Bound

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

DESIGN MEMORANDUM NO. 5B

MASTER PLAN

(UPDATED)

DEPARTMENT OF THE ARMY
TULSA DISTRICT CORPS OF ENGINEERS
OKLAHOMA

CESWD-CO-RP (CESWT-OD-RP/9 Oct 90) 1st End Mr. McCauley/tw/7-2434
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 6 to Design Memorandum No. 5B, Master Plan (Updated)

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 19 OCT 1990

FOR Commander, Tulsa District, ATTN: CESWT-OD-RP

Approved.

FOR THE COMMANDER:

Barry G Rought

Encl
wd

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

CF (w/basic & encl):
CECW-ON
CESWD-PL-R
CESWD-RE-M

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121-0061

REPLY TO
ATTENTION OF:

CESWT-OD-RP (1130)

09 OCT 1990

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

SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 6 to Design Memorandum No. 5B, Master Plan (Updated)

Enclosed subject supplement is submitted for review and approval.

FOR THE COMMANDER:

Encl (4 cys)

JOHN P. CLARK, P.E.
Chief, Operations Division

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 6
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN

1. Purpose. The purposes of this supplement are to:

a. Request approval for the addition of a waterborne shower and toilet building, 10 campsites, 14 electric hookups, and a group picnic shelter in Lost Rapids Park.

b. Request approval for the addition of a waterborne shower and toilet building, 11 campsites and 8 electrical hookups in Little River Park South.

c. Request approval for the addition of 13 campsites, a waterborne toilet, and 4 group picnic shelters in Pine Creek Cove Park.

d. Update drawing number CB800-DM5B-93/12 to reflect the conversion of Turkey Creek Landing from a state park to a Corps managed park.

2. Discussion. The proposed developments will be accomplished as future SRUF funding becomes available.

a. An agreement with the Oklahoma Department of Tourism and Recreation has resulted in the transfer of all recreation facilities at Hulah and Great Salt Plains Projects to the State. As part of this agreement, the operation of Turkey Creek Landing at Pine Creek has reverted from the State to the Corps. Turkey Creek is in a remote location compared to other parks at the project, and will be best utilized as the free area at Pine Creek. This action will allow fees to be charged at Lost Rapids Park, which has been the free area. Located across the lake from Little River Park, Lost Rapids has easy access from a state highway and had visitation in 1989 of 2,212,929 visitor hours. It currently has pit toilets, 20 campsites and 5 picnic sites. Addition of a waterborne toilet will allow fees for a Class B park to be charged, resulting in a significant increase in fee revenue for the project. Construction of 10 more campsites and 14 electric hookups will also increase the fee potential of the park. These new sites and hookups will be installed at a higher elevation than the existing sites, making them less prone to flooding and requiring less maintenance. The group picnic shelter will add to the overall attractiveness of the park for group use, resulting in even more fee revenue. These proposed additions are shown on revised drawing CB800-DM5B-93/9.

b. Little River Park has the highest fee collections at Pine Creek Lake, but suffers from the fact that many of its sites are located at lower elevations where frequent spring rains and resulting high pool elevations limit their use. The addition of 11 campsites and 8 electric hookups as indicated on drawing CB800-DM5B-93/7 will result in more attractive facilities at higher elevations. With the accompanying waterborne toilet, these sites will be highly used, especially during periods of high water. Currently the closest toilet building to this camping loop is 1/2 mile away.

c. Pine Creek Cove, while second in fee collections at Pine Creek Lake, had the highest per site revenue of almost $350 per site in 1989. Of the 41 campsites already in place, 40 have electric hookups and there have been many requests from campers for non-electric sites. The addition of 13 non-electric campsites will fulfill this need, plus provide additional revenue for the project. The proposed waterborne toilet and four group picnic shelters near the swimming beach will provide an attractive area for group use, resulting in higher visitation in the park. These proposed changes are shown on revised drawing CB800-DM5B-93/8.

d. Drawing CB800-DM5B-93/12 is being submitted for revision to the title block since it is no longer a state park. Turkey Creek Landing was recently returned to the Corps by the State of Oklahoma as part of an exchange to promote better operational efficiency. This park will be utilized as the free camping area at Pine Creek Lake, due to its more remote location and higher fee collection costs.

3. Recommendation. I recommend that this supplement be approved as submitted.

JOHN P. CLARK, P.E.
Chief, Operations Division

MATCH LINE - SEE SHEET 2

ROAD "A"

ROAD "E"

ROAD "F"

ROAD "G"

ROAD "H"

WB/S

WV

MV

GPS

PROPOSED WATERBORNE TOILET WITH SHOWER, ROAD AND 11 CAMPSITES

END OF RAMP ELEV. 420.0'

N

T 4 S

R 21 E

5 | 4

32 | 33

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S		1	
WATERBORNE TOILET			
MASONRY VAULT TOILET	1		
WOOD VAULT TOILET	3		
* CAMPSITES	33	11	
* PICNIC SITES	5		
PEDESTAL COOKERS	33		
FIRERINGS	33		
LANTERN STANDS	33		
UTILITY TABLES	33		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	21		
WELLS (HAND PUMP)			
WATER HYDRANTS	1		
GROUP PICNIC SHELTER	1		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
(SOUTH)

SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-**DM5B-93/7**

REVISED SEPT. 1990

R 21 E

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	2		
WATERBORNE TOILET W/S	1		
WATERBORNE TOILET		1	
MASONRY VAULT TOILET			
WOOD VAULT TOILET	4		
CAMPSITES	31	13	
* PICNIC SITES			
PEDESTAL COOKERS	31		
FIRERINGS	31		
LANTERN STANDS	31		
UTILITIES TABLES	31		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	22		
WELLS (HAND PUMP)	1		
WATER HYDRANTS			
METAL VAULT	4		
GROUP PICNIC SHELTER	3	4	

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

LAKE

9 PROPOSED CAMPSITES

4 PROPOSED CAMPSITES

OVERFLOW CAMP

POND

Metal Vaults

DIRT BOAT LANDING

PLANT MIXED STAND

FILL & PLANT MIXED STAND

HAUL ROAD SCAR

ROAD "B-1"

GATE TOWER

OPEN SPACE

SWIMMING BEACH

GPS

WB

METAL VAULTS

GATE

ROAD "C"

ROAD "C-1"

ROAD "A"

ROAD "B"

WB/S

WATER TREATMENT PLANT

PROPOSED WATERBORNE TOILET & 4 GROUP PICNIC SHELTERS

GATE HOUSE

GATE ATTEDANT PADS

OXIDATION POND

SPILLWAY

OUTLET CHANNEL

OVERLOOK

WV

STATE WILDLIFE MANAGEMENT LANDS

28' ROADWAY

BEGIN PUBLIC-USE ROAD SEE DRAWING NO. 93/5

NOTE: NO ELECTRICAL HOOKUPS-SUBJECT TO FLOODING.

T 5 S

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

PINE CREEK COVE

SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB. 1977

CB800-DM5B-93/8

REVISED SEPT. 1990

R 21 E

T 4 S

OLD HIGHWAY BRIDGE USED FOR FISHING PIER

PARKING

GOVERNMENT PROPERTY LINE

SE CORNER OF THE NE 1/4 OF SEC. 28

4" WATER MAIN (RATTAN WATER DIST.)

2" METER

R/W

PROPOSED GROUP PICNIC SHELTER

GPS

END OF RAMP ELEV 420.0

10 PROPOSED CAMPSITES & A WATERBORNE TOILET WITH SHOWER TO REPLACE MASONRY VAULT TOILET

N

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S		1	
WATERBORNE TOILET			
MASONRY VAULT TOILET	1		
WOOD VAULT TOILET	2		
* CAMPSITES	15	10	
* PICNIC SITES	10		
PEDESTAL COOKERS	25		
FIRERINGS	25		
LANTERN STANDS	15		
UTILITY TABLES	25		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	13		
WELLS (HAND PUMP)			
WATER HYDRANTS	3		
GROUP PICNIC SHELTER		1	

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST RAPIDS PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/9

REVISED SEPT 1990

CESWD-CO-RP (CESWT-OD-RP/ 27 Feb 89) (1130a) 1st End Mr. McCauley/ te/767-2434
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 5 to Design Memorandum No. 5B, Master Plan (Updated)

CDR, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 15 MAR 1989

FOR CDR, Tulsa District, ATTN: CESWT-OD-RP

Approved, subject to the following comment:

Little River Park (North), Plate 93/6. The location of the proposed waterborne toilet/shower and sanitary dump station is not located conveniently to the camping units. EM 1110-2-400, dated 31 July 1987, provides for siting a comfort station within a 600-foot radius of the majority of the users. Consideration should be given to re-siting this facility to better serve the user.

FOR THE COMMANDER:

Gene R. Dretke

GENE R. DRETKE, P.E.
Acting Chief, Construction-Operations Division

Encl
w/d

CF (w/basic & encl):
CECW-ON
CESWD-PL-R
CESWD-RE-M

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121-0061

REPLY TO
ATTENTION OF:

FEB 27 1989

CESWT-OD-RP (1130)

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

SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 5 to Design Memorandum No. 5B, Master Plan (Updated)

Enclosed subject supplement is submitted for review and approval.

FOR THE COMMANDER:

JOHN P. CLARK, P.E.
Chief, Operations Division

Encl (4 cys)

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 5
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

1. Purpose. The purposes of this supplement are:

a. Request approval for the future addition of a waterborne shower/toilet and dump station on the H loop of Little River Park (South).

b. Request approval for the future addition of a waterborne shower/toilet and dump station on the B loop of Little River Park (North).

2. Discussion. Construction of each of the facilities will be accomplished as future SRUF funds become available. Little River Parks North and South are heavily used class B public use areas. Currently, only one waterborne facility exists on the lake and this facility is not within a reasonable distance to either of the aforementioned parks. The addition of these two facilities will upgrade each park to a class A area, thus increasing user fee revenues and eliminating a sanitary deficiency in each area. The location of the proposed facilities are shown on drawing Nos. CB800-DM5B-93/6 and CB800-DM5B-93/7.

3. Recommendation. I recommend that this supplement be approved as presented.

FOR THE COMMANDER:

JOHN P. CLARK, P.E.
Chief, Operations Division

R 21 E

T 4 S

GOVERNMENT PROPERTY LINE

MATCH LINE SEE SHEET 1

4" WATER MAIN ("RATTAN WATER DIST.")

R/W

2" METER

OVERHEAD PRIMARY POWER SUPPLY

W 2" LINE

ROAD "B"

PROPOSED WATERBORNE TOILET/SHOWER & SANITARY DUMP STATION

DIP POLE

METER POLE

END OF RAMP ELEV. 423.0'

ROAD "B-1"

ROAD "C"

GROUP SHELTER

OPEN SPACE

PLANT MIXED STAND

SWIMMING AREA

BEACH

TRAIL

ROAD "D" STA 3+57 ELEV. 447.5

ROAD "D" STA 12+30 ELEV. 443.0

MATCH LINE SEE SHEET 3

N

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET	2		
* CAMPSITES	39		
* PICNIC SITES	4		
PEDESTAL COOKERS	39		
FIRERINGS	39		
LANTERN STANDS	39		
UTILITY TABLES	39		
ELECTRICAL HOOK-UPS		19	
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	26		
WELLS (HAND PUMP)	1		
WATER HYDRANTS	5		
GROUP PICNIC SHELTER		1	
SANITARY DUMP STATION	1		

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK (NORTH)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB, 1977

SHEET 2

CB800-DM5B-93/6

REVISED: MARCH 1981

MATCH LINE - SEE SHEET 2

PROPOSED WATERBORNE TOILET/SHOWER & SANITARY DUMP STATION

OPEN SPACE

CLEAR CUT TO IRREGULAR SHAPE

ROAD "A"

ROAD "E"

ROAD "F"

ROAD "G"

ROAD "H"

2" LINE W

WV

MV

GPS

END OF RAMP ELEV. 420.0

N

T 4 S

R 21 E

5 | 4

32 | 33

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET	1		
WOOD VAULT TOILET	3		
* CAMPSITES	33		
* PICNIC SITES	5		
PEDESTAL COOKERS	33		
FIRERINGS	33		
LANTERN STANDS	33		
UTILITY TABLES	33		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	21		
WELLS (HAND PUMP)			
WATER HYDRANTS	1		
GROUP PICNIC SHELTER	1		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK (SOUTH)

SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-DM5B-93/7

REVISED OCT 1988

CESWD-CO-RP (CESWT-OD-RP/15 Nov 88) (1130) 1st End McCAULEY/tw/7-2434
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 4 to Design Memorandum No. 5B, Master Plan (Updated)

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 8 DEC 1988

FOR: Commander, Tulsa District, ATTN: CESWT-OD-RP

Approved.

FOR THE COMMANDER:

Encl wd

GENE R. DRETKE, P.E.
Acting Chief, Construction-Operations Division

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121-0061

REPLY TO
ATTENTION OF:

CESWT-OD-RP (1130)

15 NOV 1988

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

SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 4 to Design Memorandum No. 5B, Master Plan (Updated)

Enclosed subject supplement is submitted for review and approval.

FOR THE COMMANDER:

Encl (4 cys)

JOHN P. CLARK, P.E.
Chief, Operations Division

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 4
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

1. Purpose. The purposes of this supplement are:

a. Request approval for the construction of 13 campsites with electric hookups in loop A of Little River Park (south).

b. Request approval for the construction of 5 campsites with electric hookups in loop E of Little River Park (south).

2. Discussion. Construction on the 18 campsites will be accomplished using FY89 SRUF funds. Little River Park (south) is a heavily used area. The campsites will be installed on existing loop roads and will utilize as much as possible the areas commonly enjoyed by visitors. The sites will be dressed up with landscaping timbers for improved appearance. This is not possible for most of the lakes' 156 campsites, which are near elevation 443.5 and are frequently flooded. Installation of these new sites will relieve overcrowding during weekends and peak periods, while providing low maintenance sites at the higher lake elevation. Revenues are expected to increase by $10,000 per year with minor increase in O&M costs of $800 per year. The location of the proposed facilities is shown on drawing No. CB800-DM5B-93/7.

3. Recommendation. I recommend that this supplement be approved as presented.

JOHN P. CLARK, P.E.
Chief, Operations Division

MATCH LINE SEE SHEET 2

ROAD "A"

ROAD "E"

ROAD "F"

ROAD "G"

ROAD "H"

OPEN SPACE

CLEAR CUT TO IRREGULAR SHAPE

5 PROPOSED CAMPSITES

13 PROPOSED CAMPSITES

END OF RAMP
ELEV. 420.0'

WV

GPS

N

T 4 S

R 21 E

5 | 4

32 | 33

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET	1		
WOOD VAULT TOILET	3		
* CAMPSITES	33		
* PICNIC SITES	5		
PEDESTAL COOKERS	33		
FIRERINGS	33		
LANTERN STANDS	33		
UTILITY TABLES	33		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	21		
WELLS (HAND PUMP)			
WATER HYDRANTS	1		
GROUP PICNIC SHELTER	1		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
(SOUTH)

SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-DM5B-93/7

REVISED OCT. 1988

CESWD-CO-RP (CESWT-OD-RO/9 Jul 87) (1130) 1st End Mr. McCauley/da/72434
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 3 to Design Memorandum No. 5B, Master Plan (Updated)

Cdr, Southwestern Division, Corps of Engineers, 1114 Commerce St., Dallas, TX 75242-0216 31 JUL 1987

FOR: Commander, Tulsa District, Corps of Engineers,
ATTN: CESWT-OD-RO, P. O. Box 61, Tulsa, OK 74121-0061

Approved.

FOR THE COMMANDER:

for A. P. HUTCHISON
Chief, Construction-
Operations Division

Encl wd

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

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121-0061

REPLY TO
ATTENTION OF

CESWT-OD-RO

9 July 1987

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

SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 3 to Design Memorandum No. 5B, Master Plan (Updated)

Enclosed subject supplement is submitted for review and approval.

FOR THE COMMANDER:

JOHN P. CLARK, P.E.
Chief, Operations Division

Encl (9 copies)

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 3
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

1. Purpose. The purpose of this supplement is twofold:

a. Request approval for construction of a group shelter with five electric hook-ups in Little River Park.

b. Request approval for construction of vault toilets in the new camping loop of Pine Creek Cove.

2. Discussion:

a. Little River Park. Construction of the group shelter and electric hookups will be accomplished using FY 88 SRUF funds. This facility will be available on a reservation basis for either group camping or day-use. There has been a demand and need for a group shelter in this the second most popular public use area on the lake. The pay back period for this construction will be 9-10 years. O&M costs should increase by approximately $500 per year. The location of the proposed shelter is shown on the attached map CB800-DM5B-93/7.

b. Pine Creek Cove. The vault toilets will be placed in a camping loop that was constructed using FY 85 SRUF funds. These toilets are necessary to provide sanitary facilities in this loop which is 400 yards from the nearest restroom. After master plan approval is gained, the toilets will be constructed when the funds become available. The location of the proposed facilities is shown on attached drawing CB800-DM5B-93/8.

3. Recommendation. I recommend that this supplement be approved as presented.

JOHN P. CLARK, P.E.
Chief, Operations Division

MATCH LINE - SEE SHEET 2

ROAD "A"

ROAD "E"

ROAD "F"

ROAD "G"

ROAD "H"

OPEN SPACE

CLEAR CUT TO IRREGULAR SHAPE

PROPOSED GROUP PICNIC SHELTER

GPS

WV

MV

END OF RAMP
ELEV. 420.0

N

T 4 S

R 21 E

5 | 4

32 | 33

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET	1		
WOOD VAULT TOILET	3		
* CAMPSITES	30		
* PICNIC SITES	4		
PEDESTAL COOKERS	30		
FIRERINGS	30		
LANTERN STANDS	30		
UTILITY TABLES	30		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	21		
WELLS (HAND PUMP)			
WATER HYDRANTS	1		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
(SOUTH)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-DM5B-93/7

REVISED: MARCH 1981

R 21 E

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	2		
WATERBORNE TOILET W/S	1		
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET	4		
CAMPSITES	31		
* PICNIC SITES			
* PEDESTAL COOKERS	31		
FIRERINGS	31		
LANTERN STANDS	31		
UTILITIES TABLES	31		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	22		
WELLS (HAND PUMP)	1		
WATER HYDRANTS			
METAL VAULT	4		

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

LAKE

N

15 | 14
22 | 23

T 5 S

DIRT BOAT LANDING

PLANT MIXED STAND

EXPAND SWIMMING AREA

SWIMMING BEACH

GATE

METAL VAULTS

GATE

OPEN SPACE

OPEN SPACE

ROAD "C"

ROAD "C-1"

OVERFLOW CAMP

POND

PROPOSED PARKING

Metal Vaults

FILL & PLANT MIXED STAND

ROAD "A"

ROAD "A"

HELICOPTER LANDING PAD

OPEN SPACE

FUTURE WATER TREATMENT PLANT

WBT W/S

HAUL ROAD SCAR

PROPOSED VAULT TOILETS

FILL & PLANT MIXED STAND

ROAD "B"

WV

ROAD "B-1"

GPS

GATE TOWER

OUTLET CHANNEL

SPILLWAY

28' ROADWAY

BEGIN PUBLIC-USE ROAD
SEE DRAWING NO. 93/5

OVERLOOK

WV

WV

STATE WILDLIFE MANAGEMENT LANDS

NOTE: NO ELECTRICAL HOOKUPS-SUBJECT TO FLOODING.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PINE CREEK COVE

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB. 1977

CB800-DM5B-93/8

REVISED: MARCH 1981

SWDCO-R (SWTOD-RM/4 Sep 84) 3rd End
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 2 to Design Memorandum No. 5B, Master Plan (Updated)

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 28 FEB 1986

TO: Commander, Tulsa District, ATTN: SWTOD-RM

Since the proposed picnic shelter was approved by the 1st End, a resubmission of the Master Plan because of change in policy is not required.

FOR THE COMMANDER:

A. P. HUTCHISON
Chief, Construction-
Operations Division

SWTOD-RM (SWTOD-RM/4 Sep 84) 2d End
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 2 to Design Memorandum No. 5B, Master Plan (Updated)

25 FEB 1985

DA, Tulsa District, Corps of Engineers, Post Office Box 61, Tulsa, OK 74121-0061

TO: Commander, Southwestern Division, ATTN: SWTOD-RM

1. The following is offered in answer to comment a. contained in the 1st End.

2. Paragraph 4.j of DAEN-CWO-R, 4 Oct 84, states that SRUF funds may be used for the construction of group facilities, such as picnic shelters or multiple family sites, that result in user fee revenues.

3. The shelter, as proposed in the subject supplement, would be the only group facility available at Pine Creek Lake. The shelter would be utilized on a reservation basis and as indicated by the number of requests that are received for this type facility, a substantial increase in user fees and a shorter than normal cost recovery period can be expected.

FOR THE COMMANDER:

Encl (9 cys)

JAMES P. JONES, P.E.
Chief, Operations Division

SWDCO-RP (4 Sep 84) 1st Ind
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 2 to Design Memorandum No. 5B, Master Plan (Updated)

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 2 OCT 1984

TO: Commander, Tulsa District, ATTN: SWTOD-RM

Subject supplement is approved subject to the following comments:

a. Construction of a new group shelter may be proposed in the master plan but is not authorized for construction without cost-sharing under current funding policies. However, if this facility is a relocation, it should be presented as such.

b. Discussions with District personnel indicates that the nine campsites are being relocated from an area in Little River Park which will be closed. Future submissions of this nature should include rationale for such relocations. Also, future submissions should include a plate of the park from which facilities will be taken with those units designated.

FOR THE COMMANDER:

wd all incl

A. P. HUTCHISON
Chief, Construction-Operations Division

CF: w/incl
DAEN-CWO-R (5 cys)

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121

REPLY TO
ATTENTION OF:

SWTOD-RM

SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 2 to Design Memorandum No. 5B, Master Plan (Updated)

Commander
Southwestern Division
ATTN: SWDCO-RM

4 SEP 1984

Subject supplement (Incl 1) is submitted for review and approval.

FOR THE COMMANDER:

1 Incl (9 cys)
as

JAMES P. JONES, P.E.
Chief, Operations Division

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 2
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

US ARMY CORPS OF ENGINEERS
TULSA DISTRICT
OKLAHOMA

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 2
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

1. Purpose. The purpose of this supplement is to relocate nine campsites from Little River Park to Pine Creek Cove Public Use Area, construct a new loop road and construct a new group shelter.

2. Scope of Work. The proposed changes and work will require the following:

a. The revision of the Pine Creek Cove Site Plan (Drawing No. CB800-B-93/8) to reflect the proposed road alignment and facilities locations.

b. After the supplement has been reviewed and approved and construction of the facilities completed, the above referenced site plan will be revised to show the facilities as existing and the drawing will be submitted to SWD for insertion in the master plan.

3. Discussion. The above proposed facilities are to be constructed under the FY 85 Fee Turnback Program. These facilities will provide the public with additional recreation opportunities and result in increased fee collections.

4. Recommendation. I recommend that this supplement be approved as presented herein.

JAMES P. JONES, P.E.
Chief, Operations Division

R 21 E

T 5 S

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	2		
WATERBORNE TOILET W/S	1		
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET	4		
CAMPSITES	31		
* PICNIC SITES			
* PEDESTAL COOKERS	31		
FIRERINGS	31		
LANTERN STANDS	31		
UTILITIES TABLES	31		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	22		
WELLS (HAND PUMP)	1		
WATER HYDRANTS			
METAL VAULT	4		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

LAKE

N

EXPAND SWIMMING AREA

SWIMMING BEACH

GATE

METAL VAULTS

GATE

OPEN SPACE

OPEN SPACE

ROAD "C"

ROAD "C-1"

DIRT BOAT LANDING

PLANT MIXED STAND

OVERFLOW CAMP

POND

PROPOSED PARKING

Metal Vaults

FILL & PLANT MIXED STAND

ROAD "A"

15 | 14
22 | 23

PROPOSED CAMPING LOOP (9 SITES)

HAUL ROAD SCAR

100'

FILL & PLANT MIXED STAND

ROAD "B"

ROAD "B-1"

WV

PROPOSED GROUP PICNIC SHELTER

GATE TOWER

OUTLET CHANNEL

HELICOPTER LANDING PAD

OPEN SPACE

FUTURE WATER TREATMENT PLANT

WBT W/S

SPILLWAY

28' ROADWAY

BEGIN PUBLIC-USE ROAD
SEE DRAWING NO. 93/5.

OVERLOOK

WV

WV

STATE WILDLIFE MANAGEMENT LANDS

NOTE: NO ELECTRICAL HOOKUPS-SUBJECT TO FLOODING.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PINE CREEK COVE

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB. 1977

CB800-DM5B-93/8

REVISED: MARCH 1981

SWDCO-RR (SWTOD-RM 13 Apr 1981) 1st Ind
SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 1 to Design Memorandum No. 5B, Master Plan (Updated)

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242 8 MAY 1981

TO: District Engineer, Tulsa, ATTN: SWTOD

The master plan supplement, SAB, is approved.

FOR THE DIVISION ENGINEER:

for A. P. HUTCHISON
Chief, Construction-
Operations Division

wd all incl

CF: w/incl
HQDA(DAEN-CWO-R) 5 cys

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121

REPLY TO
ATTENTION OF:

1 0

SWTOD-RM

SUBJECT: Pine Creek Lake, Little River, Oklahoma, Supplement No. 1 to Design Memorandum No. 5B, Master Plan (Updated)

Division Engineer, Southwestern
ATTN: SWDCO-RR

13 APR 1981

Subject supplement (Incl 1) is submitted for review and approval.

