MILLWOOD

DESIGN MEMORANDUM

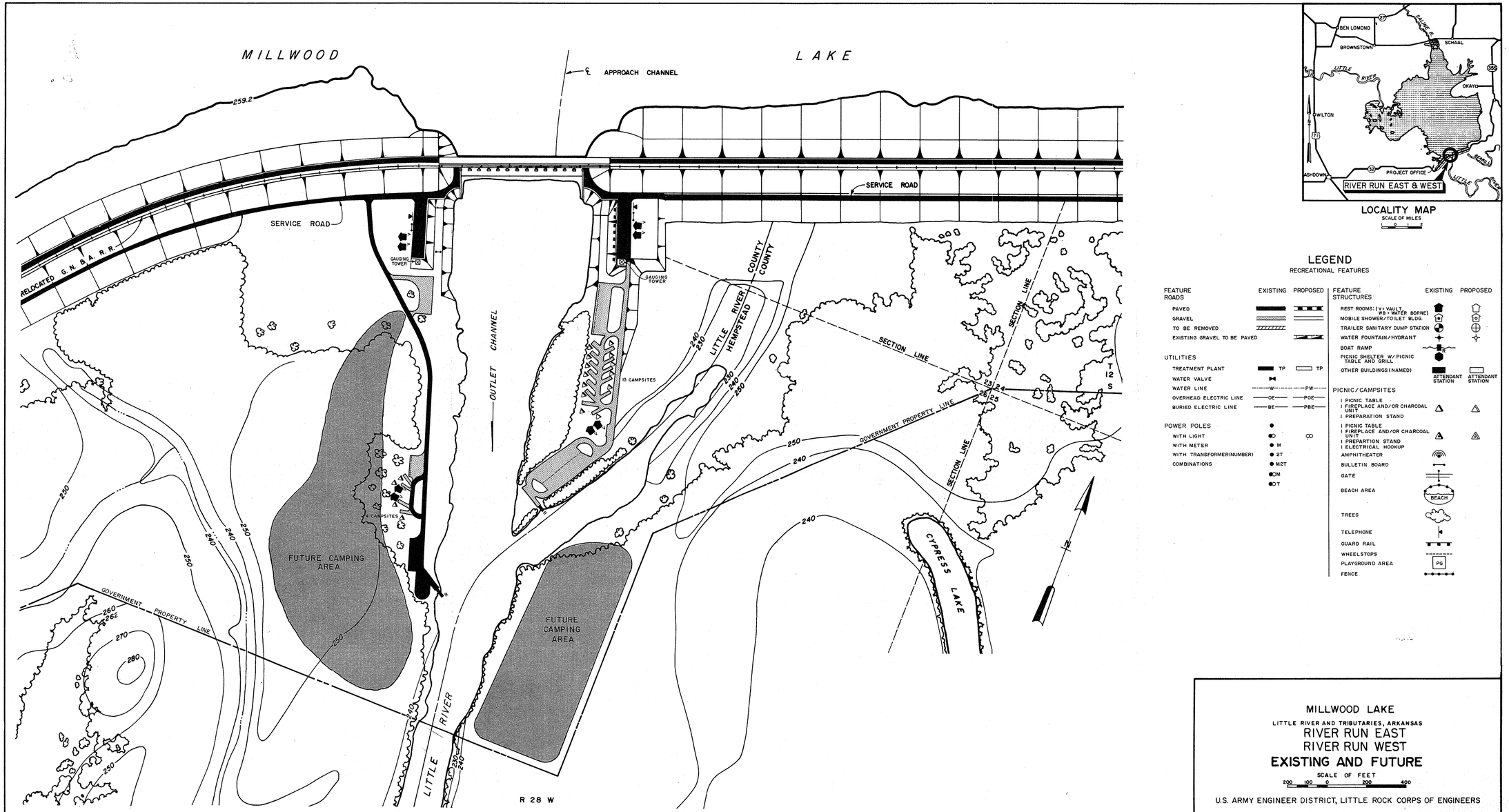
NO. 5B

MASTER PLAN

OPERATIONAL APPENDICES



DEPARTMENT OF THE ARMY
TULSA DISTRICT CORPS OF ENGINEERS
OKLAHOMA



LOCALITY MAP
SCALE OF MILES

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

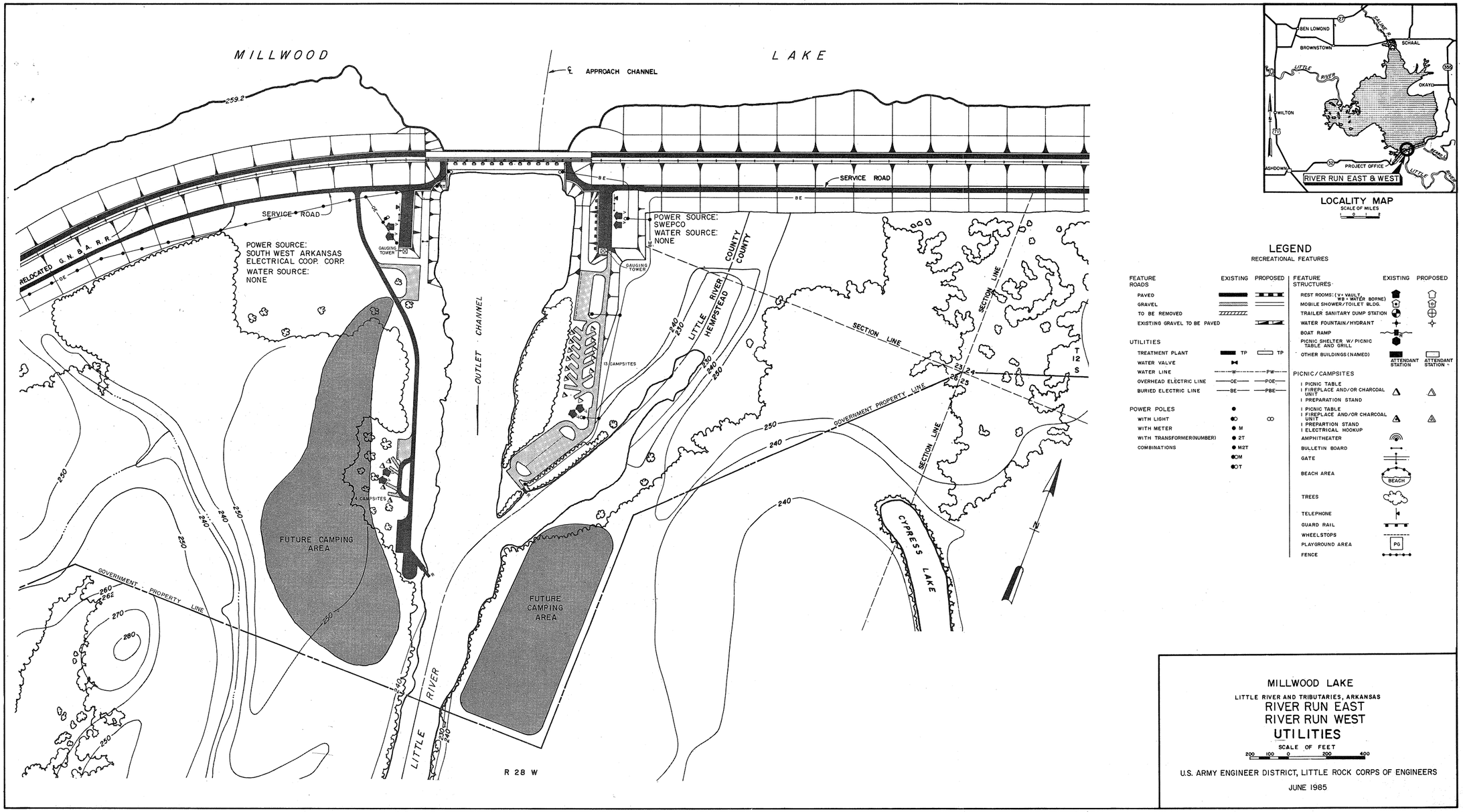
FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V= VAULT, WB = WATER BORNE)		
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
PICNIC TABLE, FIREPLACE AND/OR CHARCOAL UNIT, PREPARATION STAND		
PICNIC TABLE, FIREPLACE AND/OR CHARCOAL UNIT, PREPARTION STAND, ELECTRICAL HOOKUP		
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
RIVER RUN EAST
RIVER RUN WEST
EXISTING AND FUTURE

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES
0

LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
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POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	M2T
COMBINATIONS	OM	
	OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V= VAULT WB = WATER BORNE)		
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BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
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BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
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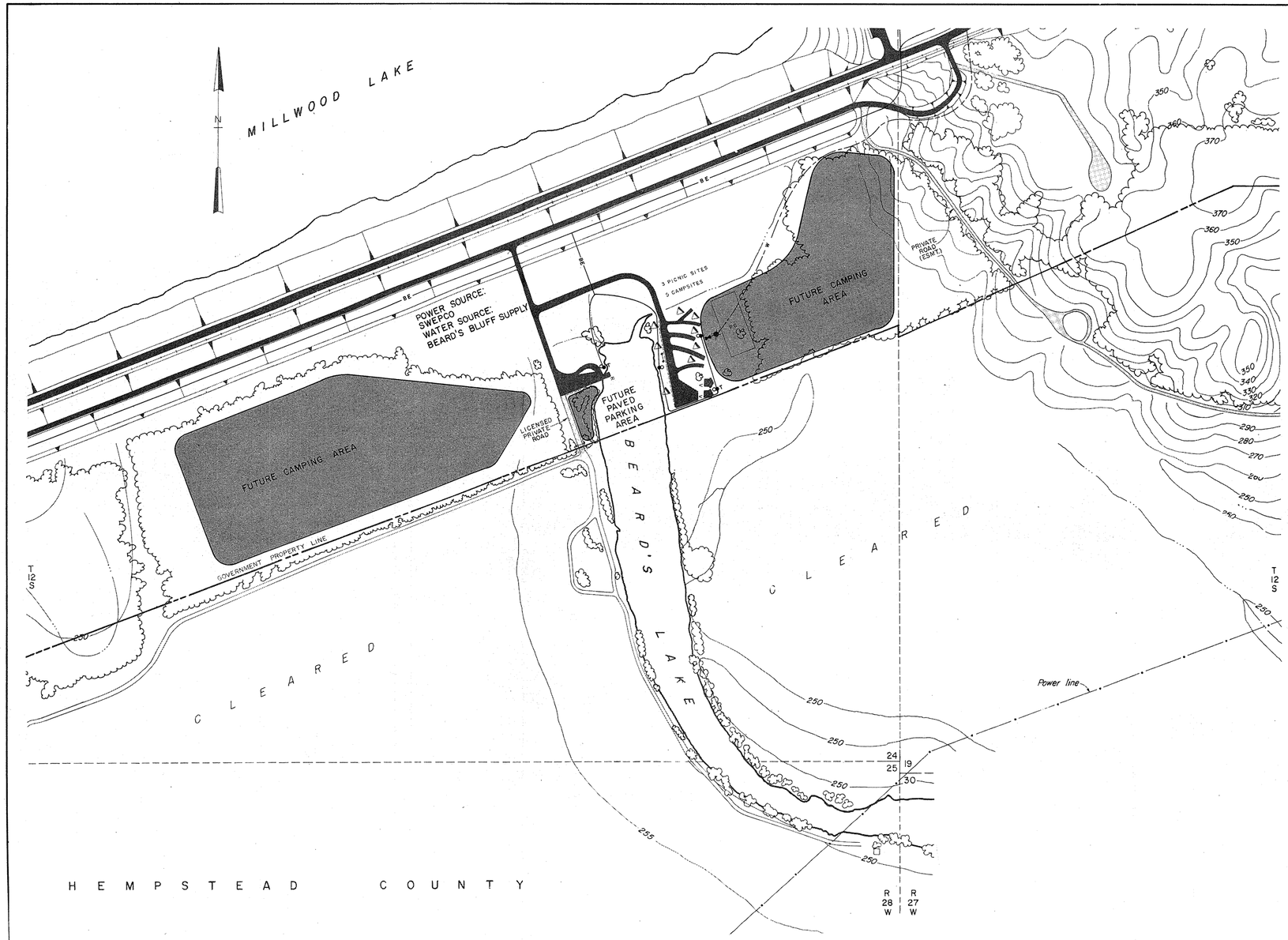
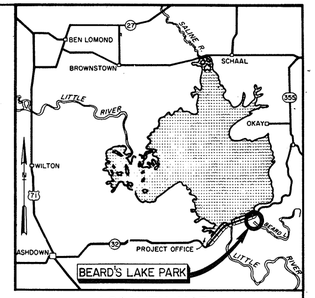
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
RIVER RUN EAST
RIVER RUN WEST
UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985





