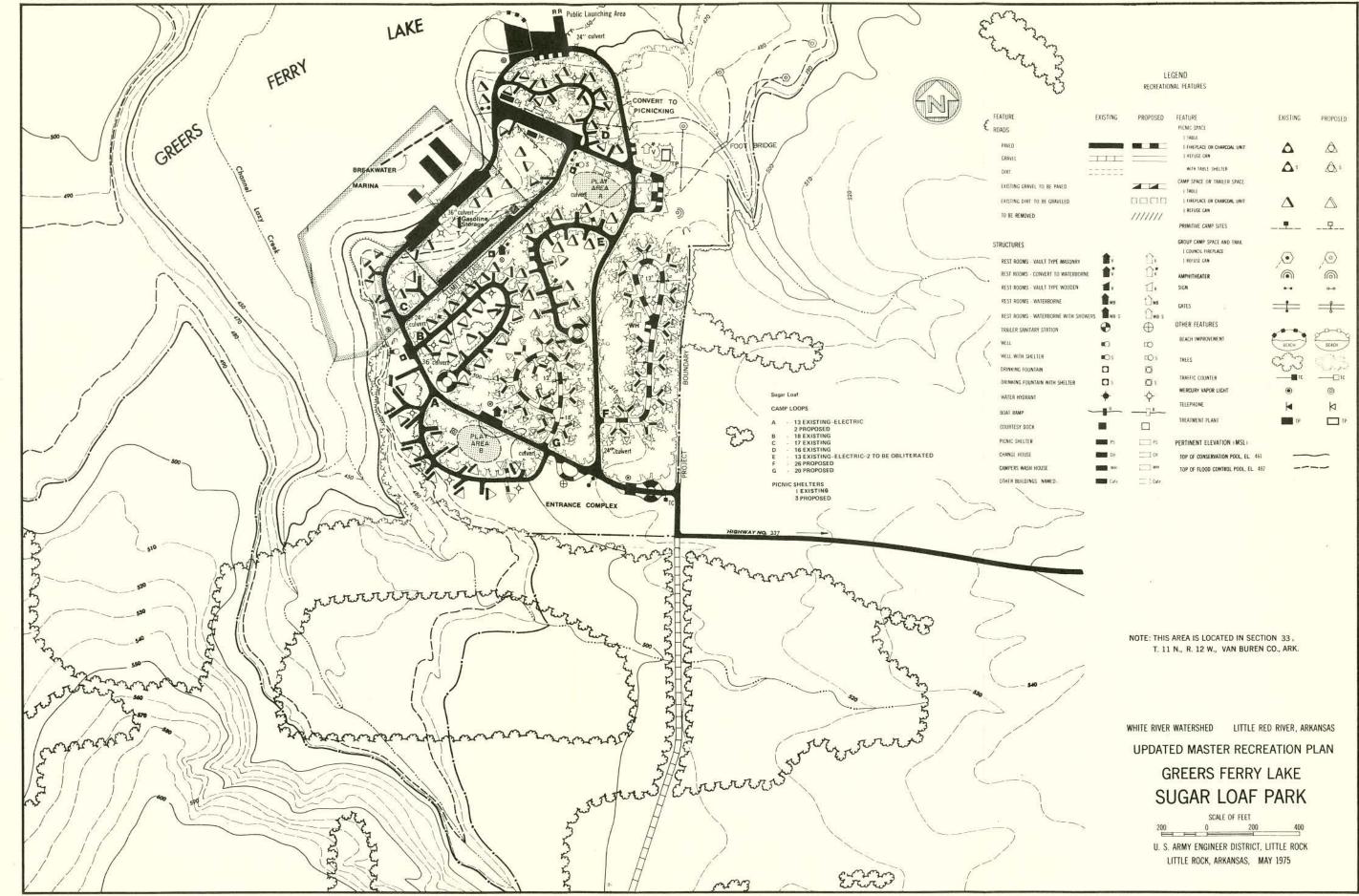


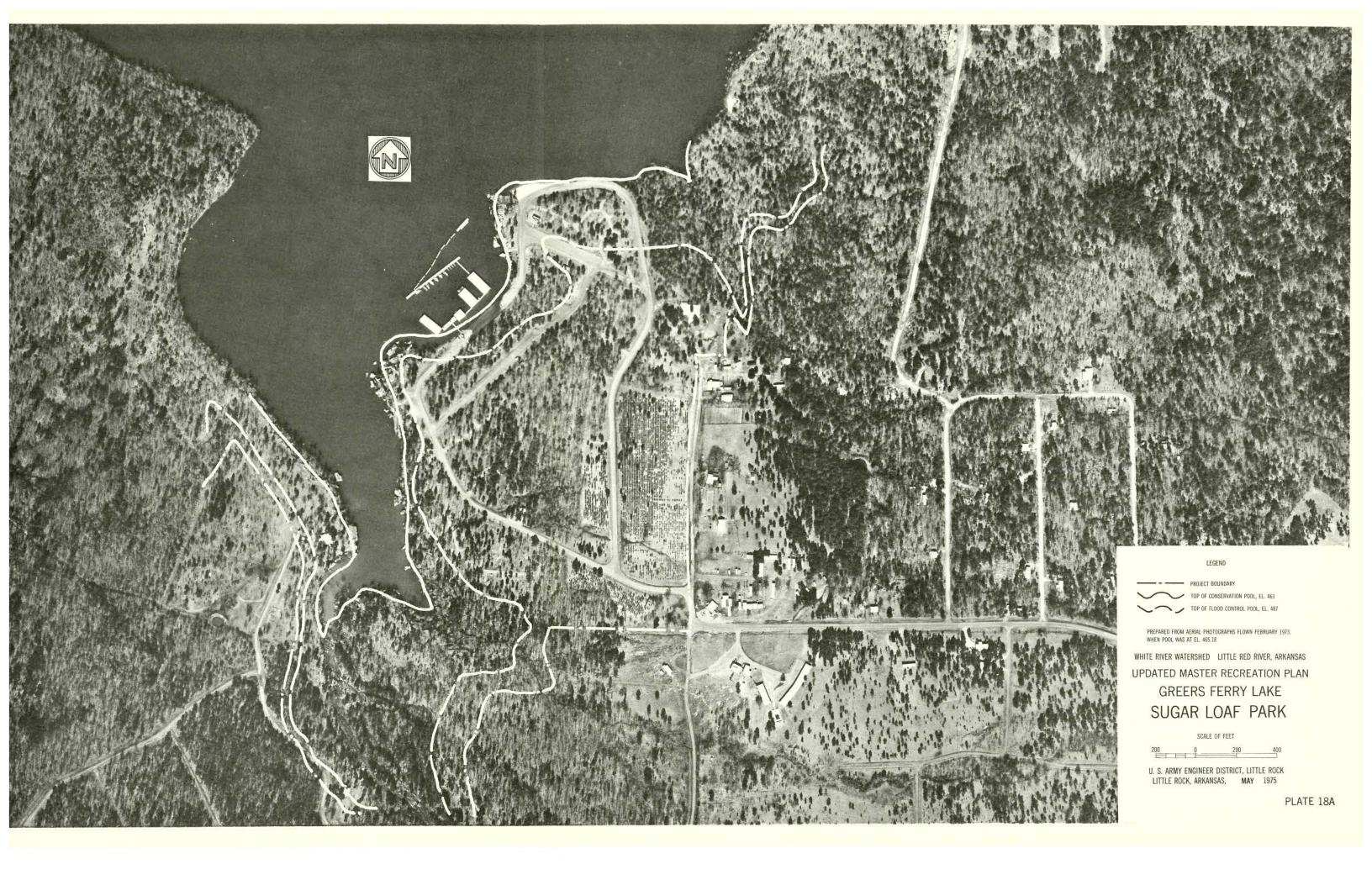


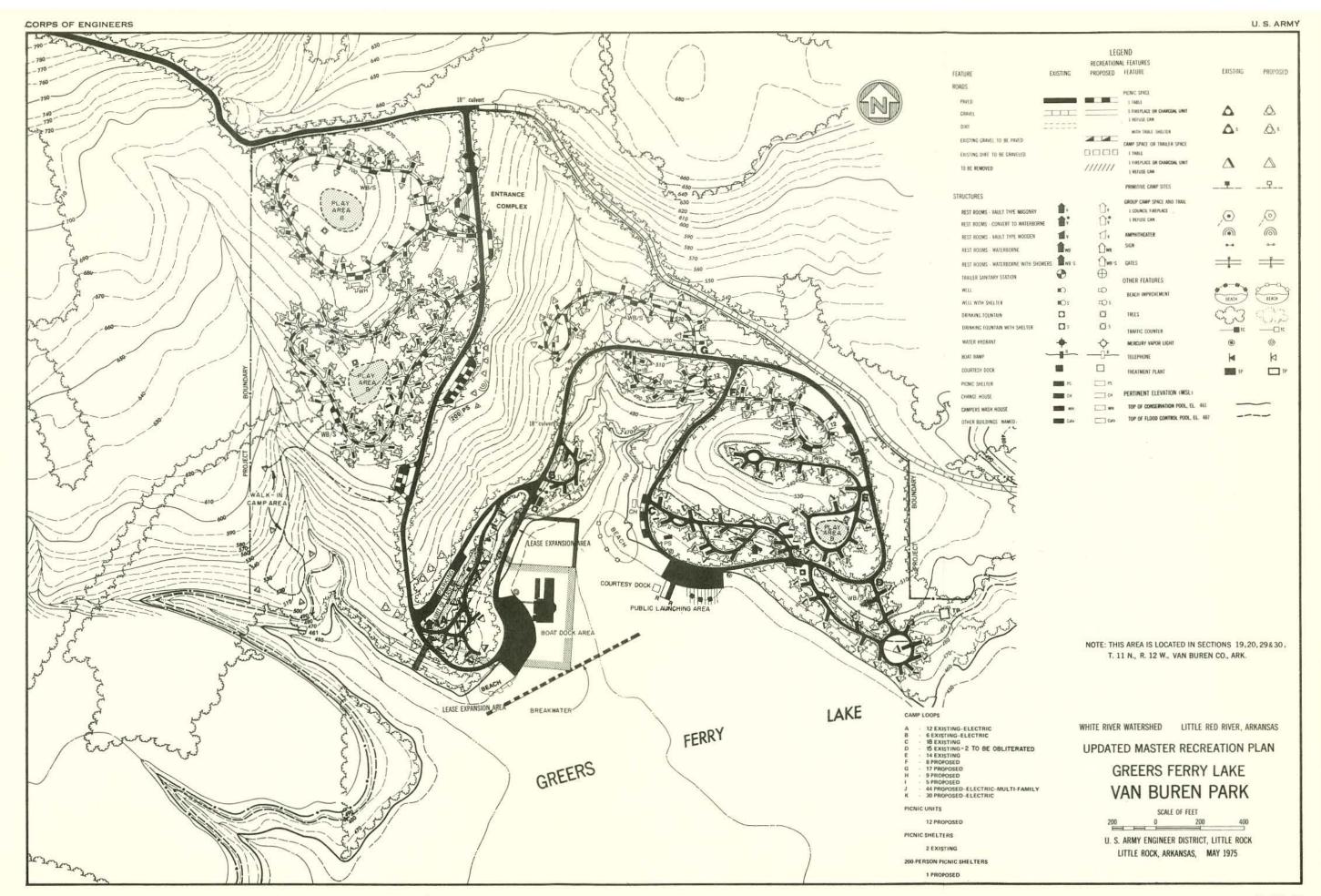


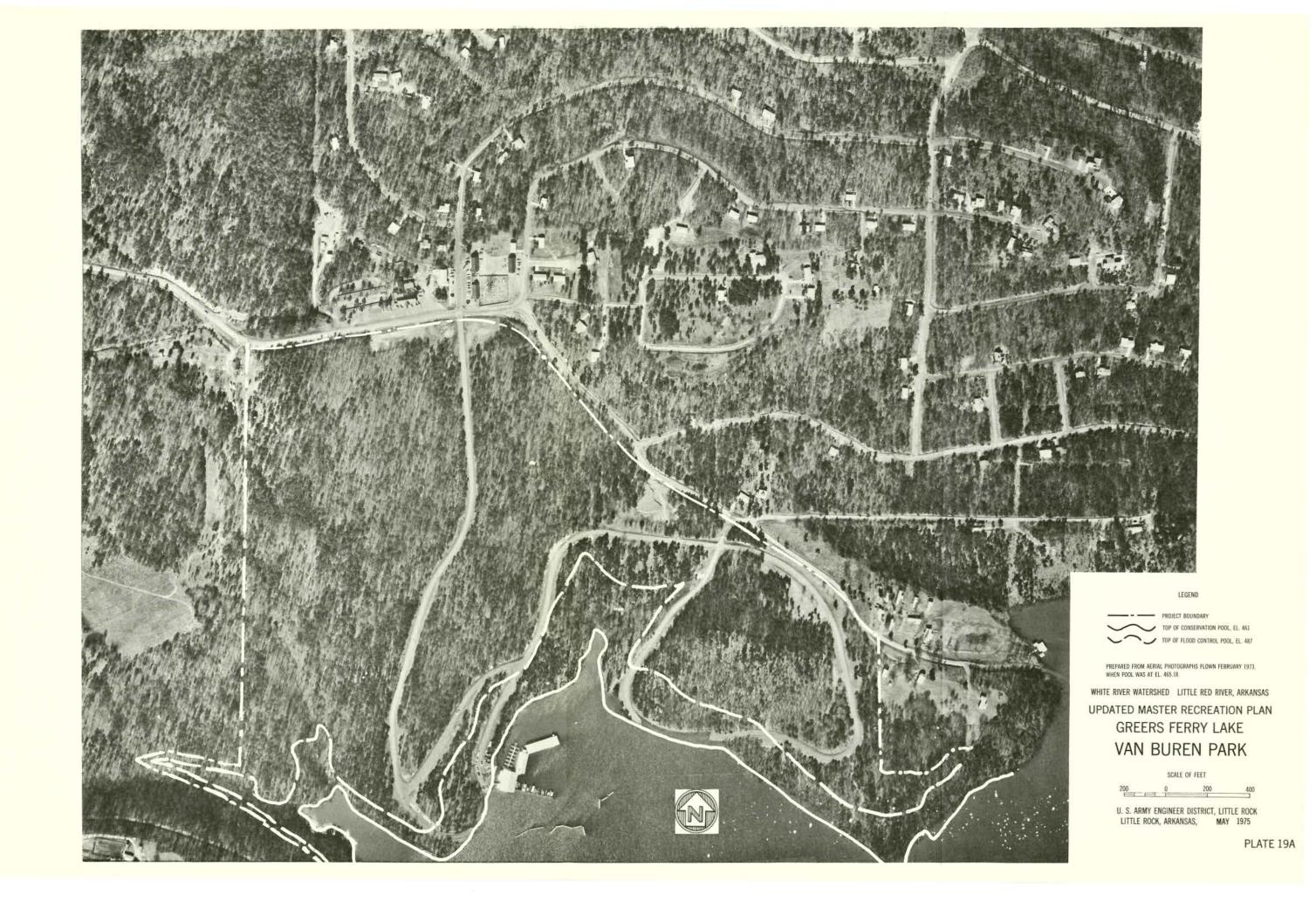


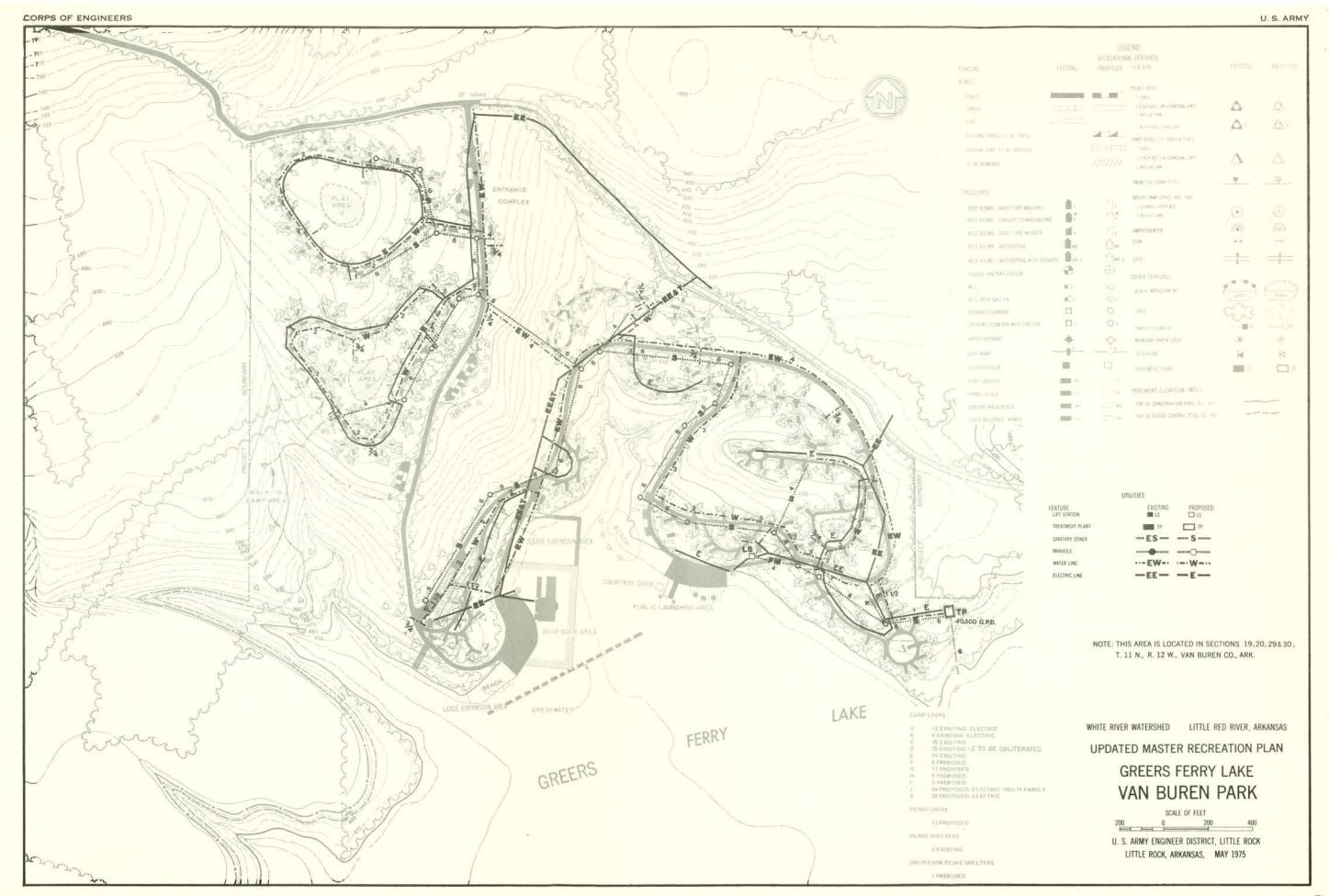


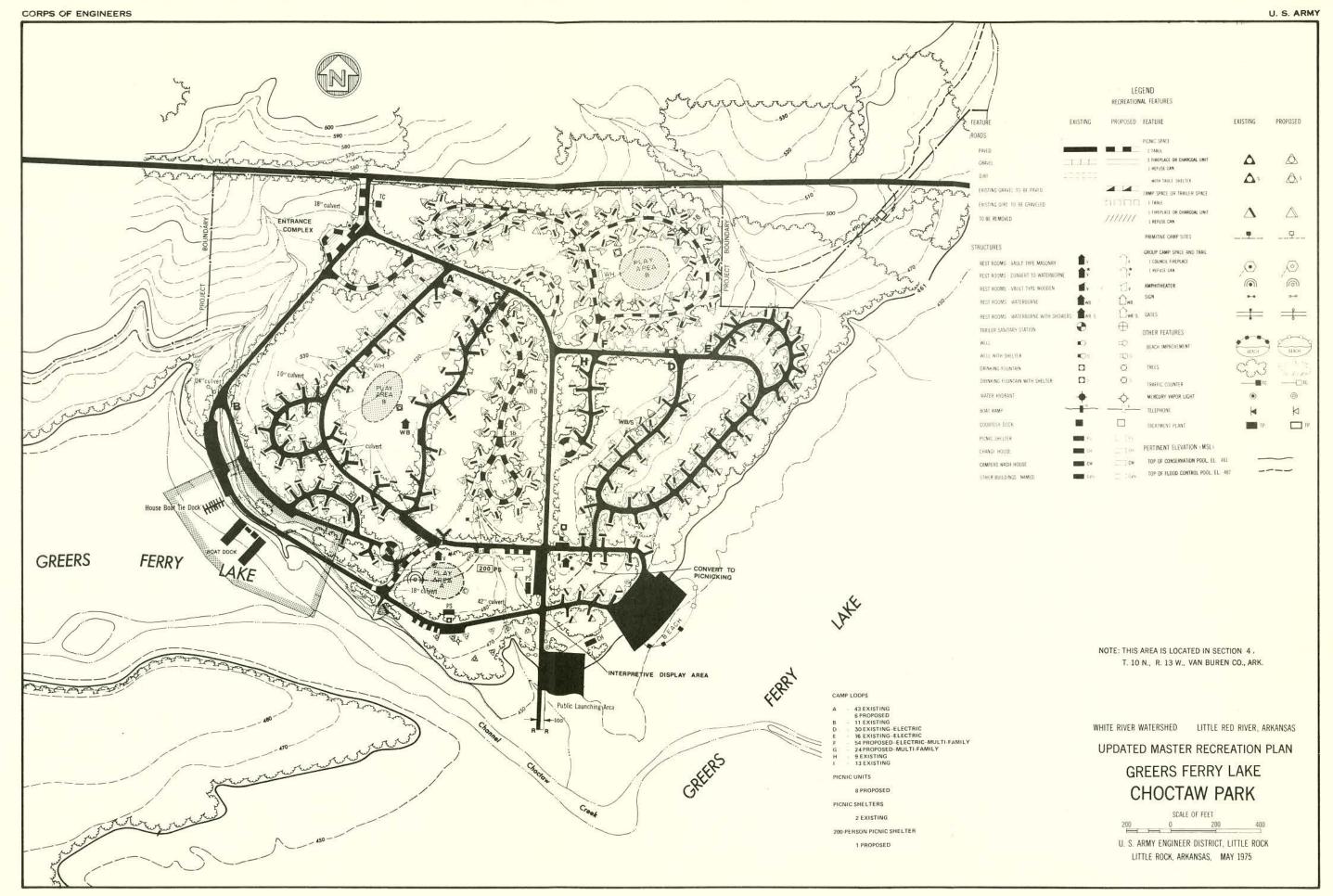


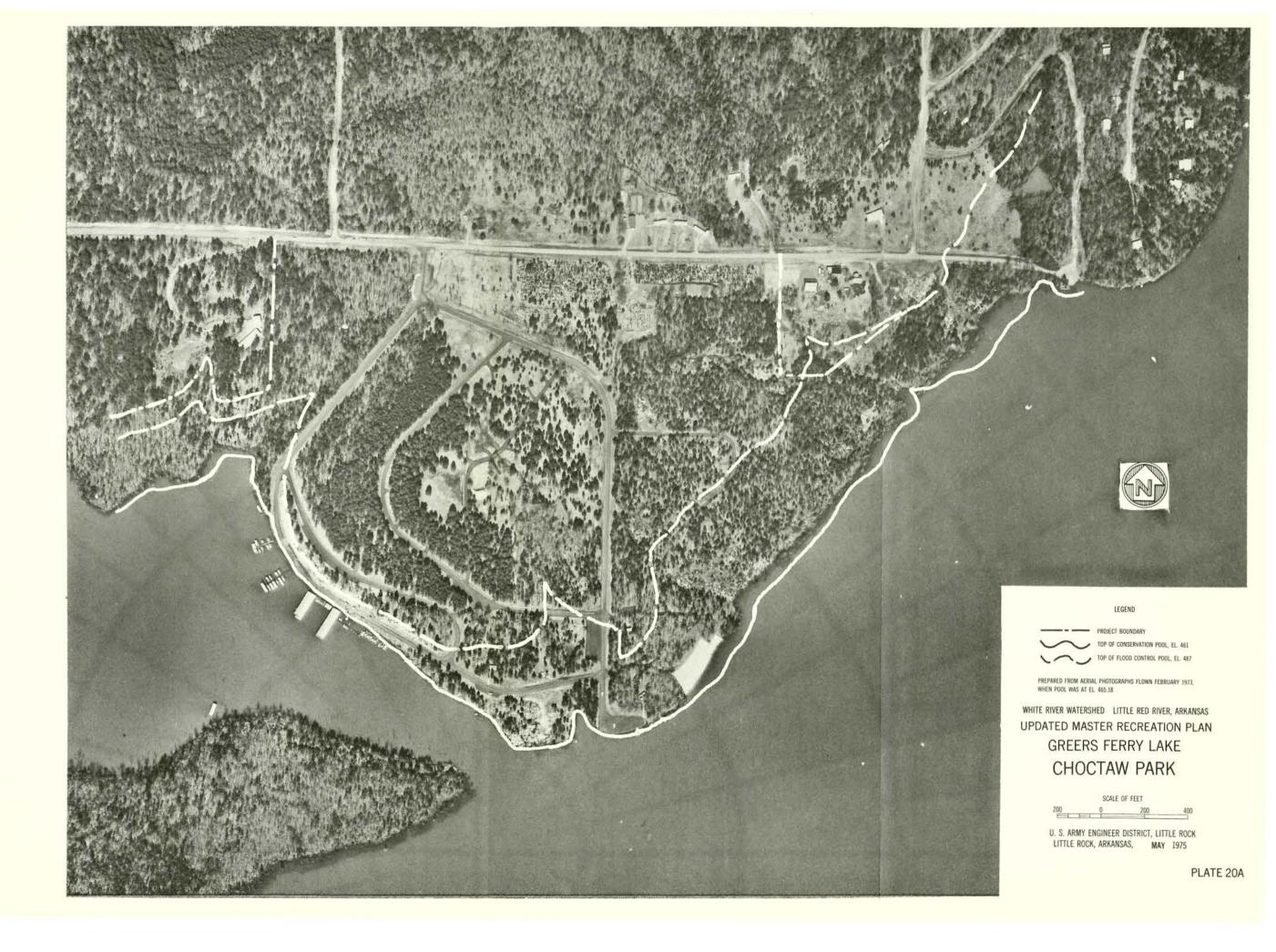


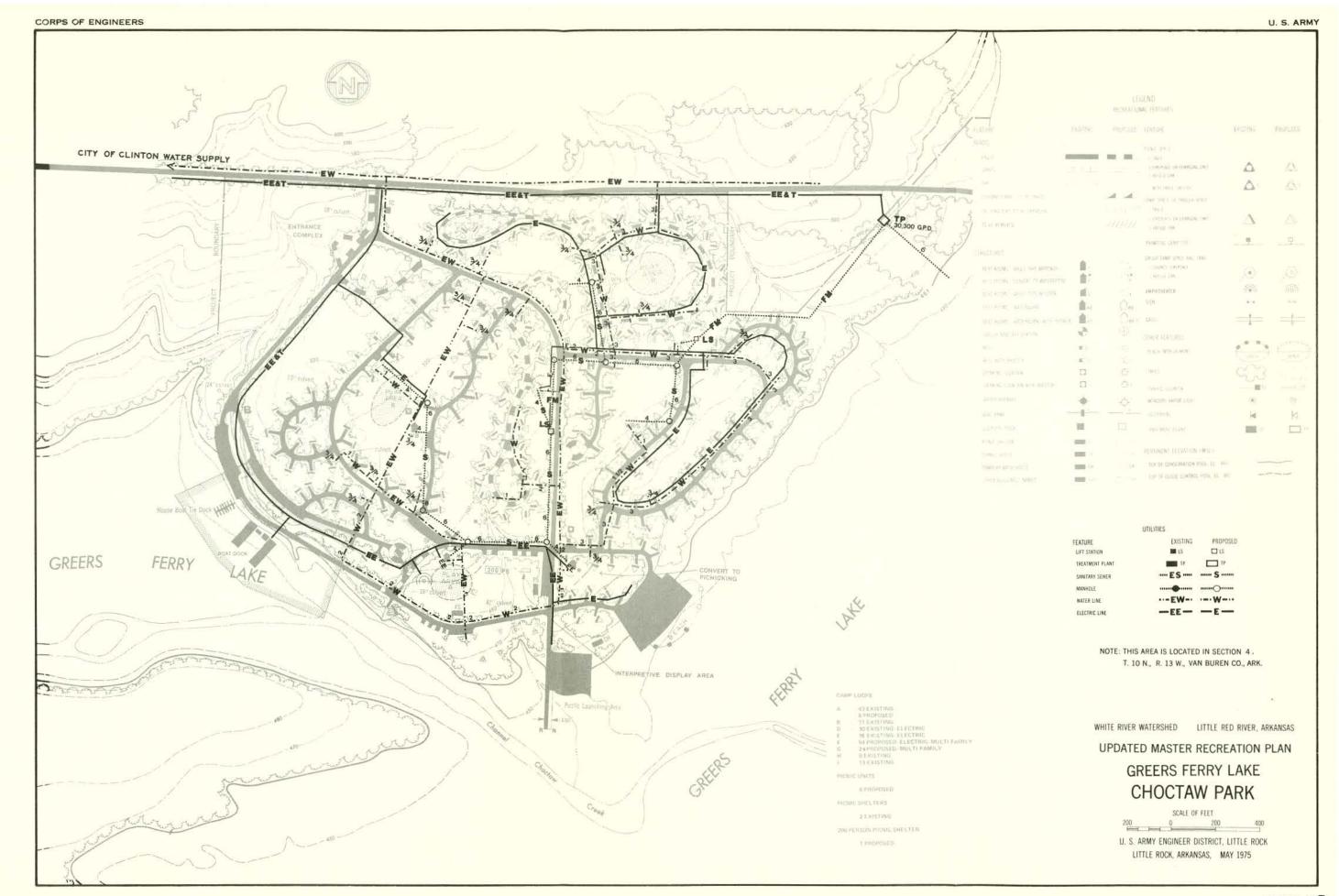