FOR THE DISTRICT ENGINEER:

for JAMES P. JONES
Chief, Operations Division

1 Incl (9 cys)
as

30 copies prepared

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 1
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

US ARMY CORPS OF ENGINEERS
TULSA DISTRICT
OKLAHOMA
1981

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 1
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

TABLE OF CONTENTS

TABLE INDEX

DRAWING INDEX

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

SUPPLEMENT NO. 1
TO
DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

1. Purpose. The purposes of this supplement are to:

a. Correct and update the public use area site plans to reflect as-built conditions.

b. Correct and update the project land utilization plans.

c. Remove the Tom Taylor Point recreation area from the plan of development.

2. Scope of work. The proposed changes and/or additions will require:

a. Public use area site plans. The correction and updating of all plans to reflect as built conditions, including road alignments and facility location, type, and number.

b. Land utilization plans. The land use plans will be revised in accordance with the provisions of change 3 to ER 1120-2-400 dated 12 February 1976 and with current land uses. The proposed changes will include:

(1) Calculation of acreages alloted to each classification.

(2) Changing the classification of the Tom Taylor Point area from recreation-intensive use to recreation-low density.

(3) Changing the zoning of that portion of the state park lease presently zoned recreation-low density to recreation-intensive use.

(4) Changing the classification of the land that the dike is constructed on from wildlife management to project operations.

(5) Changing the classification of those lands presently zoned for wildlife management by the Corps to recreation-low density.

3. Land and water use classification. The lake waters are open to boating, skiing, swimming, fishing, and other water oriented activities. Where there is a conflict of interests or where a hazard endangers life or property, limitations will be imposed. Land use allocations are discussed in subparagraphs 3a. through 3d. The utilization plan is shown on drawing 93/3 and the acreages allocated to each classification are shown in table I.

a. Project operations. Lands acquired and allocated for safe and efficient operation of the project for those authorized purposes other than fish and wildlife. In all cases this will include but will not be limited to land on which the operational structures are located. Agricultural use of this land will be permitted on an interim basis only and when it is not in conflict with use for an authorized project purpose.

b. Operations: Recreation - Intensive use. Lands acquired for operations and allocated for use as developed public use area for intensive recreational activities by the visiting public, including areas for concession and quasi-public development. No agricultural uses are permitted on this land except on an interim basis.

c. Operations: Recreation - Low density. Lands acquired for project operations and allocated for low density recreational activities by the visiting public as required as open space between intensive recreational developments and land which, by virture of use, is incompatible with the recreational development and would detract from the quality of the public use. Such incompatible land may be located either on the project or adjacent to the project. Land required for ecological workshops and forums, hiking trails, primitive camping, or similar low density recreational use available for a significant role in shaping public understanding of the environment will be under this allocation. No agricultural uses are permitted except on an interim basis.

d. Operations: Wildlife management. Lands acquired for project operation and allocated as habitat for fish and wildlife or for propagation of such species. Except in cases where these lands are designated as wildlife refuges and special restrictions are imposed, they should be continuously available for low density recreational activities.

4. Tom Taylor Point Public Use Area. Due to the limitations placed on opening new public use areas by Public Law 89-72, it is proposed to remove this area from the plan of development until such time that funds for construction become available or a cost-sharing agreement with a non-Federal entity can be made.

5. Reclassification of state park and wildlife lands. In order to be consistent with the Tulsa District policy of classifying land leased to a non-Federal entity for park purposes as recreation-intensive use land, it is proposed to reclassify 2,005 acres of the land leased to the State of Oklahoma from recreation-low density to recreation-intensive use. During preparation of the current land use plan, it was anticipated that the Oklahoma Department of Wildlife Conservation would request additional lands for their management program. There have been no requests for additional lands since the plans were last updated. It is proposed that those lands presently classified as wildlife management areas with management by the Corps be reclassified as recreation-low density lands. This would allow the continued management for the benefit of wildlife and would facilitate the use of the land for other purposes.

6. Discussion. The changes and/or additions proposed in this supplement are considered necessary to maintain the Master Plan's usability as a

working document in the operation and maintenance of the project. When funds become available for aerial photography, mosiacs will be made of each public use area and forwarded for insertion into the Master Plan.

7. Recommendation. I recommend that this supplement be approved as presented herein.

JAMES P. JONES
Chief, Operations Division

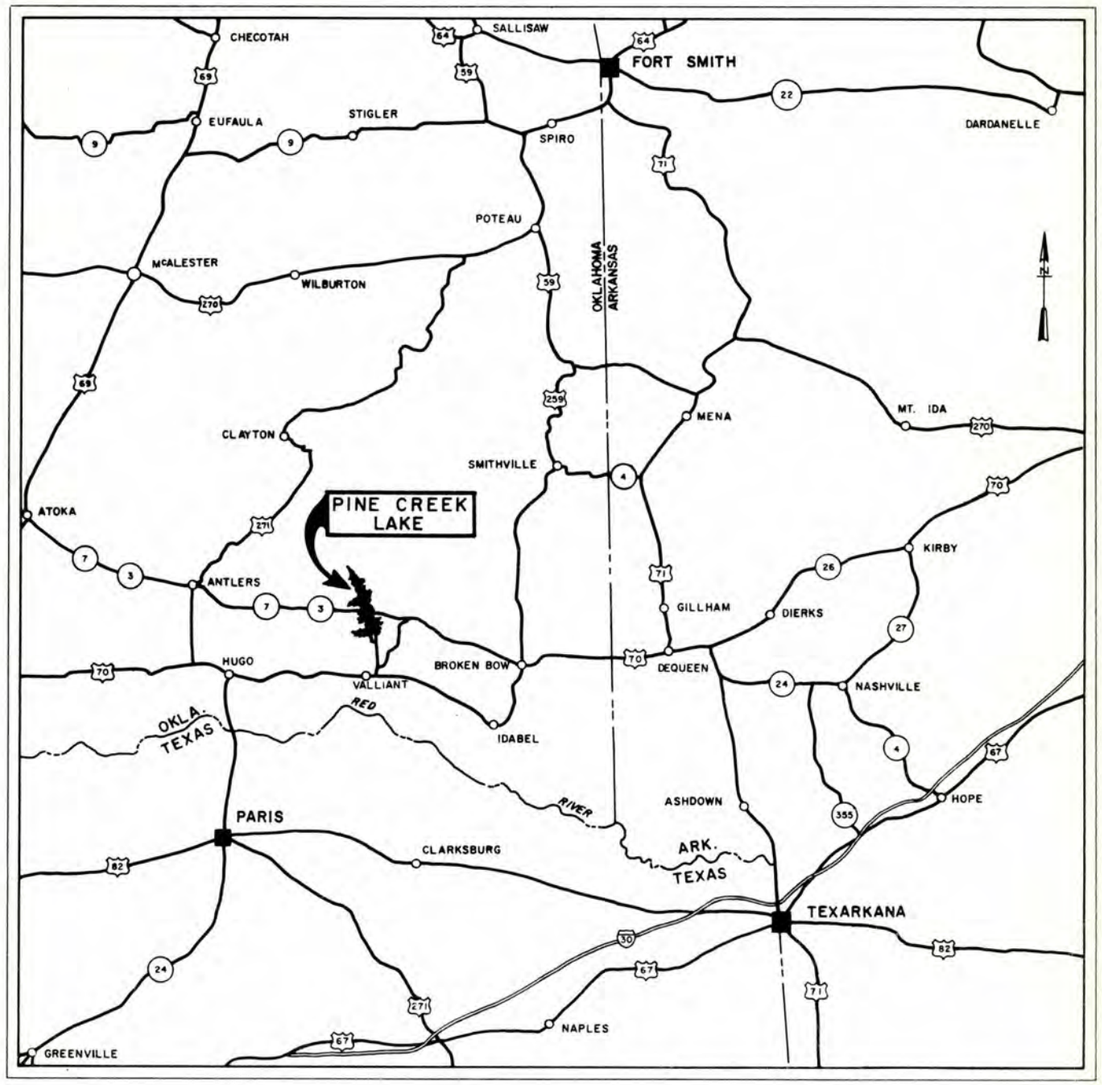
TABLE I
LAND USE ALLOCATIONS

Land acquired in fee	26,179 acres (1)
Conservation pool (surface acres @ el. 443.5)	4,980 acres (2)
Total land allocated	21,199 acres

Zoning Classification	Acreage above minimum fee acquisition	Total acreage from fee boundary to conservation pool (el. 443.50)
Project operations		250
Operations: Recreation - Intensive use		
Little River Park	370	1,690
Pine Creek Cove		180
Lost Rapids Park	50	200
Turkey Creek Landing		2,050 (3)
Billy Bell Shoals		55
Lost Ferry		65
Subtotal: Recreation - Intensive use		4,240
Operations: Recreation - Low density		8,929
Fish and Wildlife Management		
State of Oklahoma		7,780 (4)
TOTAL LANDS ALLOCATED		21,199

(1) Taken from 1980 real estate audit.
(2) Taken from 1980 pertinent data book.
(3) Includes the State Park Wilderness Area.
(4) The state lease includes 2,500 surface acres of water for a total of 10,280 acres.

UPDATED MASTER PLAN FOR RESERVOIR DEVELOPMENT



INDEX TO DRAWINGS

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PROJECT LOCATION AND INDEX TO DRAWINGS

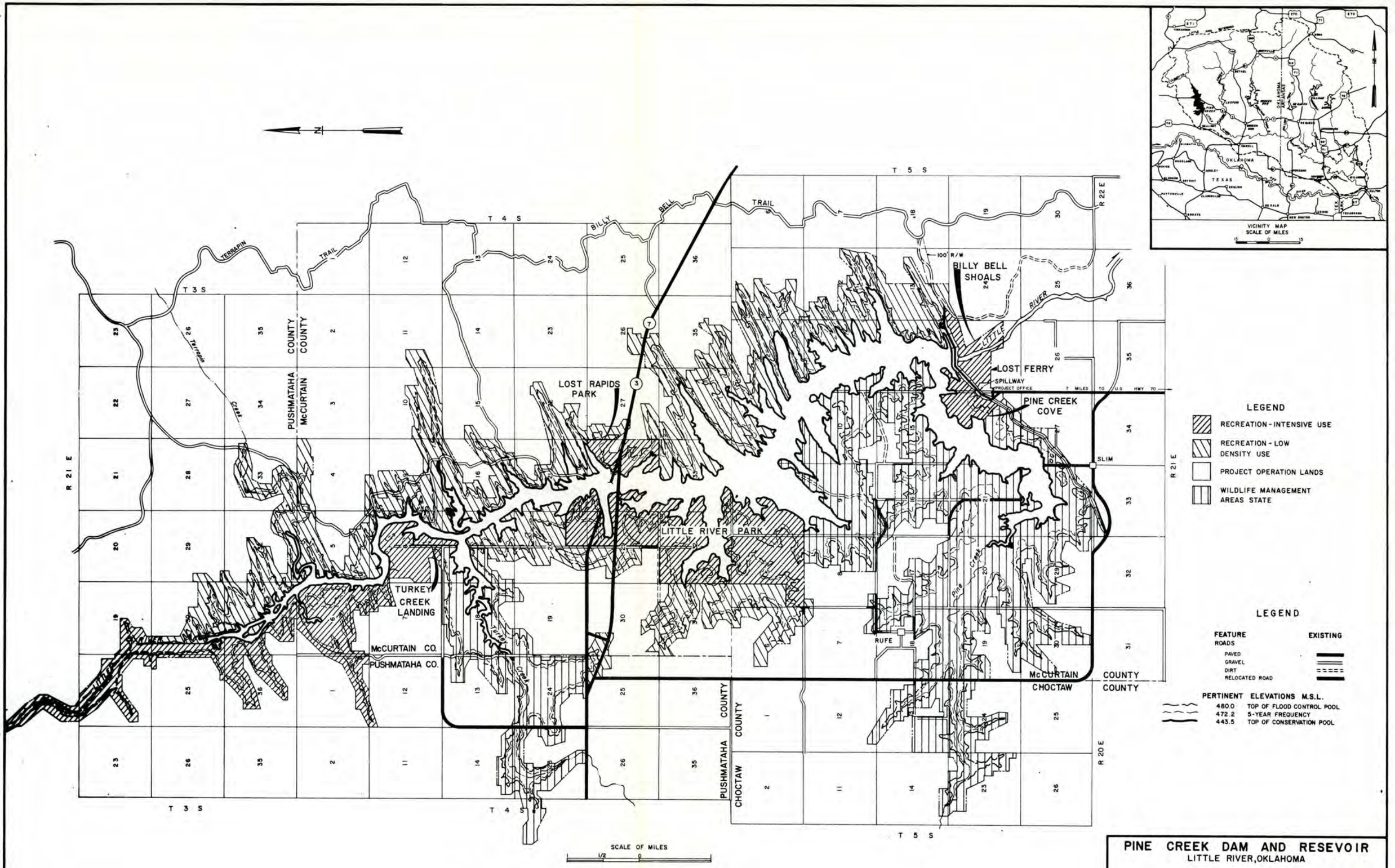
SCALE OF MILES
0 5 10 20 30 40 50

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB, 1977

DRAWN: E.G.- W.P.B.
TRACED: E.G.
CHECKED: G.A.L.

CB800-DM5B-93/1

REVISED: MARCH 1981



LEGEND

- RECREATION - INTENSIVE USE
- RECREATION - LOW DENSITY USE
- PROJECT OPERATION LANDS
- WILDLIFE MANAGEMENT AREAS STATE

LEGEND

FEATURE	EXISTING
ROADS	
PAVED	
GRAVEL	
DIRT	
RELOCATED ROAD	

PERTINENT ELEVATIONS M.S.L.

480.0	TOP OF FLOOD CONTROL POOL
472.2	5-YEAR FREQUENCY
443.5	TOP OF CONSERVATION POOL

PINE CREEK DAM AND RESEVOIR
LITTLE RIVER, OKLAHOMA

PUBLIC USE-LAND UTILIZATION

U.S. ARMY ENGR. DIST., TULSA, CORPS OF ENGRS., MARCH 1981

CB800-DM5B-93/3

N

LEGEND
RECREATIONAL FEATURES

FEATURES	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
GRAVEL-TO BE PAVED		
STRUCTURES		
TOILETS-WOOD VAULTS	WV	WV
TOILETS-METAL VAULT	MV	MV
TOILETS-WATER BORNE	WB	WB
TOILETS-MASONRY VAULT	MV	MV
WATER BORNE WITH SHOWER	WBT W/S	WBT W/S
WATER WELL AND SHELTER		
WATER WELL	WD	WD
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER	PS	PS
GROUP SHELTER	GS	GS
OTHER BUILDINGS (NAMED)		
DRINKING FOUNTAIN		
FIREPLACE		
REFUSE CAN		
TABLE		
POWER LINE	P	P
WATER LINE	W	W
SEWER LINE	S	S
CAMPING PAD		
CAMP SPACE		
1 TABLE		
1 FIREPLACE		
1 REFUSE CAN		
MISCELLANEOUS FACILITIES		
SIGN		
FENCING	X	
CATTLE GUARD	X	
BEACH IMPROVEMENT	BEACH	BEACH
TREES		

PERTINENT ELEVATIONS M.S.L.

438.0	TOP OF CONSERVATION POOL-INITIAL
443.5	TOP OF CONSERVATION POOL-ULTIMATE
480.0	TOP OF FLOOD CONTROL POOL
424.7	10 YEAR FREQUENCY DRAWDOWN POOL (FINAL)
74	SHORELINE MILES AT EL. 438.0

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
GENERAL PLAN

SCALE IN FEET
800 0 800 1600

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB.,1977

CB800-DM5B-93/4

REVISED: MARCH 1981

R/W LINE

R/W LINE

OKLAHOMA HIGHWAY 7 RELOCATION

R/W

R/W

GOVERNMENT PROPERTY LINE

GOVERNMENT PROPERTY LINE

MATCH LINE SEE SHEET 2

30 | 29
31 | 32

R 21 E

T 4 S

N

NOTE: FENCING PLAN SHOWN ON LITTLE RIVER PARK GENERAL PLAN (DRAWING NO. 93/4)

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 1

CB800-DM5B-93/5

REVISED MARCH 1981

R 21 E

T 4 S

GOVERNMENT PROPERTY LINE

MATCH LINE SEE SHEET 1

MATCH LINE SEE SHEET 3

ROAD "B"

ROAD "C"

ROAD "D"

END OF RAMP ELEV. 423.0'

ROAD "D" STA 3+57 ELEV. 447.5

ROAD "D" STA 12+30 ELEV. 443.0

OVERHEAD PRIMARY POWER SUPPLY

4" WATER MAIN (RATTAN WATER DIST.)

2" METER

2" LINE

DIP POLE

METER POLE

GROUP SHELTER

OPEN SPACE

PLANT MIXED STAND

SWIMMING AREA

TRAIL

N

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET	2		
* CAMPSITES	39		
* PICNIC SITES	4		
PEDESTAL COOKERS	39		
FIRERINGS	39		
LANTERN STANDS	39		
UTILITY TABLES	39		
ELECTRICAL HOOK-UPS		19	
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	26		
WELLS (HAND PUMP)	1		
WATER HYDRANTS	5		
GROUP PICNIC SHELTER		1	
SANITARY DUMP STATION	1		

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
(NORTH)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB, 1977

SHEET 2

CB800-DM5B-93/6

REVISED: MARCH 1981

MATCH LINE - SEE SHEET 2

ROAD "A"

ROAD "E"

ROAD "F"

ROAD "G"

ROAD "H"

OPEN SPACE

CLEAR CUT TO IRREGULAR SHAPE

END OF RAMP
ELEV. 420.0

T 4 S

R 21 E

5 | 4

32 | 33

N

RECREATIONAL FACILITIES				
	ITEM	EXISTING	PROPOSED	TOTAL
	BOAT RAMP LANES	1		
	WATERBORNE TOILET W/S			
	WATERBORNE TOILET			
	MASONRY VAULT TOILET	1		
	WOOD VAULT TOILET	3		
*	CAMPSITES	30		
*	PICNIC SITES	4		
	PEDESTAL COOKERS	30		
	FIRERINGS	30		
	LANTERN STANDS	30		
	UTILITY TABLES	30		
	ELECTRICAL HOOK-UPS			
	REFUSE CANS (SINGLE)			
	REFUSE CANS (DOUBLE)	21		
	WELLS (HAND PUMP)			
	WATER HYDRANTS	1		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
(SOUTH)

SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-DM5B-93/7

REVISED: MARCH 1981

R 21 E

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	2		
WATERBORNE TOILET W/S	1		
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET	4		
CAMPSITES	31		
* PICNIC SITES			
* PEDESTAL COOKERS	31		
FIRERINGS	31		
LANTERN STANDS	31		
UTILITIES TABLES	31		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	22		
WELLS (HAND PUMP)	1		
WATER HYDRANTS			
METAL VAULT	4		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

LAKE

N

OVERFLOW CAMP

POND

PROPOSED PARKING

Metal Vaults

DIRT BOAT LANDING

PLANT MIXED STAND

15 | 14
22 | 23

HAUL ROAD SCAR

FILL & PLANT MIXED STAND

UNDEVELOPED OVERFLOW CAMP

ROAD "B-1"

WV

GATE TOWER

EXPAND SWIMMING AREA

SWIMMING BEACH

GATE

METAL VAULTS

GATE

OPEN SPACE

OPEN SPACE

ROAD "C"

ROAD "C-1"

ROAD "A"

ROAD "B"

HELICOPTER LANDING PAD

OPEN SPACE

FUTURE WATER TREATMENT PLANT

490 WBT W/S

SPILLWAY

28' ROADWAY

OUTLET CHANNEL

BEGIN PUBLIC-USE ROAD SEE DRAWING NO. 93/5.

NOTE: NO ELECTRICAL HOOKUPS-SUBJECT TO FLOODING.

OVERLOOK

WV

WV

STATE WILDLIFE MANAGEMENT LANDS

T 5 S

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PINE CREEK COVE

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB. 1977

CB800-DM5B-93/8

REVISED: MARCH 1981

R 21 E

OLD HIGHWAY BRIDGE USED FOR FISHING PIER

PARKING

METAL VAULTS TO BE CONSRUCTED WITH O & M FUNDS

GOVERNMENT PROPERTY LINE

SE CORNER OF THE NE 1/4 OF SEC. 28

R/W

2" METER

4" WATER MAIN (RATTAN WATER DIST.)

ASPHALTIC CONCRETE FOR GRAVEL FNTRANCE ROAD (PAVED FALL 1977)

2" LINE

END OF RAMP ELEV. 420.0

T 4 S

N

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET	1		
WOOD VAULT TOILET	2		
* CAMPSITES	15		
* PICNIC SITES	10		
PEDESTAL COOKERS	25		
FIRERINGS	25		
LANTERN STANDS	15		
UTILITY TABLES	25		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	13		
WELLS (HAND PUMP)			
WATER HYDRANTS	3		

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST RAPIDS PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/9

REVISED: MARCH 1981

GATE TOWER

OUTLET CHANNEL

QUARRY

METAL VAULTS

EXISTING FOOT TRAIL

CLOSED OCT. THRU MAR.

GATE

EXISTING AREA FOR SMALL BOAT LAUNCHING

SPILLWAY

PROJECT BLDG

RIGHT ACCESS ROAD

GOVERNMENT PROPERTY LINE

R 21 E

T 5 S

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES			
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET	2		
CAMPSITES			
PICNIC SITES			
PEDESTAL COOKERS			
FIRERINGS			
LANTERN STANDS			
UTILITY TABLES			
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	4		
WELLS (HAND PUMP)			
WATER HYDRANTS			
METAL VAULTS	2		

IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST FERRY

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/10

REVISED: MARCH 1981

GATE TOWER

OUTLET CHANNEL

PARKING

PROPOSED FOOT TRAIL

FUTURE PRIMITIVE CAMP AREA

END OF SERVICE ROAD

GOVERNMENT PROPERTY LINE

N

T 5 S

R 21 E

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES			
WATERBORNE TOILET W/S			
WATERBORNE TOILET			
MASONRY VAULT TOILET			
WOOD VAULT TOILET			
* CAMPSITES			
* PICNIC SITES			
PEDESTAL COOKERS			
FIRERINGS			
LANTERN STANDS			
UTILITY TABLES			
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)			
REFUSE CANS (DOUBLE)	2		
WELLS (HAND PUMP)			
WATER HYDRANTS			
METAL TOILETS	2		

* IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

BILLY BELL SHOALS

SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB,1977

CB800-DM5B-93/11

REVISED: MARCH 1981

R 21 E

T 4 S

OXIDATION POND

GOVERNMENT PROPERTY LINE

MAINTENANCE BLDG.

WB

GABLED SIGN

PLAYGROUND EQUIPMENT

PS

PROPOSED BEACH

END OF RAMP ELEV. 420.0'

7 | 8
18 | 17

N

RECREATIONAL FACILITIES			
ITEM	EXISTING	PROPOSED	TOTAL
BOAT RAMP LANES	1		
WATERBORNE TOILET W/S			
WATERBORNE TOILET	1		
MASONRY VAULT TOILET			
WOOD VAULT TOILET			
* CAMPSITES	18		
* PICNIC SITES	1		
PEDESTAL COOKERS	18		
FIRERINGS			
LANTERN STANDS			
UTILITY TABLES	18		
ELECTRICAL HOOK-UPS			
REFUSE CANS (SINGLE)	10		
REFUSE CANS (DOUBLE)			
WELLS (HAND PUMP)			
WATER HYDRANTS	1		

*IF REQUIRED BY ATTENDANCE SOME SITES MAY BE DUAL USE.

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PINE CREEK STATE PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/12

REVISED: MARCH 1981

Bennett

10

SWDPL-R (SWTED-DA 4 Aug 77) 1st Ind
SUBJECT: Pine Creek Lake, Little River, Okla., DM No. 5B, Master Plan (Updated)

DA, Southwestern Division, Corps of Engineers, Main Tower Building, 1200 Main Street, Dallas, TX 75202 27 SEP '77

TO: District Engineer, Tulsa

The updated master plan for Pine Creek Lake is approved subject to the following comments which should be incorporated into the next updating action for refinement of the plan:

a. Para 8-03. The current EC for the Code 710 program is EC 11-2-127. Since this EC changes annually, the reference should be revised to read "In compliance with current regulations" in lieu of specifying the particular regulation. Also, the discussion on the second method of funding with 100 percent Code 710 funds should be deleted since this program has not been approved by OMB and Table 5-4 indicates that parks on the project will not support 150 campsites in a park as required to recover O&M&R.

b. Tables 15-1 and 15-2.

(1) The month and year on which the unit prices are based should be given.

(2) The Code 710 account should be shown in lieu of Account 014.

(3) These tables should be expanded to show all existing facilities by park and project.

(4) Metal vault toilets. Use of these toilets was originally approved on a limited experimental basis in remote areas only. Continued use is not concurred in. Accordingly, the design should be changed prior to provision of toilets at these locations.

c. Drawing 93/3.

(1) Consideration should be given to designating areas adjacent to parks as Recreation-Low Density since they should be set aside as buffer zones for intensive use areas.

(2) Legend. The correct designation of the areas allocated "Recreation-High Density Use" is "Recreation-Intensive Use." This should be revised.