LOCALITY MAP

SCALE OF MILES

0 1 2

LEGEND

RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
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GRAVEL		
TO BE REMOVED		
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UTILITIES		
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GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

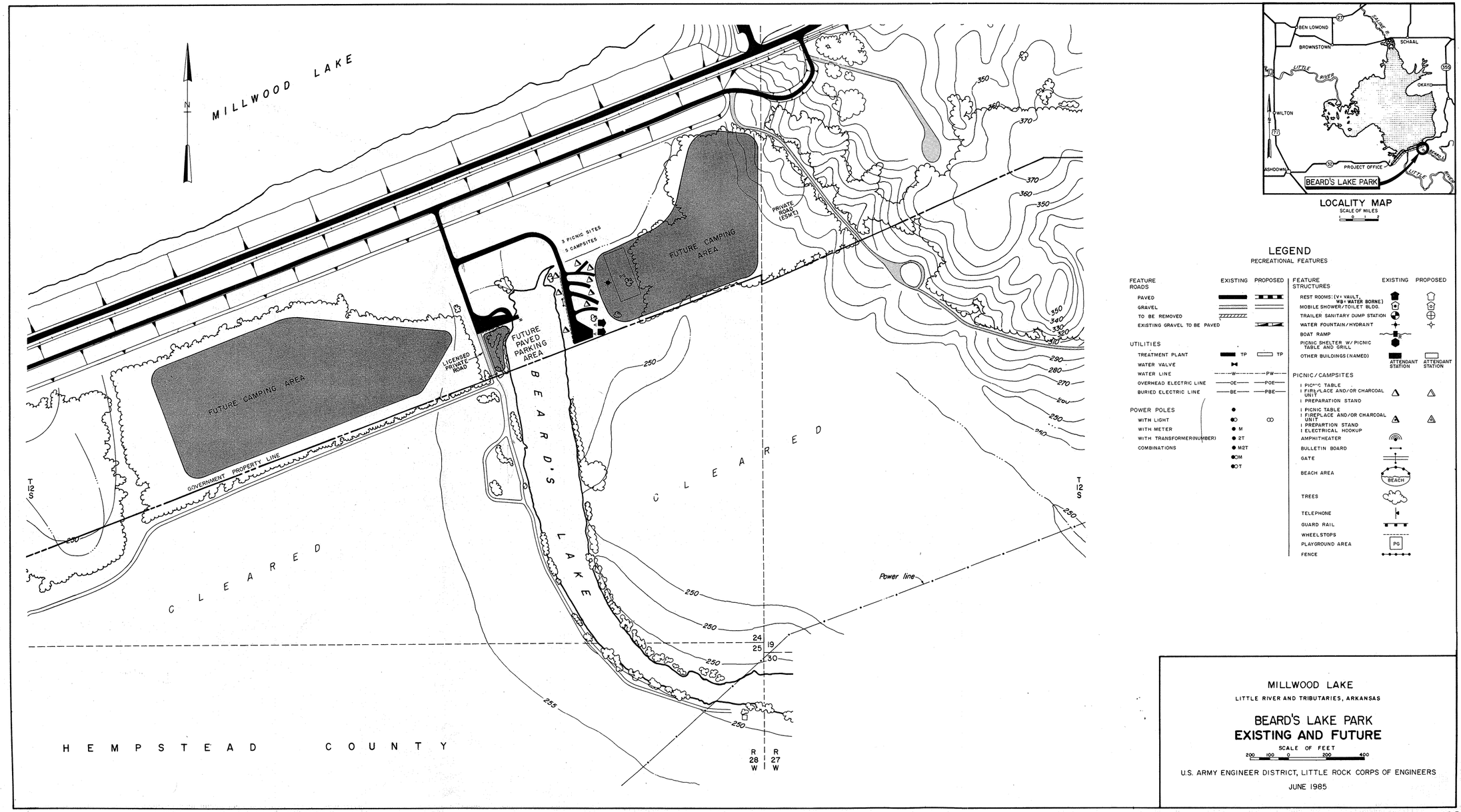
BEARD'S LAKE PARK
UTILITIES

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES
0 1 2

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GATE		
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TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

BEARD'S LAKE PARK
EXISTING AND FUTURE

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985

CESWD-CO-RP (CESWL-CO-L/4 Dec 87) (1130) 1st End McCauley/da/72434
SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 4

Commander, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 11 JAN 1988

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

Approved.

FOR THE COMMANDER:

A. P. HUTCHISON
Chief, Construction-
Operations Division

4 Encls
wd all encls

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

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

REPLY TO
ATTENTION OF

CESWL-CO-L

4 December 1987

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

SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 4

1. This supplement will update the site plans of Saratoga Landing Park and the land use maps to protect a remnant community of blackland prairie. Approximately 200 acres of land within Saratoga Landing Park that is designated for future development is herein recommended for reclassification from Recreation-Intensive Use to Natural Area. No recreational development has been programmed for this future use area. The Saratoga Blackland Prairie consists of a community of native grasses that are uncommon in this region of the country. One species of plant that is being considered for inclusion on the Endangered and Threatened Species List of the U.S. Fish and Wildlife Service has been found in this area.

2. The Little Rock District has entered into a cooperative management agreement with the Arkansas Natural Heritage Commission for the purpose of protecting and conserving the 290' msl. The management responsibilities of the two agencies concerning the area will be in accordance with the enclosed Management Agreement. The Corps of Engineers will primarily be concerned with the prevention of abuse and misuse of the area, while the Arkansas Natural Heritage Commission will be responsible for the conservation and perpetuation of the native grass populations.

3. Approval of this supplement is recommended.

LTC CE

ANTHONY M. NIDA
Colonel, Corps of Engineers
Commanding

4 Encls (4 cys)
1. Management Agreement
2. Saratoga Site Plan, Sheet 2
3. Utilization Sheet 1
4. Utilization Sheet 6

SWDCO-RP (SWLCO-L/6 Aug 85) 1st End
SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 3

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street
Dallas, TX 75242-0216 6 AUGUST 1985

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

Approved.

FOR THE COMMANDER:

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

30 Encls
wd all encls

CF (w/basic & Encl):
DAEN-CWO-R (5 cys)
SWDRE
SWDPL-R

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

REPLY TO
ATTENTION OF

SWLCO-L

6 August 1985

SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 3

Commander, Southwestern Division
ATTN: SWDCO-R

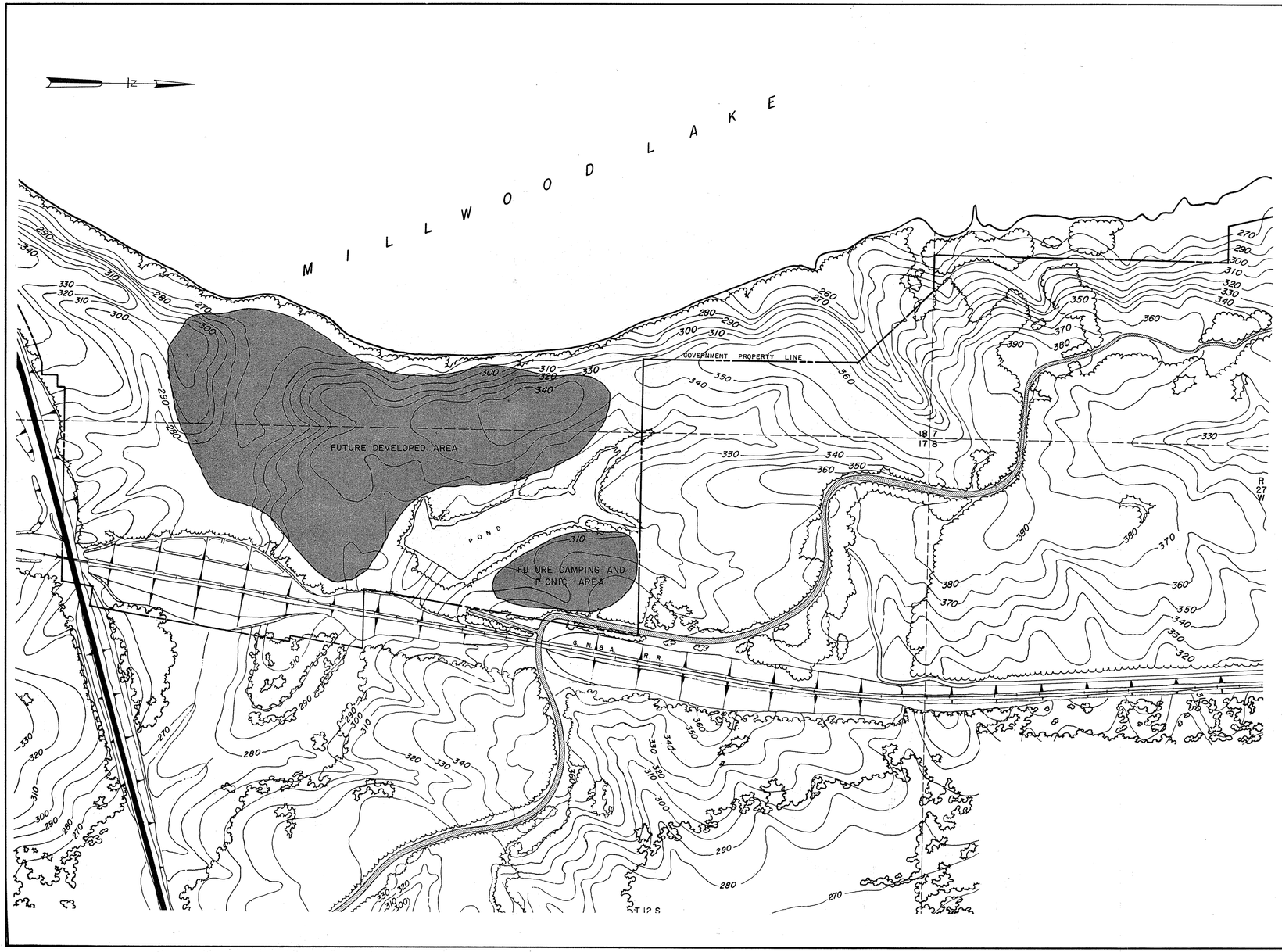
1. The purpose of this supplement is to update the park site plans to reflect existing recreational facilities and to show efficiency plans for selected parks. The site plans, dated March 1973, have not been revised since completion of the recreational features of the project.

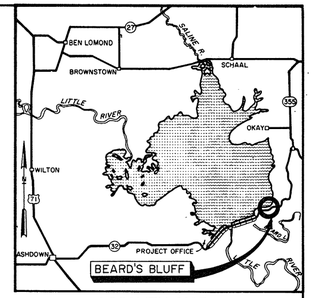
2. In addition to the existing facilities update, the detailed future site development was replaced with schematic drawings. The future areas are generally not replanned, they are just simplified and shown in a revised manner. Efficiency plans were developed for Saratoga, Beards Bluff, Cottonshed, and Paraloma Parks. These plans will be used to guide near-term development programs such as SRUF expenditures.