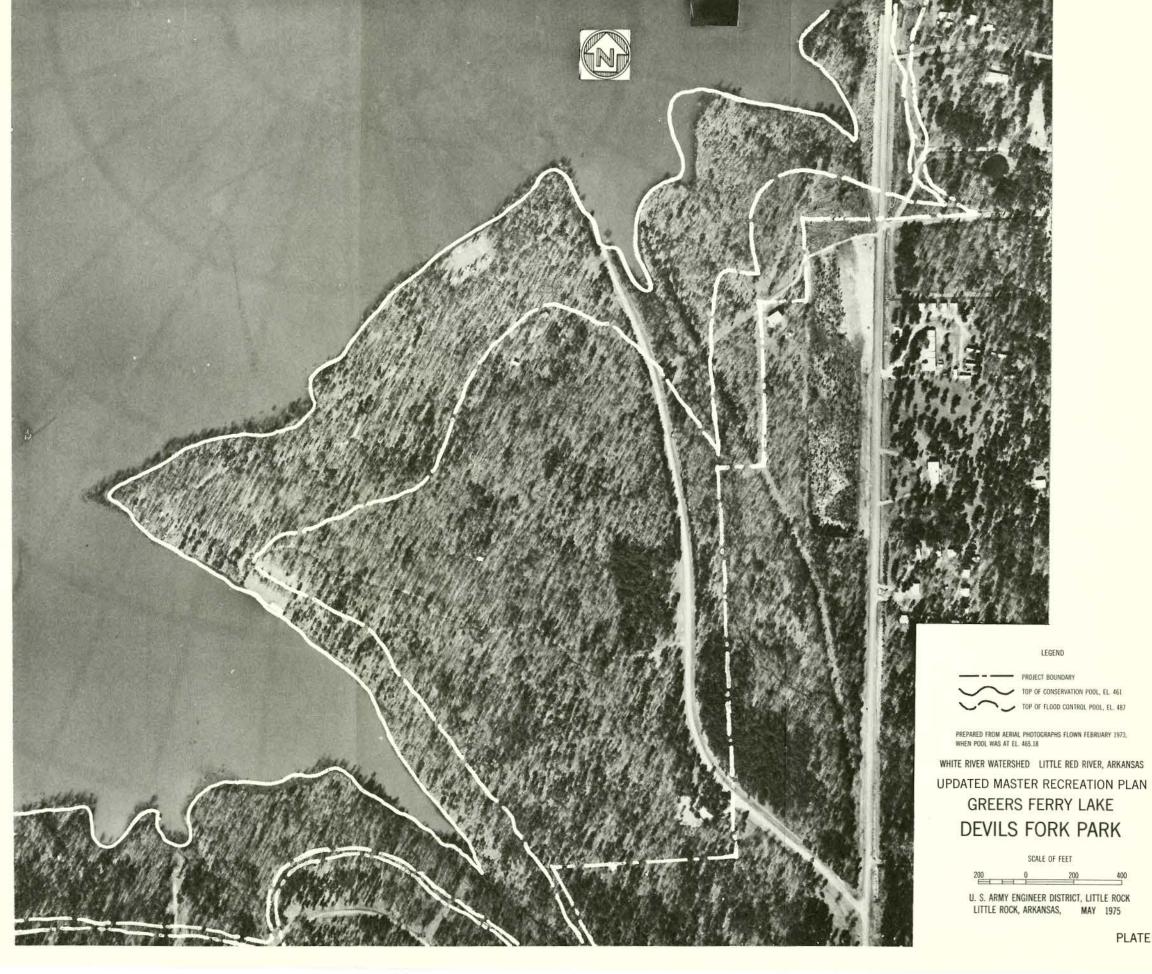


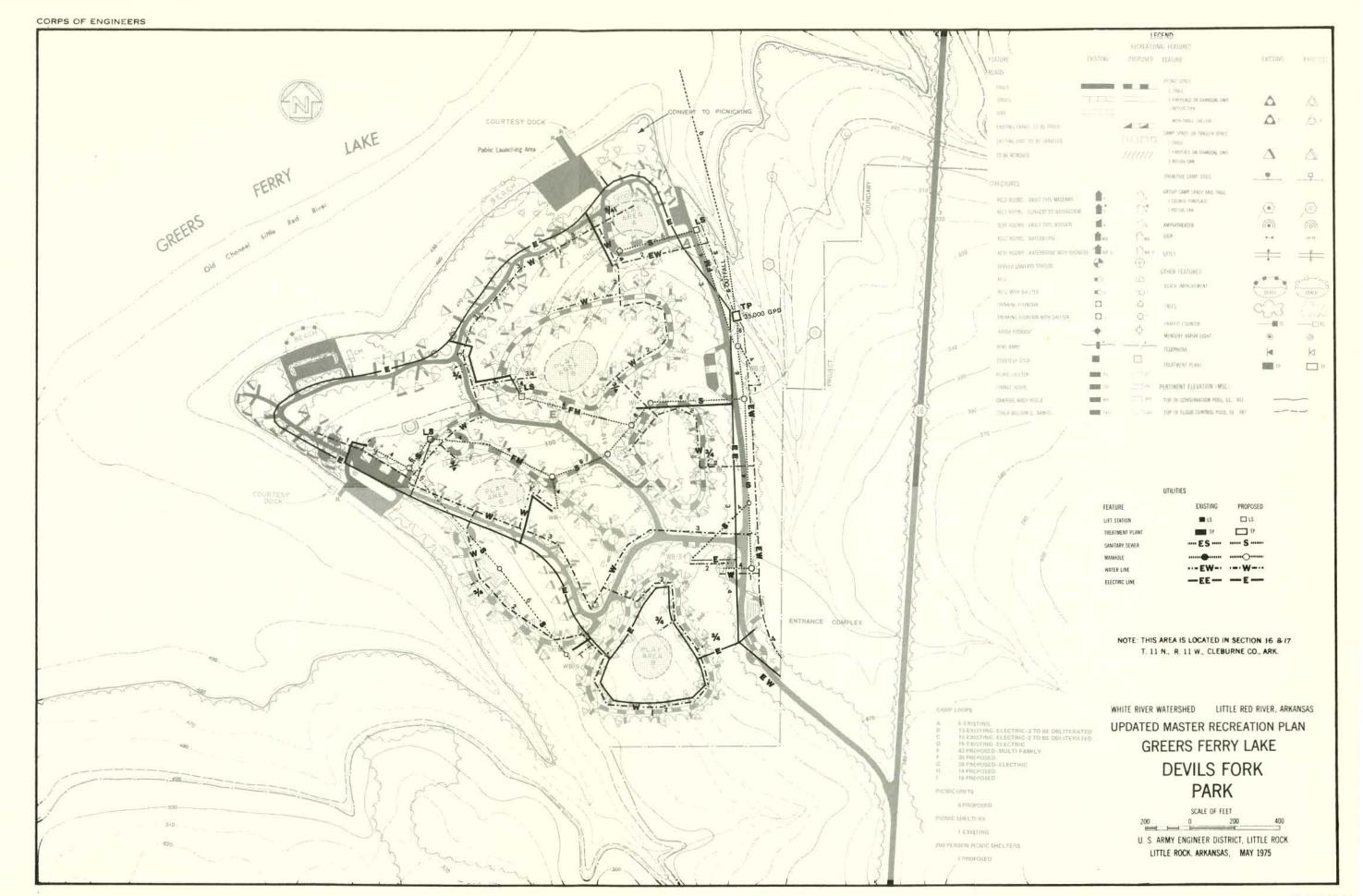


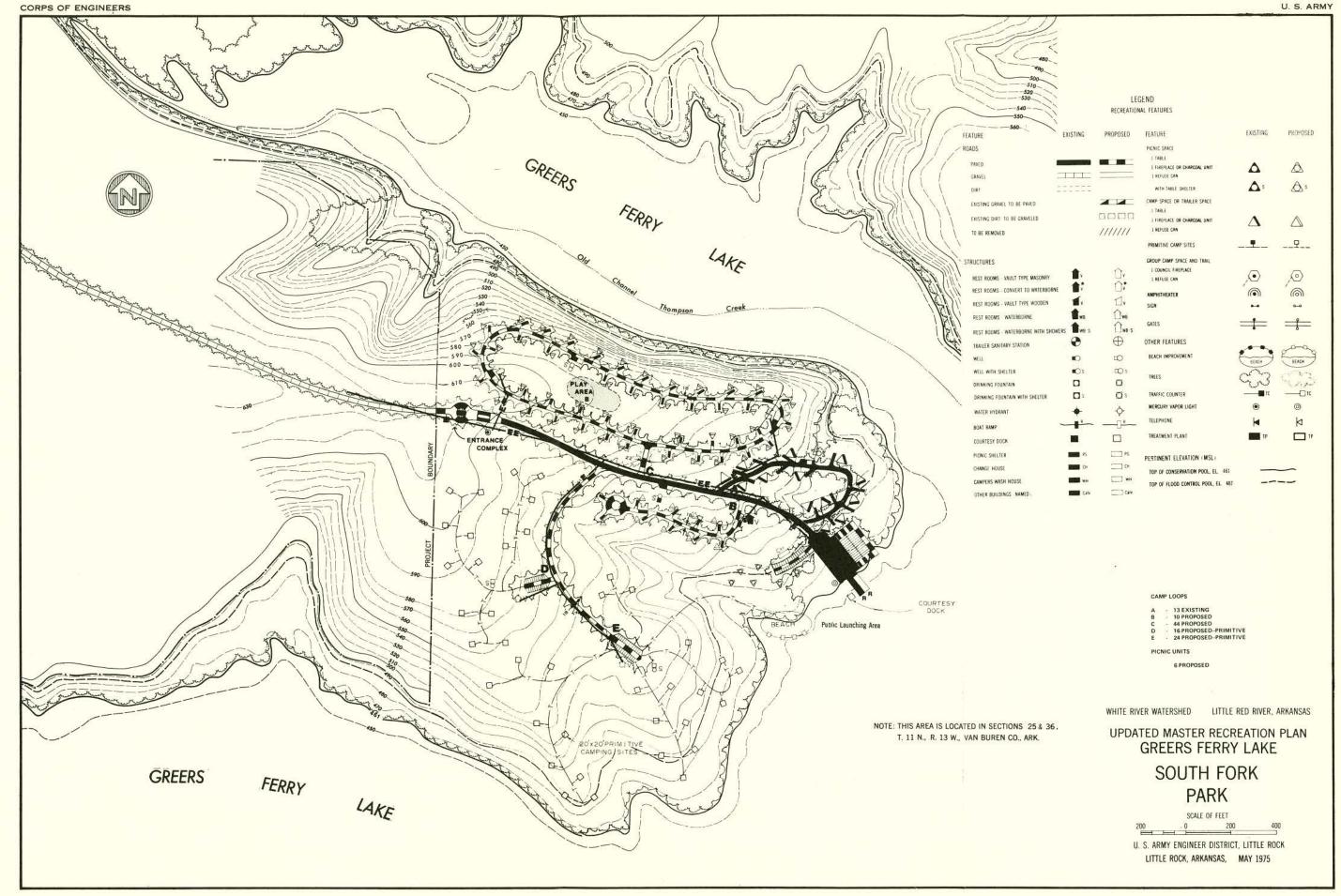


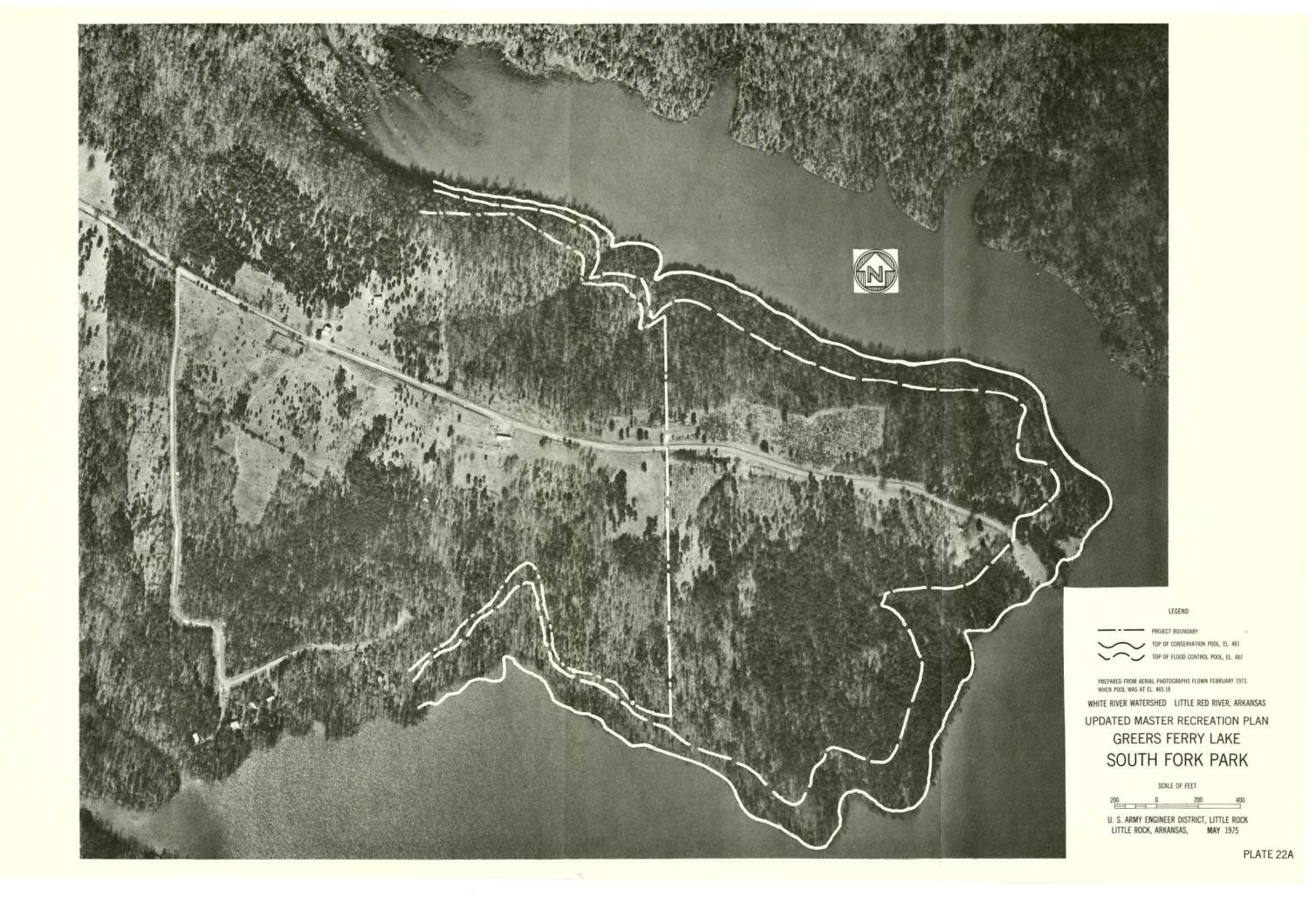


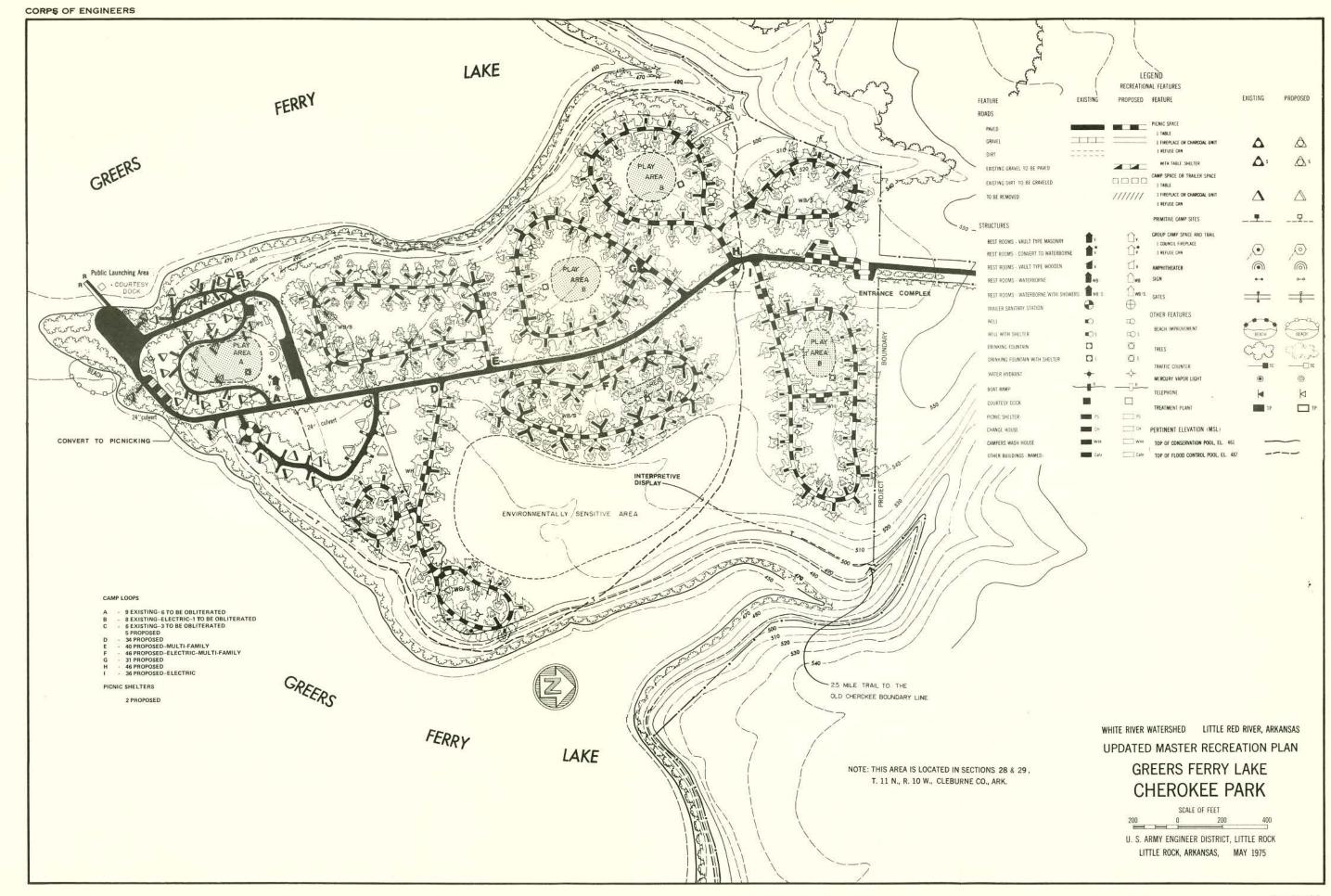




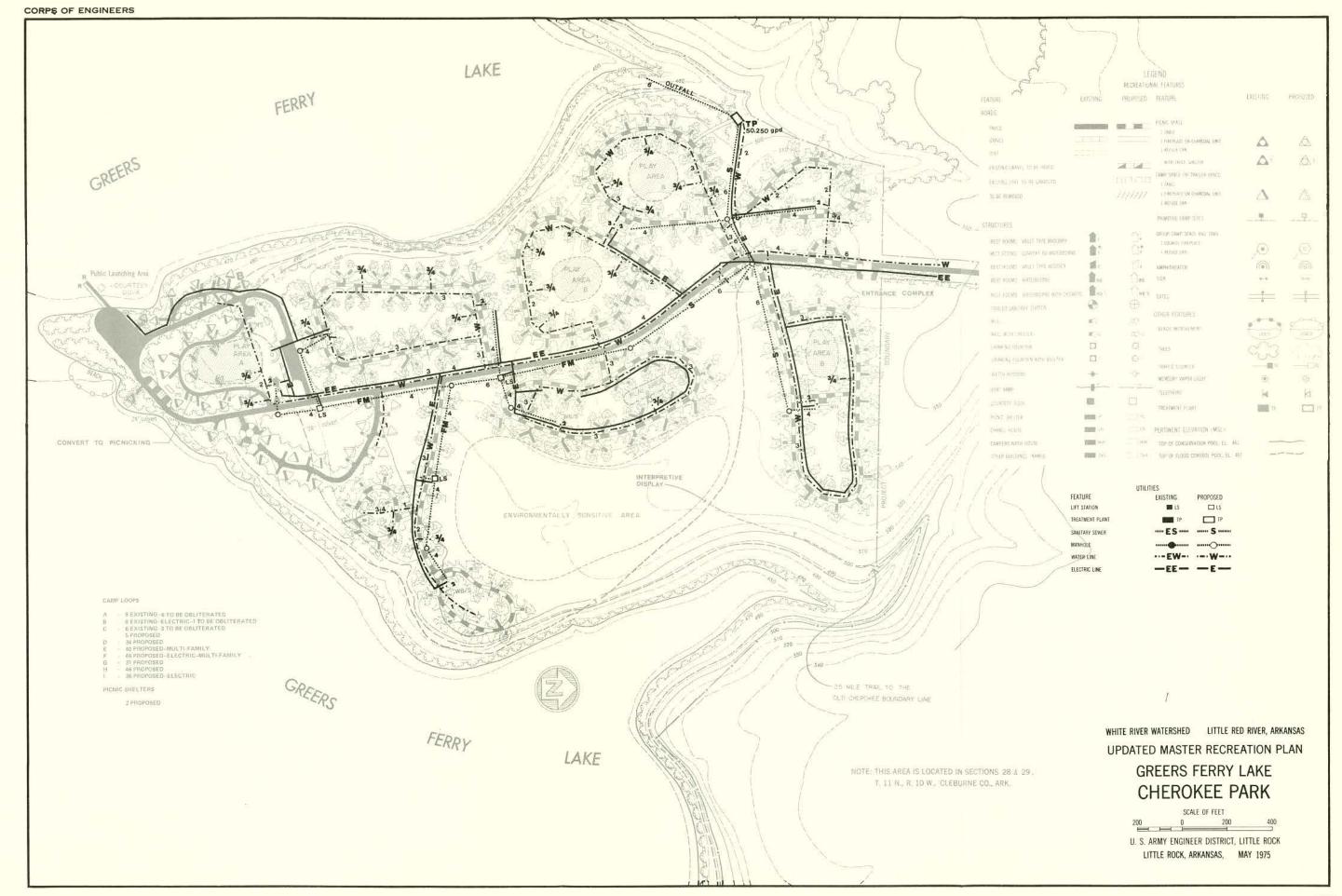












U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975



LEGEND



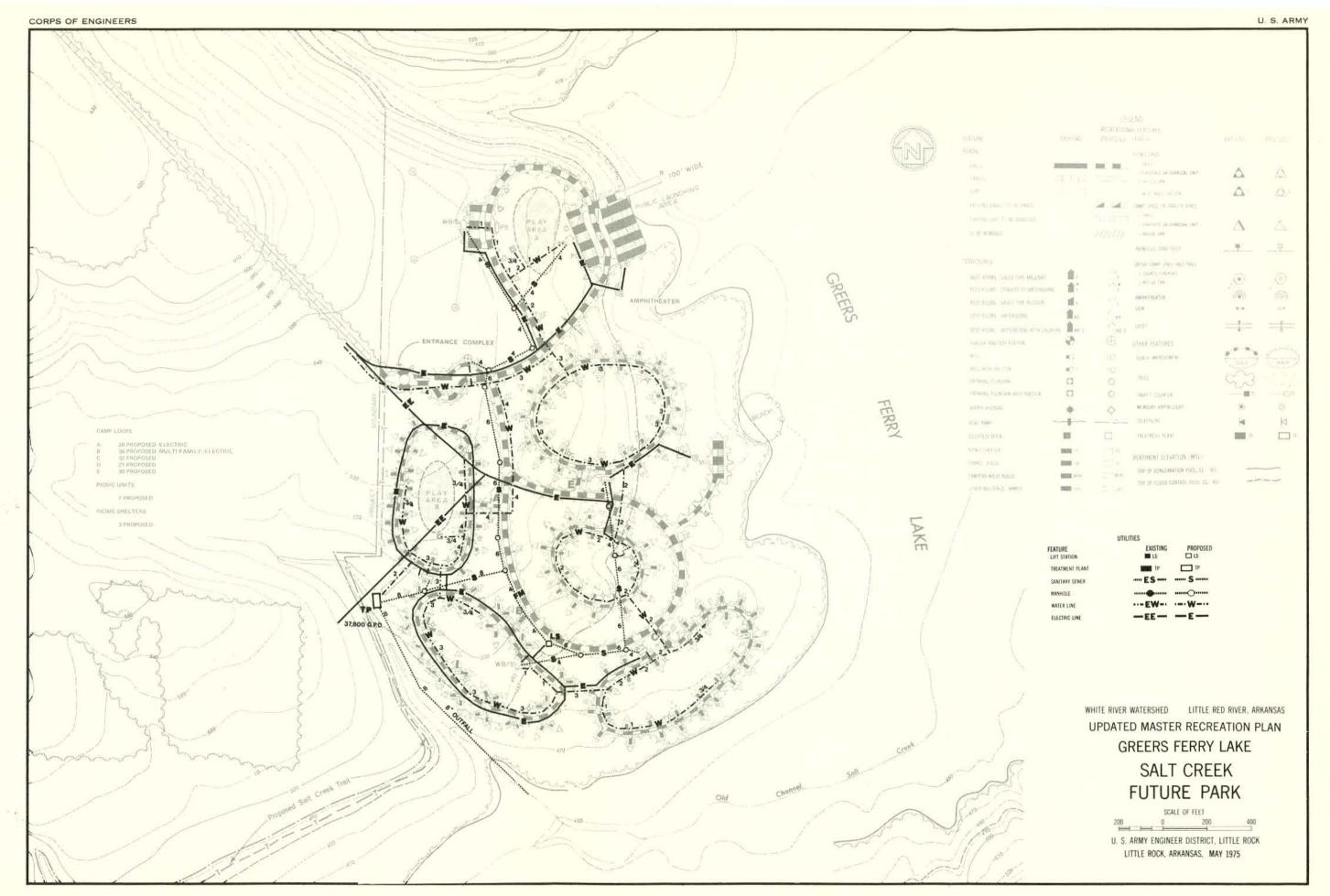