FOR THE DIVISION ENGINEER:

Barry G. Rought

wd incl

BARRY G. ROUGHT, P.E.
Chief, Planning Division

CF:
HQDA (DAEN-CWO-R)(5)

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74102

SWTED-DA

4 AUG 1977

SUBJECT: Pine Creek Lake, Little River, Okla., DM No. 5B, Master Plan (Updated)

Division Engineer, Southwestern
ATTN: SWDPL-R

1. Subject design memorandum (Incl 1) is submitted for review and approval in accordance with ~~EM 1130-2-302~~ ER 1120-2-400.

2. Questions regarding the estimates should be referred to Mr. Buell O. Atkins, Chief, Environmental Resources Section, Planning Branch.

FOR THE DISTRICT ENGINEER:

Weldon M. Gamel

WELDON M. GAMEL
Chief, Engineering Division

1 Incl (9 cys)
as

35 copies prepared

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

DEPARTMENT OF THE ARMY
TULSA DISTRICT CORPS OF ENGINEERS
OKLAHOMA

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

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PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

DESIGN MEMORANDUM NO. 5B
MASTER PLAN
(UPDATED)

I - INTRODUCTION

1-01. Project authorization and related legislation.

a. Project authorization. - Pine Creek Lake was authorized for construction by the Flood Control Act approved 3 July 1958 (Public Law 85-500, 85th Congress, S. 3901) as a modification of the Millwood Reservoir project authorized by the Flood Control Act approved 24 July 1946 (Public Law 526, 79th Congress, Chapter 596, 2d session, H.R. 6597).

b. Related legislation.

(1) Public Law 534-78, Flood Control Act of 1944. - Section 4 of the Act as amended in 1946 and 1954 authorizes the Corps to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for land, including facilities, preferably to Federal, State, or local governmental agencies.

(2) Public Law 85-624, Fish and Wildlife Coordination Act of 1954. - This Act as amended in 1958 set down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

(3) Public Law 89-80, Water Resources Planning Act of 1965. - This Act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.

1-02. Project purposes. - Pine Creek Lake is a multipurpose project for flood control, municipal and industrial water supply, water quality control, and fish and wildlife management. Although recreation was not an approved project purpose, recreational development was accomplished under the authority provided in Section 4 of the 1944 Flood Control Act. A summary of tangible benefits are shown in table 1-1.

TABLE 1-1

SUMMARY OF TANGIBLE BENEFITS
(100-year analysis)

Project purpose	Annual benefits	Percentage
	$	
Flood control	701,600	68.7
Water supply	219,900	21.6
Water quality control	94,300	9.2
Fish and wildlife	5,000	0.5
Total, Annual benefits	1,020,800	100.0

1-03. Purpose of Master Plan. - The purpose of the Master Plan is to insure that the land and water areas of the Pine Creek Lake project will be planned, developed, managed, and administered to obtain the optimum benefits from conservation, enhancement, preservation, and use of the natural and developed resources in accordance with applicable laws and policies of Congress and the policies and guidelines issued by the Chief of Engineers.

1-04. Prior pertinent design memorandums and reports

a. Design Memorandum No. 4, General Design, 9 April 1965.

b. Design Memorandum No. 5A, Preliminary Master Plan, 12 May 1965.

c. Report, Temporary Overlook Facilities, 7 December 1964.

d. Design Memorandum No. 5B, Master Plan, 9 September 1966, and Supplements Nos. 1 and 2.

1-05. Scope of report. - This report presents an updated detailed plan for the development, enhancement, conservation, management, and administration of the recreational, scenic, and biological resources of the lands and waters in the Pine Creek Lake area over the life of the project.

II - PROJECT DESCRIPTION

2-01. Location. - Pine Creek damsite is located at river mile 145.3 on the Little River in McCurtain County, Oklahoma, about 8 miles north of the town of Valliant, Oklahoma. The principal roads serving the lake area are Oklahoma Highway 3 and 7 which crosses near the lake's midpoint and Oklahoma Highway 98 which borders the lake to the east and south. County roads and old logging roads under access easement complete the circulation system in the project area.

2-02. Project data.

a. Pertinent project data. - Pertinent project data for Pine Creek Lake are shown in table 2-1.

TABLE 2-1

PERTINENT DATA

LOCATION

Little River mile 145.3

DRAINAGE AREA

635 square miles

LAKE DATA

Feature	Elevation (feet, m.s.l.)	Area (acres)	Capacity (acre-feet)	Equivalent runoff (inches)
Top of dam	509.0	-	-	-
Maximum pool	503.0	26,600	968,200	28.59
Top of flood control pool	480.0	17,200	465,800	13.75
Top of conservation pool:				
Initial	438.0	3,800	53,800	1.59
Ultimate(1)	443.5	5,000	77,700	2.29
Bottom of conservation pool	414.0	700	7,200	0.21
10-year drawdown pool, final	424.7	1,600	19,300	0.57
50-year frequency pool				
Initial	485.9	19,500	574,200	16.96
Ultimate(1)	486.8	19,900	592,000	17.48
5-year frequency pool, final	471.6	14,000	334,600	9.88
Flood control storage				
Initial	438.0-480.0	-	412,000	12.17
Ultimate(1)	443.5-480.0	-	388,100	11.46
Conservation storage				
Initial	414.0-438.0	-	46,600	1.38
Ultimate(1)	414.0-443.5	-	70,500	2.08

(1) The initial pool will be raised to meet the water supply and water quality needs for the area.

b. Climate. - The comparatively short, mild winters and long, hot summers are typical climatic conditions of the region and are especially favorable for year-round recreation. The mean annual temperature for the Little River Basin is about 64° F. (17° C.).

The average annual rainfall in the area is 50 inches, with a growing season of 240 to 250 days. A relatively high humidity is common during the spring and summer months. The prevailing wind direction during the summer months is from the south. High velocity winds do not generally exceed 45 m.p.h. and are usually of short duration.

c. Reservoir shoreline characteristics. - At the top of the conservation pool, elevation 438.0, the shoreline length is 74 miles. The shoreline terrain varies from rolling to rugged and rocky, and is well forested throughout. The meandering shoreline of the lake, forming a series of long deep coves projecting from the main body of the lake, and the surrounding scenic foothills provide an unusually attractive setting for outdoor recreation activities.

d. Project structures. - The project consists of an earth embankment, an uncontrolled saddle spillway, an outlet works, and supporting facilities. The uncontrolled saddle spillway is located in a natural saddle, joined on each side by sections of the main embankment and situated about one-half mile west of the river. The spillway consists of an uncontrolled ogee weir, a concrete discharge apron and training walls, and a bridge across the spillway. A double bituminous road extends from the right abutment access road in the vicinity of the project buildings over the top of the dam and connects into a local circulation system of improved county and logging roads. The overlook is situated on the right abutment of the dam about 400 feet northwest of the administration and maintenance building. The administration and maintenance building and supporting facilities are located immediately downstream from the right end of the dam and adjacent to the right abutment access road. The administration and maintenance building is a brick structure and includes an office and a maintenance area. An extension of this building, about 12 feet by 13 feet, is used to house the water treatment plant. Other buildings and facilities included in the maintenance area are an equipment storage building, a paint and oil storage building, a gasoline storage and pump facility, and an area for parking vehicles.

e. Reservoir operation. - The Pine Creek Lake project is one of the projects included in the general comprehensive plan for flood control, water supply, and water quality in the Little River Basin. The initial conservation pool, elevation 438.0, will be raised to meet the water supply and water quality needs of the area up to 120 m.g.d. The average annual minimum pool elevation will be about the same for both the initial pool and the ultimate pool, as shown in table 2-2. The area capacity curves are shown on figure 2-1 and the pool and probability curves are shown on figure 2-2.

TABLE 2-2

PLAN OF OPERATION

Plan of operation	Top of conservation pool elevation	Drawdown period average pool elevation	Annual minimum average pool elevation	10-year drawdown elevation	Yield (m.g.d.)
Initial use	438.0	436.4	435.9	433.5	36
Ultimate use	443.5	438.8	435.4	424.7	120

AREA IN THOUSANDS OF ACRES

0 4 8 12 16 20 24 28 32 36 40 44 48 52

POOL ELEVATION IN FEET (M.S.L.)

520 500 480 460 440 420 400 380

CAPACITY

AREA

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600

CAPACITY IN THOUSANDS OF ACRE - FEET

Elevation (feet, m.s.l.)	Area (Acres)	Capacity (Acre-feet)	Elevation (feet, m.s.l.)	Area (Acres)	Capacity (Acre-feet)
384	0	0	452	7,250	129,380
386	10	10	454	7,850	144,480
388	20	40	456	8,470	160,770
390	40	100	458	9,110	178,370
392	70	210	460	9,770	197,250
394	100	380	462	10,450	217,470
396	140	610	464	11,150	239,080
398	180	920	466	11,900	262,140
400	220	1,310	468	12,650	286,690
402	270	1,800	470	13,400	312,730
404	320	2,390	472	14,160	340,280
406	370	3,080	474	14,920	369,350
408	430	3,870	476	15,690	399,950
410	490	4,770	478	16,460	432,090
412	580	5,860	480	17,230	465,780
414	700	7,140	482	18,010	501,020
416	840	8,680	484	18,800	537,830
418	1,000	10,510	486	19,590	577,220
420	1,170	12,680	488	20,380	618,190
422	1,360	15,210	490	21,180	657,750
424	1,570	18,130	492	22,000	700,930
426	1,800	21,500	494	22,830	745,750
428	2,050	25,350	496	23,660	792,240
430	2,330	29,730	498	24,500	840,400
432	2,640	34,700	500	25,350	890,250
434	2,980	40,230	502	26,200	941,800
436	3,350	46,650	504	27,050	995,050
438	3,750	53,750	506	27,910	1,050,010
440	4,180	61,680	508	28,780	1,106,690
442	4,630	70,490	510	29,650	1,165,120
444	5,100	80,220	512	30,530	1,225,300
446	5,600	90,920	514	31,420	1,287,250
448	6,130	102,650	516	32,310	1,350,970
450	6,680	115,450	518	33,200	1,416,480
			520	34,100	1,483,800

NOTES:
DRAINAGE AREA = 635 SQ. MI.
1"OF RUNOFF = 33,870 ACRE FEET
DAMSITE LOCATED IN SECTIONS 14,22,23, T 5 S, R 21 E MC CURTAIN COUNTY, OKLAHOMA.
DATA FROM ADVANCE U.S.G.S. QUAD. (20'CONTOUR INTERVAL.)

RED RIVER WATERSHED LITTLE RIVER, OKLAHOMA

PINE CREEK LAKE

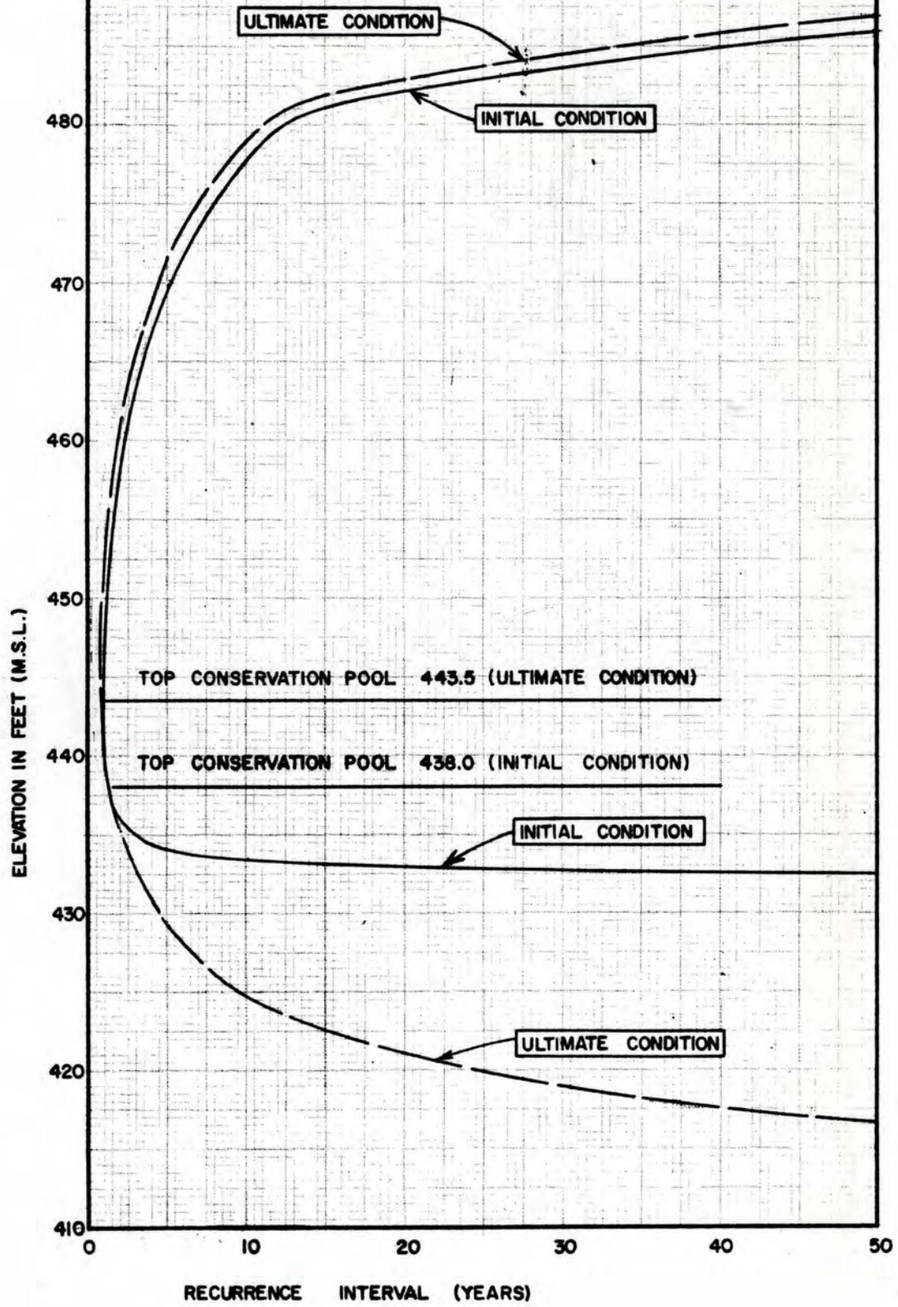
AREA AND CAPACITY CURVES

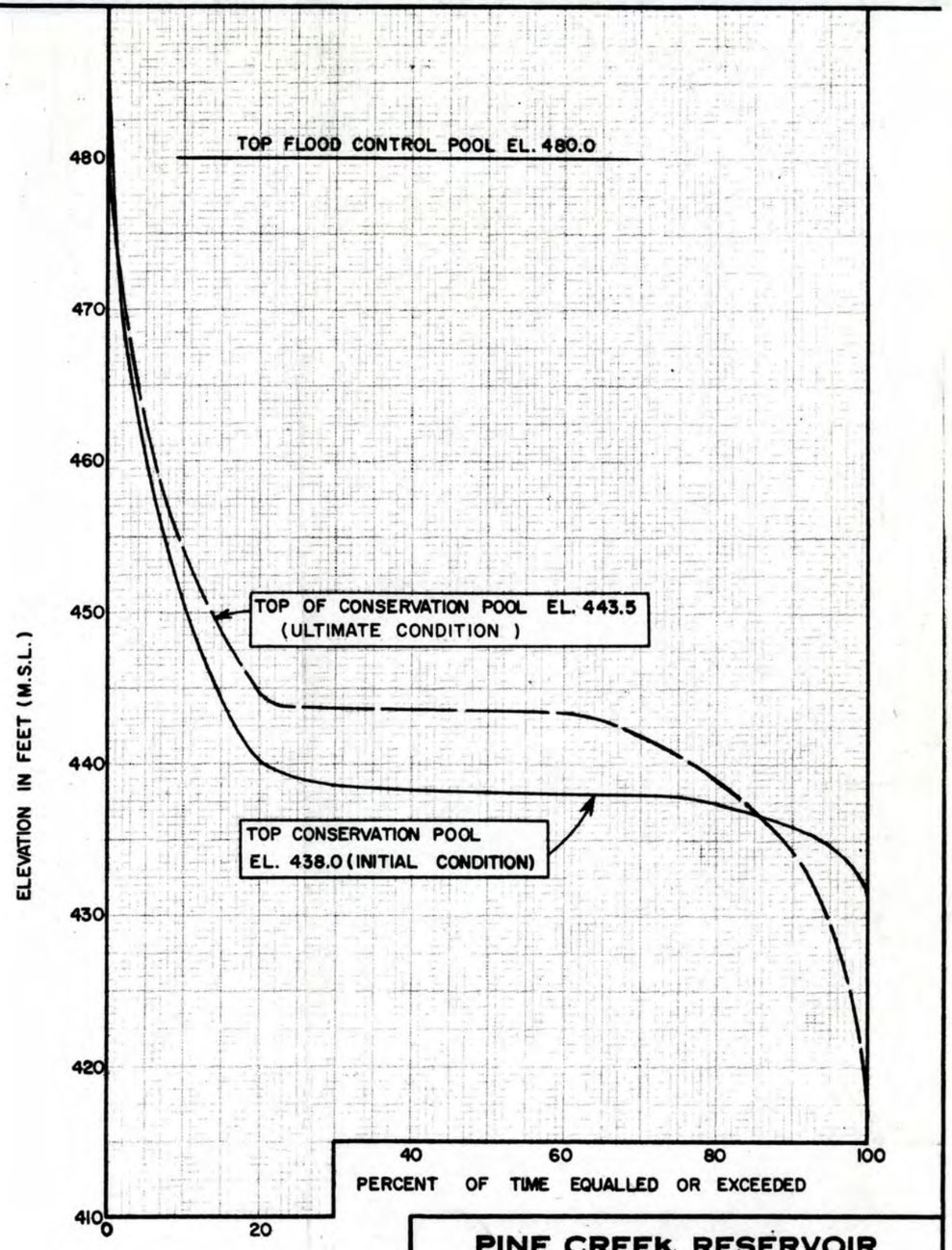
DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 1973

DRAWN: R.J.H.

CHECKED: B.S.E.

FIG 2-1





NOTE:
INITIAL CONDITION IS 36 m.g.d.
WATER SUPPLY DEMAND
ULTIMATE CONDITION IS 120 m.g.d.
WATER SUPPLY DEMAND

PINE CREEK RESERVOIR

LITTLE RIVER, OKLAHOMA.

POOL ELEVATION PROBABILITY AND DURATION CURVES

U. S. ARMY ENGINEER DIST., TULSA, CORPS OF ENGINEERS OCT. 65

DRAWN: JAK
CHECKED: EBS

FIG 2-2

2-03. Visitation. - The recorded and projected annual visitation for Pine Creek Lake is shown in table 2-3. The marked decrease in annual visitation in recent years is primarily due to the completion of new projects (Hugo, DeQueen, Dierks, and Gillham Lakes) in this region since the completion of Pine Creek Lake. Since 1973, visitation has decreased to approximately 300,000 annual users but is expected to increase gradually as "the camping experience" is improved through management of existing facilities.

TABLE 2-3

RECORDED AND PROJECTED ANNUAL VISITATION

Recorded(1)		Projected	
Year	Annual visitation	Year	Annual visitation
1970	193,600	1980	344,000
1971	293,500	2000	380,000
1972	362,600	2020	420,000
1973	375,200		
1974	345,000		
1975	319,300		
1976	302,000		

(1) Visitation adjusted due to reanalysis of surveys.

III - CONSTRUCTION PROJECTS - STATUS

3-01. Project development and operational chronology. - Construction of initial development which included the dam, outlet works, uncontrolled saddle spillway, and public-use facilities was completed in 1969 at a total cost of $19,800,000.

3-02. Expenditures for public use and environmental resource development.

a. Corps of Engineers.

(1) Cost account No. 14. - A total of $583,000 has been spent at Pine Creek Lake in providing picnicking and camping areas, sanitary facilities, roads and parking, boat ramps, and potable water.

(2) Code 710. - No funds have been spent at Pine Creek Lake through FY 1976.

(3) Operation and maintenance. - A total of $642,000 has been spent at Pine Creek Lake through FY 1976.

b. State of Oklahoma. - On 6 August 1975, the Oklahoma Tourism and Recreation Department was granted a 25-year lease covering approximately 2,050 acres of land for a State park at Pine Creek Lake. This lease involves Turkey Creek Landing and all project lands to the north on the west side of the lake and Little River. An inventory and conditions survey of existing recreational facilities in Turkey Creek Landing revealed that Government-owned improvements valued at $23,000 are included in the lease to the State. The estimated cost of initial development program by the Oklahoma Department of Wildlife Conservation on land licensed by this State agency is $165,000. This program includes fencing, signs, herbaceous seedings, clearing, firebreaks, project administration, and general observation. Average annual operating costs are estimated to be $50,000.

c. Private development. - No private funds have been invested to this date.

IV - RECREATIONAL AND ENVIRONMENTAL RESOURCES OF THE PROJECT AREA

4-01. Geology. - The Little River drainage basin traverses two physiographic provinces: a northern area, the Ouachita Mountains, and a southern area, the Dissected Coastal Plains. The Pine Creek Lake site is in the southwestern portion of the Ouachita Mountain section of the Ouachita province, a region of rugged terrain having moderate to high relief. Bedrock is composed of Paleozoic strata, ranging from Cambrian to Pennsylvanian, except along the southern margin of the mountain section where the older rocks disappear under overlapping Cretaceous sediments. The rocks of the region, complexly folded and faulted, are predominantly the Stanley shale of Mississippian-Pennsylvanian age. However, in the vicinity of the right abutment and throughout the area of the dike, the underlying strata are of Paluxy sand of Cretaceous age. The Stanley shale is composed of quartzitic sandstone and less resistant slaty shale. The Cretaceous sediments are characterized by fine- to medium-grained friable sandstone, clays, and gravel.

4-02. Archeology.

a. General. - A preliminary archeological survey was conducted in the lake area by Mr. Max Ray, University of Oklahoma, in 1961. A full scale archeological survey was conducted by the Department of Anthropology, University of Oklahoma, in 1963. The entire lake area was surveyed except a small section in the westernmost portion of the Pine Creek area and a strip of land on either side of Turkey Creek. The surveys located 30 archeological sites, but only four of the sites were excavated.

b. Archeological stages. - The first human occupation of the Pine Creek Lake area began with the appearance of the Paleo-Indian hunter. The cultures of the Paleo period (possibly 12000 to 8000 B.C.) are typically identified by projectile points which are fluted and have distinctive lanceolate outlines. While specific camping or kill sites of such cultures have not been excavated in southeast Oklahoma, scattered finds of distinctive point types indicate that the human bearers of such cultures had frequented the area. The Archaic period followed the Paleo hunter in the Little River Basin for possibly 6,000 years. During this long time period, subtle but important climatic and ecological changes occurred in the eastern United States. The archeological evidence in the Pine Creek Lake area implies that hunting and gathering oriented peoples were present and may have persisted to a time much later than in other parts of the eastern United States. The Archaic period, which persisted until around A.D. 500-700, has been divided into three separate stages of cultural development. The Early Archaic stage lasted from 8000 to 4000 B.C. The tools of this assemblage suggest

that the people were economically concerned with hunting, and to some degree, gathering. The archeological evidence allows the inference that the sites were occupied by small groups of people. Such occupations seldom seem intensive, suggesting a nomadic way of life in which the people participated in several subsistence endeavors. The Intermediate Archaic stage (4000 to 15000 B.C.) was characterized by warm, dry, climatic conditions which had developed around 7000 B.C. The continuation of such a climate and its associated ecology would lead to the assumption of a continuation of the Early Archaic subsistence and living pattern. Such a continuation does seem to be the case, but there is some implication that the Archaic peoples were becoming more adjusted to the ecology and were developing more specialized economic activities. The Late Archaic stage was the final development of the Archaic period and dated from 1500 B.C. to around A.D. 500-700. By the end of this time period the introduction of horticulture, pottery making, and a distinctive burial complex terminated the Archaic manifestations in the Little River Basin. There is some evidence to prove that the somewhat isolated, hunting-gathering peoples in southeast Oklahoma had some interaction with the horticulturally based, woodland cultures in the Mississippi Valley. Following the Archaic period in the Pine Creek Lake area an influx of people and/or ideas from the southeast apparently stimulated the cultural developments that eventually crystallized the Caddoan Era of the Mississippi period. The Early Caddoan stage of the Mississippian period lasted from A.D. 700 to 1200-1300. The Early Caddoan peoples were primarily horticulturists but also were hunters and gatherers, living in small villages along the fertile stream valleys in the Little River Basin. These farming peoples participated in religious activity oriented toward successful harvests. Evidence of this activity consists of ceremonial centers with manmade mounds that were used for interment of the dead and for temple structures. The Late Caddoan stage (A.D. 1300 to 1600) included a slightly smaller area than that occupied by Early Caddoan traditions. There was a decrease in cultural complexity and less maintenance and construction of cermonial centers. Through the temporal span of the Late Caddoan times there is evidence of increasing contact with, and influence by, plains cultures. There is some indication that these horticulturally based peoples may have become increasingly involved in seasonal buffalo hunting.