3. Approval of this supplement is recommended.

30 Encls (9 cys)

ROBERT W. WHITEHEAD
Colonel, Corps of Engineers
Commanding





LOCALITY MAP
SCALE OF MILES
0 2

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		

UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
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WITH METER	M
WITH TRANSFORMER(NUMBER)	2T
COMBINATIONS	M2T
	OM
	OT

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V=VAULT, WB=WATER BORNE)	V	V
MOBILE SHOWER/TOILET BLDG.	S	S
TRAILER SANITARY DUMP STATION	D	D
WATER FOUNTAIN/HYDRANT		
BOAT RAMP	R	
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION

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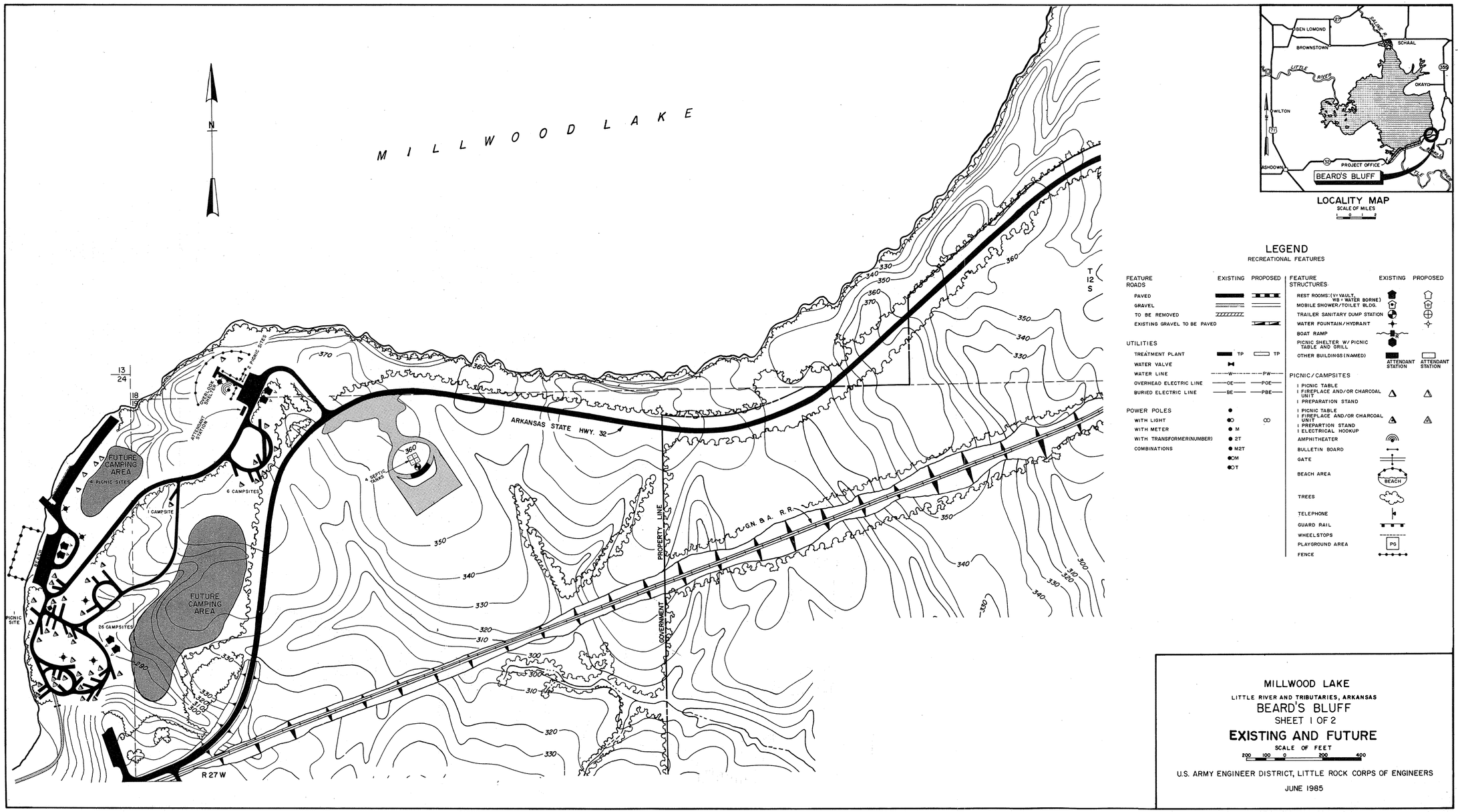
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF
SHEET 2 OF 2
EXISTING AND FUTURE
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985



LOCALITY MAP
SCALE OF MILES
0 1 2

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MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF
SHEET 1 OF 2
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U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

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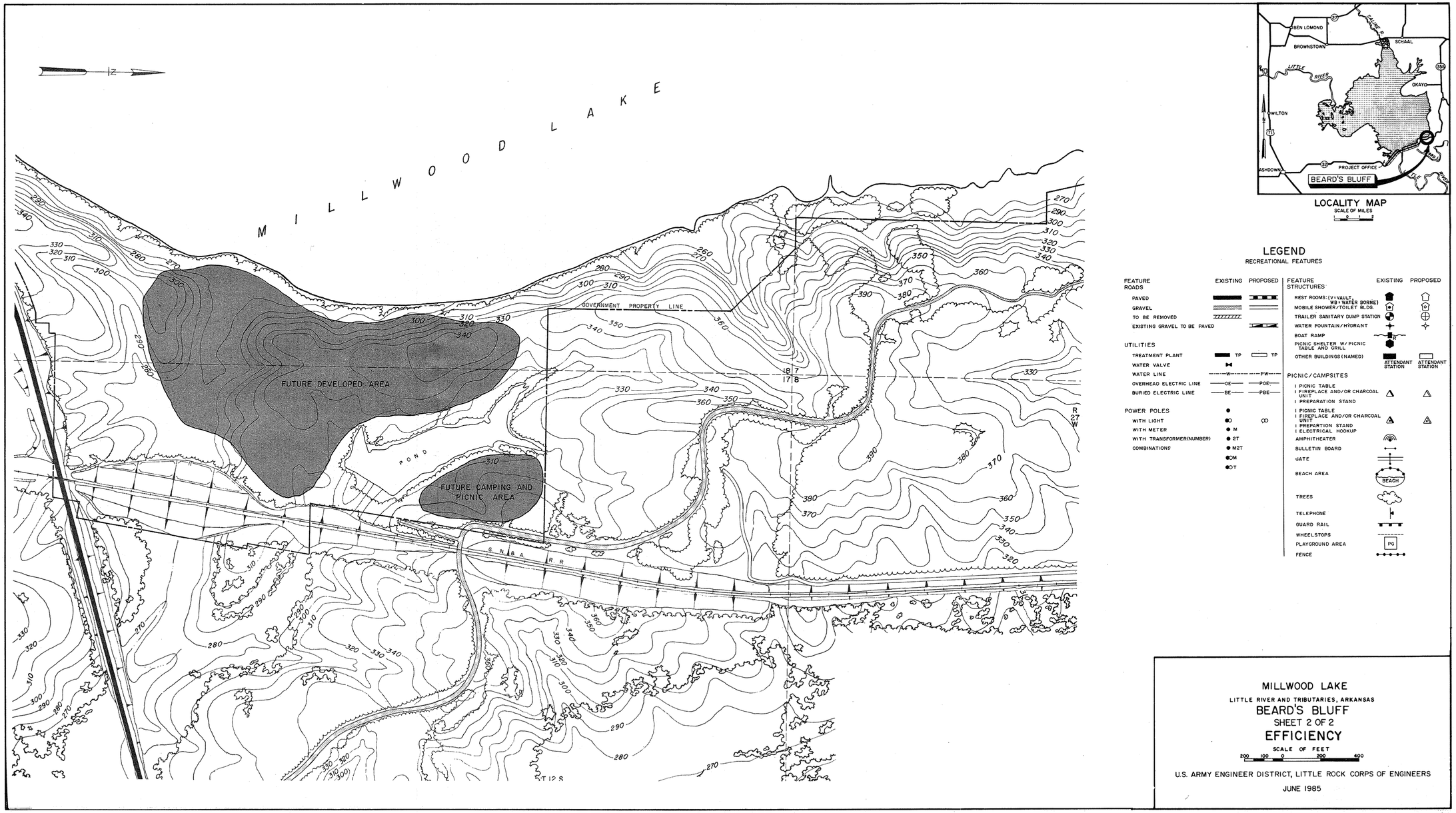

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SCALE OF MILES

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LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF
SHEET 2 OF 2
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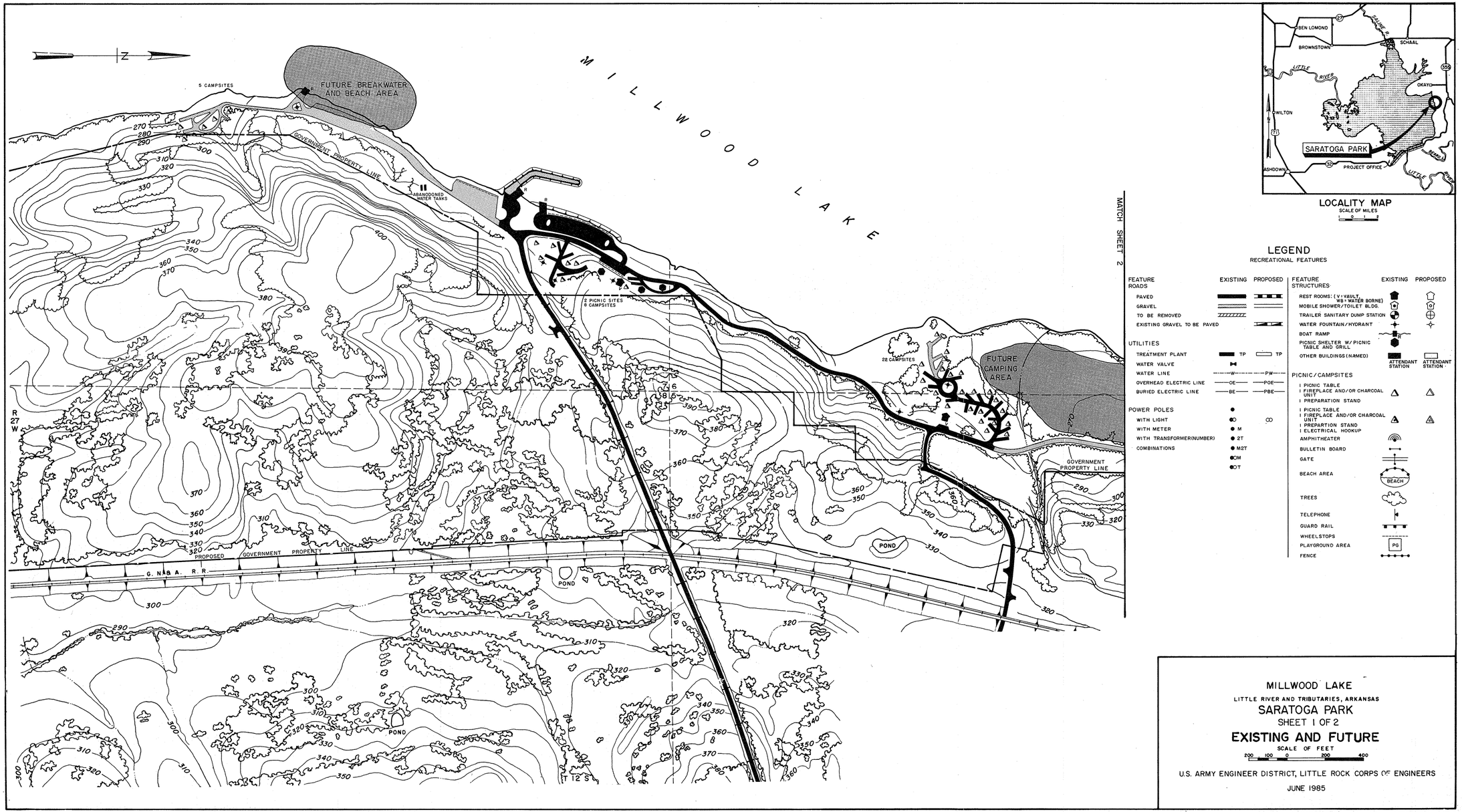