TOP OF CONSERVATION POOL, EL. 461

PREPARED FROM AERIAL PHOTOGRAPHS FLOWN FEBRUARY 1973, WHEN POOL WAS AT EL. 465.18

WHITE RIVER WATERSHED LITTLE RED RIVER, ARKANSAS UPDATED MASTER RECREATION PLAN GREERS FERRY LAKE SALT CREEK-FUTURE PARK



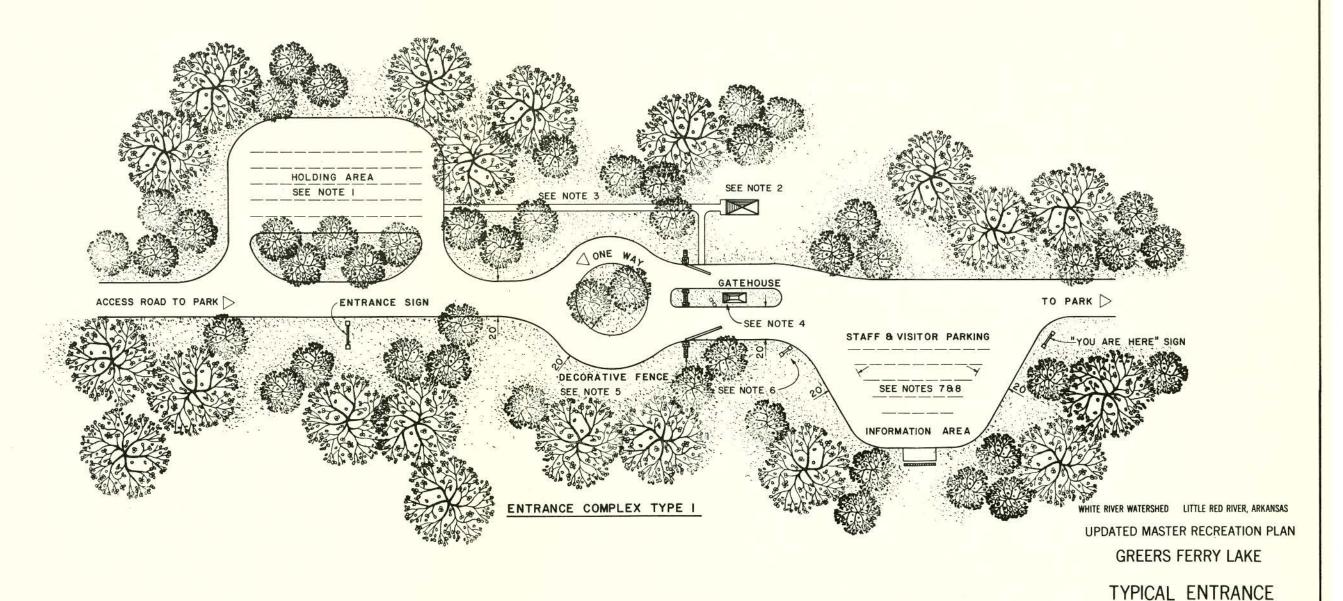
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975



TYPICAL ENTRANCE COMPLEX NOTES