4-03. History. - McCurtain and Pushmataha Counties, in which Pine Creek is located, have a long, colorful history. The two counties were once part of the old Choctaw Indian Nation. Present-day Pushmataha County was named in honor of a famous Choctaw Chief, Pushmataha, who served under both Generals Claiborne and Andrew Jackson during the War of 1812. He was also a skilled negotiator and was instrumental in bargaining for lands in Oklahoma. An early settlement of the area is Fort Towson, located a few miles southwest of the project in Choctaw County. Established 1824 by Colonel Matthew Arbuckle, it was named in honor of General Nathan Towson,

Paymaster General of the Army. During the Civil War, the Fort was used by southern forces, and it was here that General Stand Watie (the last Confederate General to surrender) surrendered his troops to the United States in 1865. The buildings have not been used since, and are located on private property with only a few ruins remaining. The Alikchi District Court Ground is another historical site of the area. Located on the east side of the lake, it was used for executions and punishment of Choctaws who had broken tribal law. Choctaw punishment consisted of whipping or execution. There was no jail, so the condemned Choctaw was paroled on his honor and would appear on the execution day to receive his punishment. The last execution occurred in July 1899 when William Going was executed. The town of Valliant, located a few miles south of Pine Creek Lake, is another early settlement of the area. It was named for F. W. Valliant, Chief Engineer for the Choctaw and Arkansas Railroad. Nearby is an old water grist mill. There was once an academy for negro slaves located here, and the spiritual "Swing Low Sweet Chariot" was composed at this site. The State Liaison Officer for historic places was consulted for location of any sites within the Government property line. No sites are listed in the National Register.

4-04. Ecologic and land use relationship.

a. Project resources (scenic qualities). - The recreational and scenic values of the lake are derived from the foothills of the forested Kiamichi Mountains which surround the lake area. The meandering shoreline and surrounding scenic foothills form long, deep coves projecting from the main body of the lake, providing a particularly interesting combination for outdoor recreational activities. The lake offers opportunities for such activities as camping, picnicking, boating, swimming, hiking, exploring, hunting, and fishing.

b. Impact of recreation development. - There are some adverse impacts associated with these recreation programs, such as a decrease in wildlife habitat, soil compaction, and deterioration of the natural environment. These impacts are reduced as much as possible through planting of trees and grass, and many other resource management efforts to reduce deterioration of the natural environment. The anticipated impacts of future construction or expansion of existing recreational facilities would entail a minimum disturbance to the terrain and vegetation. Every attempt will be made to construct these facilities with the least possible deterioration of the environment. Grass, trees, and shrubs will be planted to enhance the area and to replace plants damaged or removed during construction. Another impact of any future construction of recreation facilities would be the possible destruction of archeological resources. However, if cultural features or artifacts are encountered, all

construction would be halted until clearance is provided by the State archeologist or his representative.

c. Vegetation.

(1) Vegetation types. - Pine Creek Lake is located in a region composed primarily of two major forest types: the oak-pine forest type and the bottom land hardwood type. The principal species of these forest types are listed below. There is only a nominal amount of bottom land hardwood type within the project boundaries of Pine Creek Lake. This forest type is found along small tributaries of the lake and in the upper reaches of Pine Creek Lake along the Little River. See Oklahoma vegetative map, figure 4-1.

(a) Bottom land hardwood type. - The principal species are: water oak (Quercus nigra), willow oak (Q. phellos), chinquapin oak (Q. muehlenbergii), overcup oak (Q. lyrata), sweet gum (Liquidambar styraciflua), sycamore (Platanus occidentalis), cottonwood (Populus deltoides), black willow (Salix nigra), black walnut (Juglans nigra), pecan (Carya illinoensis), blue beech (Carpinus caroliniana), river birch (Betula nigra), winged elm (Ulmus alata), slippery elm (U. rubra), hackberry (Celtis spp.), sassafras (Sassafras albidum), hawthorn (Crataegus spp.), redbud (Cercis canadensis), honey locust (Gleditsia triacanthos), red maple (Acer rubrum), box elder (A. negundo), dogwood (Cornus florida), white ash (Fraxinus americanus), green ash (Fraxinus pennsylvanica), swamp privet (Forestiera acuminata), and buttonbush (Cephalanthus occidentalis). Understory vegetation which is common to this type consists of: river cane (Arundinaria ssp.), greenbriar (Simlax spp.), wild grape (Vitis aestavalis), poison ivy (Rhus radicans), poke (Phytolacca americana), and similar species. Grasses common to the bottom land are: big bluestem (Andropogon gerardii), Indian grass (Sorghastrum nutans), purpletop (Tridens flavus), switchgrass (Panicum virgatum), Johnson grass (Sorghum halepense), and associated species.

(b) Oak-pine type. - The principal species of this forest type are: shortleaf pine (Pinus echinata), loblolly pine (Pinus taeda), white oak (Quercus alba), blackjack oak (Q. marilandica), post oak (Q. stellata), shumard oak (Q. shumardii), willow oak (Q. phellos), black locust (Robinia pseudoacacia), black hickory (Carya texana), basswood (Tilia americana), eastern red cedar (Juniperus virginiana), and sugar maple (Acer saccharum). Some of the more common herbs and shrubs in this vegetative type are: American holly (Ilex opaca), huckleberry (Vaccinuum vascillans), mock orange (Philadelphus pubescens), early azalea (Rhododendron roseum), gooseberry (Grossularia spp.), bladder nut (Staphylea trifolia), and spice bush (Lindera benzoin). Major grasses and other herbaceous plants are: big bluestem (Andropogon gerardii), little bluestem (Andropogon scoparius),

switchgrass (Panicum virgatum), Indian grass (Sorghastrum nutans), sideoats grama (Bouteloua curtipendula), and Johnson grass (Sorghum halepense) (Duck & Fletcher, 1943).

Immediately along the riverbanks, plants associated with the cypress bottom vegetative type are found.

COLORADO
KANSAS
NEW MEXICO
MISSOURI
TEXAS
CIMARRON
STATE OF OKLAHOMA
GAME AND FISH DEPARTMENT
1943
A GAME TYPE MAP OF OKLAHOMA
BY
THE DIVISION OF WILDLIFE RESTORATION
L.G. DUCK, BIOLOGIST IN CHARGE
JACK B. FLETCHER, BIOLOGIST
STAFF
LAURITS KREFTING
LAWRENCE TEMPLE
O'REILLY SANDOZ
H GORDON HANSON
LYLE F. SELKE
CLARA M. FOSTER
LEGEND
PINON-JUNIPER-MESA TYPE
DISTRIBUTIONS OF PINUS EDULIS
SHORTGRASS HIGHPLAINS TYPE
SAND-SAGE GRASSLAND TYPE
MIXEDGRASS ERODED PLAINS TYPE
MESQUITE GRASSLANDS
TALLGRASS PRAIRIE TYPE
STABILIZED DUNE TYPE
SHINNERY OAK-GRASSLAND TYPE
POSTOAK-BLACKJACK FOREST TYPE
OAK-HICKORY FOREST TYPE
OAK-PINE FOREST TYPE
LOBLOLLY PINE FOREST TYPE
CYPRESS BOTTOMS FOREST TYPE
BOTTOMLAND TYPE (FLOOD PLAIN)
PINE CREEK
LAKE AREA

Figure 4-1

OKLAHOMA VEGETATION

The original map of Duck and Fletcher (1943) has been reprinted by the Oklahoma Biological Survey with the permission of the Department of Wildlife Conservation.

The state slopes southeastward from an elevation of 1518 m at Black Mesa in the Panhandle to 99 m on the Red River in the southeastern corner. Topography is generally flat to rolling, exceptions being the Wichita Mountains in the southwest, the Arbuckle Mountains in the south central section, and the Ouachita, Boston, and Ozark Mountains along the eastern border. Mean annual temperatures vary from 15°C at Woodward in the Northwest to 18°C at Idabel in the Southeast. The average frost-free period is about 200 days at Woodward and about 240 days in the Southeast. Average annual precipitation varies from 38 cm in the Panhandle and 65 cm in the Northwest to 115 cm in the Southeast, with well over 130 cm locally in the mountains along the eastern border. The western section has greater extremes of temperature and more variable precipitation than the central and eastern sections. Wind velocities and evaporation rates are much higher in western sections than in eastern sections.

The Pinon-Juniper represents an eastern extension of the Rocky Mountain flora and is found only in the Black Mesa region of the Panhandle. The short-grass plains occur in areas of relatively low rainfall and are composed of blue grama, buffalo grass and other xeric species. Along the major rivers of the northern half of the state, there are numerous sandy areas and stabilized dunes which support sand sage, oaks and various shrubs. The western edge of the state is characterized by a sandy region which is covered with sand sage and islands of a taxonomically complex group of oaks, called oak shinnery. Most of the central part of the state is either covered with blackjack post oak forest or was once tall-grass prairie. Since the prairie soils are very rich and suitable for farming, virtually all the prairie has been converted either to grazing or crops. The oak forests cover areas of abandoned farmland or represent areas topographically unsuited for farming. The Ozark region is mostly deciduous forest dominated by a variety of oaks and hickories. The Southeast corner of the state is dominated by shortleaf pine or a number of deciduous tree species. Bottomland forests are characterized by such species as willow, cottonwood, elm, ash, hackberry, and sycamore.

In general, the grasses and trees become taller and larger from west to east and there are a greater number of species in the eastern part of the state. Although the state is dominated by tall grass and blackjack-post oak forest, there are representative vegetation types of the Rocky Mountains, high plains prairies, tall-grass prairies, Ozark hardwoods and coastal plain forests.

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Paul G. Risser, Director

(2) Effects of floodwaters and wave action. - The temporary storage of floodwaters at Pine Creek Lake for varying lengths of time during different seasons have killed a very small number of trees located within the flood pool of the lake. An important factor is the time of year that the trees are flooded. The mortality rate for trees inundated during the dormant season is much lower than for the same species of trees flooded during the growing season. In order to reduce the adverse effect that inundation has upon the trees, more water-tolerant species of trees should be planted to replace the intolerant species which have been killed from the effects of inundation. To prevent wave action erosion, the establishment of water-tolerant grasses and other erosion-retarding ground cover should be considered in problem areas.

d. Effects of sedimentation and wave action on public-use areas. - The wave action and sedimentation effects for each public-use area are discussed below:

(1) Pine Creek Cove. - This public-use area is located in a secluded section where wave action will not be significant because of topography and ground cover. The terrain is rolling and well forested. The problem of sedimentation is minor.

(2) Little River Park. - Boat ramps in the Little River Park public-use area are well protected and will have more than adequate water depth. The terrain is forested and rugged. Neither wave action nor sedimentation will be a problem in the area.

(3) Turkey Creek Landing. - Turkey Creek Landing public-use area is located about 3 miles below the headwater area of the conservation pool. Although the terrain is level, with a limited amount of tree coverage, the water width is small and wave action will be minor. The Little River carries a small sediment load; therefore, no delta formations are expected, nor will local sedimentation be a problem.

(4) Lost Rapids Park. - This public-use area has rolling, forested terrain. Sedimentation and wave action will not be a deterrent to effective use of this site.

(5) Tom Taylor Point. - Tom Taylor Point public-use area, located on the east shore of the lake, is somewhat vulnerable to southwest winds; however, the average significant wave height is only about 0.7 foot. The shoreline is rocky and forested and will provide good protection against the effective wind velocity. Sedimentation will not be a problem.

e. Fish and wildlife.

(1) Fish. - Pine Creek Lake is a clear, relatively deep impoundment, supporting a productive fishery of largemouth bass,

white crappie, black crappie, white bass, bluegill, channel catfish, and flathead catfish. The lake is not expected to provide suitable habitat for maintaining a significant smallmouth bass population. As in most large lakes in this area, game fish will provide outstanding fishing during the early years of impoundment. Rough fish which could be of commercial importance include carp, buffalo, freshwater drum, and flathead catfish.

(2) Wildlife. - Whitetail deer is the only big game animal hunted in the project area. The oak-pine association on the uplands and bottom land hardwoods along the stream courses provide outstanding habitat for deer. Deer populations in southeast Oklahoma have been steadily increasing during recent years as evidenced by the fact that McCurtain County leads all counties of the State in annual deer kill. The area is sparsely settled and although the lands are privately owned, free hunting access is permitted on practically all of the area. A significant portion of the local economy is based on the maintenance and well being of the deer population. Upland game species in the area of influence include fox squirrel, gray squirrel, raccoon, cottontail rabbit, bobwhite quail, and turkey. In order of importance, squirrel hunting ranks highest with hunters, followed by raccoon hunting. Land use changes in the downstream flood plain have and will continue to cause a decrease of wildlife habitat and a reduction in wildlife populations. The lack of feeding areas and the shortage of large expanses of shallow waters has precluded intensive concentrations of waterfowl on Pine Creek Lake.

(3) Endangered species. - According to the Department of the Interior, Fish and Wildlife Services, Endangered and Threatened Wildlife and Plants, Federal Register, 27 October 1976, the following species, possibly occurring on the project lands, are considered endangered: American alligator (Alligator mississippiensis), southern bald eagle (Haliaeetus leucocephalus), and red-cockaded woodpecker (Dondrocopos borealis).

f. Water quality. - The quality of water in the lake is considered to be good. Most of the basin above the lake is wooded and only a small percent is cultivated. No major sources of pollution are known in the drainage area above the lake. Temperature and oxygen data show that stratification occurs during the summer months, with the most stratified conditions developing in late July and August. Dissolved oxygen concentrations during this time are 2 p.p.m. or less below 12 to 15 feet. Hydrogen sulfide is noticeable in discharges during summer and fall months. The concentrations of minerals, suspended solids, and dissolved solids in the water are low, and the water is soft. Water quality data from Little River have been collected by the U.S. Geological Survey on a periodic basis and are available in various publications by the USGS.

g. Water supply. - The Weyerhaeuser Company has contracted for an undivided 40.85 percent of the storage between elevations 414.0 and 443.5 which amounts to 28,820 acre-feet. The contract provides for the use of 14,710 acre-feet at the inception of the contract (1 December 1971) with provision that the Weyerhaeuser Company may commence using all or any of the remaining 20 percent, 14,110 acre-feet, at any time after giving the contracting officer 30 days notice in writing. The conservation pool is currently regulated to elevation 438.0. Between elevations 438.0 and 414.0, there is 46,610 acre-feet of storage. Storage requirements of 21,240 acre-feet for water quality and 14,710 acre-feet for water supply can be met with 10,660 acre-feet left in reserve under the current operational procedures.

h. Low flow operation. - The minimum low flow releases from Pine Creek Lake for water quality control requirement at the present time is 18 c.f.s. Normally, releases will not be made that would reduce the pool level at Pine Creek Lake below elevation 414.0.

4-05. Land use.

a. State wildlife management. - The Oklahoma Department of Wildlife Conservation has a license to manage for public hunting 10,280 acres of land and water, of which 9,780 acres are above normal pool. The objectives are to improve the carrying capacity for wildlife and provide public hunting access with the least amount of impact on the environment. Some project lands have been overgrazed by both authorized and unauthorized grazing, causing a relatively low wildlife population due to a limited food source and vegetative cover. All grazing leases have been cancelled as of 31 December 1975. Unauthorized grazing still occurs in the project area, but a fence construction program by the Oklahoma State Wildlife Department, which is near completion, is expected to help control most of the problem areas. Low density recreational activities such as fishing, limited camping, and hiking will not be detrimental to wildlife. Lespedeza has been planted for soil improvement and food for quail and deer. Some timber has been removed to provide fire breaks. This existing 25-year wildlife management lease for use of the Pine Creek lands can be considered a short-term use of the environment. The short-term impact is expected to be beneficial and the use of this area for wildlife-oriented activities will in no way impair the long-term productivity of the land. Use of the land in this manner is actually a holding action, preserving this area for other future beneficial uses if it becomes necessary to divert it to other uses.

b. Recreation.

(1) Federal. - There are three developed and one undeveloped public-use areas along the lake shoreline and two

developed public-use areas below the dam, all of which are managed by the Corps of Engineers. Recreational activity breakdown, based on 1975 attendance report, shows camping, 15 percent; picnicking, 5 percent; boating, 18 percent; fishing, 34 percent; hunting, 3 percent; sightseeing, 16 percent; skiing, 3 percent; and swimming, 6 percent.

(2) State. - The Oklahoma Tourism and Recreation Department has a 25-year lease for 2,050 acres of land on which to develop a State park. This park includes an existing public-use area, Turkey Creek Landing. This State park would be a limited access facility designed to provide an outdoor recreational experience without sensory interference from engine noise. Featured recreational activities include tent camping, hiking, horseback riding, fishing, and interpretive programs.

V - FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT

5-01. General. - The main purpose of this report is to develop the recreational potential of the lake while preserving as many environmental and scenic qualitites as possible. Proper resource management plays an important "buffer role" for the construction and operation of the project. The limitations of resource management should be recognized in the designing stage to avoid unconquerable problems. The general theme for resource management is the preservation, replacement, stabilization, and enhancement of all project resources.

5-02. Demographic, economic, and social conditions.

a. Population. - This region is no different from those throughout the Nation, with general shifting of population from rural to urban areas. The majority of residents of the area live either in small communities or rural areas. Area towns with more than 1,000 residents and their 1970 population are: Broken Bow, 2,980; Idabel, 5,946; and Wright City, 1,068. The 1970 population of the visitation market area was 111,000. Per capita income for the two-county area surrounding Pine Creek Lake for 1960 and 1970 averaged $795 and $1,929, respectively. It is estimated that recreation activities and local spending by the project's operation and maintenance personnel support 10 service-related jobs in the area surrounding the project.

b. Economic. - Timber operations and livestock production provide the principal economic base for McCurtain County and surrounding area. Good pastureland and plentiful water supply has expanded the beef cattle industry. Commercial production of oil and gas in this area is improbable at the relatively shallow depths explored thus far; however, the petroleum potential of the area may be realized when deep well drilling techniques make such drilling economically justifiable to explore the deeper, more likely productive formations. The general area adjacent to Pine Creek Lake has limited mineral production, primarily quartz crystals (sold as mineral specimens), and sand and gravel produced from alluvium and terrace deposits (construction and road materials).

c. Socio-economic impact. - Community growth has occurred as a result of the influx of recreators. Service industries have increased in numbers, thereby increasing employment, to meet the needs of recreationists. Community cohesion has not been affected by the project. The multipurpose lake has reduced the threat of flooding, and therefore increases health and safety levels. Tax revenue losses have been sustained on the lands removed from

private ownership. Tax revenue losses will be regained in the long term when and if the surrounding areas are developed.

5-03. Topography and soils.

a. Topography. - Most of the shoreline areas where recreational facilities have been located have an 8 to 12 percent slope, but in some areas the shoreline exceeds 12 percent. This extreme percentage of slope, combined with a 2-year flood pool elevation 30 feet above normal pool, has forced much of the initial development of recreation facilities to be located on or near the top of ridges, far away from the normal conservation pool.

b. Soils. - General soil associations as they occur in the basin are shown in figure 5-1.

(1) Hector-Pottsville (HP). - This soil association is the predominant soil combination of the upper river basin, including the Lithosols of the Red and Yellow Podzolic region. This association is usually thinly developed on stony mountain slopes (often up to 60 percent slope over banded sandstones and shales). The surface drainage is always rapid, with relatively slow internal or subsurface drainage. These soils are highly productive for timber characteristic species such as oak, hickory, and pine.

(2) Kirvin-Cuthbert-Bowie (KCB). - This soil association is a deep soil developed over reddish sandy clays on gentle slopes. The Cuthbert is a shallow soil found on gray and brown bedded sandy clays on steeper slopes, while the deep Bowie soils, which are developed on gentle slopes, have sandier, more yellowish parent materials. When cleared, these soils are used mostly for corn, oats, peanuts, and pasture.

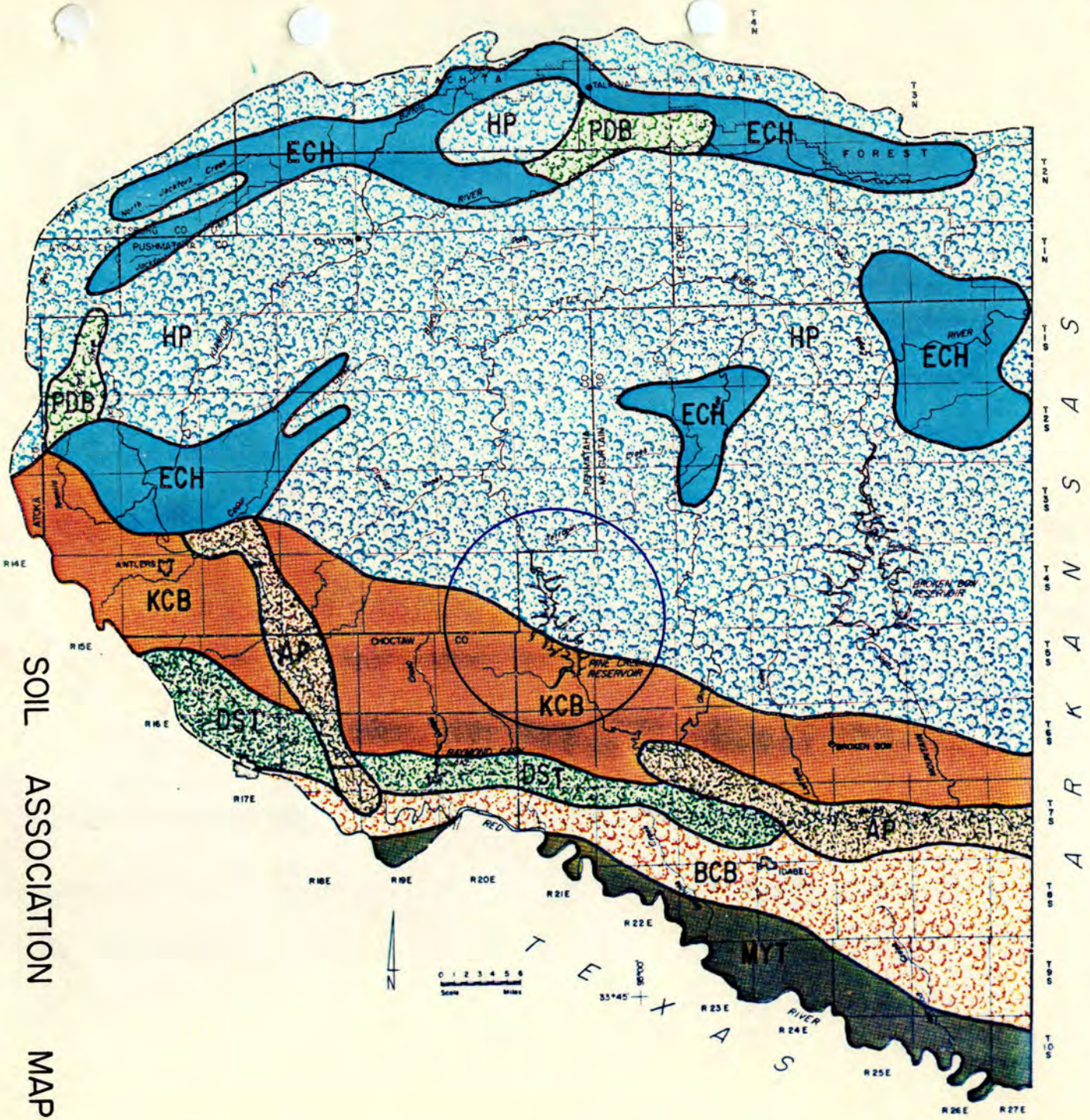


FIG. 5-1 SOIL ASSOCIATION MAP

5-04. Accessibility. - Principal roads serving the lake area are Oklahoma Highways 3 and 7, Oklahoma Highway 98, and U.S. Highways 70 and 271. The interstate highway system and the Indian Nation Turnpike greatly improve accessibility from major population centers beyond the primary zone of influence. Project area circulation is accomplished through the use of county roads and old logging roads which are under access easements.

5-05. Visitation market area. - The visitation market area is that area within a 50-mile radius of the project. In 1970 the recorded population of the market area was 111,000, showing an increase of 6.6 percent from 1960. OBERS projections (Series "E") show a projected population increase of 9.7 percent from 1970-1980 and 12 percent from 1980-2000. These percentages of increase are considered to be on the high side, so the projected population figures for the market area shown below in table 5-1 reflect a more conservative estimate. The expected growth of the region is due to additional recreational services which enhance business and municipal development. Also, increased availability of water enhances the possibility of industrial and municipal development.

TABLE 5-1

PROJECTED POPULATION OF MARKET AREA

1980	2000	2020
120,000	130,000	137,000

5-06. Related recreational areas and historical sites.

a. Recreational areas. - Flat water recreation areas of significant size within 50 miles of the project are listed in table 5-2. All of these lakes, administered by the Corps of Engineers, are very similar in landscape setting.

TABLE 5-2

RELATED RECREATION AREAS

Recreational area	Distance (air miles)	Lake surface (acres)
Broken Bow Lake	25	14,200
DeQueen Lake	35	1,680
Dierks Lake	50	1,360
Gillham Lake	45	1,370
Hugo Lake	20	13,250
Millwood Lake	50	29,500
Pat Mayse Lake	35	6,000
Clayton Lake(1)	40	14,360

(1) Under construction (completion date 1980).

b. Major historical sites. - The major historical sites are: Choctaw Capitol, 1-1/2 miles north of Tuskahoma; Chief's Old House, 12 miles east of Hugo; and Fort Towson, 12 miles east of Hugo.