LOCALITY MAP
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MILLWOOD LAKE
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SARATOGA PARK
SHEET 1 OF 2
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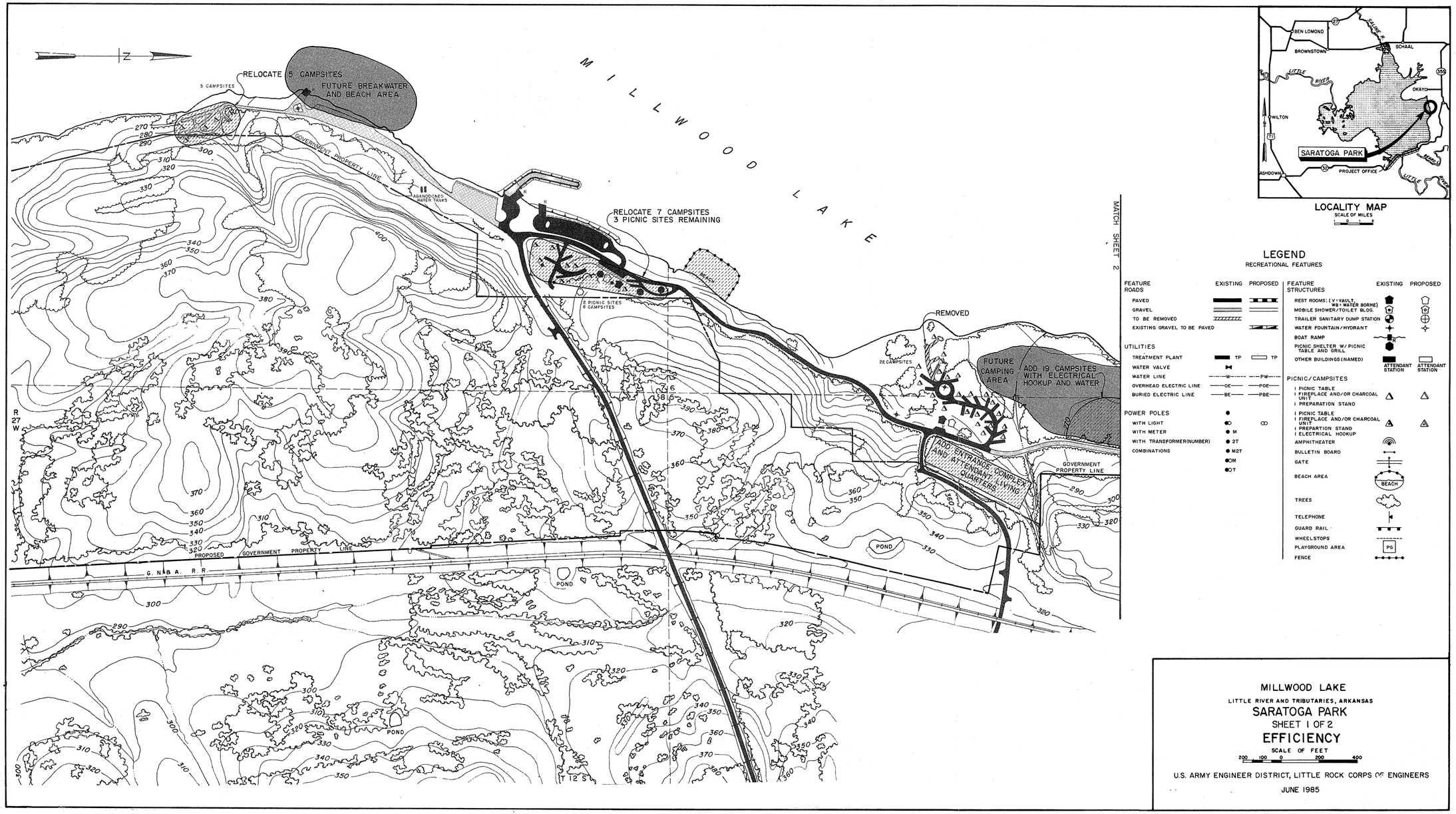

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LITTLE RIVER AND TRIBUTARIES, ARKANSAS

SARATOGA PARK

SHEET 1 OF 2

EFFICIENCY

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U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

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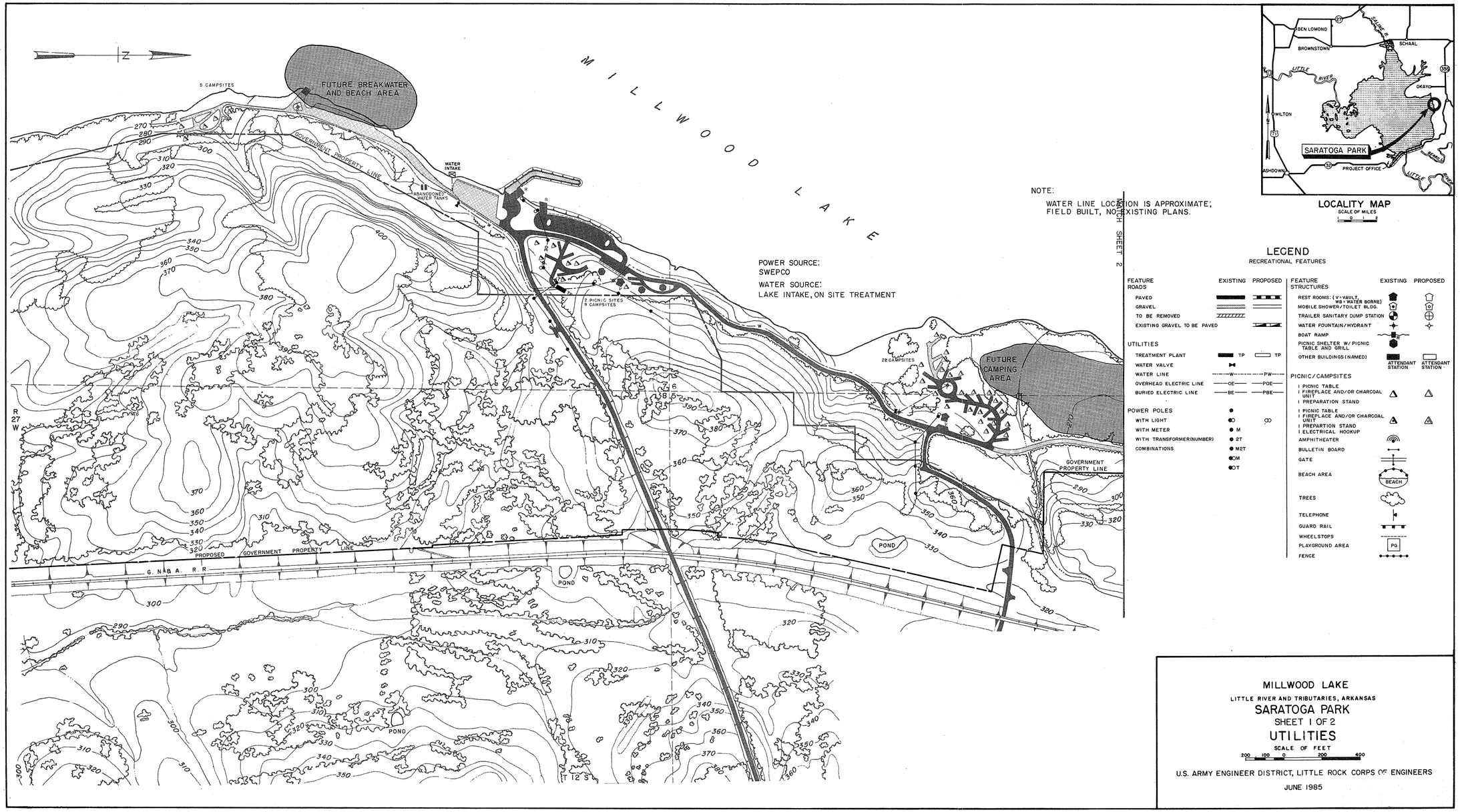

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WITH METER	● M	
WITH TRANSFORMER(NUMBER)	● 2T	
COMBINATIONS	●M2T ●OM ●OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V=VAULT, WB=WATER BORNE)		
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND	△	△
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARTION STAND 1 ELECTRICAL HOOKUP	△	△
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA PARK
SHEET 1 OF 2
UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985

T 12 S T 11 S

N

PARTIALLY SUBMERGED TREES

MILLWOOD LAKE

FUTURE MARINA / DOCKING AREA

FUTURE CAMPING AREA

FUTURE CAMPING AND DEVELOPED AREA

FUTURE CAMPING AREA

HEMPSTEAD COUNTY

HOWARD COUNTY

R 27 W

MATCH SHEET I

G.N. & A. R.R.