- I. PARKING AREA FOR LATE ARRIVALS AND OVERFLOW (PARKING ARRANGEMENT WILL BE SITE ADAPTED TO PRECLUDE EXTENSIVE CUTTING OF TREES. GRAVEL PARKING.)
- 2. WHERE JUSTIFIED BY USE, RESTROOMS MAY BE PROVIDED AWAY FROM THE GATEHOUSE. THESE MAY BE SIMILAR TO CURRENT APPROVED DESIGNS OR THOSE SHOWN IN PARK PRACTICE DESIGN (PLATES 140A&G, 229H, AND 590H).
- 3. TRAILS AND RESTROOMS SHALL BE DESIGNED FOR USE BY THE PHYSICALLY LIMITED.
- 4. AT THE GATEHOUSE A MAP OF THE AREA SHALL BE PROVIDED WITH METAL OR PLASTIC NUMBERS TO BE USED BY RANGER TO DESIGNATE OCCUPIED

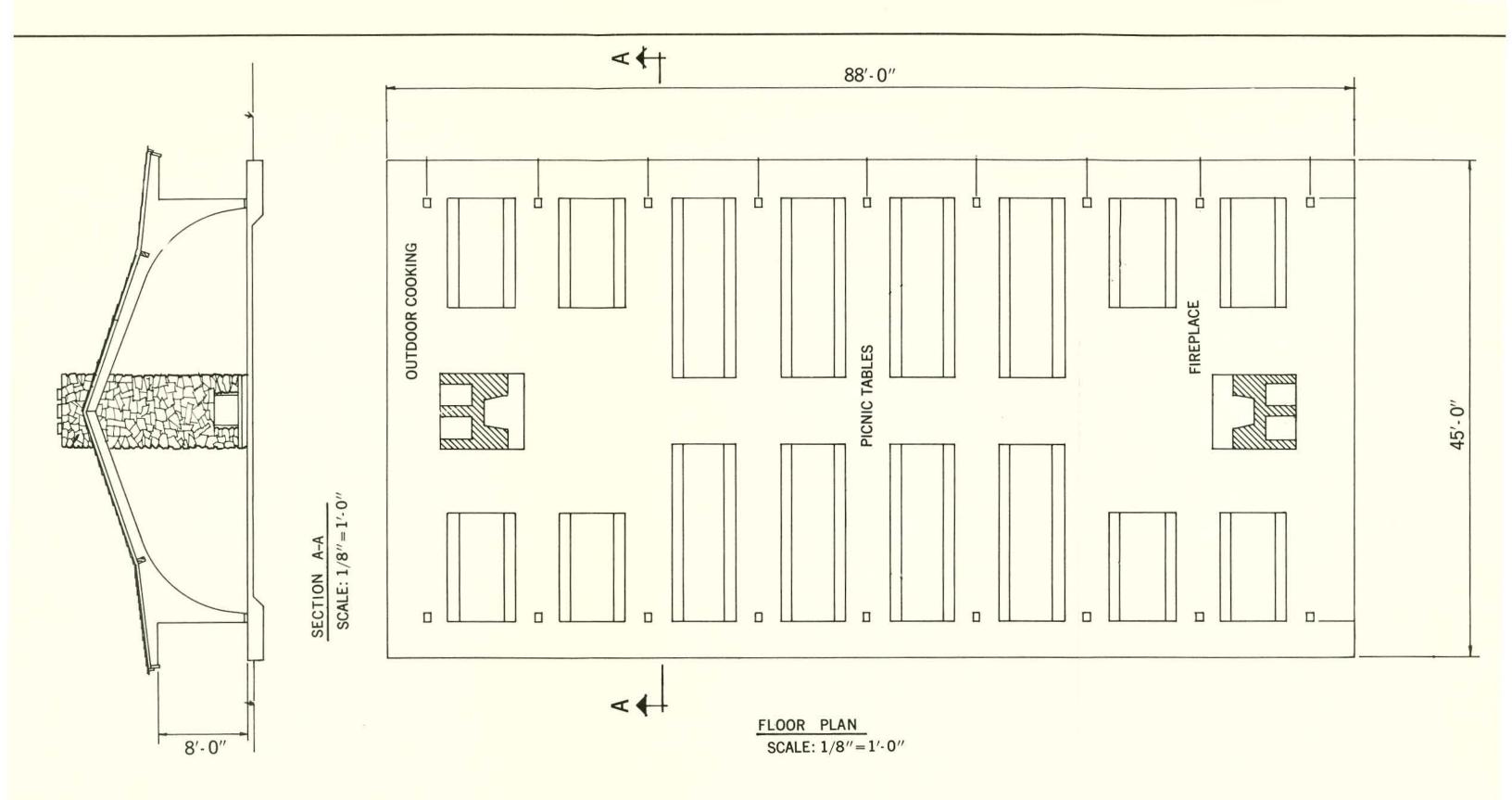
- 5. DECORATIVE FENCE AND GATES TO BLEND WITH LANDSCAPE.
- 6. COMPOSITE SIGN, USER FEE SIGN, AND FEE DEPOSITORY.