5-07. Reservoir plan of operation. - Pine Creek Lake will be regulated as a unit in a system of lakes on the Little River and tributaries for optimum flood control benefits in the reaches below Pine Creek in conjunction with the Little and Red River Systems which will provide benefits on the lower Red and Mississippi Rivers. Flood releases from each lake in the system will be made in accordance with predicted runoff from the uncontrolled area downstream and the predicted volume of inflow into the lake. Each lake will make its proportionate releases in accordance with the predicted allowable release for the downstream control points. The proportionate release from each lake will be determined by the ability of each lake to evacuate the stored floodwaters at channel capacity. During periods when floodwaters are being accumulated in the system, each lake shall be regulated so as to retain equivalent flood control capabilities, with releases being made first from the lake with the least available storage in terms of inches of runoff from the drainage area above the dam, with consideration being given to predicted inflow into the lake and conditions downstream.

a. Pool fluctuation. - The extreme pool fluctuation on Pine Creek Lake is primarily due to an excess of water resulting in flooding rather than the lack of water. Flooding of recreational facilities is a relatively common occurrence with an average annual flood being 10 feet above the normal pool elevation and the 2-year flood being 30 feet above normal pool elevation. The pool elevation probability and duration curve (figure 2-2) shows an inundation period

for a pool elevation 12 feet or more above normal pool occurring 10 percent of the time.

b. Effect on recreation. - Pool fluctuations along with steep shoreline slopes forced the siting of initial recreational facilities on or near the top of ridges, far away from the normal pool. Since the lake became operational, some camping facilities have been moved nearer to the normal pool. This relocation action is expected to increase the recreational desirability enough to increase visitation, even though the new location is inundated more frequently. Any future siting of recreational facilities should be above elevation 448.0 which represents a reasonable location for recreational facilities with regard to the operation of the pool.

5-08. Commercial lumbering. - The present lumbering technique in southeastern Oklahoma of clear cutting, defoliation, and replanting pine trees is rapidly diminishing the number of hardwood trees. This lumbering tehcnique occurs in areas around the project and the visual impact can be observed from county roads and logging roads which provide circulation around the lake.

5-09. Borrow haul road. - An old haul road which was used during construction of the embankment is at present a very noticeable construction scar which crosses Pine Creek Cove public-use area. This inactive road is 100 feet wide, varies in depth from 2 to 6 feet, and crosses 3,300 feet of public-use area. The road is void of trees, causing a high contrast with the surrounding heavily forested terrain. In time, reforestation will take place and reduce this visual impact.

5-10. Adaptability of project structures for public use.

a. Old highway bridge. - In Lost Rapids Park public-use area, a part of the bridge on old State Highway 7 was left for a fishing pier. This fishing pier has received heavy usage by both fishermen and sightseers even though there are no sanitary facilities within a half mile of the pier. Vault toilets are planned to meet the urgent need for sanitation facilities.

b. Spillway. - The spillway is located adjacent to and is part of Pine Creek Cove public-use area. The spillway is one of the largest open spaces on the project and would adapt itself easily to recreational activities which require a large, flat open area. Due to the lack of any extensive development and the long distance between the spillway and existing camping and picnicking areas, the spillway area has received very littl recreational activity. Other open spaces closer to existing facilities are being established and used at present. If the proposed development for Pine Creek Cove is accomplished, the visitation usage could increase enough to warrant construction of a

gravel parking lot near the spillway on road "A" (drawing 93/8). This parking lot would serve both the spillway area and the proposed amphitheater.

c. Concession site and quasi-public-use areas. - Due to no interest shown by the private sector to invest in a concession site or a quasi-public-use area, no concession site or quasi-public-use areas have been designated in this updating. If and when a need is established, a site may be proposed.

5-11. Projected visitation. - The estimated annual visitation for the year 1980 is 344,000 users. This visitation figure takes into account expected competition for recreators by projects within the region which have been completed since the construction of Pine Creek Lake or will be completed by the year 1980. Also, influencing the projected visitation figure is the relocation of camping facilities closer to the water which is being accomplished this year. Visitation calculations are shown below using per capita visitation rates by zone and OBERS projected population of 120,000 by the year 1980 for the influence zone. Recorded visitation figures are shown in table 5-3.

TABLE 5-3

ESTIMATED VISITATION FOR 1980

Zone	Population x per capita use rate	Number of users
0-25 miles	34,000 x 6.0	204,000
25-35 miles	35,000 x 1.2	42,000
35-50 miles	51,000 x 0.6	30,400
Over 50 miles	(1)	67,400
Total		344,000

(1) 25 percent of users within 50-mile range.

The 344,000 figure does not include those specialized recreators which will be using the State's "wilderness" park, but does include visitation for Turkey Creek Landing. The State park is designed to provide a specialized recreational experience which will be an added attraction for Pine Creek Lake; therefore, increasing the overall recreational desirability of this project.

5-12. Carrying capacity/resource management. - Carrying capacity is defined as the intensity of use that can be supported over a specified time period by an area developed to a certain level without

causing excessive damage to either the environment or the recreational experience. Pine Creek Lake recreation areas are not in danger of being overloaded with users, but the type of recreational experience could be altered by such proposed additions as electrical hookups and better water availability. For example, some visitors expect and in general are satisfied with the present minimum facilities and development and do not want existing facilities upgraded to attract the "recreational vehicles" crowd. Established attitudes and expectations of present users must be considered when proposing any changes in existing recreational areas. Preservation of established recreational character should be a factor in design of future development and establishing management objections.

5-13. Recreation facility requirements. - The facilities required to support the estimated visitation of 344,000 users by the year 1980 are based on the number of visitors that attend on an average weekend day during the peak month of use. Recorded visitation data show 13 percent of the annual visitors attend during the peak month and the visitation on weekends during this month is 67 percent of the monthly total. The number of visitors that are expected to visit the project on a weekend day during the peak month of use is:

$$\text{Design day load} = \frac{344{,}000 \times .13 \times .67}{8.67 \text{ weekend days/month}} = 3{,}456 \text{ (use } 3{,}450)$$

Recorded recreational activity breakdown based on 1975 attendance report shows camping, 15 percent; picnicking, 5 percent; boating, 18 percent; fishing, 34 percent; hunting, 3 percent; sightseeing, 16 percent; water skiing, 3 percent; and swimming, 6 percent.

a. 1980 facility requirements (proposed).

(1) Picnic tables. - The present picnicking rate is 5 percent of the total visitation with an average of 3.1 persons per vehicle. Picnic tables have a turnover rate of 1.5 each day per table with 90 percent of the picnickers using tables.

$$\text{Number of picnic tables required} = \frac{3{,}450 \times .05 \times .90}{3.1 \times 1.5} = 33$$

Number of picnic tables required = 33
Existing = 24
Proposed = 11

(2) Camping units. - The present camping rate is 15 percent of the total visitation with an average of 3.1 persons per campsite.

$$\text{Number of camping units required} = \frac{3{,}450 \times .15}{3.1} = 167$$

Number of camping units required	= 167
Existing	= 119
Proposed	= 48
Pad	= 31
Primitive	= 17

(3) Boat ramps. - The present recorded rate for boat activity is 11 percent fishing (one-third of the fisermen use a boat), 18 percent pleasure boating, and 3 percent skiing, for a total of 32 percent. The average number of persons per boat party is 3.0, the turnover rate is 1.5, and the number of boat launchings per lane per day is 40.

$$\text{Number of lanes required} = \frac{3{,}450 \times .32}{3.0 \times 1.5 \times 40} = 6.1$$

Number of lanes required = 6.1
Number of existing lanes = 6

b. Future facility requirement. - Due to very little increase expected in visitation over the next 15 to 20 years, there would not be enough predictable change occurring in recreational demands to warrant the calculation of future facility requirements in this design memorandum.

c. Existing and proposed recreational facilities. - Table 5-4 shows a breakdown by public-use areas for existing and proposed recreational facilities necessary to satisfy the expected visitation by 1980.

TABLE 5-4

RECREATION FACILITY BREAKDOWN

Public-use area	Camping units			Picnicking units		
	Existing	Proposed	Total	Existing	Proposed	Total
Little River Park						
North	38	0	38	4	0	4
South	40	0	40	4	0	4
Pine Creek Cove	8	26	34	0	(1)11	11
Lost Rapids	15	0	15	10	0	10
Billy Bell Shoals	3	(2)22	25	0	0	0
Lost Ferry	3	0	3	0	0	0
Turkey Creek (State Park)	12	0	12	6	0	6
Total	119	48	167	24	11	35

(1) This figure includes two picnic shelters containing three tables each.

(2) This figure includes primitive camping area (17 units).

VI - COORDINATION

6-01. State grant-in-aid clearinghouse. - This design memorandum has been reviewed and accepted in accordance with OMB Circular A-95 and Section 102(2)(c) of the National Environmental Policy Act by the required agencies (see letter dated 21 April 1977, exhibit A).

VII - PHYSICAL PLAN OF DEVELOPMENT

7-01. Zoning. - The lakewaters will be open to boating, skiing, fishing, swimming, and other water sports. Where there is a conflict of interests or a hazard which endangers life or property, limitations will be imposed to reduce the potential of occurrence. Land use allocations for Pine Creek Lake are discussed in subparagraphs a through d. The utilization plan is shown on drawing 93/3 and acreages allocated to each land use are shown in table 7-1.

TABLE 7-1

LAND USE ALLOCATIONS

Zoning classification	Acreage above normal pool elevation 438.0
Project operations	250
Recreation - high density	3,005
Recreation - low density(1)	2,010
Wildlife management (State)(2)	9,780
Wildlife management (Corps)	7,295
Total acres above normal pool	22,340

(1) Includes all islands.
(2) Total of land and water, 10,280 acres.

a. Project operations. - Lands acquired and allocated to provide for safe, efficient operation of the project for those authorized purposes other than recreation and fish and wildlife. In all cases this will include, but is not limited to, the land on which project operational structures are located. Agricultural use of these lands will be permitted on an interim basis when not in conflict with use for authorized purposes, recreation use, or wildlife habitat.

b. Recreation - high density. - These lands are allocated for use as developed public areas for concentrated or intensive recreational activities by the visiting public, including areas for concession and quasi-public development. No agricultural uses are permitted on these lands.

c. Recreation - low density. - Lands allocated for low density public recreational activities such as ecological workshops and forums, hiking trails, primitive camping, or similar low density recreational uses that play a significant role in shaping public understanding of the environment. No agricultural uses are permitted on these lands.

d. Wildlife management. - These lands are allocated for fish and wildlife habitat or for propagation of such species. Lands should be continuously available for low density recreational activities.

7-02. Public-use areas. - At the present time the Corps is operating three public-use areas on the lake (Little River Park, Pine Creek Cove, and Lost Rapids Park) and two public-use areas below the dam (Billy Bell Shoals and Lost Ferry). Tom Taylor Point is proposed for future development under a primitive design theme. The State is developing a "wilderness" park area under a 25-year lease which includes the existing Turkey Creek Landing public-use area. Table 7-2 gives an acreage breakdown on all public-use areas.

TABLE 7-2

ACREAGE BREAKDOWN OF PUBLIC-USE AREAS

Public-use area	Acreage	Acreage above normal pool		Acreage above minimum fee acquisition (elevation 490.0)
		Existing (elevation 438.0)	Ultimate (elevation 443.5)	
Little River Park	1,940	1,940	1,690	370
Pine Creek Cove	217	217	180	0
Lost Rapids Park	228	228	200	50
Tom Taylor Point	440	440	400	200
Turkey Creek Landing(1)	60	60	45	0
Billy Bell Shoals(2)	55	0	0	0
Lost Ferry(2)	65	0	0	0
State Park low density area	1,990	0	0	0
Total	4,995	2,885	2,515	620

(1) The State park is 2,050 acres which includes this area.
(2) Public-use area below the dam.

7-03. Recreation sites and area plans. - Pine Creek Lake, from a recreational standpoint, is basically a fishing/camping lake with very few day-use recreators. The lake is small, but the fishing is good and the camping areas are very scenic. At this time, Operations Division is relocating camping sites closer to the water and converting some picnicking sites to camping to meet present demands and distribution needs.

a. Little River Park (drawings 93/5 through 93/7).

(1) Area description. - This public-use area is located on the west bank (right bank) near the center of the lake just 1 mile south of State Highways 3 and 7. Recreational activities provided for are camping, picnicking, swimming, and boat launching. The area provides an excellent water-oriented recreational experience. This scenic area is heavily wooded but has several open spaces which provide an interesting landscape contrast as well as an area for field sports. Under present conditions, this area is the only area on Pine Creek Lake which could support an effective fee program.

(2) Proposed improvements.

(a) Improve water supply by tapping the Rattan Water District main and provide water taps throughout the public-use area.

(b) Improve security lighting of sanitary and boat launching facilities.

(c) Add electrical hookups to selected campsites if effective fee program is established.

(d) Provide group shelters in existing camp area.

(e) Provide parking and changehouse for swimmers.

(f) Plant mixed stand of trees for shade and landscape interest.

(g) Provide courtesy dock for boaters.

(3) Special problems. - Road "D" in Little River Park (North) has several low spots which are subject to "quick" flooding, especially when the ultimate conservation pool is reached. Any improvements on existing facilities or any additional construction of recreation facilities must take into account this safety problem and limited use of these facilities due to inundation.

b. Pine Creek Cove (drawing 93/8).

(1) Area description. - Pine Creek Cove public-use area is located just west and north of the main embankment on the right bank. Access into the area is directly off the right abutment access road. Recreational activities provided for camping, picnicking, swimming, and boat launching. The area is mostly wooded, but clearing for the spillway and old pasture areas have provided several desirable open spaces. An old haul road, 100 feet wide, cuts across this public-use area and is a very noticeable construction scar. Pine Creek Cove is second in populatity to Little River Park and will receive more users when the proposed recreation facilities are completed. If and when a fee program is established for all public-use areas on Pine Creek Lake, the most western area of Pine Creek Cove (loop roads "C" and "D") will become the primary day use area for the lake.

(2) Proposed improvements.

(a) Improve water supply through a pressurized well system with water taps.

(b) Improve security lighting of sanitary and boat launching facilities.

(c) Expand camping facilities to meet demand for this public-use area as well as the lake.

(d) Provide picnic shelters in concentrated day use area.

(e) Provide playground equipment and expand swimming area.

(f) Plant mixed stand of trees for shade, to reduce visual impact of construction scars, and provide additional landscape interest.

(g) Provide group shelter in proposed camping loop.

(h) Provide courtesy dock for boaters.

(i) Provide amphitheater for both Corps use and the general public.

(j) Provide sanitary dump station when the proposed camping units are completed.

(3) Special problems. - In general, recreational facilities in Pine Creek Cove are subject to inundation sooner and

for a longer period of time than recreational facilities in other public-use areas on the lake.

c. Lost Rapids Park (drawing 93/9).

(1) Area description. - Most of Lost Rapids Park public-use area is located on the east bank (left bank) just south of Oklahoma State Highways 3 and 7. The remainder of Lost Rapids Park is located just across the highway to the north and features an old highway bridge which is used as a fishing pier. Recreational activities provided for are camping, picnicking, pier fishing, and boat launching. The area is readily used as a roadside park by people stopping to view the lake or to picnic and rest. The area is partially to densely forested and provides attractive campsites and a convenient boat launching site.

(2) Proposed improvements.

(a) Improve water supply by tapping the Rattan Water District main and provide water taps throughout the public-use area.

(b) Improve security lighting of sanitary and boat launching facilities.

(c) Surface gravel entrance road with double bituminous paving.

(d) Provide courtesy dock for boaters.

(e) Construct vault toilets near parking area for pier fishing and sightseers.

d. Lost Ferry (drawing 93/10).

(1) Area description. - Lost Ferry public-use area is located immediately below the dam on the west bank (right bank) of the Little River. Access is directly off the right abutment access road. Recreational activities provided for are camping, stream fishing, and small boat launching. The area is well forested and has very rugged and steep slopes. A footpath runs along the river providing an interesting short hike and improved access for fishermen.

(2) Proposed improvements. - No improvements or new facilities are proposed for this area.

e. Billy Bell Shoals (drawing 93/11).

(1) Area description. - Billy Bell Shoals public-use area is located immediately below the dam on the east bank (left bank)

of the Little River. Access is directly off the abutment access road. Recreational activities provided for are camping and stream fishing. This area is well forested, but not as rugged or as steep as Lost Ferry which makes this area more suitable for development.

(2) Proposed improvements.

(a) Expand stream-oriented camping by adding both pad and camping and primitive camping.

(b) Provide footpath for fishermen.

(c) Just north of this area across the abutment access road provide parking and footpath for fishermen.

f. Turkey Creek Landing (State park) (drawing 93/12). - Turkey Creek Landing public-use area is located in the upper reaches of the lake on the west bank (right bank). Access to the area off Oklahoma State Highways 3 and 7 across 3-1/2 miles of county road. Recreational facilities provided for are camping, picnicking, and boat launching. The area is flat, with very few trees. This public-use area is part of the State's wilderness park. See subparagraph 4-05c(2).

g. Tom Taylor Point. - Tom Taylor Point, a undeveloped public-use area, is located on the east shore (left bank) immediately northeast of the main embankment. In general, the area is a plateau 40 to 50 feet above the normal pool, with several rocky ridges extending along narrow coves. The area is very scenic and is well forested. This highly desirable recreational area has been designated for future development and was not developed initially due to the high cost of providing access. No development in Tom Taylor Point is necessary to meet the recreational needs projected for 1980. Due to very little increase expected in project visitation over the next 10 to 15 years, there would not be enough predictable changes occurring in recreational demands to warrant the layout and calculations of future facilities for Tom Taylor Point in this design memorandum.

h. Overlook area (drawing 93/10). - The overlook is located on the right abutment and faces the spillway and downstream area. The siting of the overlook provides little interest to users since completion of the embankment. Due to activity of recreators (fishermen and sightseers) around the damsite area, the present sanitary facilities should be upgraded from wood vaults to masonry vaults.

VIII - COST ESTIMATE AND FUNDING

8-01. Estimated cost of proposed facilities. - The estimated total cost for proposed improvements and recreational facilities for Pine Creek Lake is $578,000. Cost item breakdown is shown in table 8-1. A detailed construction cost breakdown for each public-use area is shown in table 15-2.

TABLE 8-1

RECREATIONAL COST

Item	Cost
	$
Recreation facilities	444,987
Contingencies, 12%+	53,013
Subtotal	498,000
Engineering and design	45,000
Supervision and administration	35,000
Total cost	578,000

8-02. Annual operation and maintenance costs. - The annual operation and maintenance costs are estimated to be $395,000.

8-03. Funding - Code 710 program (EC 11-2-121). - Recreation development at completed projects will be accomplished through the Code 710 program. All recreation development funded with Code 710 funds will require at least 50 percent cost sharing by non-Federal agencies. This would apply to all new recreational facilities and some of the proposed improvements of existing facilities. The non-Federal sponsor is required to enter into a cost-sharing contract with the Corps prior to construction and agree to assume operation and maintenance responsibilities for the completed recreation area. There are two exceptions to this cost-sharing policy. The first is where upgrading of sanitary facilities is necessary to meet urgent sanitation needs in existing Corps-managed recreation areas. The Corps may develop these sanitation facilities at 100 percent Federal cost. The second exception is where additional recreational facilities and improvements would help to create a more efficient fee program for any public-use area. A special study was conducted to determine the cost-efficiency of operation and maintenance of existing Corps-managed family camp areas relative to the number of campsites per camp area. Based on the results of this study, a multiyear program to upgrade existing

Corps-managed family camp areas to a level adequate to recapture operation and maintenance costs through a system of recreation use fees may be recommended to the Office of Management and Budget (OMB). A "pilot program" will be prepared in advance and held ready to include in the FY 78 Code 710 budget request.

IX - PROJECT RESOURCE MANAGEMENT

9-01. Operational concepts and policies. - The Pine Creek Lake project is one of the projects included in the general comprehensive plan for flood control, water supply, and water quality in the Little River Basin. The steady release of water to meet the downstream demands in conjunction with inflow and evaporation produces a frequently fluctuating water surface that has not had a "significant" detrimental effect on the recreational potential of the project. During the spawning period (early April to mid-June) every effort will be made to maintain the pool levels as constant as possible to prevent stranding of fish eggs and fry. The recreation facilities are managed so that day users and campers will obtain maximum benefits. Preventive maintenance, general upkeep, and replacement caused by normal use or vandalism of the facilities along with minor road repairs are performed by project personnel. Major repairs and additions to the roads are accomplished by contract. Mowing and cleanup of the recreation areas are performed by contract. The administration and management of the project is accomplished jointly through the District Office and field personnel.

a. District Office. - District Office personnel are concerned principally with the project's operation and management in accordance with purposes for which the project was authorized; the nature, location, construction codes, and requirements of development and improvements; coordination and reconciliation of activities relative to policies and regulations; coordination with representatives of other agencies and individuals; processing of lease, licenses, and permits not delegated to field personnel for issuance, and public relations.

b. Field office. - Field office personnel assigned to the project are concerned with direct operation, maintenance, and management of the project; supervision of all activities conducted on the impounded water and land over which the Government acquires fee title or lesser interests; and requirement of high standards of public health and safety.

9-02. Staffing and organization. - A park manager, appointed by the District Engineer and under the direction of the manager at Hugo Lake is in responsible charge of all operations and maintenance of the project. The present organization is as follows:

Title	Grade	No.
Park Manager	GS-09	1
Park Manager	GS-07	1
Reservoir Construction and Maintenance Worker	WG-05	4
Laborer	WG-02	1
Laborer (Temporary)	WG-02	2
Additional personnel required:		
Ranger Technician (Temporary)	GS-04	1
Construction and Maintenance Leader	WG-08	1
Engineering Equipment Operator	WG-08	1
Motor Vehicle Operator	WG-06	1

The temporary ranger technician is necessary to supplement the park managers. The park managers are on duty every day to assist the public and patrol the lake area for detection of encroachment, vandalism, theft, safety hazards, fires, timber cutting, and any unauthorized use of public property. The construction and maintenance leader is required to supervise the labor forces at the various work locations. The leader assists the park manager by supervising the work forces and allowing the work to continue at various locations at the same time. The engineering equipment operator will operate crawler-type tractors, front-end loaders, and motor graders in construction and maintenance of roads, embankments, dikes, and public-use areas. The motor vehicle operator would drive the semitrailer truck and dump truck, and make minor adjustments and repairs on the vehicles, as necessary, to maintain efficient operations.

9-03. User fee areas. - Pine Creek Cove, Lost Rapids Park, and Little River Park are designated areas where the user fee program can be implemented. Signs will be posted at the approach to each area to inform the public that a daily fee will be charged for overnight camping. Campers will purchase their permit from a uniformed park manager assigned to collect the user fee. This duty shall be performed in conjunction with other activities assigned to the park managers. Records of cost vs. money collected will be maintained and will include only those costs in excess of the ones which would occur if the fee program were not implemented.

9-04. Administration and maintenance.

a. Office and administration facilities. - The project office is an integral part of the maintenance building, a one-story, 44- by 60-foot, brick masonry structure, located along the right service road to the damsite. Adequate office space is provided for the park manager to supervise, direct, and maintain records of the project activities. Included, also, are spaces for project maps and cabinets and files to accommodate project publications, reference materials, and office supplies. The office space is adequate for the present and foreseeable needs of the project.

b. Maintenance and construction supplies. - Project storage facilities consist of the administration and maintenance building, two prefabricated metal buildings, and the equipment yard. The administration building houses parts or items considered to need additional security. Supplies which may be adversely affected by weather, handtools, and parts are stored in areas set apart within a 24- by 60-foot prefabricated metal building, and those items which are large, bulky, and can withstand the weather are stored openly in the equipment yard. The other prefabricated metal building, a 12- by 12-foot structure, is used solely for the storage of flammable or toxic materials.

c. Vehicles and equipment. - Vehicles and equipment used for the maintenance of the project are stored in the equipment yard and within the prefabricated metal warehouse. The equipment yard is inclosed by a 6-foot chain link fence with a 3-strand barbed wire climb barrier on top. The vehicles are further secured by removing keys, locking doors, and storing the keys in a locked metal storage case located within the maintenance building.

9-05. Law enforcement. - The park manager, trained in the basic principles of law enforcement, issues citations to persons violating provisions contained in Section 234 of the Flood Control Act of 1970 (Public Law 91-611) and policy established in ER 190-2-4. The citation directs the appearance of the violator before a U.S. Magistrate and may require the payment of a fine. Enforcement of civil and criminal laws at the project is the responsibility of duly constituted officers of Federal, State, and local governmental agencies. The Corps of Engineers, through the park manager and field employees, cooperates fully with the law enforcement officers of the State of Oklahoma who are responsible for the enforcement of laws relative to civil actions, game and fish conservation, public health and sanitation, boating, and the prevention of pollution. Close coordination is maintained by the park manager and his staff with these law enforcement officials. Advance plans are made with them for joint action in controlling pollution, vandalism, and visitor harassment, and to enforce regulations and fish and wildlife laws.

9-06. Safety - visitor and employee. - Public safety is promoted through lectures presented to schools, civic organizations, and other groups. Safety programs and demonstrations are presented on special occasions at various public-use areas located at the project. All facilities are maintained in good, safe condition at all times, and questionable health conditions are reported to State health agencies. Signs and buoys are displayed to warn visitors of hazards or to call their attention to the need of safety in their activities. All employees are provided instructions in safety principles that will enable them to properly perform their work in a safe manner.