260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420

Blackland Prairie

Cooperative Management Area

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

SARATOGA PARK

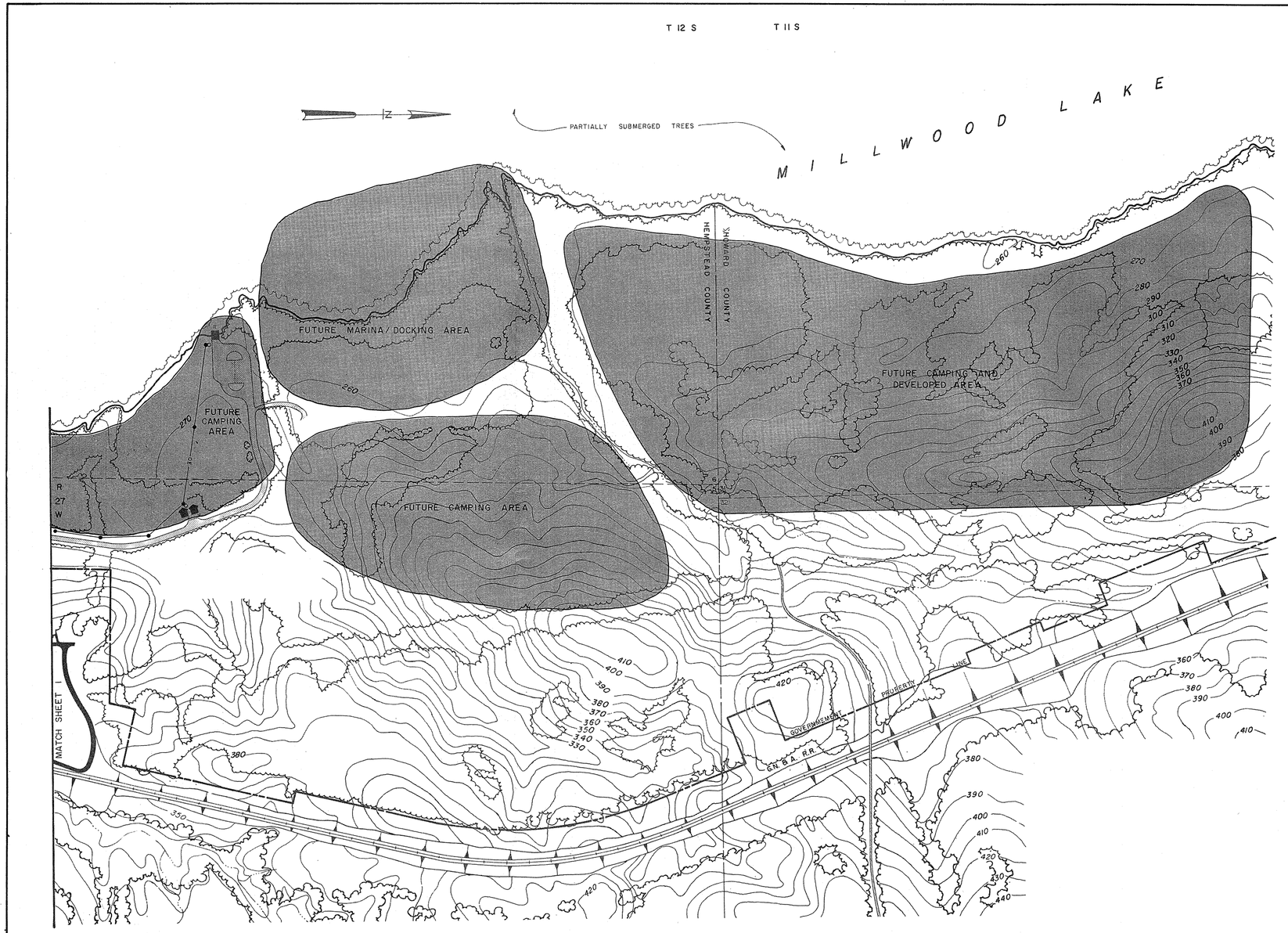
SHEET 2 OF 2

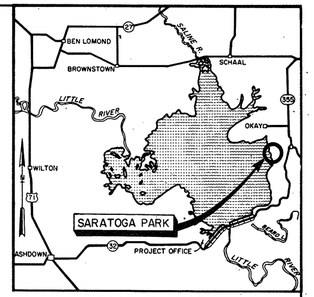
EXISTING AND FUTURE

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK, CORPS





LOCALITY MAP
SCALE OF MILES
1 0 1 2

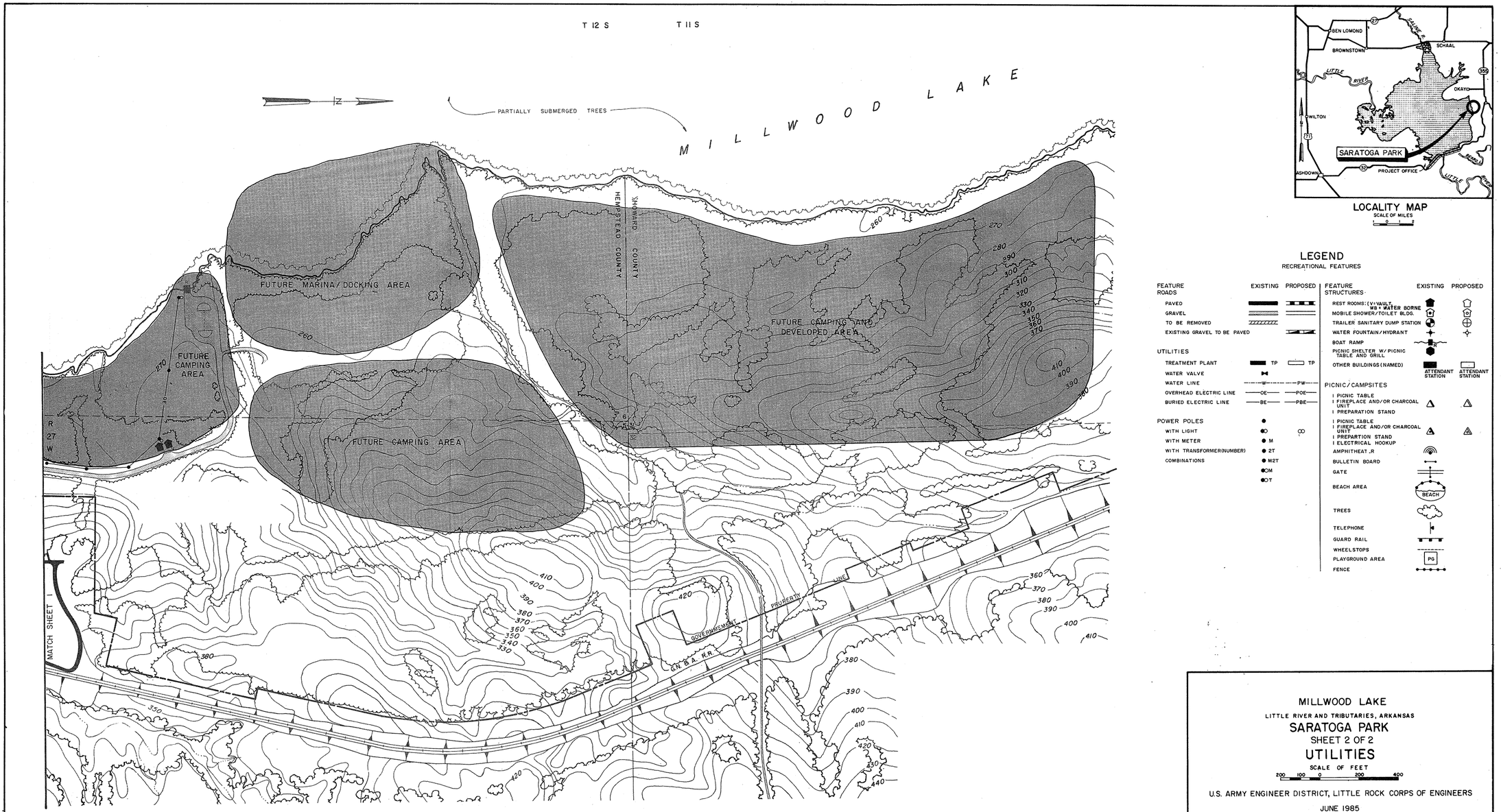
LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	O	
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T, OM, OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V=VAULT, WB=WATER BORNE		
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARTION STAND 1 ELECTRICAL HOOKUP		
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA PARK
SHEET 2 OF 2
UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985



LOCALITY MAP
SCALE OF MILES
0 2

LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE	EXISTING	PROPOSED
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TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP	R	
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
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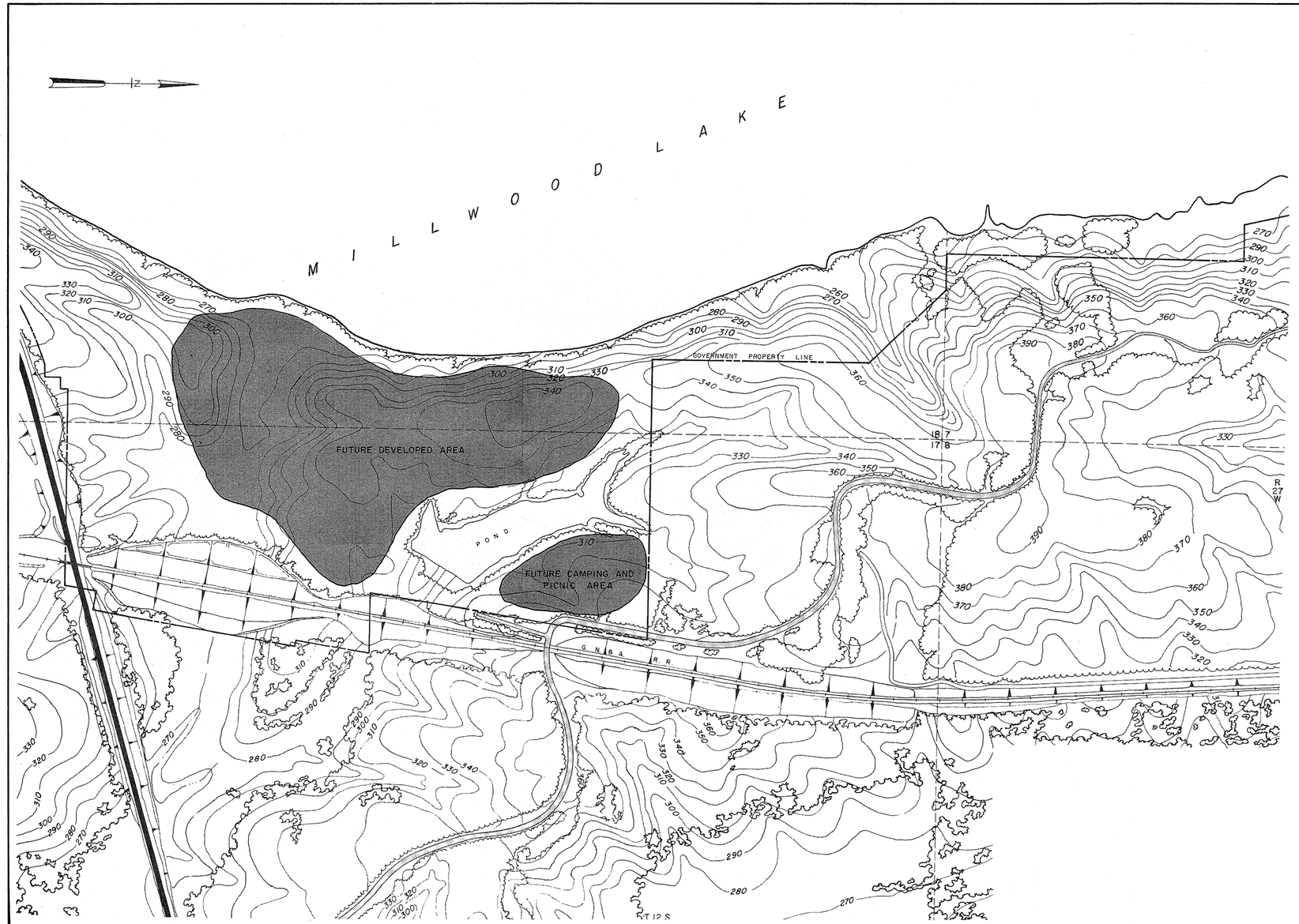
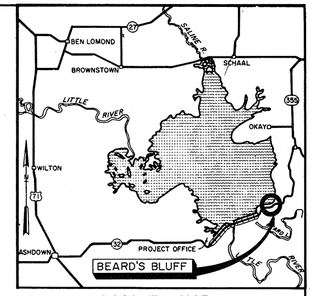
AMPNITHEAT ,R		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA PARK
SHEET 2 OF 2
UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985





LOCALITY MAP

SCALE OF MILES

0 1 2

LEGEND

RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T, OM, OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS:(V=VAULT, WB=WATER BORNE)		
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AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