- PARKING AREA WILL BE LOCATED AND SIZED TO MEET THE NEEDS OF EACH INDIVIDUAL RECREATION AREA.
- 8. PARKING ARRANGEMENT WILL BE SITE ADAPTED TO PRECLUDE EXTENSIVE CUTTING OF TREES. PAVED PARKING.



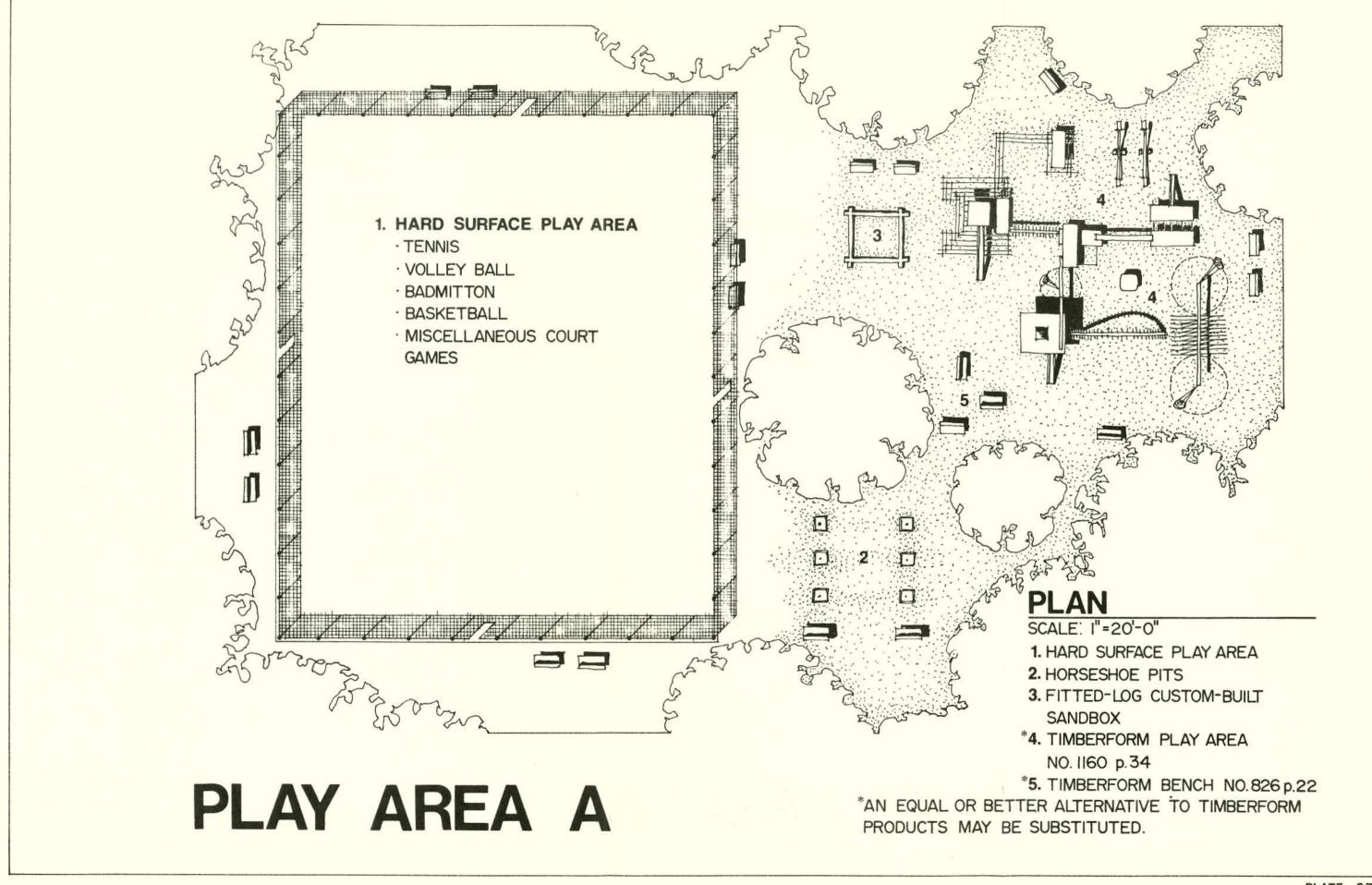
30' 0 30' 60'

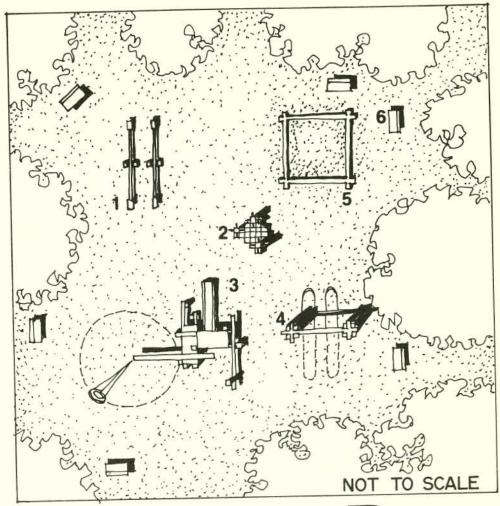
U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, MAY 1975