Biweekly safety meetings for all employees serve as a time to review past records, to give additional instruction, and to establish policies and procedures for the future.

9-07. Concession and quasi-public sites. - Due to no interest shown by the private sector to invest in a concession site or a quasi-public-use area, no concession site or quasi-public-use areas have been designated in this updating. If and when a request is made, the need will be further considered.

9-08. Visitor interpretation and education. - Brochures, maps, copies of Title 36, and other publications are available at the project office, from project personnel, or by request from the District Office. Tours of the project are conducted for any interested groups. Upon request of civic organizations, project personnel will speak and/or prresent illustrated lectures concerning features of the project, the purpose of the project, plans for the project, and the predicted impact of the project on the local area.

9-09. Appendix A. - A detailed project resource management plan was submitted as appendix A to the Master Plan by letter SWTED-DA, 28 December 1973, subject: Pine Creek Lake, Little River, Oklahoma, Appendix A, Project Resource Management Plan, to DM No. 5B, Master Plan.

X - FOREST (RANGE) MANAGEMENT

10-01. Management objectives. - The objectives of the management program are to increase the value of all project lands for recreation and wildlife, and to return the existing forest and range to a healthy natural condition. Although the forest will not be managed as commercial timberland, the goal will be attained by cultural practices which will affect the rate of plant growth, and the distribution, shape, and condition of the trees. No attempt will be undertaken to regiment trees into mechanical conformity with spaces, size arrangement, quality, or kind. Vegetation, living or dead, will not be removed without sound justification; for instance, disease control; insect-pest control; fire hazard reduction; storm damage; construction (for roads, trails, campgrounds, picnic areas, or firebreaks); safety precautions (for example, removal of dead limbs or trees from areas where considered dangerous to human life or property if they fall); vista cutting; and prevention of forest encroachment on natural meadows and selected open areas.

a. Soil conditioning and maintenance. - Programs of mechanical aeration, subsoiling, fertilization, watering, and other practices will be used to improve chemical and physical properties of the soil.

b. Grass establishment. - Sod-forming grasses will be established in order to reduce damage to the site from foot and vehicular traffic, and wind and water erosion.

c. Landscaping. - Selected structures and entrances will be landscaped. Species and design may provide:

(1) Accent to desirable features.

(2) Masking or blending of undesirable features.

(3) Ease of entrance location.

(4) Noise or wind abatement.

(5) Shade.

(6) Aesthetic value.

(7) Seclusion.

d. Screening. - Vegetation for screening will provide:

(1) Perceptual barriers between occupied use areas.

(2) Traffic control.

e. Block planting. - Block planting will:

(1) Provide shade, wind, and noise abatement, wildlife cover, or perceptual barriers.

(2) Establish cover on areas for future recreational development.

(3) Provide aesthetic benefits.

f. Spot, specimen, and supplemental plantings. - These plantings will establish plants where immediate public impact is expected. Most of these trees will be balled and burlapped of a size to withstand the public use of the area. The trees will supplement existing vegetation, add accent, or provide a unique plant.

g. Barrier establishment. - Heavy traffic whether foot or vehicular may compact the soil and injure the vegetation in many ways. This traffic can be controlled by barriers, physical or perceptual. Physical barriers may be plants, stones, ditching, or other materials. Terrace systems designed for erosion control and moisture conservation can often act as barriers. These barriers will be as natural as possible.

h. Recreation site improvement. - Recreation site improvement will include selective release, thinning, pruning, or other cultural practices.

i. Damage treatment. - Damage from machinery, weather, or other forces will be treated by wound dressing, removal, or other cultural practices.

j. Insect, disease, and pest control. - Insects, disease, and pests will be treated with the best available control measures, consistent with the public use of the area. Insect populations will be carefully monitored for damages to plants and possible infestation levels. Control practices are:

(1) Biological. - Sterilants, predator encouragement, and habitat manipulation.

(2) Vegetative. - Maintenance of a healthy vegetative cover, dispersion of particularly susceptable plants, species selection, and genetic selection.

(3) Chemical. - Specific and systematic insecticides applied with the safety of the public and the surrounding wildlife in mind.

(4) Mechanical. - Removal of infested plants, pruning of infested parts, treatment of wounds.

10-02. Appendix B. - A detailed forest/range management plan was submitted as appendix B to the Master Plan by letter SWTOD-O, 18 October 1976, subject: Pine Creek Lake, Little River, Oklahoma, Appendix B, Forest (Range) Management Plan, to DM No. 5B, Master Plan.

XI - FIRE PROTECTION

11-01. Cooperative agreements. - Government personnel are responsible for the detection and suppression of fires on project lands. Agreements have been made with local firefighting organizations to extinguish and suppress fires which may start on lands adjacent to or on project lands.

11-02. Training. - A training program for field personnel has been established that covers methods of fire prevention, safety, characteristics and behavior, method of attack, use of handtools, and use of power equipment. Training materials available consist of films, slide programs, correspondence courses, and assorted literatures.

11-03. Equipment. - Project personnel have at their disposal fire control equipment consisting of water tanks, hand pumps, water pails, shovels, fire rakes, axes, mattocks, and burlap bags. Access to more sophisticated firefighting equipment is made possible through agreements with local organized firefighting organizations for the assistance in the event of an emergency. All Corps-owned tools and equipment shall be checked and serviced at regular intervals to assure serviceability.

11-04. Suppression and prevention. - A public information program has been initiated to aid in the detection and reporting of fires. News releases, signs, and other means will gain the support of the general public, and will give information on how and where to report fires. High fire danger periods are broadcast daily by regional radio stations. During these times, Corps employees will periodically check high risk areas. The place and telephone number for reporting fires during nonduty hours will be posted at the project office. Provisions will be made for fire suppression during nonduty hours. The primary means of communication between the park manager or responsible project personnel and firefighting crews will be by radio. Hand-carried radios will be of assistance on large fires and on those fires not accessible by vehicular-mounted radio. Signs with information about fire safety and reporting fires have been placed throughout the areas at places such as water wells, picnicking and camping sites. Stenciled fire prevention slogans on refuse containers assist in promoting fire prevention. All leases or contract for use of project lands contain fire prevention and suppression clauses.

11-05. Appendix C. - A detailed fire prevention plan was submitted as appendix C to the Master Plan by letter SWTOD-O, 9 April 1976, subject: Pine Creek Lake, Little River, Oklahoma, Appendix C, Fire Prevention Plan, to DM No. 5B, Master Plan.

XII - FISH AND WILDLIFE MANAGEMENT

12-01. Authorization and purpose. - The Fish and Wildlife Coordination Act of 1958, Public Law 85-624, states that fish and wildlife conservation shall receive equal consideration with other project purposes. The objectives of fish and wildlife management are to evaluate fish and wildlife habitat and recommend proven practices for improving and maintaining habitat on the project area.

12-02. General. - The title and ownership of fish and wildlife resources rests with the State of Oklahoma regardless of ownership of the land. The Oklahoma Department of Wildlife Conservation by State statutes has the authority to manage, regulate, and control fish and wildlife resources within the State's boundaries. Both the U.S. Bureau of Sport Fisheries and Wildlife and the Oklahoma Department of Wildlife Conservation are responsible for management of migratory birds. The Corps' responsibility as a landowner is to restore, improve, and preserve fish and wildlife through wise land use and habitat development. Section 3 of the Fish and Wildlife Coordination Act makes provisions for the use of civil works projects for the conservation, maintenance, and management of fish and wildlife resources and wildlife habitat. The lands and water areas under the jurisdiction of the Department of the Army may be made available to State wildlife agencies by license agreement terms of a general plan approved jointly by the Secretary of the Army, the Secretary of the Interior, and the head of the State wildlife agency. For areas not managed through licenses or other formal agreements by wildlife agencies, the Corps of Engineers' stewardship of these resources will be accomplished through implementation of a fish and wildlife management plan.

12-03. Vegetation types associated with project. - The dominant vegetation type of the area is referred to as oak-pine (Duck and Fletcher, 1945) or oak-hickory-pine (Rice and Penfound, 1959), which is essentially the same. A vegetation map of the area is shown on figure 4-1. Bottom land forest, grasslands, and wetland types also occur to a lesser extent.

a. Oak-pine forest. - This association constitutes 36 percent of the total vegetation on project lands. Principal trees include shortleaf pine, white oak, shumard oak, post oak, blackjack oak, willow oak, black locust, black hickory, basswood, eastern red cedar, and sugar maple. Shrubs include mock orange, huckleberry, gooseberry, bladdernut, and spice bush. Common grasses are big bluestem, Indian grass, switchgrass, and broomsedge.

b. Oak-hickory forest. - This association constitutes 35 percent of the total vegetation on project lands. Tree species include blackjack oak, post oak, southern red oak, hackberry, hawthorn,

Osage orange, green ash, and chittamwood. Understory vegetation consists of redbud, dogwood, poison ivy, and greenbriar. Common grasses are broomsedge, tall dropseed, and lovegrass.

c. Bottom land forest. - This association constitutes 10 percent of the total vegetation on project lands. The principal trees include water oak, willow oak, chinquapin oak, overcup oak, sweet gum, sycamore, cottonwood, black willow, black walnut, pecan, blue beech, river birch, winged elm, slippery elm, hackberry, sassafras, hawthorn, redbud, honey locust, red maple, boxelder, dogwood, white ash, green ash, swamp privet, and buttonbush. Shrubs and grasses include river cane, greenbriar, wild grape, poison ivy, poke, big bluestem, Indian grass, purpletop, switchgrass, and Johnson grass.

d. Grasslands. - This association constitutes 4 percent of the total vegetation on project lands. Plants in this association include little bluestem, Indian grass, broomsedge, switchgrass, yellow foxtail, ragweeds, creeping buttercup, partridge pea, and little barley. In some locations Bermuda, clover, fescue, vetch, and lespedeza can be found.

e. Wetlands. - This association constitutes 15 percent of the total vegetation on project lands. Pine Creek Lake conservation pool has an initial surface area of 3,800 acres. It will increase to 5,000 acres utlimately. These conservation pools are classified as Type 5 wetlands. The standing, but dead, flooded timber in several coves, an estimated 1,200 acres, is classified as Types 6 and 7 wetlands. Each of these vegetative types provides habitat for a variety of organisms at all trophic levels. Since most of the project lands are not supporting the numbers of wildlife species according to its potential, careful consideration will be given to supplemental vegetative plantings and plant manipulation.

12-04. Wildlife. - A large variety of wildlife species are present in the project area. The major game species to be managed include: whitetail deer (Odocoileus virginianus), mourning dove (Zenaidura macroura), bobwhite quail (Colinus virginianus), fox squirrel (Sciurus niger), grey squirrel (Sciurus carolinensis), cottontail rabbit (Sylvilagus floridanus), swamp rabbit (Sylvilagus aquaticus), and waterfowl.

12-05. Fish. - Pine Creek Lake has a surface area at the top of conservation pool (438 m.s.l.) of 3,800 acres. This area supports a warm water fishery consisting of largemouth bass (Micropterus salmoidis), white crappie (Pomoxis annularis), black crappie (Pomoxis nigromaculatus), bluegill (Lepomis macrochirus), channel catfish (Ictalurus punctatus), flathead catfish (Pylodictus olivaris), and various rough and forage species.

12-06. Lands licensed to Oklahoma Department of Wildlife Conservation. - The Oklahoma Department of Wildlife Conservation received a license to approximately 10,280 acres of project lands and water for fish and wildlife management. The license was granted for a period of 25 years beginning 1 January 1970. Development of this area will exclude livestock and provide optimum habitat conditions to support game populations, which will provide quality hunting of small game, big game, and waterfowl to the residents of eastern Oklahoma, northeastern Texas, and western Arkansas. There are no capital improvements on the area at this time.

a. Wildlife species. - At the present time, wildlife populations generally are low because of the poor food and cover resulting from overgrazing. Wildlife is more abundant on the Pine Creek arm of the management area where better food and cover conditions exist. A very low deer population is found on the area. Furbearers and predators common to southeast Oklahoma are also present. A 20-acre pond provides waterfowl habitat in addition to the conservation pool. The potential for upland game and waterfowl should be good with development of the area. With fencing, the ground cover and food species for wildlife will recover. Sharecrop agreements may be accomplished and food crops established after the livestock have been excluded. It is believed that wildlife populations and harvest will be more than tripled within a few years after development.

b. Future development. - The carrying capacity and production of the area can be increased from current levels by implementing proper usage and timber management techniques, grass seeding, and shrub plantings. Major future development to accomplish this includes:

(1) Road maintenance.

(2) Fencing.

(3) Signs and boundary marking.

(4) Herbaceous seeding.

(5) Clearing.

(6) Firebreaks.

(7) Construction of storage buildings.

12-07. Corps of Engineers management areas. - The management of areas not specifically managed through a license or other formal agreement granted to a State or Federal wildlife agency is the responsibility of the Corps of Engineers. Generally, these areas

consist of developed and undeveloped parks and relatively large blocks of land acquired for the operation of the project. Most of these lands can be hunted, with consideration given to health and safety factors. The Corps of Engineers management of these resources will be accomplished through implementation of a fish and wildlife management plan.

12-08. Habitat improvements.

a. Wetlands. - Generally, areas within the 1- to 5-year flood frequency pool will be managed for waterfowl. Crops and natural foods utilized by waterfowl will be planted in these areas to attract migrating ducks and geese. Wetland habitat such as marshes and small ponds will be maintained for wetland wildlife. Where feasible, small marshes and potholes will be created to benefit both waterfowl and other wildlife species.

b. Vegetation control. - Woodland areas adjacent to the river and tributaries will be managed primarily for deer and squirrel. Mowing, controlled burning, brush control, and other appropriate wildlife management techniques will be utilized in these areas to maintain the desired vegetation.

c. Food plots. - The uplands will be managed primarily for quail and rabbits. Brush rows and food plots will be maintained to provide the desired food and cover for these game species. Controlled grazing will be necessary to maintain and improve this type of habitat. Sharecropping with local residents will be used to produce grain for wildlife food on a percentage basis when compatible with other project purposes.

d. Grasslands. - Grasslands of adequate size will be managed and maintained for the bobwhite quail. Crops and vegetation utilized by this species will be provided to assure adequate food and cover.

e. Nonconsumptive wildlife. - Areas contiguous to recreation facilities and project buildings will be maintained and managed for nongame species such as songbirds. Vegetation in these areas will remain undisturbed to add to the natural setting of the areas.

12-09. Fisheries management. - Management of the fishing resources of the lake is the responsibility of the Oklahoma Department of Wildlife Conservation. The overall function of the Corps of Engineers has been primarily one of cooperation with the Department in planning and management.

a. Stocking program. - Largemouth bass, channel catfish, blue catfish, Florida largemouth bass, walleye, muskellunge, and

threadfin shad have been stocked by the Oklahoma Department of Wildlife Conservation.

b. Habitat improvement and maintenance. - The following measures are recommended to benefit and increase the sport fishery of the lake.

(1) Introduction of desirable forage fishes.

(2) Continued stocking of sport species.

(3) Develop a workable water level manipulation plan.

(4) Construct brush shelters.

(5) Seed exposed mud flats.

(6) Rehabilitate erosion areas.

12-10. Appendix D. - A detailed fish and wildlife management plan was submitted as appendix D to the Master Plan by letter SWTED-DA, 14 March 1976, subject: Pine Creek Lake, Little River, Oklahoma, Appendix D, Fish and Wildlife Management Plan, to DM No. 5B, Master Plan.

XIII - PROJECT SAFETY PLAN

13-01. General. - The safety plan identifies common recurring hazards or unsafe conditions in each major phase or area of project operations and recommends actions to eliminate or reduce the hazards. The plan covers construction, maintenance, public-use areas, visitor protection, equipment, and operation. Safety rules and regulations are presented to maintain acceptable safety standards throughout the project.

13-02. Project safety officer. - A project safety officer, approinted by the park manager, enforces the provisions of the project safety plan, the safety manual (EM 385-1-1), and the Tulsa District safety program (TDR 385-1-1).

13-03. Coordination. - Frequent and continuing coordination will be established with the Oklahoma Tourism and Recreation Department, Oklahoma Game and Fish Commission, Oklahoma Highway Patrol, and county and local police in the implementation of the project safety plan.

13-04. Appendix E. - A project safety plan was submitted as appendix E to the Master Plan by letter SWTED-DA, 10 January 1975, subject: Pine Creek Lake, Little River, Oklahoma, Appendix E, Project Safety Plan, to DM No. 5B, Master Plan.

XIV - LAKESHORE MANAGEMENT

14-01. General. - It is the policy of the Chief of Engineers to manage and to protect shorelines of all lakes under its jurisdiction to properly establish and maintain acceptable fish and wildlife habitat, aesthetic quality, and natural environmental conditions, and to promote the safe and healthful use of these shorelines for recreational purposes by all of the American people. Ready access to and exit from these shorelines by the general public shall be provided in accordance with Section 4, 1944 Flood Control Act, as amended, Public Law 87-874. It is the objective of the Corps to manage private exclusive use of public property to the degree necessary to provide maximum benefits to the general public. The Chief of Engineers has also established a policy that private exclusive use of the shoreline will not be permitted on new lakes or on lakes where no private facilities or uses exist as of the date of ER 1130-2-406. There are no private floating facilities on Pine Creek Lake and none will be permitted.

14-02. Appendix F. - A lakehsore management plan was submitted as appendix F to the Master Plan by letter SWTOD-R, 26 May 1976, subject: Appendix F, Lakeshore Management Plan.

XV - RECREATIONAL DEVELOPMENT COST BREAKDOWN

15-01. Cost summary and breakdown. - The summary of estimated costs for proposed improvements and additional recreational facilities is shown in table 15-1. A detailed cost breakdown for each public-use area is shown in table 15-2.

TABLE 15-1

SUMMARY OF ESTIMATED COSTS FOR PROPOSED PUBLIC-USE DEVELOPMENT
(Based on 1976 prices)

Cost Acct. No.	Item	Unit	Quantity	Unit cost	Amount
				$	$
014.	RECREATION FACILITIES				
	Roads				
	Roadway, gravel, 2-way	Sta.	24.50	850.00	20,825
	Roadway, gravel, 1-way	Sta.	19.50	650.00	12,675
	Roadway, asphalt, 2-way, surfacing on existing base	Sta.	7.00	800.00	5,600
	Parking, gravel	S.Y.	5,107	2.75	14,047
	Foot trails, 2' wide, w/chips	Sta.	48.00	100.00	4,800
	Sanitary facilities				
	Toilets, masonry vault	Each	1	20,500.00	20,500
	Toilets, metal vault	Each	8	3,500.00	28,000
	Trailer sanitary station	Each	1	3,500.00	3,500
	Landscaping toilet (site)	Each	4	500.00	2,000
	Utilities				
	Water supply system				
	Distribution line, 1"	L.F.	14,300	3.00	42,900
	Distribution line, 2"	L.F.	7,080	3.50	24,780
	Hydrant	Each	21	400.00	8,400
	Pressure water well	Each	1	7,000.00	7,000
	Exterior electrical system				
	Direct buried cable	L.F.	14,000	4.50	63,000
	Security light	Each	19	350.00	6,650
	Dip pole	Each	3	400.00	1,200
	Vehicle hookup	Each	19	175.00	3,325
	Swimming beach				
	Preparing beach (sand)	S.Y.	2,000	2.50	5,000
	Changehouses	Each	2	15,000.00	30,000
	Buoys	Each	3	100.00	300
	Picnicking and camping				
	Picnic shelters	Each	5	15,000.00	75,000
	Concrete table w/pad	Each	5	350.00	1,750

TABLE 15-1 (CON.)

Cost Acct. No.	Item	Unit	Quantity	Unit cost	Amount
				$	$
014.	RECREATION FACILITIES (CON.)				
	Picnicking and camping (con.)				
	Campsite (pullout, concrete table w/pad, grill)	Each	31	920.00	28,520
	Fire grill w/pedestal	Each	3	120.00	360
	Refuse can (double)	Each	34	120.00	4,080
	Amphitheater	Each	1	2,000.00	2,000
	Playground equipment	Job	-	L.S.	5,000
	Wheelstops	Each	123	25.00	3,075
	Courtesy dock	Each	5	4,000.00	20,000
	Backstop (softball)	Each	1	700.00	700
	Subtotal				444,987
	Contingencies, 12%+				53,013
	TOTAL, RECREATION FACILITIES				498,000
030.	ENGINEERING AND DESIGN				45,000
031.	SUPERVISION AND ADMINISTRATION				35,000
	TOTAL COST				578,000

TABLE 15-2

DETAILED COST ESTIMATE OF PROPOSED
PUBLIC-USE DEVELOPMENT
(Based on 1976 prices)

Cost Acct. No.	Item	Unit	Quantity	Unit cost	Amount
				$	$
014.	RECREATION FACILITIES				
	Little River Park (Dwgs 93/5 through 93/7)				
	Roads				
	Parking, gravel	S.Y.	1,390	2.75	3,825
	Utilities				
	Water supply system				
	Distribution line, 1"	L.F.	7,730	3.00	23,190
	Distribution line, 2"	L.F.	4,850	3.50	16,975
	Hydrant	Each	12	400.00	4,800
	Exterior electrical system				
	Direct buried cable	L.F.	4,400	4.50	19,800
	Security lights	Each	8	350.00	2,800
	Dip pole	Each	1	400.00	400
	Vehicle hookup	Each	19	175.00	3,325
	Picknicking and camping				
	Picnic shelter	Each	2	15,000.00	30,000
	Refuse cans	Each	8	120.00	960
	Changehouse	Each	1	15,000.00	15,000
	Courtesy dock	Each	2	4,000.00	8,000
	Wheelstops	Each	48	25.00	1,200
	Subtotal				130,275
	Contingencies, 12%+				15,625
	Total, Little River Park				145,900
	Pine Creek Cove (Dwg. 93/8)				
	Roads				
	Roadway, gravel, 2-way	Sta.	10.00	850.00	8,500
	Roadway, gravel, 1-way	Sta.	14.00	650.00	9,100
	Parking, gravel	S.Y.	2,800	2.75	7,700
	Sanitary facilities				
	Toilets, metal vault	Each	6	3,500.00	21,000
	Trailer sanitary station	Each	1	3,500.00	3,500
	Landscaping toilet (site)	Each	3	500.00	1,500

TABLE 15-2 (CON.)

Cost Acct. No.	Item	Unit	Quantity	Unit cost	Amount
				$	$
014.	RECREATION FACILITIES (CON.)				
	Pine Creek Cove (Dwg. 93/8) (Con.)				
	Utilities				
	Water supply system				
	Distribution line, 1"	L.F.	5,570	3.00	16,710
	Distribution line, 2"	L.F.	1,630	3.50	5,705
	Hydrant	Each	6	400.00	2,400
	Pressure water well	Each	1	7,000.00	7,000
	Exterior electrical system				
	Direct buried cable	L.F.	8,600	4.50	38,700
	Security lights	Each	9	350.00	3,150
	Dip pole	Each	1	400.00	400
	Swimming beach (expansion)				
	Preparing beach (sand)	S.Y.	2,000	2.50	5,000
	Changehouse	Each	1	15,000.00	15,000
	Buoys	Each	3	100.00	300
	Picnicking and camping				
	Picnic shelter	Each	3	15,000.00	45,000
	Concrete table w/pad	Each	5	350.00	1,750
	Campsite (pullout, grill, concrete table)	Each	26	920.00	23,920
	Fire grill w/pedestal	Each	3	120.00	360
	Refuse cans (double)	Each	23	120.00	2,760
	Amphitheater	Each	1	2,000.00	2,000
	Playground equipment	Job	-	L.S.	5,000
	Wheelstops	Each	60	25.00	1,500
	Courtesy dock	Each	2	4,000.00	8,000
	Backstop (softball)	Each	1	700.00	700
	Subtotal				236,655
	Contingencies, 12%±				28,445
	Total, Pine Creek Cove				265,100
	Lost Rapids Park (Dwg. 93/9)				
	Roads				
	Roadway, asphalt, 2-way, surfacing on existing base	Sta.	7.00	800.00	5,600
	Sanitary facilities				
	Toilets, metal vault	Each	2	3,500.00	7,000
	Landscaping toilet (site)	Each	1	500.00	500

TABLE 15-2 (CON.)

Cost Acct. No.	Item	Unit	Quantity	Unit cost	Amount
				$	$
014.	RECREATION FACILITIES (CON.)				
	Lost Rapids Park (Dwg. 93/9)				
	(Con.)				
	Utilities				
	Exterior electrical system				
	Direct buried cable	L.F.	1,000	4.50	4,500
	Security lights	Each	2	350.00	700
	Dip pole	Each	1	400.00	400
	Water supply system				
	Distribution line, 1"	L.F.	1,000	3.00	3,000
	Distribution line, 2"	L.F.	600	3.50	2,100
	Hydrant	Each	3	400.00	1,200
	Courtesy dock	Each	1	4,000.00	4,000
	Subtotal				29,000
	Contingencies, 12%±				3,500
	Total, Lost Rapids Park				32,500
	Lost Ferry (Dwg. 93/10)				
	Sanitary facilities				
	Toilets, masonry vault	Each	1	20,500.00	20,500
	Contingencies, 12%±				2,500
	Total, Lost Ferry				23,000
	Billy Bell Shoals (Dwg. 93/11)				
	Roads				
	Roadway, gravel, 2-way	Sta.	14.50	850.00	12,325
	Roadway, gravel, 1-way	Sta.	5.50	650.00	3,575
	Parking, gravel	S.Y.	917	2.75	2,522
	Picknicking and camping				
	Campsite (pullout, grill, concrete table w/pad)	Each	5	920.00	4,600
	Refuse cans (double)	Each	3	120.00	360
	Wheelstops	Each	15	25.00	375
	Foot trails, 2' wide, w/chips	Sta.	48.00	100.00	4,800
	Subtotal				28,557
	Contingencies, 12%±				3,443
	Total, Billy Bell Shoals				32,000

XVI - RECOMMENDATION

16-01. Recommendation. - I recommend that the Updated Master Plan for Pine Creek Lake, Little River, Oklahoma, be approved as presented.