BEARD'S BLUFF

SHEET 2 OF 2

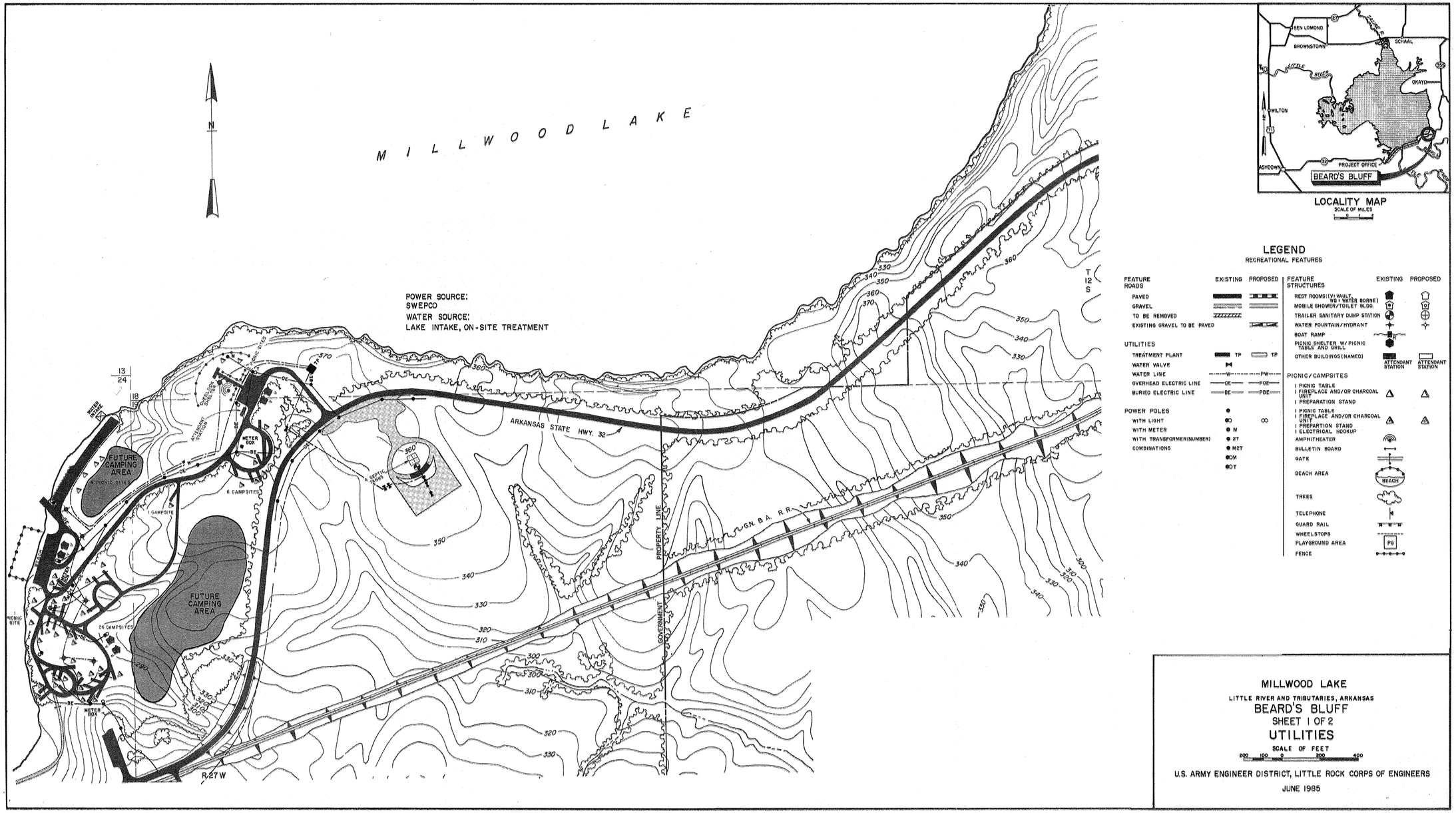
UTILITIES

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES
0

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	●O	○O
WITH METER	● M	
WITH TRANSFORMER(NUMBER)	● 2T	
COMBINATIONS	●2M	
	●2T	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS (V=VAULT W=WATER BORNE)	V	V
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND		
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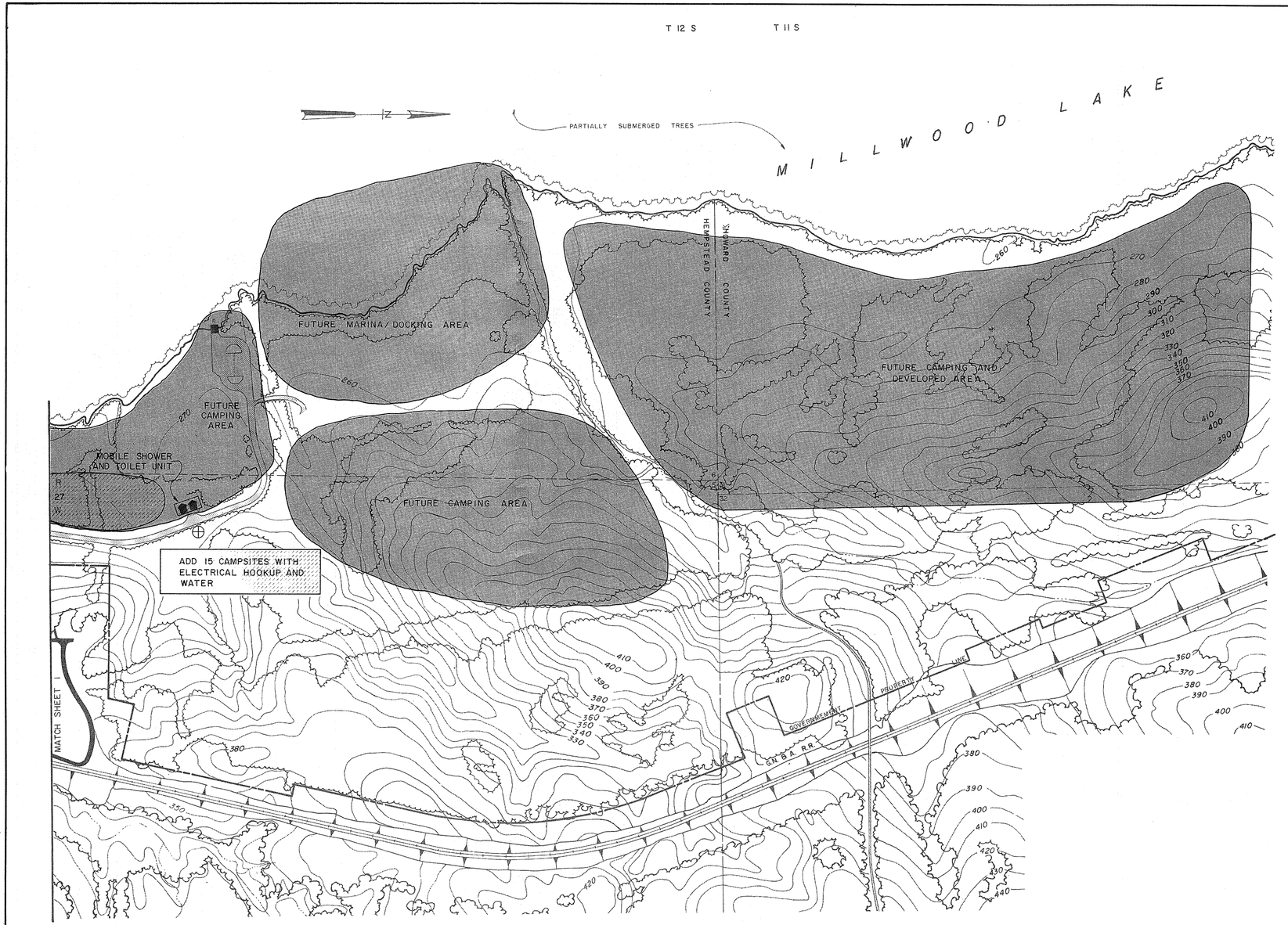
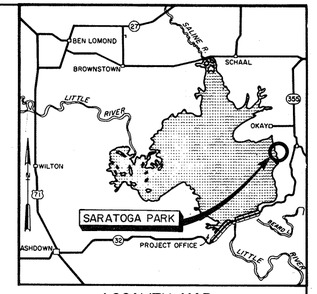
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF
SHEET 1 OF 2
UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985





LOCALITY MAP
SCALE OF MILES
1 0 2

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	●O	○O
WITH METER	● M	
WITH TRANSFORMER(NUMBER)	● 2T	
COMBINATIONS	● M2T	
	●OM	
	●OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V=VAULT, WB=WATER BORNE		
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
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BOAT RAMP		
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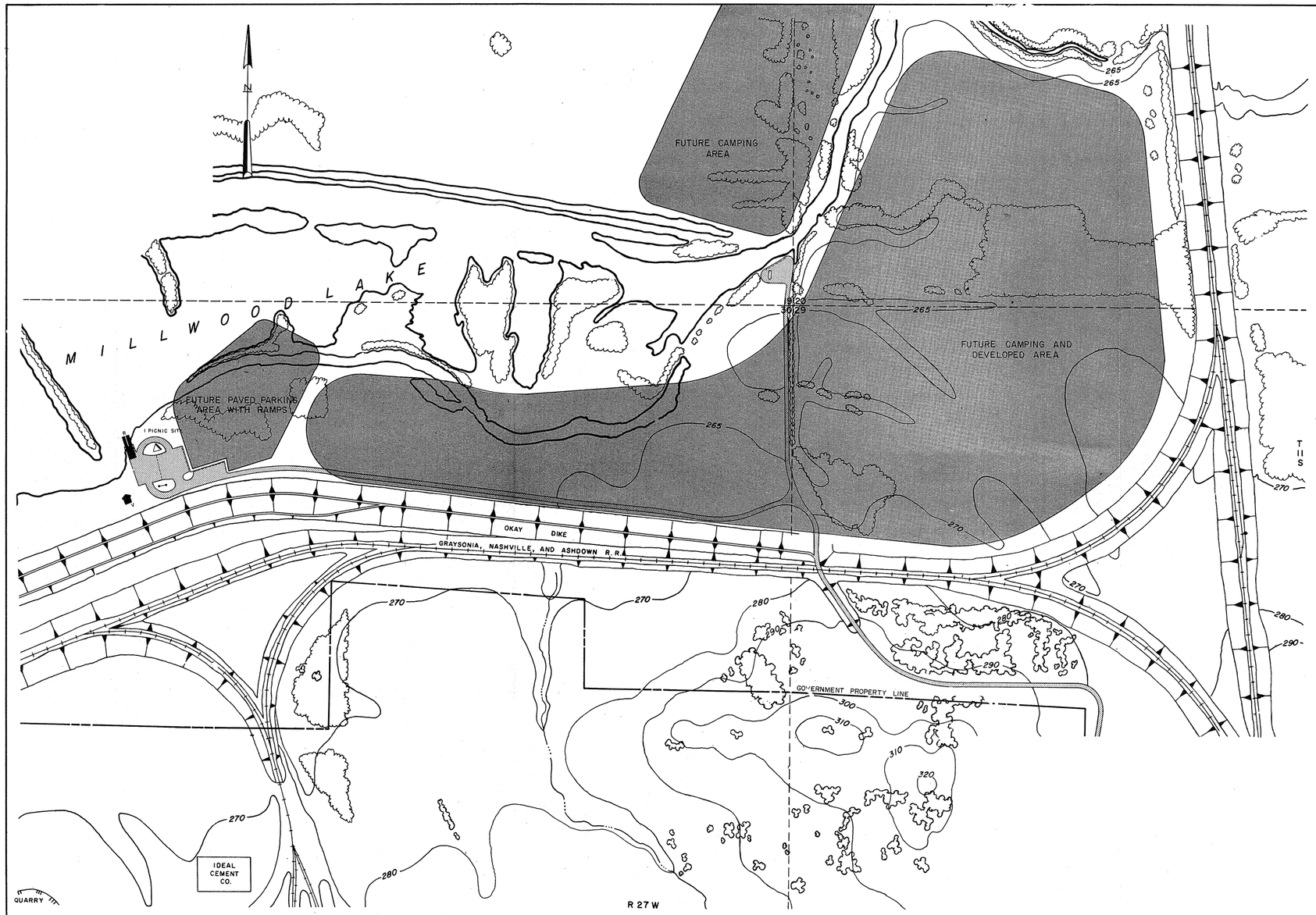
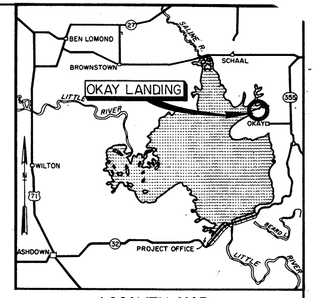
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND	△	△
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARTION STAND 1 ELECTRICAL HOOKUP	⚠	⚠
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA PARK
SHEET 2 OF 2
EFFICIENCY
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985





LOCALITY MAP
SCALE OF MILES 0 1 2

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V = VAULT, WB = WATER BORNE)		
MOBILE SHOWER/TOILET BLDG.		
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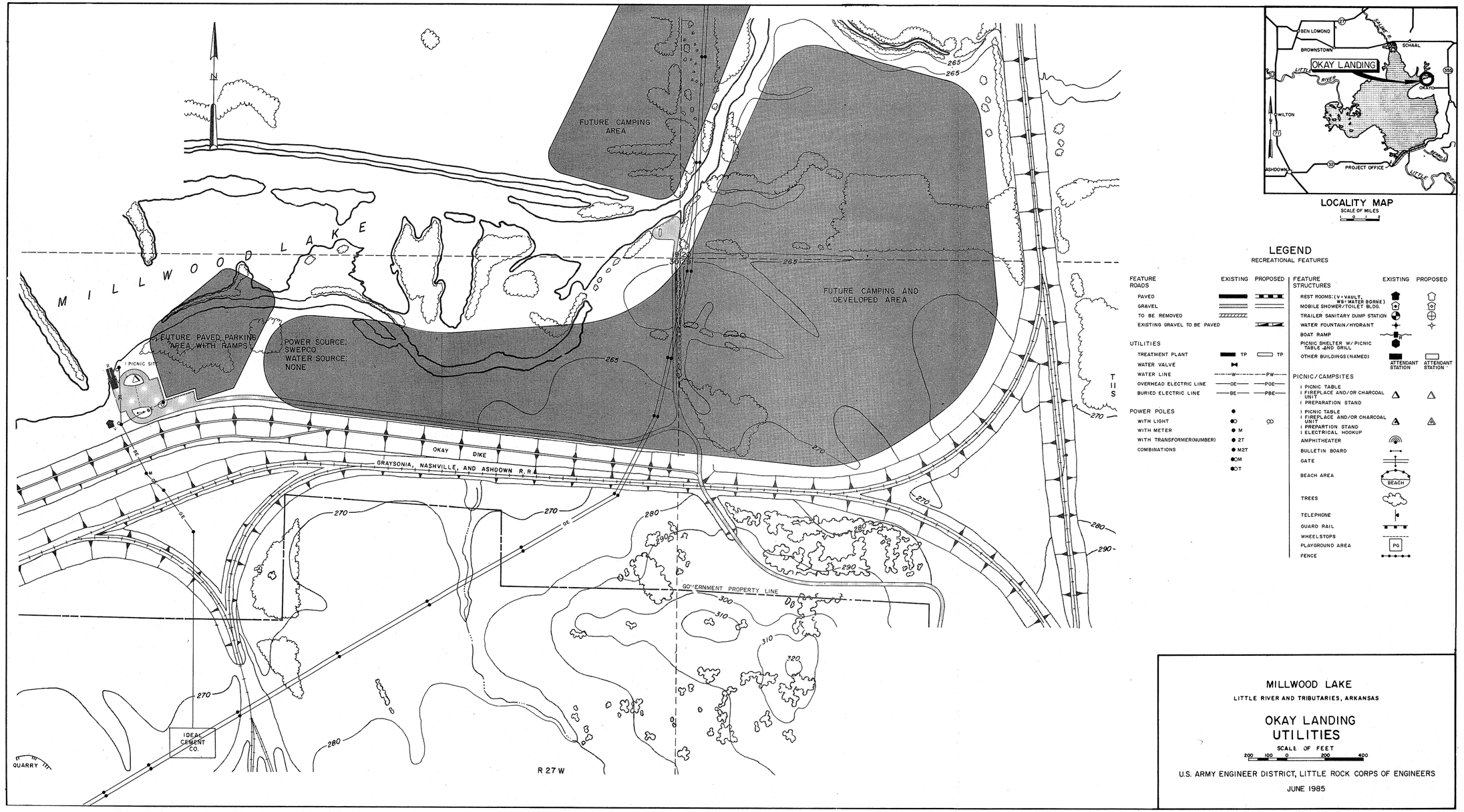
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

OKAY LANDING
EXISTING AND FUTURE
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985



LOCALITY MAP
SCALE OF MILES 0 1 2

LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	O	O
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T, OM, OT	