COMPLEX



GROUP CAMP PAVILION

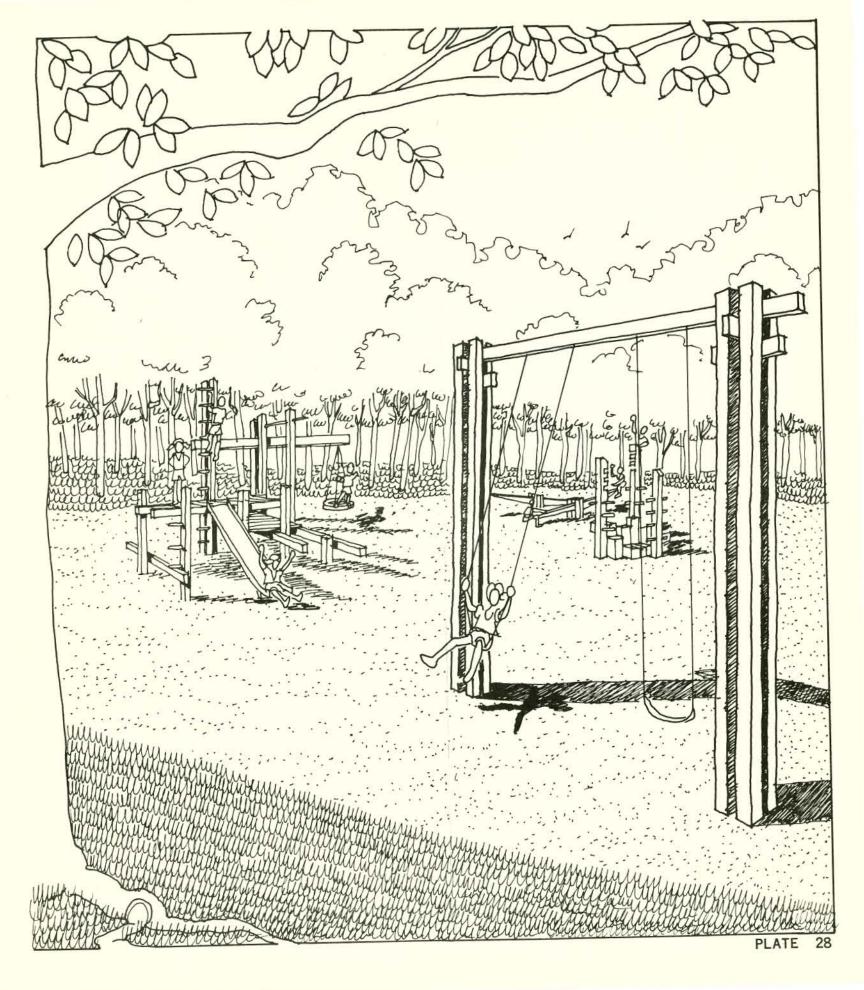


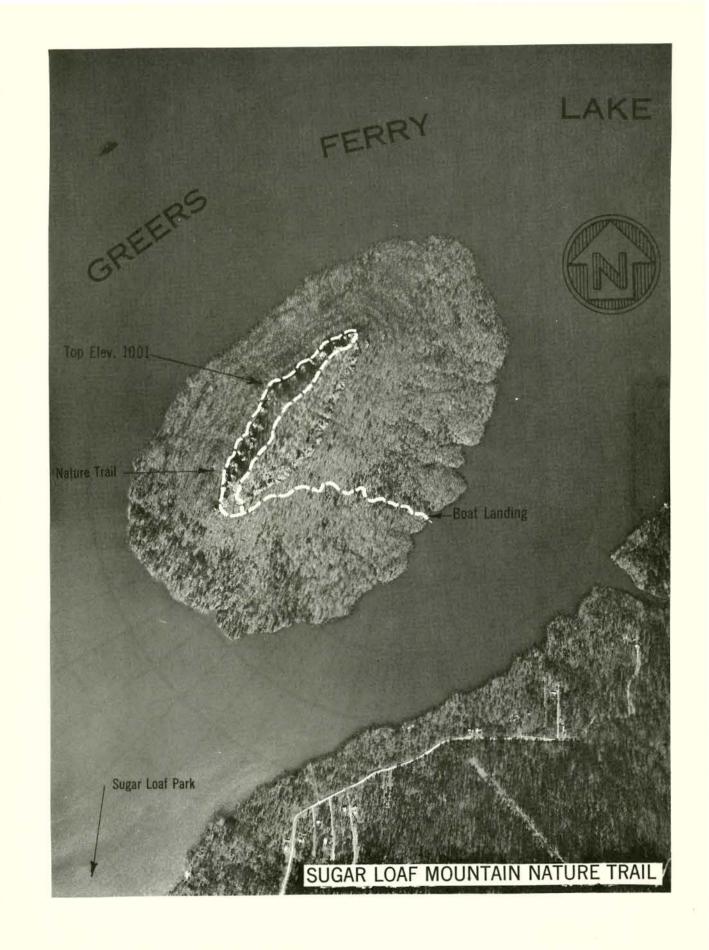


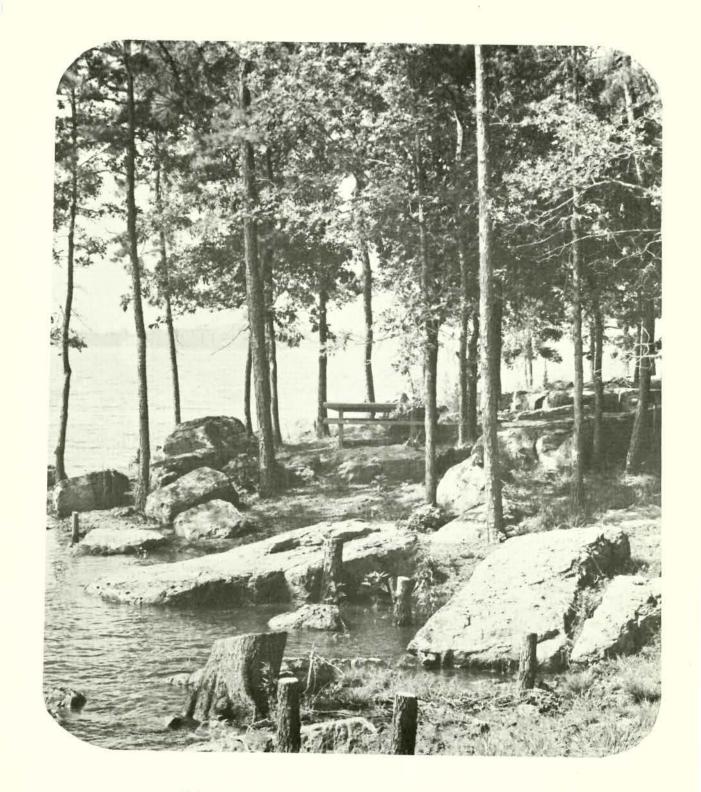
Play Area B

- 1 TIMBERFORM BALANCE BOARD 970 p.30
- 2 TIMBERFORM CLIMBER 533 p.19
- 3 TIMBERFORM PLAY CLUSTER 1304 p. 31
- 4 TIMBERFORM SWING SET 355 p.14
- 5 FITTED-LOG SAND BOX CUSTOM BUILT
- 6 TIMBERFORM BENCH 826 p.22

PAGE NUMBERS REFER TO PAGES IN THE TIMBERFORM PRODUCT GUIDE. HOWEVER, TIMBERFORM PRODUCTS ARE TO SERVE MERELY AS A STANDARD FOR DESIGN, CONSTRUCTION, AND HIGH QUALITY MATERIALS TO WHICH STANDARDS ANY ALTERNATIVE PRODUCT SHOULD COMPLY.