ANTHONY A. SMITH
Colonel, CE
District Engineer

EXHIBIT A

CORRESPONDENCE

STATE OF OKLAHOMA

State Grant-In-Aid Clearinghouse

5500 N. WESTERN OKLAHOMA CITY, OKLAHOMA 73118 (405) 840-2811

April 21, 1977

Mr. Weldon M. Gamel
Chief, Engineering Division
Tulsa District, Corps of Engineers
P.O. Box 61
Tulsa, Oklahoma 74102

RE: Updated Draft Master Plan for Pine Creek Lake

Dear Mr. Gamel:

The environmental information for the above referenced project has been reviewed in accordance with OMB Circular A-95 and Section 102 (2) (C) of the National Environmental Policy Act by the state agencies charged with enforcing environmental standards in the State of Oklahoma.

The state agencies, comprising the Pollution Control Coordinating Board, have reviewed the proposed project and agree that no adverse environmental impact is anticipated. Therefore, the state clearinghouse requires no further review.

Sincerely,

Don N. Strain
Director

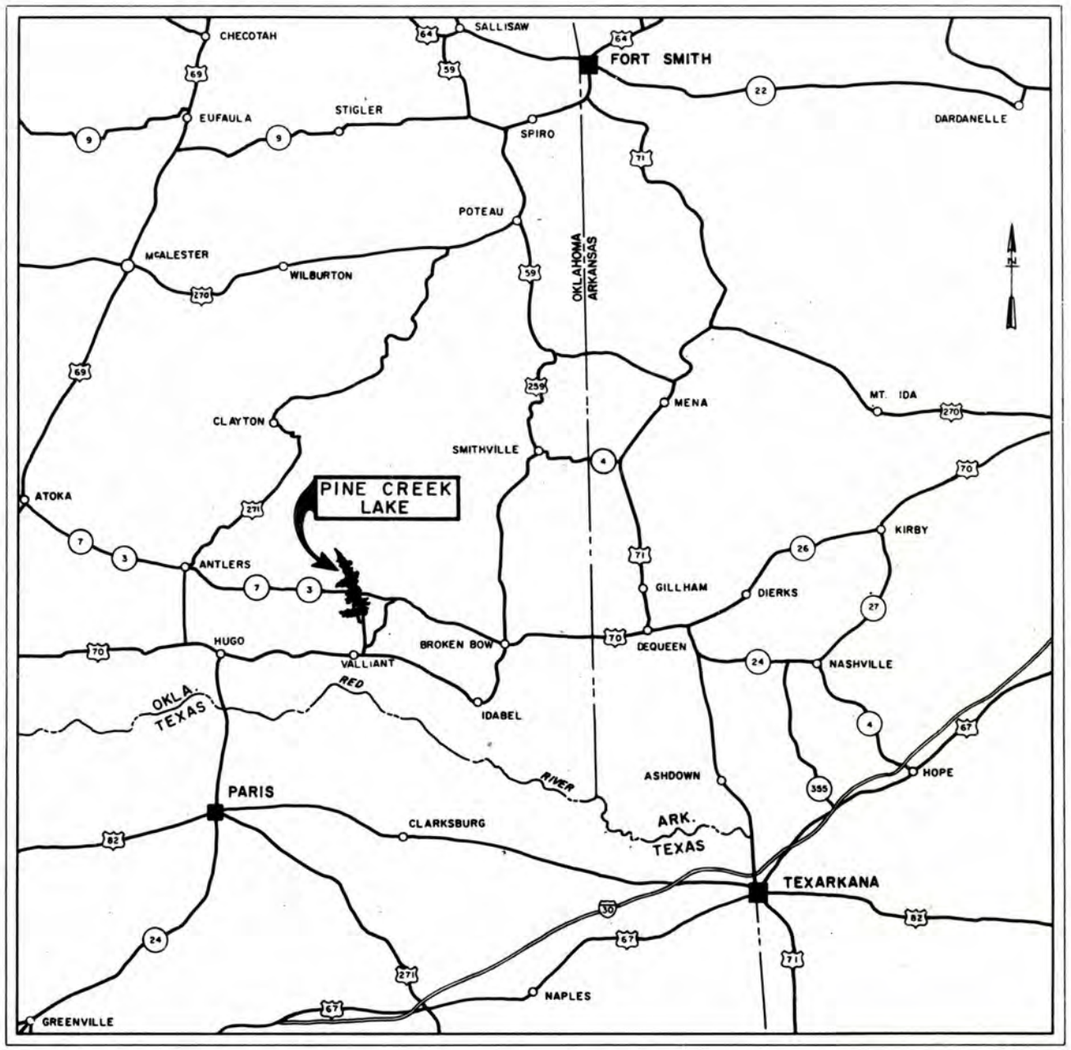
DNS:mt

State agencies are:

Department of Agriculture
Oklahoma Conservation Commission
Oklahoma State Health Department
Oklahoma Pollution Control Coordination Board
Oklahoma Water Resources Board
Oklahoma Department of Wildlife Conservation
Oklahoma Department of Tourism of Recreation

DRAWINGS

UPDATED MASTER PLAN FOR RESERVOIR DEVELOPMENT



INDEX TO DRAWINGS

DISTRICT FILE NO.	TITLE	PHOTO NO.
CB800-DM5B-93/1	PROJECT LOCATION AND INDEX TO DRAWINGS	
CB800-DM5B-93/2	PROJECT LOCATION AND RELATED RECREATION AREAS	
CB800 DM5B 93/3	PUBLIC USE AND LAND UTILIZATION	
CB800-DM5B-93/4	LITTLE RIVER PARK GENERAL-PLAN	
CB800-DM5B-93/5	LITTLE RIVER PARK (SHEET 1-3)	5A
CB800-DM5B-93/6	LITTLE RIVER PARK (NORTH) (SHEET 2-3)	6A
CB800-DM5B-93/7	LITTLE RIVER PARK (SOUTH) (SHEET 3-3)	7A
CB800-DM5B-93/8	PINE CREEK COVE	8A
CB800-DM5B-93/9	LOST RAPIDS PARK	9A
CB800-DM5B-93/10	LOST FERRY	10A
CB800-DM5B-93/11	BILLY BELL SHOALS	11A
CB800-DM5B-93/12	TURKEY CREEK LANDING	12A
CB800-DM5B-93/	TOM TAYLOR POINT	13A

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PROJECT LOCATION AND INDEX TO DRAWINGS

SCALE OF MILES
0 5 10 20 30 40 50

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB, 1977

SUBMITTED	APPROVAL RECOMMENDED	APPROVED
CHIEF PLANNING BRANCH	CHIEF, ENGR. DIVISION	DISTRICT ENGINEER

DRAWN: E.G.- W.P.B.
TRACED: E.G.
CHECKED: G.A.L.

CB800-DM5B-93/1

U. S. ARMY

KANSAS
OKLAHOMA
COWLEY CO. SP
MONTGOMERY CO. SP
ELK CITY
BIG HILL
SPRINGFIELD
CLEARWATER
LAKE WAPPAPELLO
CLARK NATIONAL FOREST
BIG SPRING SP
MARK TWAIN NATIONAL FOREST
ALABASTER CAVERNS SP
GREAT SALT PLAINS
HULAH
COPAN
KAW
SAND
OSAGE HILLS SP
CANDY
OOLOGAH
SKIATOOK
BIRCH
PENSACLA
ROARING RIVER SP
Lake Taneycomo
MISSOURI
ARKANSAS
WATER VALLEY
BOLING SPRINGS SP
FORT SUPPLY
ENID
KEYSTONE
TULSA
Sperrow Lake
MARKHAM FERRY
FORT GIBSON
TABLE ROCK
BEAVER
BULL SHOALS
NORFORK
LONE ROCK
WHITE
OZARK NATIONAL FOREST
BELL FOLEY
CANTON
Lake Carl Blackwell
HEYBURN SP
HEYBURN
SEQUOYAH SP
ROMAN NOSE SP
Greenleaf Lake
GREENLEAF SP
TENKILLER FERRY
TENKILLER SP
DEVILS DEN SP
OZARK NATIONAL FOREST
RIVER
FOSS
OKLAHOMA CITY
WEBBERS FALLS
ROBERT S. KERR LOCK AND DAM 15
GREERS FERRY
RED ROCK CANYON SP
SHAWNEE
OZARK
DARDANELLE
FORT SMITH
OZARK NATIONAL FOREST
ARKANSAS
MEMPHIS
FT COBB
NORMAN
LITTLE RIVER RES.
EUFAULA
ROBBERS CAVE SP
BLUE MOUNTAIN
MAUMELLE
LAKE CONWAY
LAKE ALTUS
QUARTZ MTN SP
WISTER
LAKE WISTER SP
NIMROD
MC ALESTER
LITTLE ROCK
H.E. BAILEY
WICHITA MOUNTAINS WILD LIFE REFUGE
LAKE ATOKA
CLAYTON
TUSKAHOMA
CLAYTON LAKE SP
OUACHITA NATIONAL FOREST
LAKE OUACHITA
Lake Hamilton
Lake Catherine
DEGRAY
PLATT NP
ARBUCKLE RES.
LUKFATA
BEAVER BEND SP
GILLHAM
DIERKS
LAKE GREESON
OKLAHOMA
ARKANSAS
OKLAHOMA
TEXAS
RED
DIVERSION RES.
Lake Murray
LAKE MURRAY SP
LAKE TEXOMA SP
LAKE TEXOMA
BOSWELL
HUGO
PINE CREEK
BROKEN BOW
DEQUEEN
MURFREESBORO
LAKE KEMP
WICHITA FALLS
EISENHOWER SP
RIVER
PARIS
PAT MAYSE
BIG PINE
OKLAHOMA
TEXAS
OUACHITA NATIONAL FOREST
MILLWOOD
LAKE KICKAPOO
TULSA
DISTRICT
GREENVILLE
TEXARKANA
COOPER
EL DORADO
Lake Bridgeport
GARZA LITTLE ELM
LAVON
LAKE TEXARKANA
ARKANSAS
LOUISIANA
Possum Kingdom Lake
SP POSSUM KINGDOM
EAGLE MTN
GRAPEVINE
FORT WORTH
DALLAS
Lake Texoma
MOORINGSPORT
LAKE O' THE PINES
MONROE
Cross Lake
BENBROOK
LONGVIEW
SHREVEPORT
VICKSBURG
Cheniere Brake
Lake Bisteneau
TYLER
BARDWELL
PROCTOR
Black Lake
Clear Lake
HORDS CREEK
WHITNEY
NAVARRO
Lake Iatt
Catahoula Lake
WACO
McGEE BEND
BELTON
ROCKLAND

LEGEND

- IN OPERATION OR UNDER CONSTRUCTION
- APPROVED
- NATURAL LAKE, PRIVATE RESERVOIR, OR RESERVOIR OF OTHER AGENCY
- △SP STATE PARK
- △NP NATIONAL PARK
- FEDERAL / STATE WILDLIFE AREA

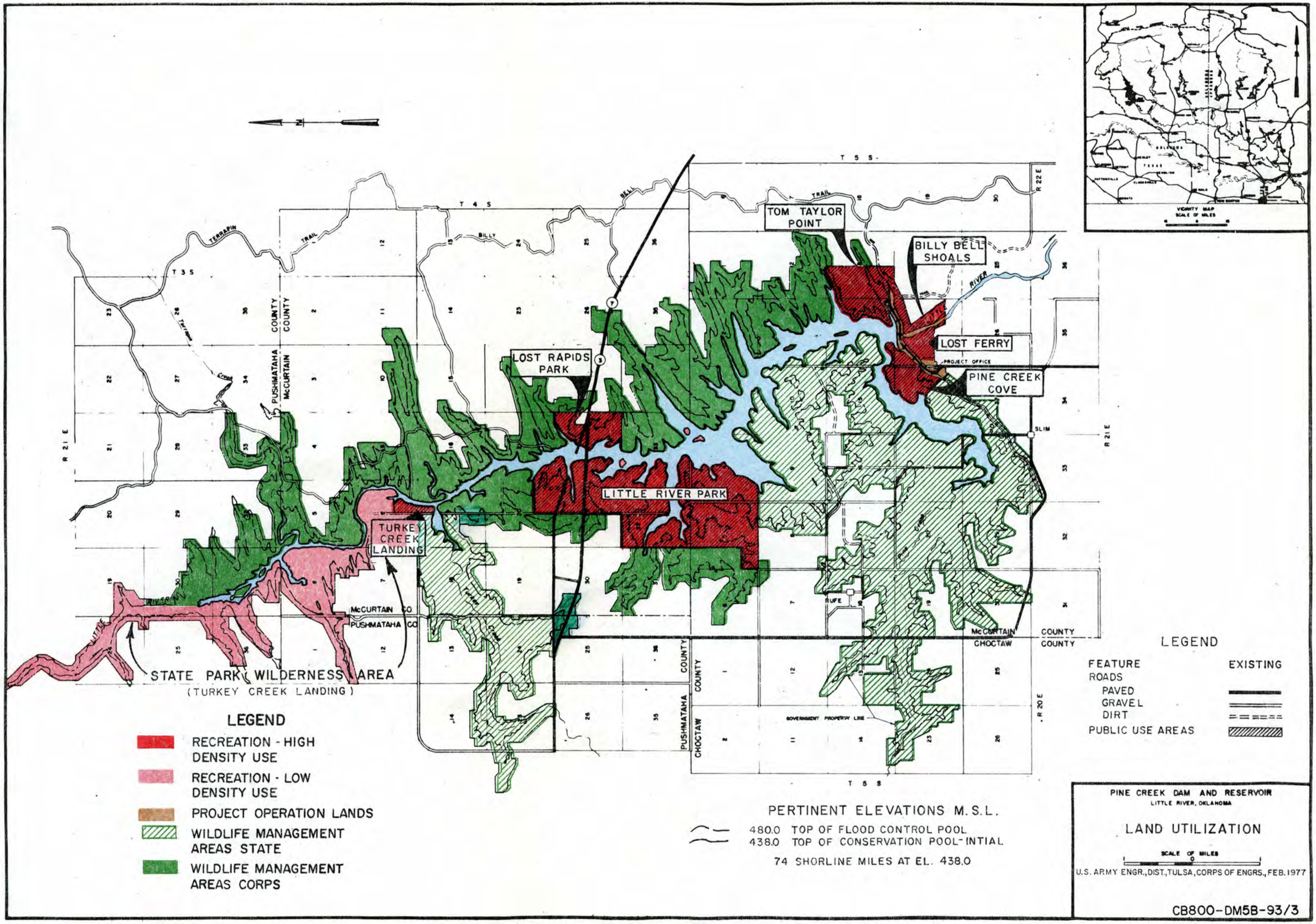
PINE CREEK RESERVOIR
LITTLE RIVER, OKLAHOMA

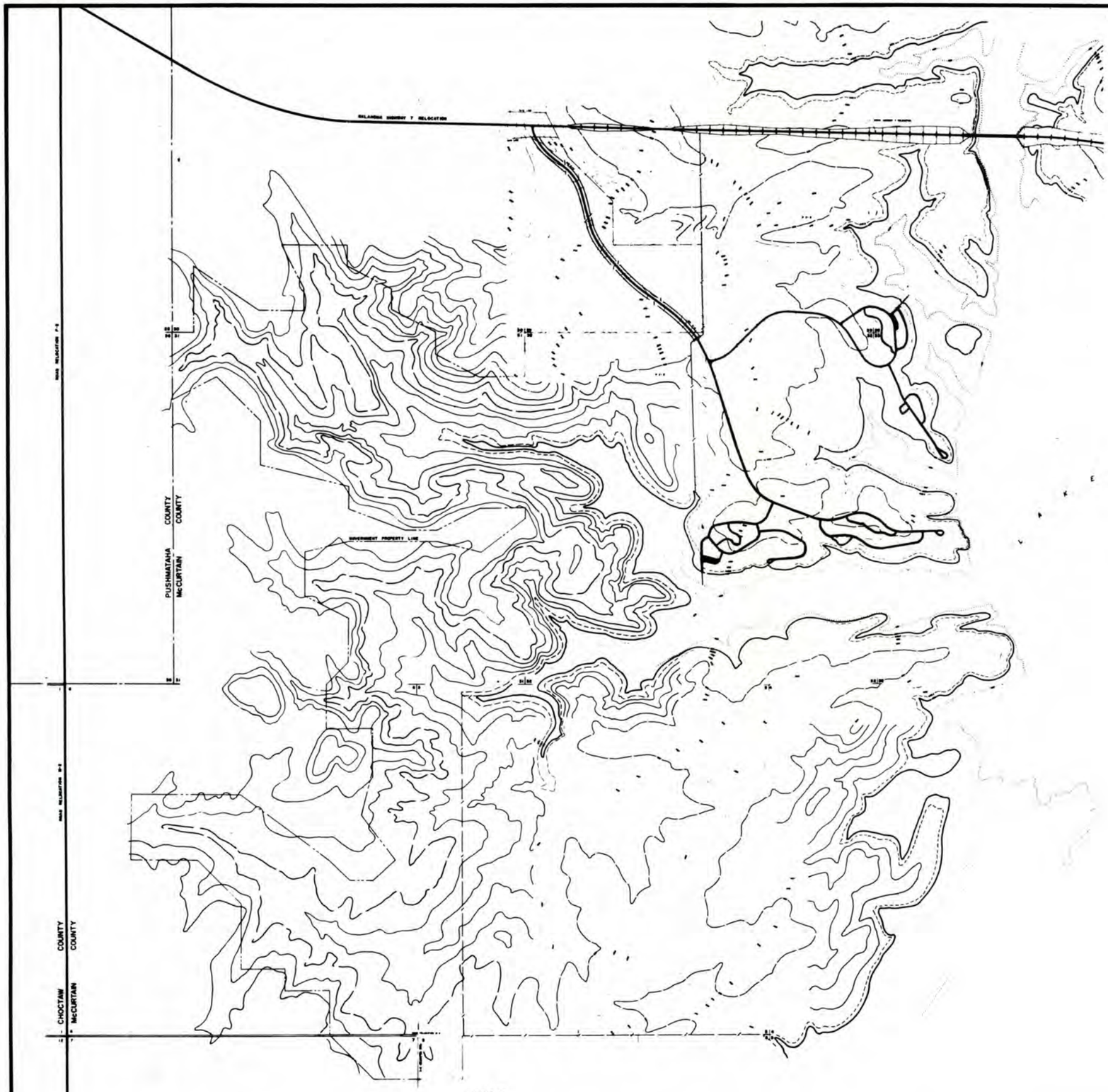
RELATED RECREATION AREAS

SCALE OF MILES
0 0 10 20 30 40 50

U. S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS, FEB. 1977

CB800-DM5B-93/2


TOM TAYLOR POINT
BILLY BELL SHOALS
LOST FERRY
PROJECT OFFICE
PINE CREEK COVE
LOST RAPIDS PARK
LITTLE RIVER PARK
TURKEY CREEK LANDING
STATE PARK (WILDERNESS) AREA
(TURKEY CREEK LANDING)
SLIM
RUFE
GOVERNMENT PROPERTY LINE
T 5 S
T 4 S
T 3 S
R 21 E
R 22 E
R 20 E
TERRAPIN TRAIL
BELL TRAIL
BILLY TRAIL
McCURTAIN COUNTY
PUSHMATAHA COUNTY
CHOCTAW COUNTY
LITTLE RIVER
VICINITY MAP
SCALE OF MILES
LEGEND
RECREATION - HIGH DENSITY USE
RECREATION - LOW DENSITY USE
PROJECT OPERATION LANDS
WILDLIFE MANAGEMENT AREAS STATE
WILDLIFE MANAGEMENT AREAS CORPS
LEGEND
FEATURE
EXISTING
ROADS
PAVED
GRAVEL
DIRT
PUBLIC USE AREAS
PERTINENT ELEVATIONS M.S.L.
480.0 TOP OF FLOOD CONTROL POOL
438.0 TOP OF CONSERVATION POOL-INTIAL
74 SHORLINE MILES AT EL. 438.0
PINE CREEK DAM AND RESERVOIR
LITTLE RIVER, OKLAHOMA
LAND UTILIZATION
SCALE OF MILES
U.S. ARMY ENGR., DIST., TULSA, CORPS OF ENGRS., FEB. 1977
CB800-DM5B-93/3



N

LEGEND
RECREATIONAL FEATURES

FEATURES	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
GRAVEL - TO BE PAVED		
DIRT		
STRUCTURES		
TOILETS - PIT TYPE	P	P
TOILETS - WATER BORNE	WB	WB
TOILETS - MASONRY VAULT	MV	MV
SHOWER AND TOILET	ST	ST
WATER WELL AND SHELTER		
WATER WELL		
BOAT RAMP		
COURTESY DOCK		
PICNIC SHELTER	PS	PS
GROUP SHELTER	GS	GS
OTHER BUILDINGS (NAMED)		
DRINKING FOUNTAIN		
FIREPLACE		
REFUSE CAN		
TABLE		
POWER LINE	—P—	—P—
WATER LINE	—W—	—W—
SEWER LINE	—S—	—S—
CAMPING PAD		
CAMP SPACE		
1 TABLE		
1 FIREPLACE		
1 REFUSE CAN		
MISCELLANEOUS FACILITIES		
SIGN		
FENCING	—X—	
CATTLE GUARD		
BEACH IMPROVEMENT	BEACH	BEACH
TREES		

PERTINENT ELEVATIONS M.S.L.

438.0	TOP OF CONSERVATION POOL
480.0	TOP OF FLOOD CONTROL POOL
424.7	10 YEAR FREQUENCY DRAWDOWN POOL (FINAL)
74	SHORELINE MILES AT EL. 438.0

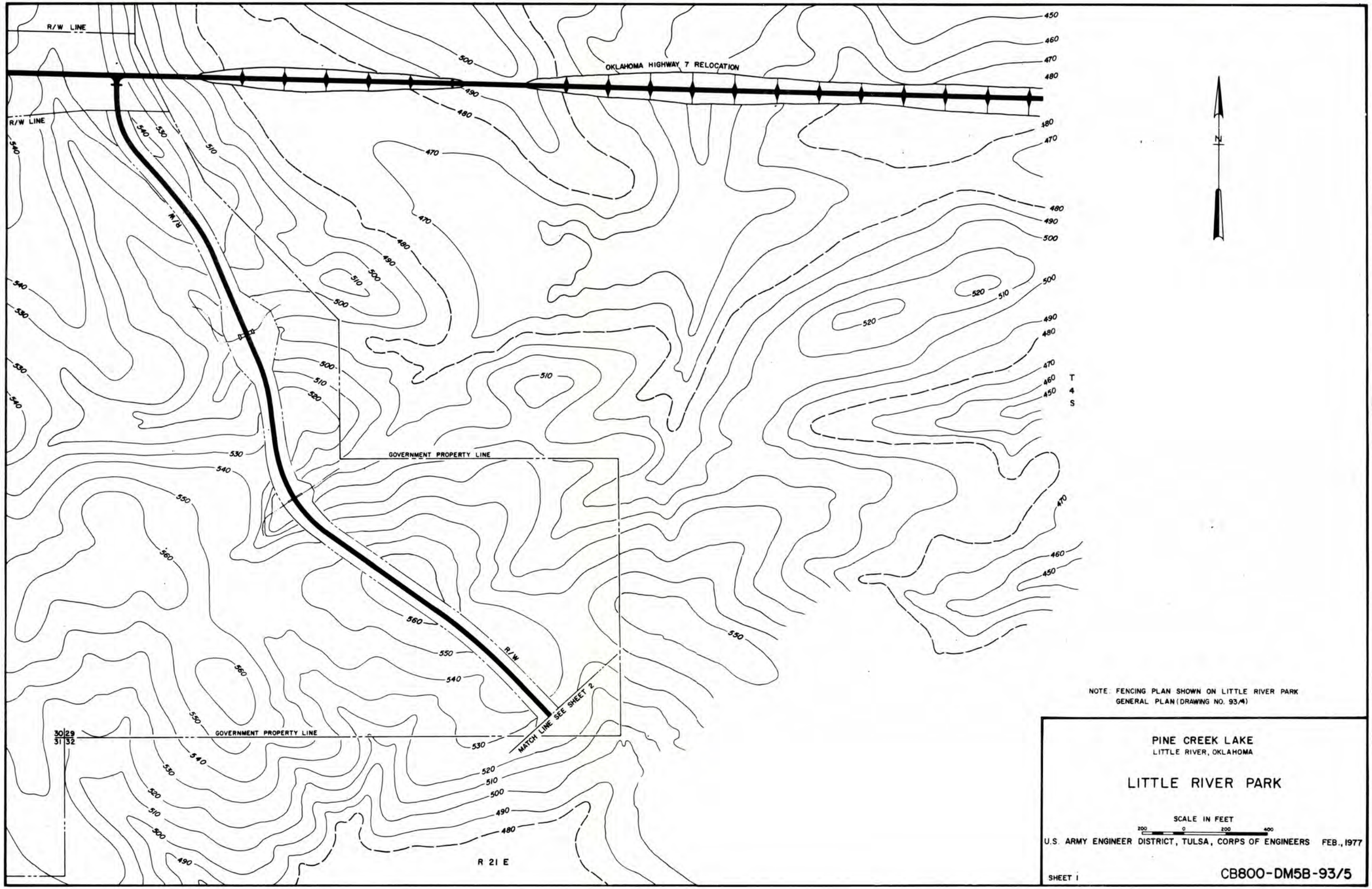
PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
GENERAL PLAN

SCALE IN FEET
800 0 800 1600

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/4



NOTE: FENCING PLAN SHOWN ON LITTLE RIVER PARK GENERAL PLAN (DRAWING NO. 93/4)

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 1

CB800-DM5B-93/5

N

T
4
S

APRIL 1, 1976
POOL ELEV.
438.87

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 1

CB800-DM5B-93/5A

R 21 E

T 4 S

GOVERNMENT PROPERTY LINE

MATCH LINE SEE SHEET 1

MATCH LINE SEE SHEET 3

ROAD "B"

ROAD "C"

ROAD "D"

END OF RAMP ELEV. 423.0'

OVERHEAD PRIMARY POWER SUPPLY

6" WATER MAIN (RATTAN WATER DIST. NO. 1)

6" METER

2" LINE

DIP POLE

METER POLE

GROUP SHELTER

OPEN SPACE

PLANT MIXED STAND

SWIMMING AREA

BEACH

AN ELECTRICAL HOOK UP WILL BE PROVIDED FOR EACH TWO CAMPSITES WITHIN ROAD "B" LOOP.