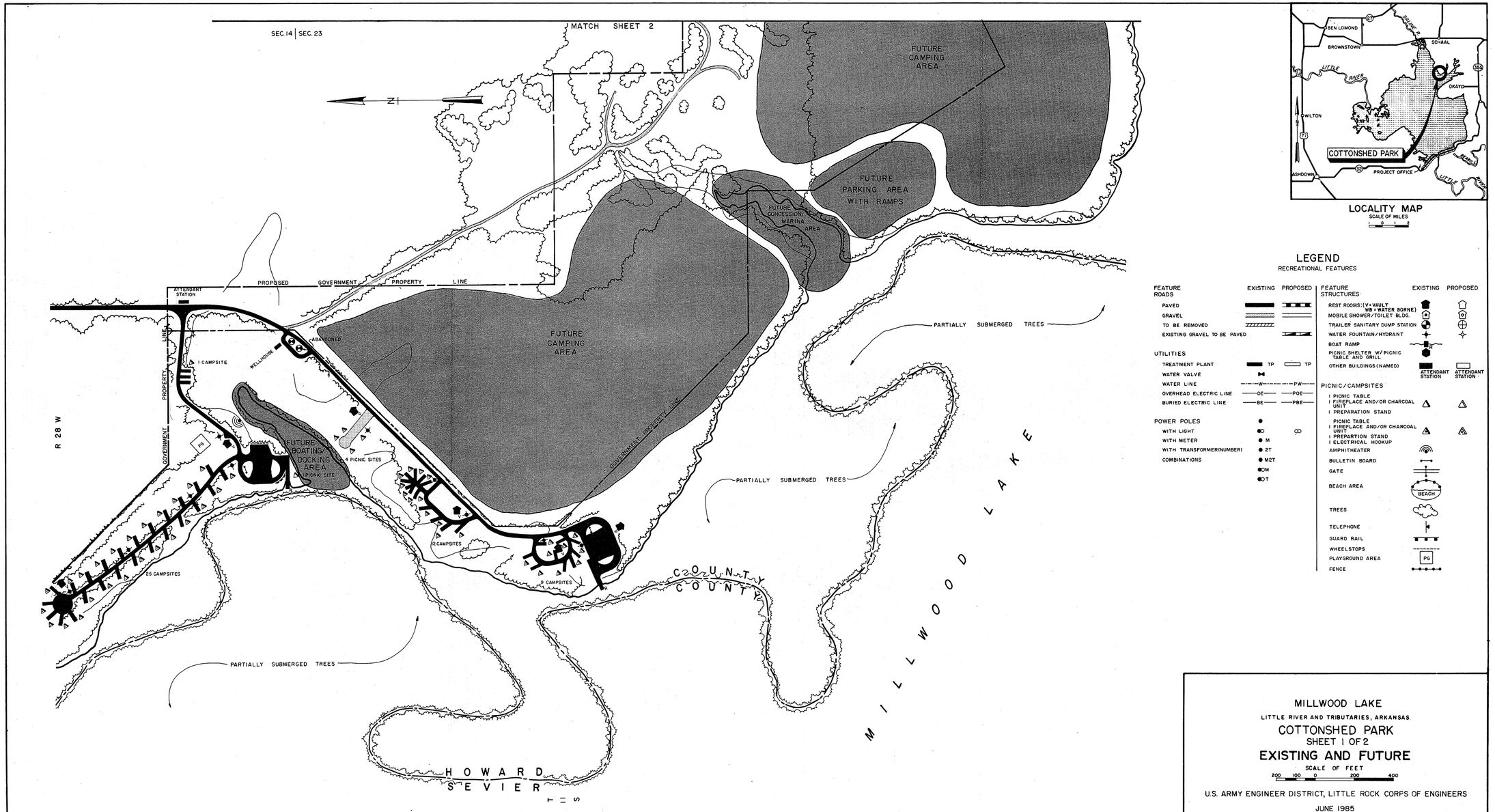
FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V=VAULT, WB=WATER BORNE)		
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND	△	△
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARTION STAND 1 ELECTRICAL HOOKUP	△	△
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

OKAY LANDING UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES
0 1 2

LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
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OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
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	OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V = VAULT, WB = WATER BORNE)		
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PICNIC/CAMPSITES		
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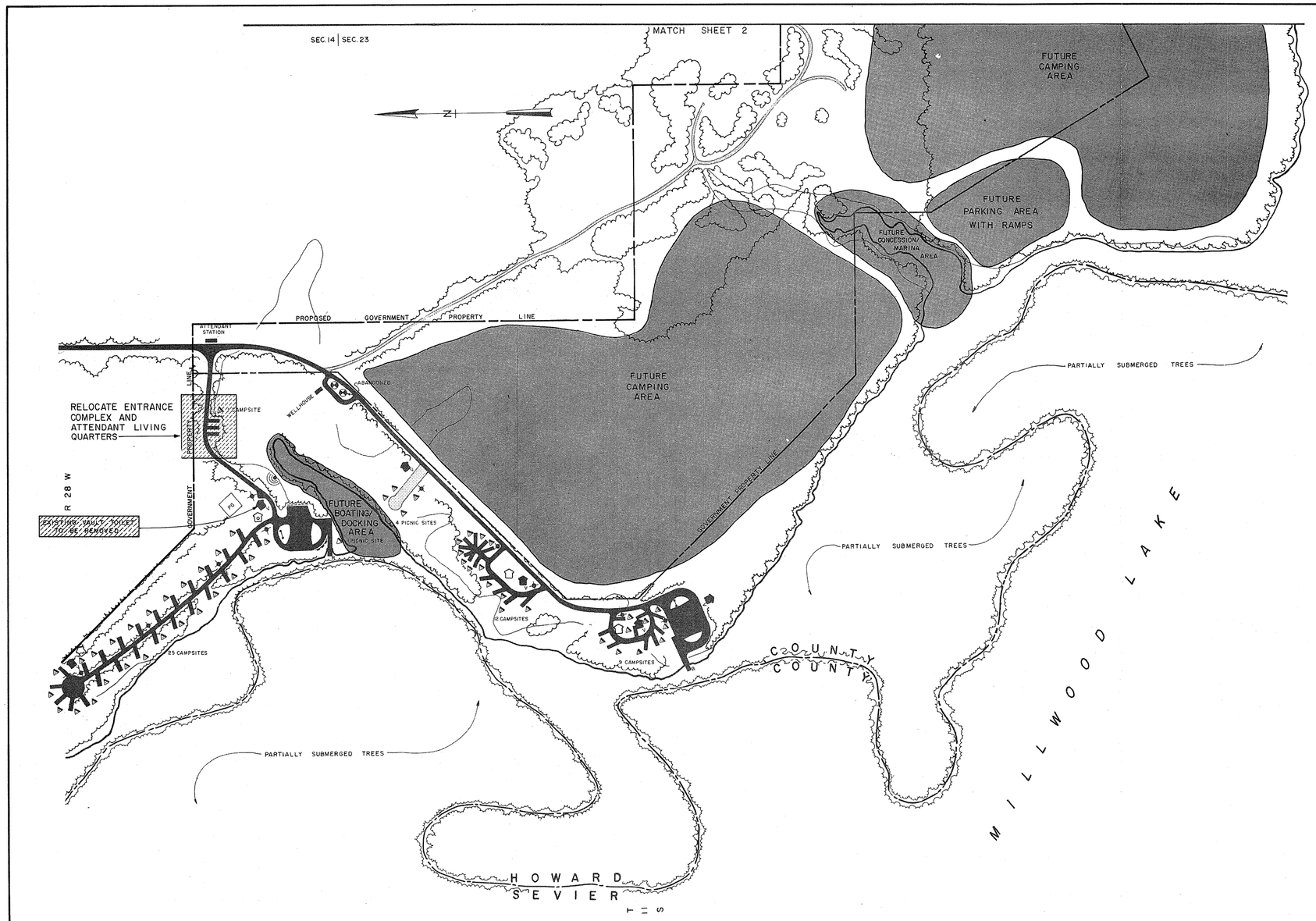
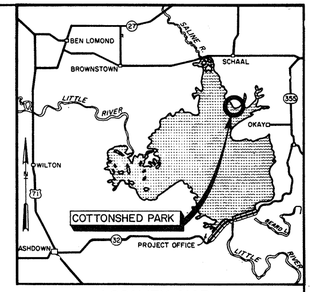
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS.
COTTONSHED PARK
SHEET 1 OF 2
EXISTING AND FUTURE
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985





LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
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PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
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WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
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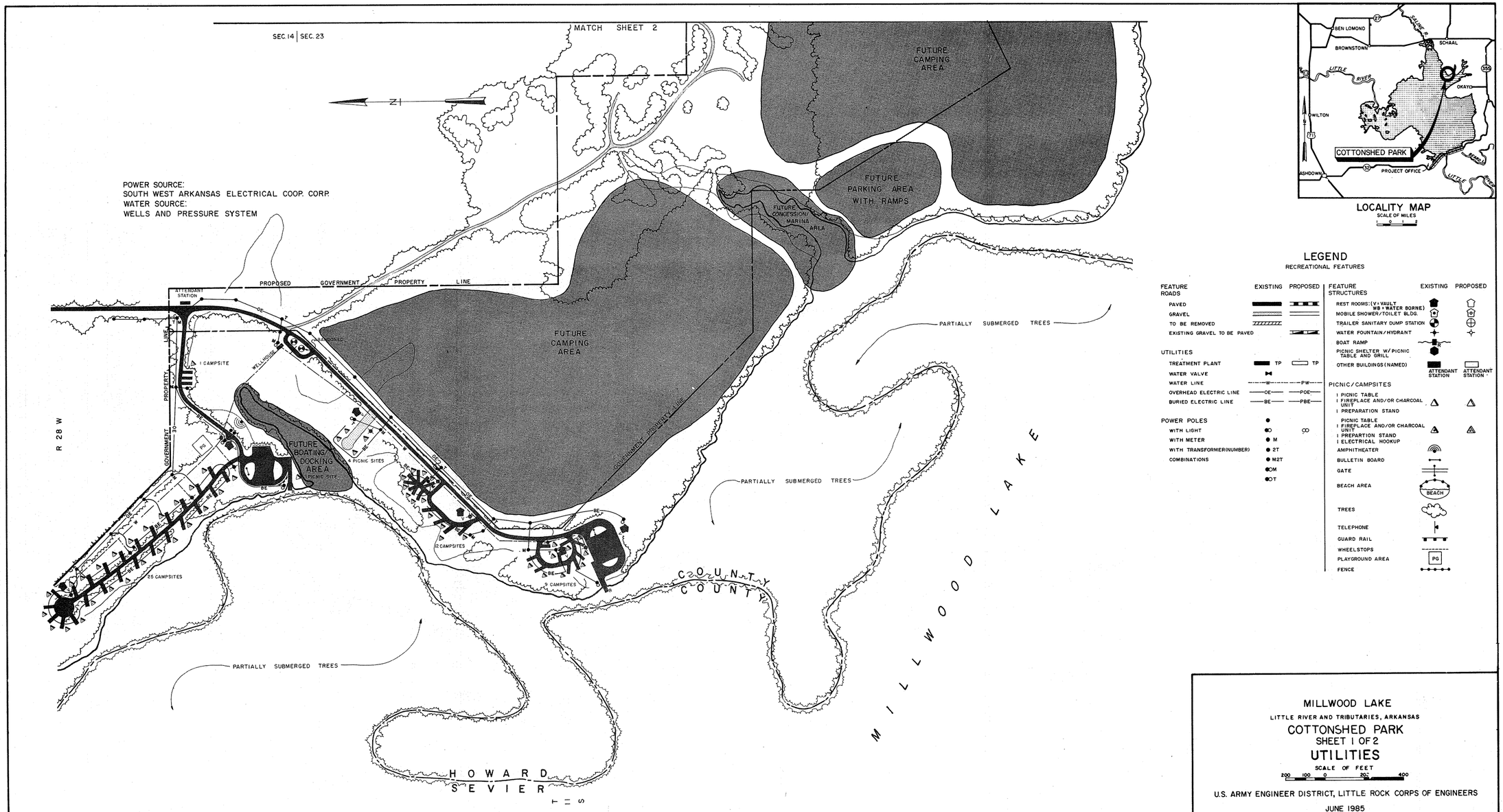
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
COTTONSHED PARK
SHEET 1 OF 2
EFFICIENCY
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP

LEGEND

RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
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WATER LINE	W	PW
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POWER POLES		
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TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP	R	
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE, 1 FIREPLACE AND/OR CHARCOAL UNIT, 1 PREPARATION STAND		
PICNIC TABLE, 1 FIREPLACE AND/OR CHARCOAL UNIT, 1 PREPARTION STAND, 1 ELECTRICAL HOOKUP		
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