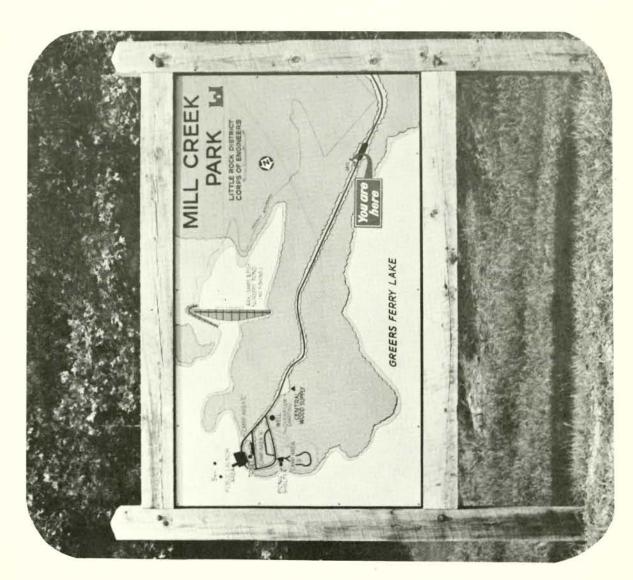


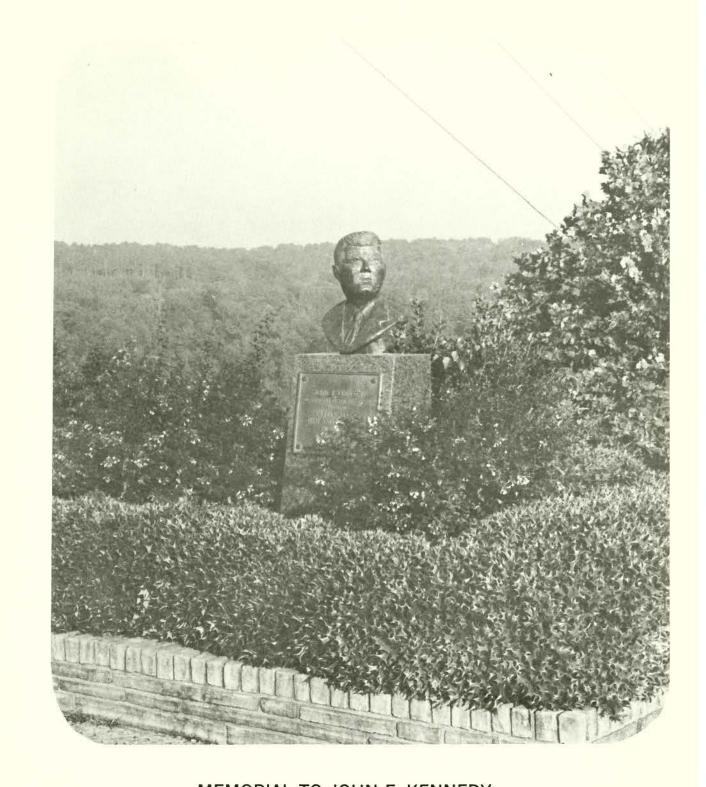




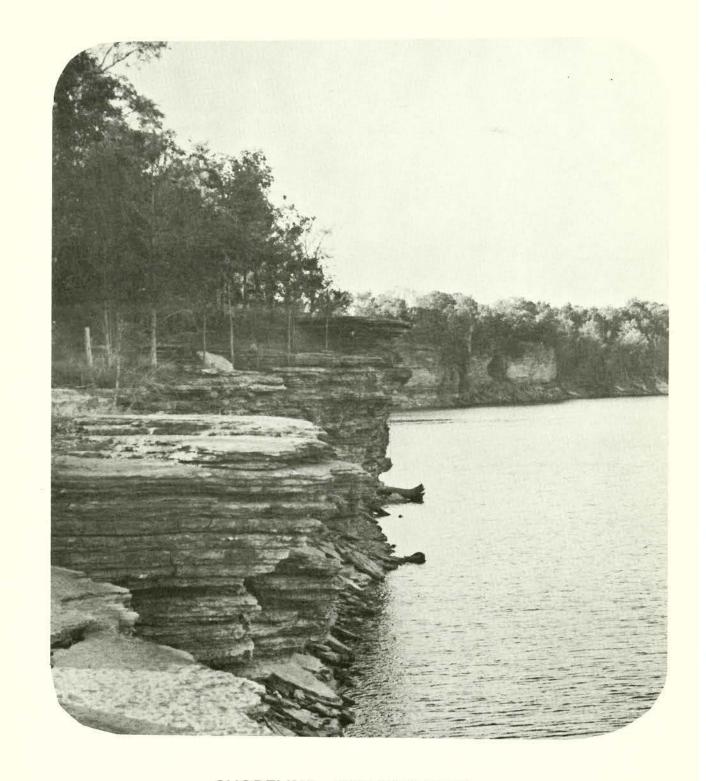
INTEGRATING FACILITIES WITH THE SITE



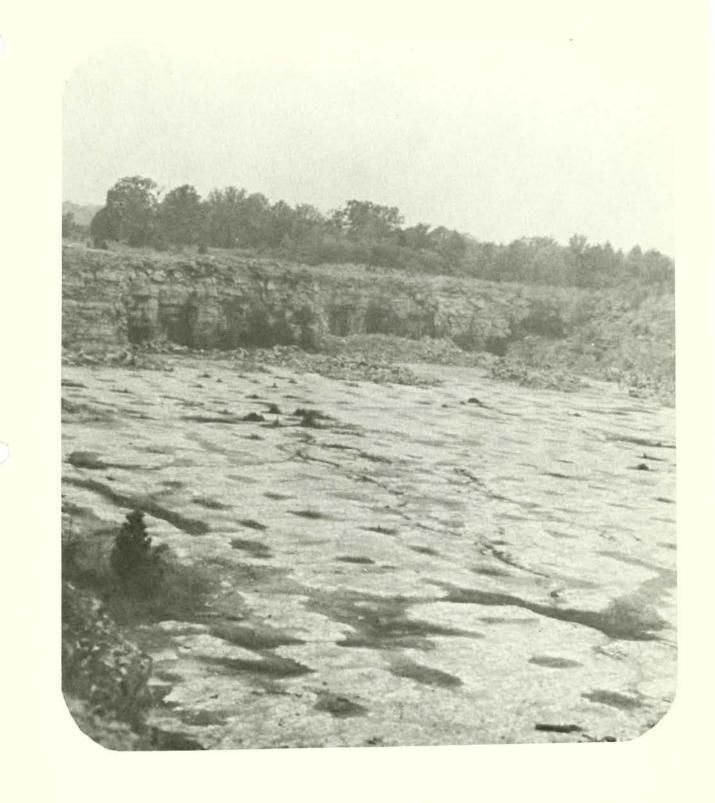




MEMORIAL TO JOHN F. KENNEDY



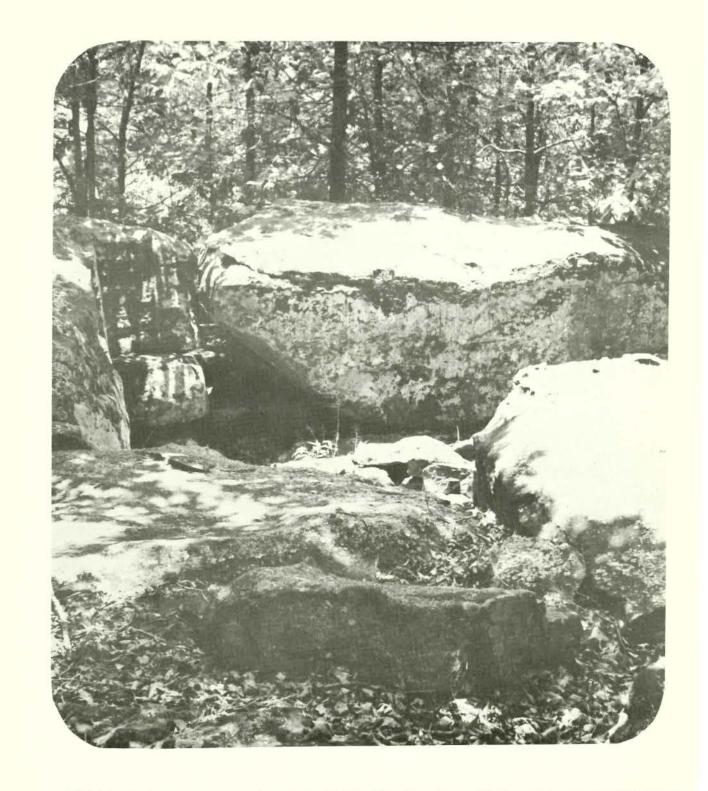
SHORELINE - DAM SITE PARK



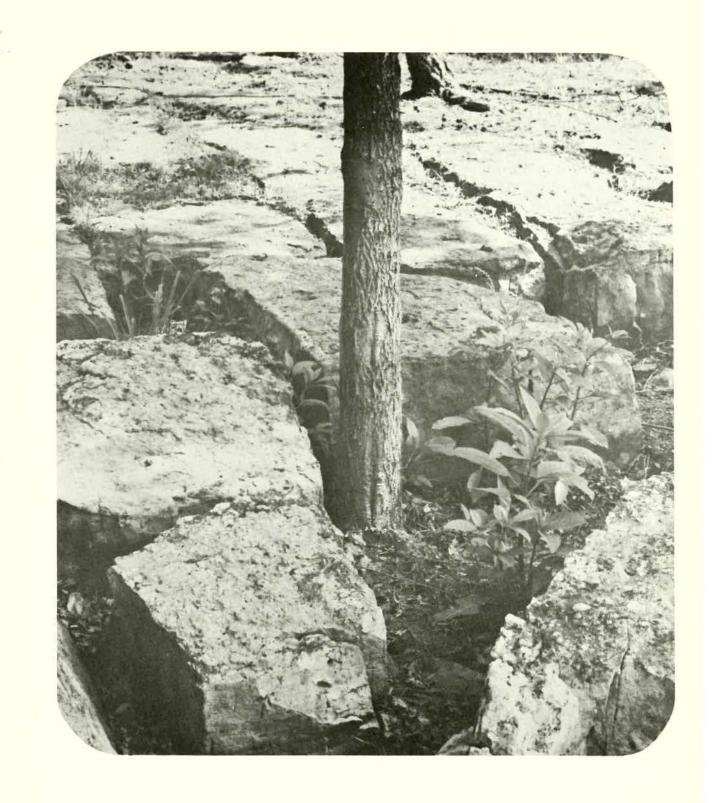
OLD HIGHWAY 25 PARK GRAVEL QUARRY



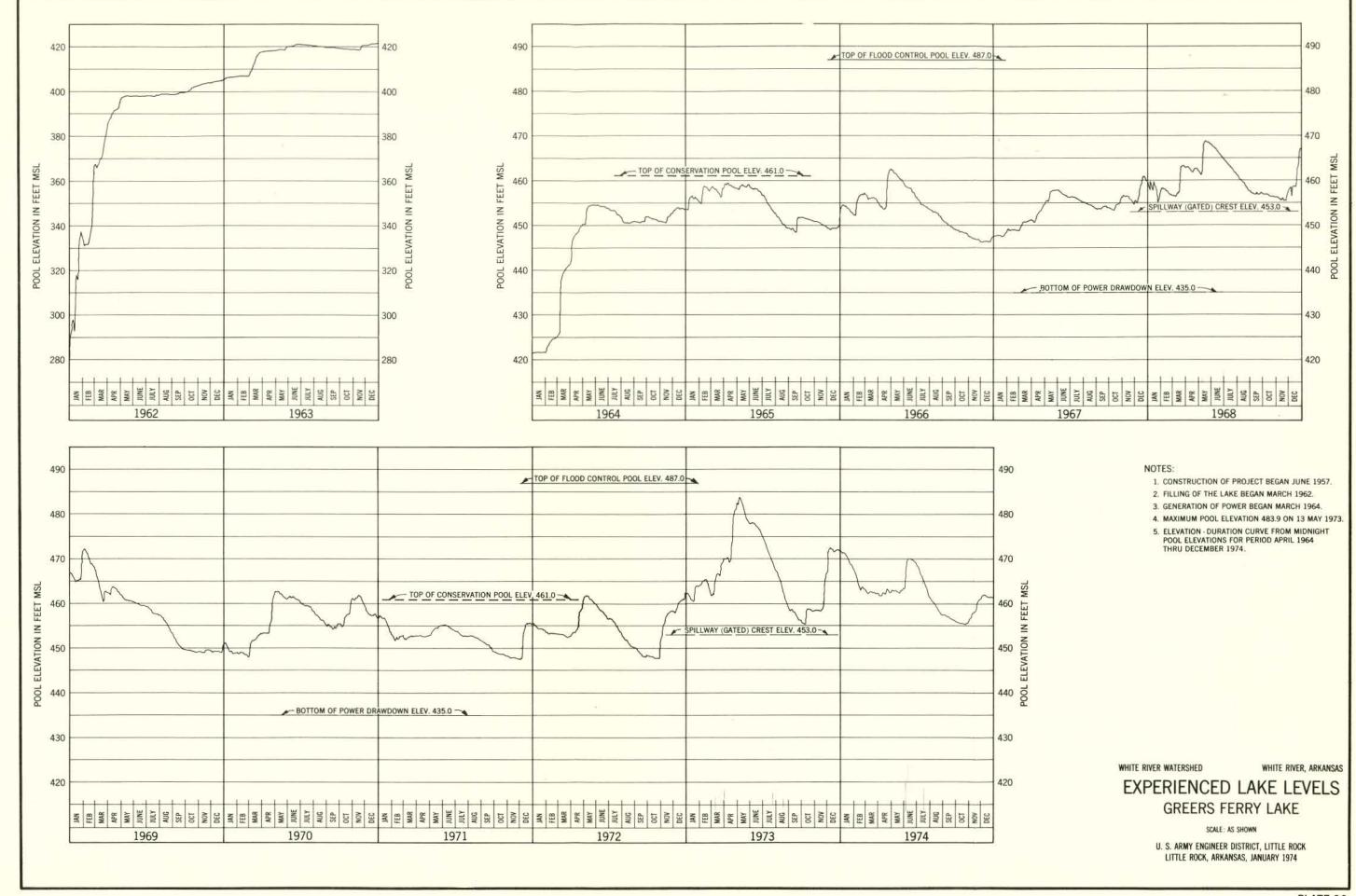
CHEROKEE PARK ENVIRONMENTALLY SENSITIVE AREA



TYPICAL GEOLOGICAL FORMATIONS FOUND THROUGHOUT THE GREERS FERRY LAKE AREA



SHORELINE WAVE ACTION EXPOSES INTERESTING ROCK FORMATIONS



420

20

40

PERCENT TIME EQUALED OR EXCEEDED POOL ELEVATION DURATION CURVE

60

80

EXPERIENCED LAKE LEVELS GREERS FERRY LAKE SCALE: AS SHOWN

U. S. ARMY ENGINEER DISTRICT, LITTLE ROCK LITTLE ROCK, ARKANSAS, JANUARY 1974