ROAD "D" STA 3+57 ELEV. 447.5

ROAD "D" STA 12+30 ELEV. 443.0

N

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

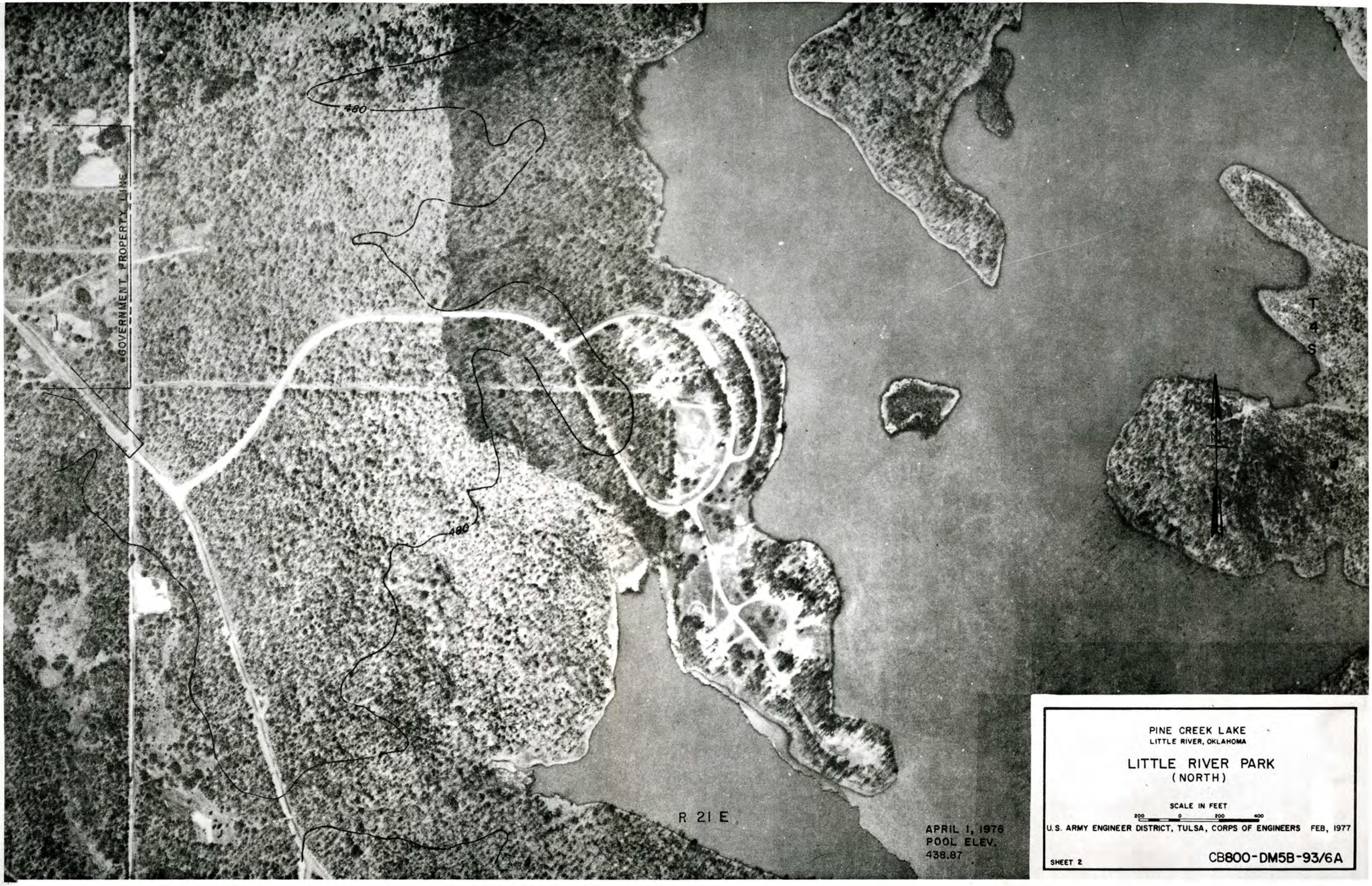
LITTLE RIVER PARK (NORTH)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB, 1977

SHEET 2

CB800-DM5B-93/6



PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK
(NORTH)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB, 1977

SHEET 2

CB800-DM5B-93/6A

MATCH LINE SEE SHEET 2

ROAD "A"

ROAD "E"

ROAD "F"

ROAD "G"

ROAD "H"

OPEN SPACE

CLEAR CUT TO IRREGULAR SHAPE

GROUP SHELTER

END OF RAMP ELEV. 420.0

T 4 S

R 21 E

5 | 4

32 | 33

N

PINE CREEK LAKE

LITTLE RIVER, OKLAHOMA

LITTLE RIVER PARK (SOUTH)

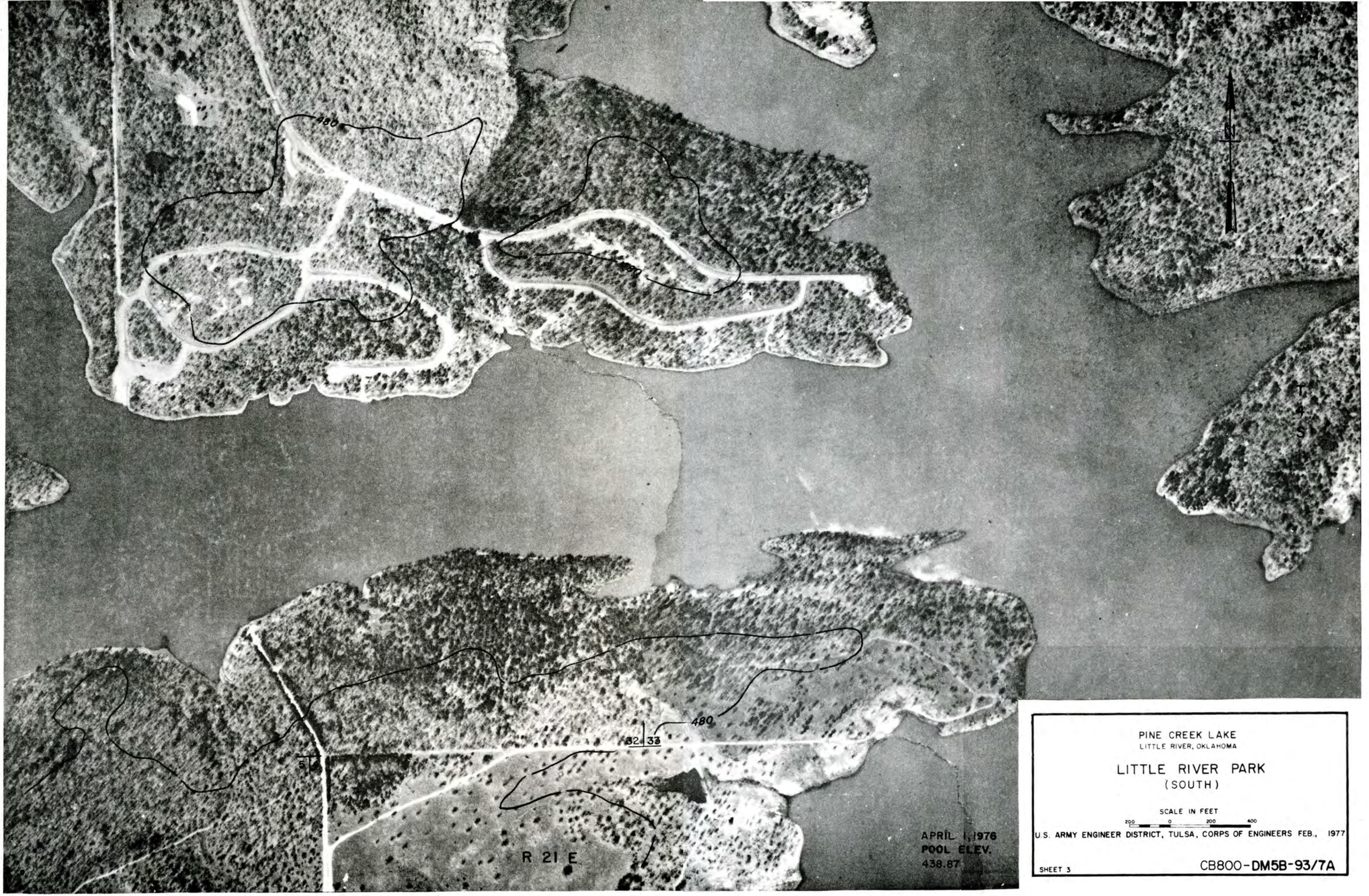
SCALE IN FEET

200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-DM5B-93/7



PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

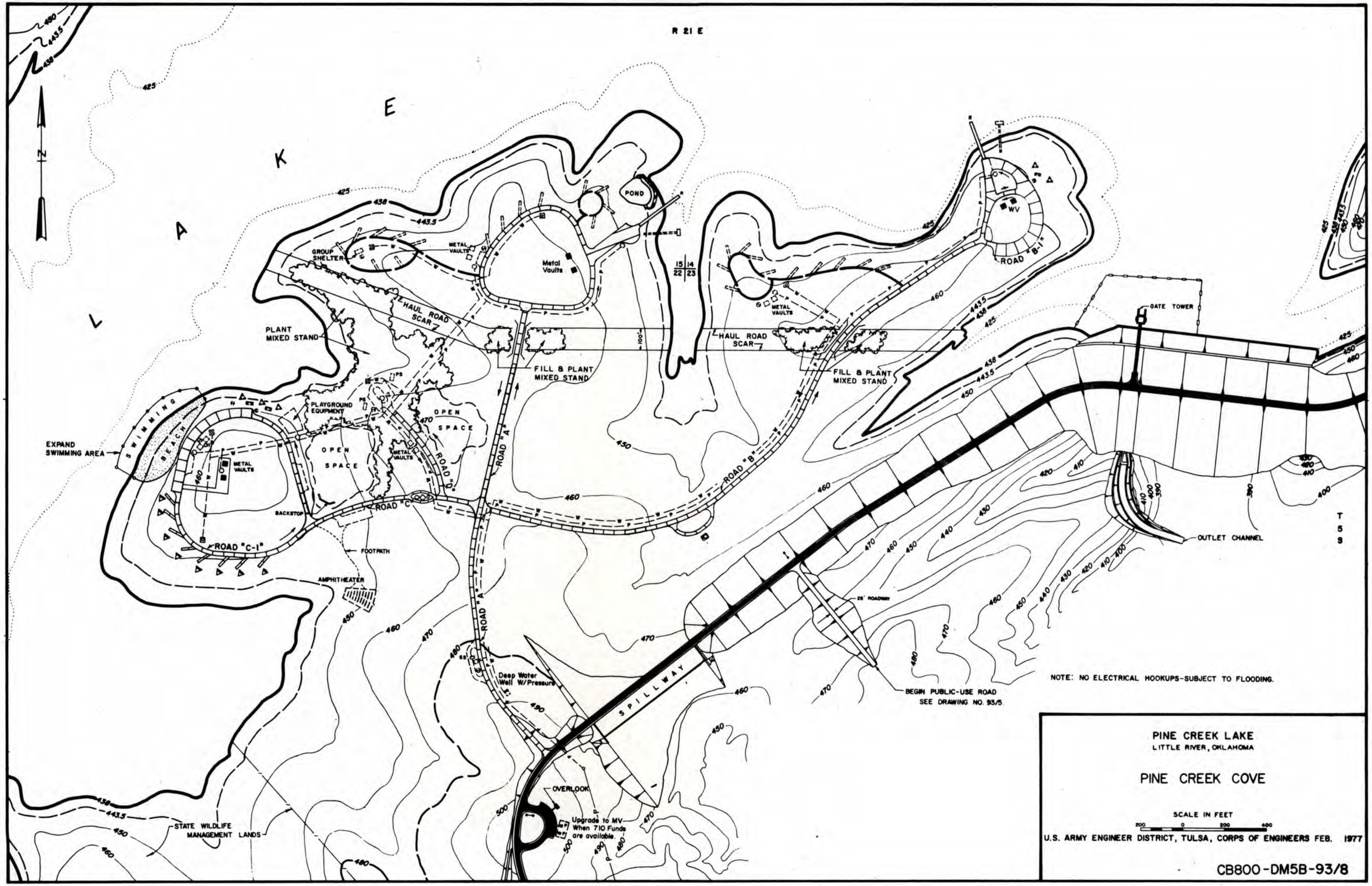
LITTLE RIVER PARK
(SOUTH)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

SHEET 3

CB800-DM5B-93/7A



R 21 E
N
L A K E
GROUP SHELTER
METAL VAULTS
Metal Vaults
POND
WV
15 14
22 23
METAL VAULTS
ROAD "B-1"
HAUL ROAD SCAR
PLANT MIXED STAND
FILL & PLANT MIXED STAND
HAUL ROAD SCAR
FILL & PLANT MIXED STAND
GATE TOWER
SWIMMING BEACH
EXPAND SWIMMING AREA
PLAYGROUND EQUIPMENT
OPEN SPACE
OPEN SPACE
METAL VAULTS
METAL VAULTS
ROAD "D"
ROAD "A"
ROAD "B"
ROAD "C"
ROAD "C-1"
BACKSTOP
FOOTPATH
AMPHITHEATER
OUTLET CHANNEL
T 5 S
28' ROADWAY
SPILLWAY
Deep Water Well W/Pressure
BEGIN PUBLIC-USE ROAD SEE DRAWING NO. 93/5
NOTE: NO ELECTRICAL HOOKUPS-SUBJECT TO FLOODING.
OVERLOOK
Upgrade to MV- When 710 Funds are available.
STATE WILDLIFE MANAGEMENT LANDS
PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA
PINE CREEK COVE
SCALE IN FEET
200 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB. 1977
CB800-DM5B-93/8

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

PINE CREEK COVE

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB. 1977

CB800-DM5B-93/8A

R 21 E

OLD HIGHWAY BRIDGE USED FOR FISHING PIER

PARKING

METAL VAULTS TO BE CONSTRUCTED WITH 710 FUNDS,

GOVERNMENT PROPERTY LINE

SE CORNER OF THE NE 1/4 OF SEC. 28

2" METER

4" WATER MAIN (RATTAN WATER DIST.)

DOUBLE BITUMINOUS PAVING PROPOSED FOR GRAVEL ENTRANCE ROAD

R/W

END OF RAMP ELEV. 420.0

T 4 S

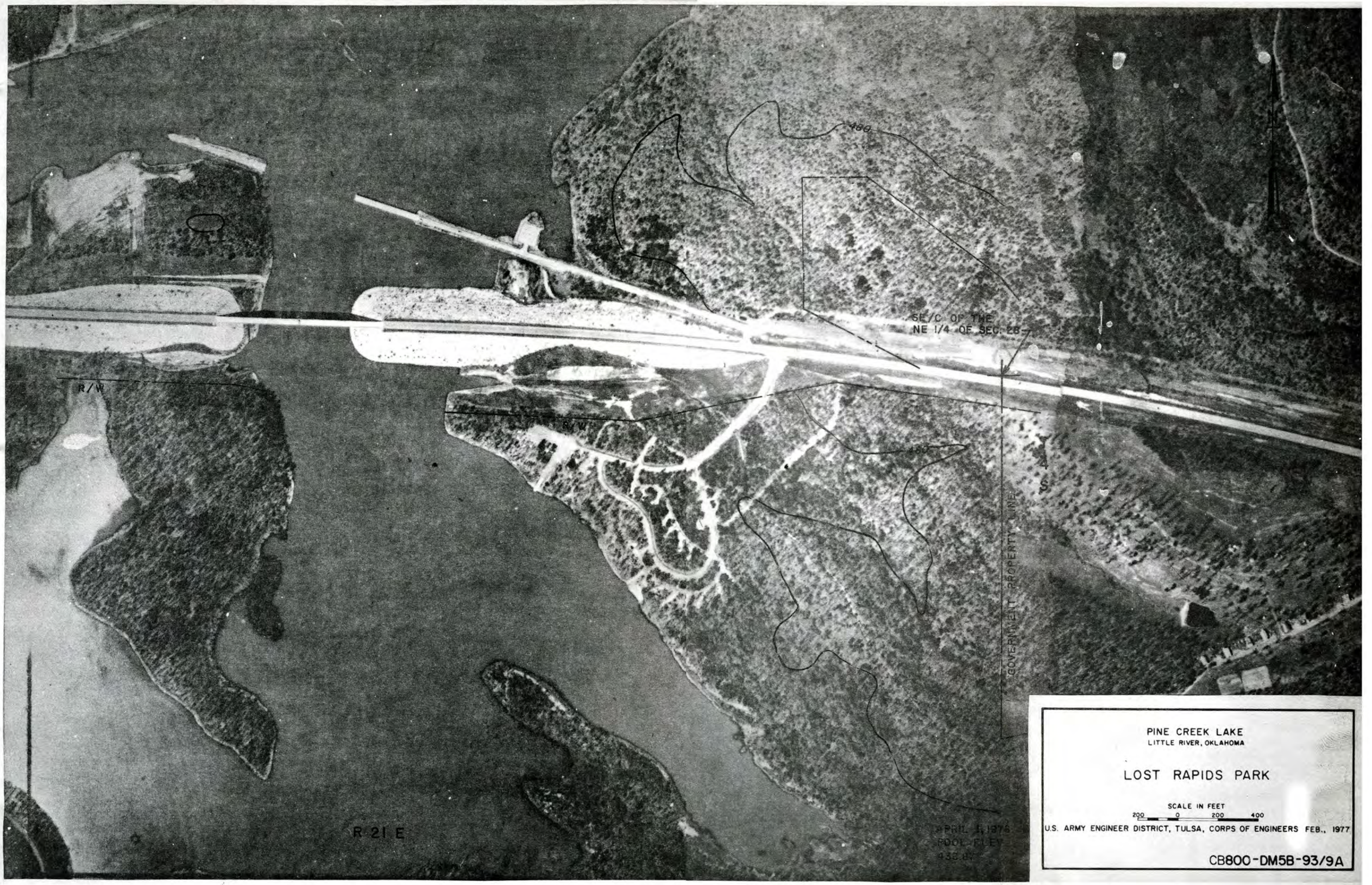
PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST RAPIDS PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM58-93/9



PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST RAPIDS PARK

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/9A

GATE TOWER

OUTLET CHANNEL

QUARRY

METAL VAULTS

EXISTING FOOT TRAIL

EXISTING AREA FOR SMALL BOAT LAUNCHING

SPILLWAY

OVERLOOK

Upgrade to MV When 710 Funds are available

PROJECT BLDG

RIGHT ACCESS ROAD

GOVERNMENT PROPERTY LINE

R 21 E

T 5 S

15 | 14
22 | 23

22 | 23
27 | 26

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST FERRY

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/10

APRIL 1, 1976
POOL ELEV.
438.87

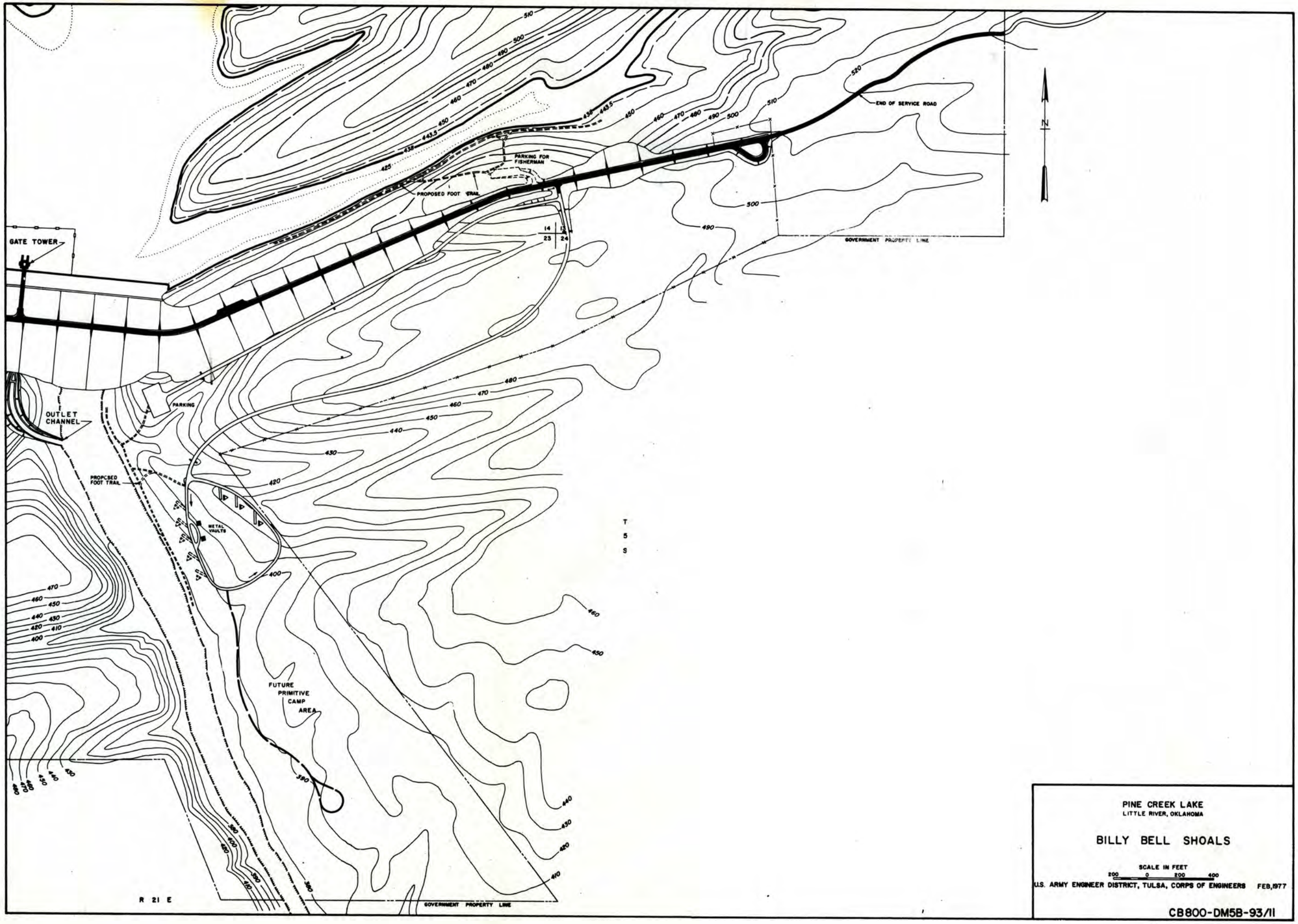
PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

LOST FERRY

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/10A



PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

BILLY BELL SHOALS

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB,1977

CB800-DM5B-93/11

N

T
5
S

APRIL 1, 1976
POOL ELEV.
438.87

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

BILLY BELL SHOALS

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB,1977

CB800-DM5B-93/11A

R 21 E

T 4 S

7 | 8
18 | 17

GOVERNMENT PROPERTY LINE

END OF RAMP
ELEV. 420.0'

Motel Vaults

Motel Vaults

Road

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

TURKEY CREEK LANDING
(STATE PARK)

SCALE IN FEET
800 0 800 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM58-93/12

GOVERNMENT PROPERTY LINE

T 4 S

R 21 E

APRIL 1, 1976
POOL ELEV.
438.6?

PINE CREEK LAKE
LITTLE RIVER, OKLAHOMA

TURKEY CREEK LANDING
(STATE PARK)

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/12A

APRIL 1, 1976
POOL ELEV.
438.87

PINE CREEK DAM AND RESERVOIR
LITTLE RIVER, OKLAHOMA

TOM TAYLOR POINT

SCALE IN FEET
200 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS FEB., 1977

CB800-DM5B-93/13A