COTTONSHED PARK

SHEET 1 OF 2

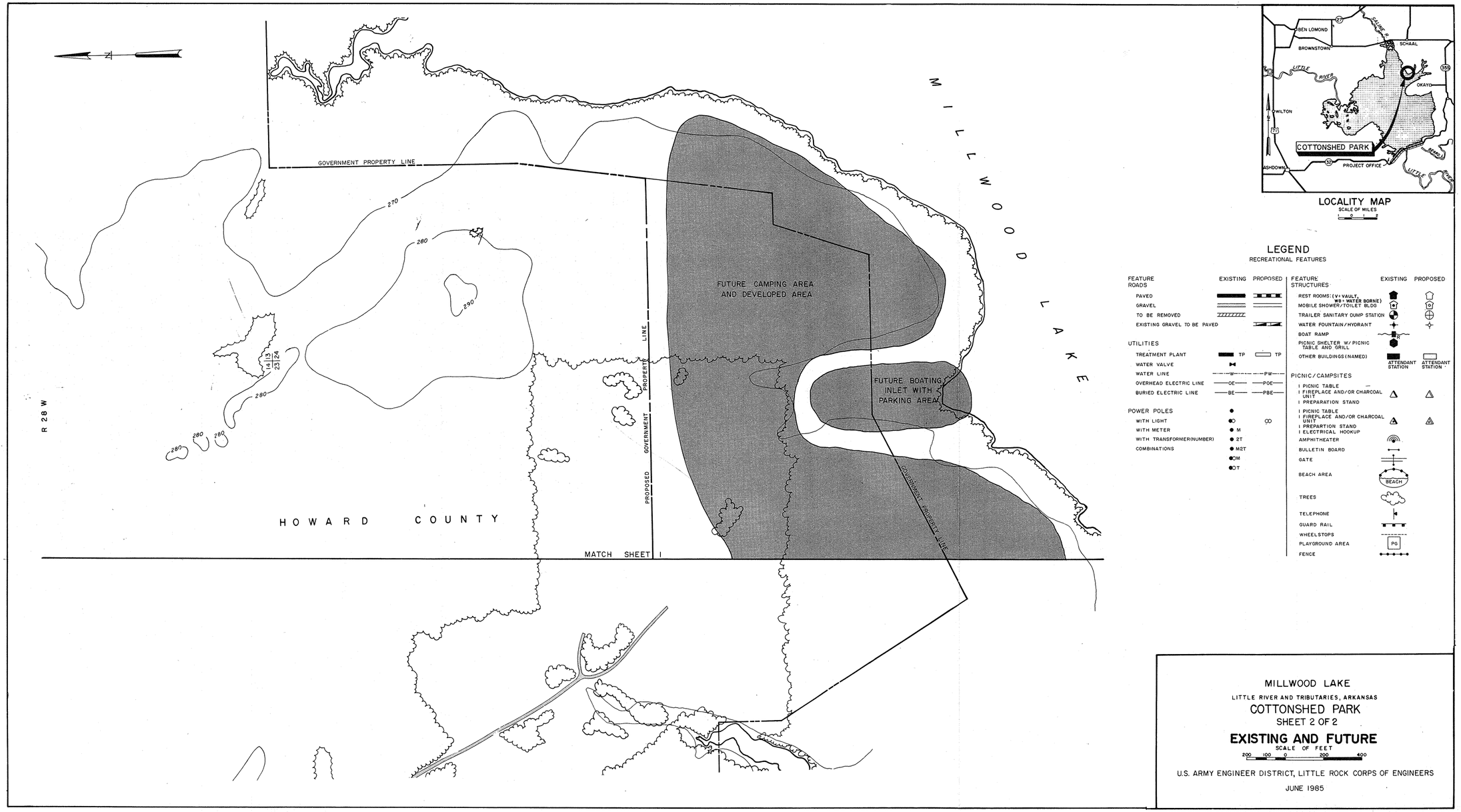
UTILITIES

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP

SCALE OF MILES 0 2

LEGEND

RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	O	
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T, OM, OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V= VAULT, WB= WATER BORNE)		
MOBILE SHOWER/TOILET BLDG		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP	R	
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
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BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

COTTONSHED PARK

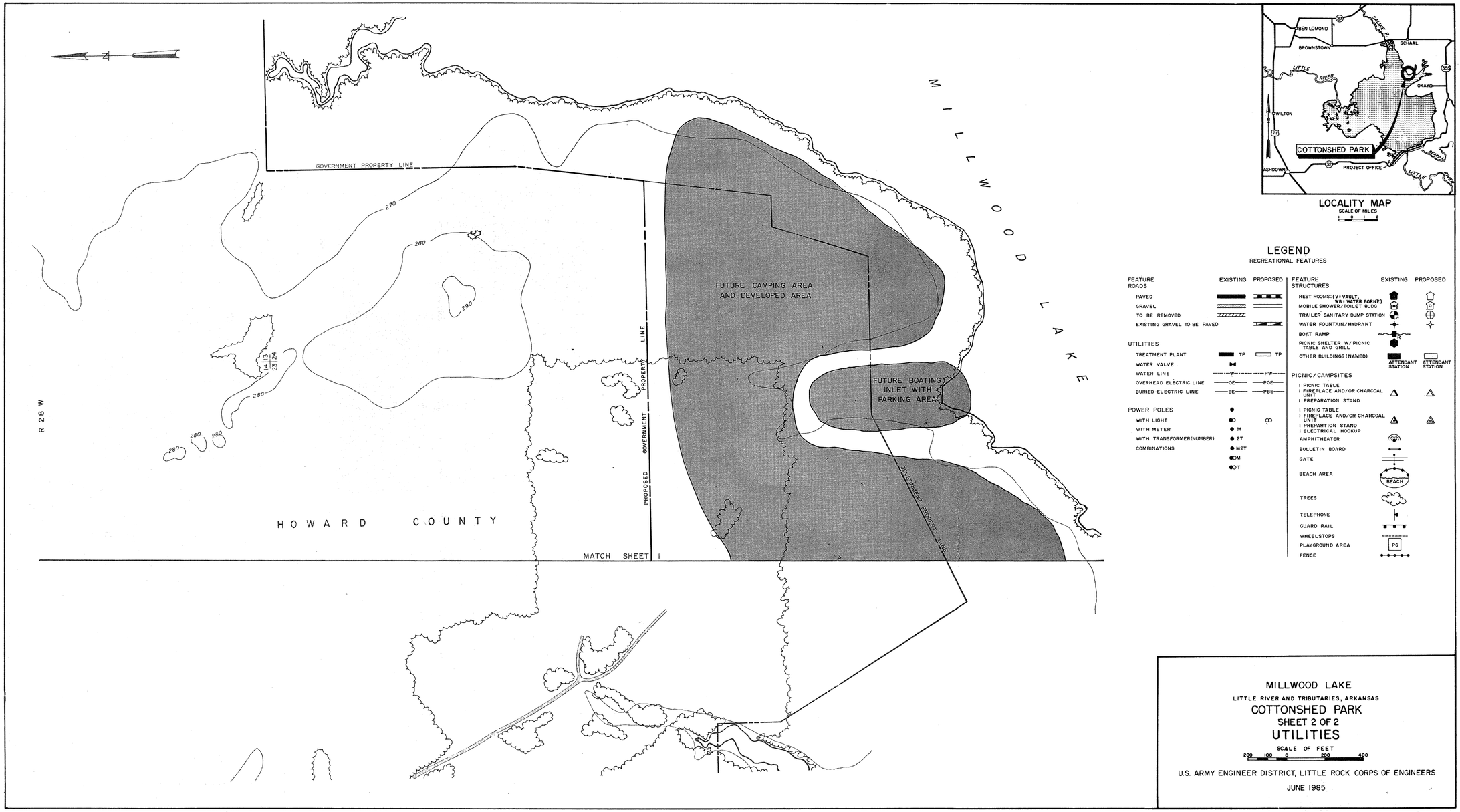
SHEET 2 OF 2

EXISTING AND FUTURE

SCALE OF FEET 200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP

SCALE OF MILES 1 0 1 2

LEGEND

RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		

UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE

POWER POLES	
WITH LIGHT	
WITH METER	M
WITH TRANSFORMER(NUMBER)	2T
COMBINATIONS	M2T
	OM
	OT

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V= VAULT, WB= WATER BORNE)		
MOBILE SHOWER/TOILET BLDG		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
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OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION

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AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

COTTONSHED PARK

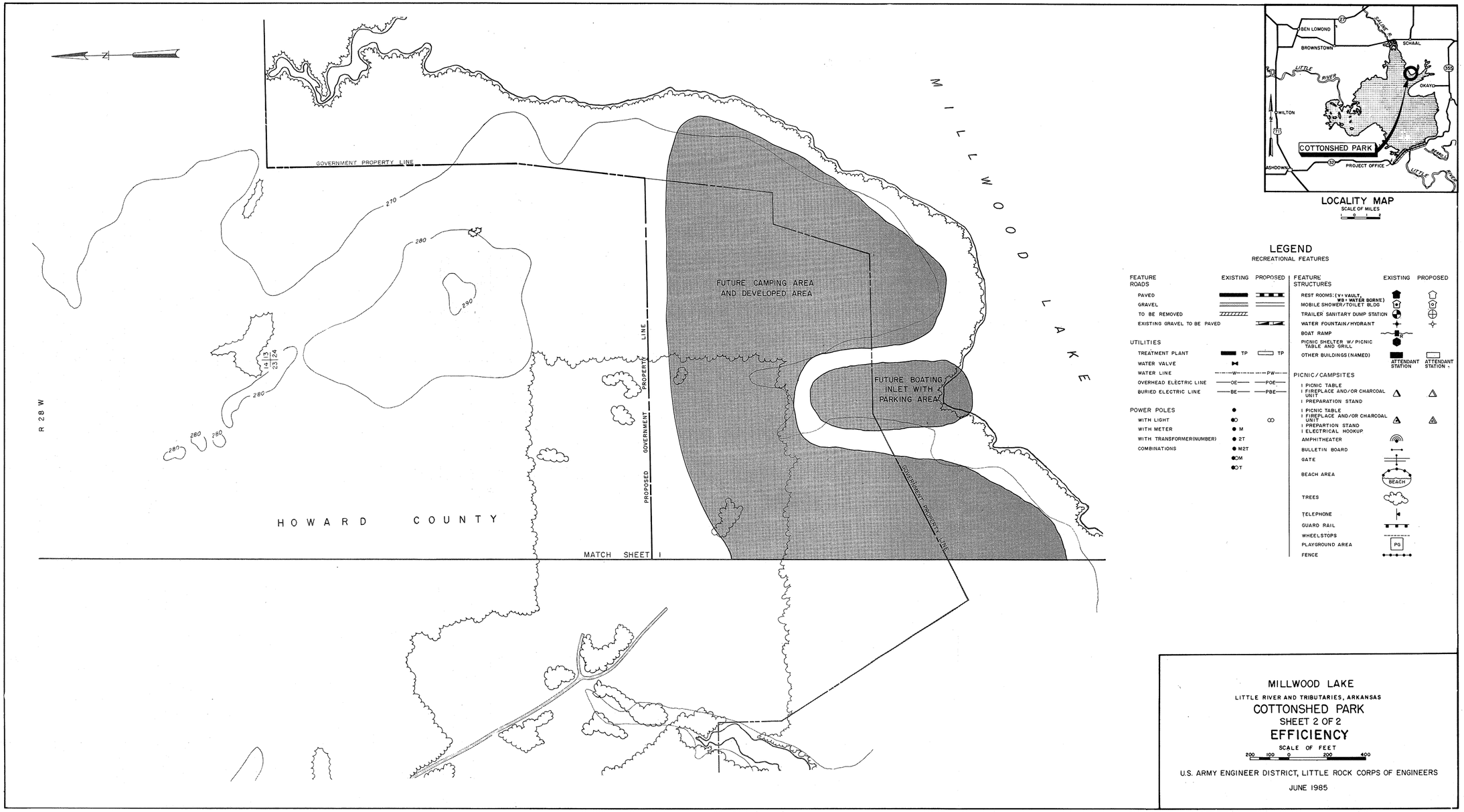
SHEET 2 OF 2

UTILITIES

SCALE OF FEET 200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



BEN LOMOND
SCHAAL
BROWNSTOWN
LITTLE RIVER
OKAYO
WILTON
COTTONSHED PARK
ASHDOWN
PROJECT OFFICE
LITTLE RIVER

LOCALITY MAP

SCALE OF MILES

0 1 2

LEGEND

RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V= VAULT, WB= WATER BORNE)		
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GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

COTTONSHED PARK

SHEET 2 OF 2

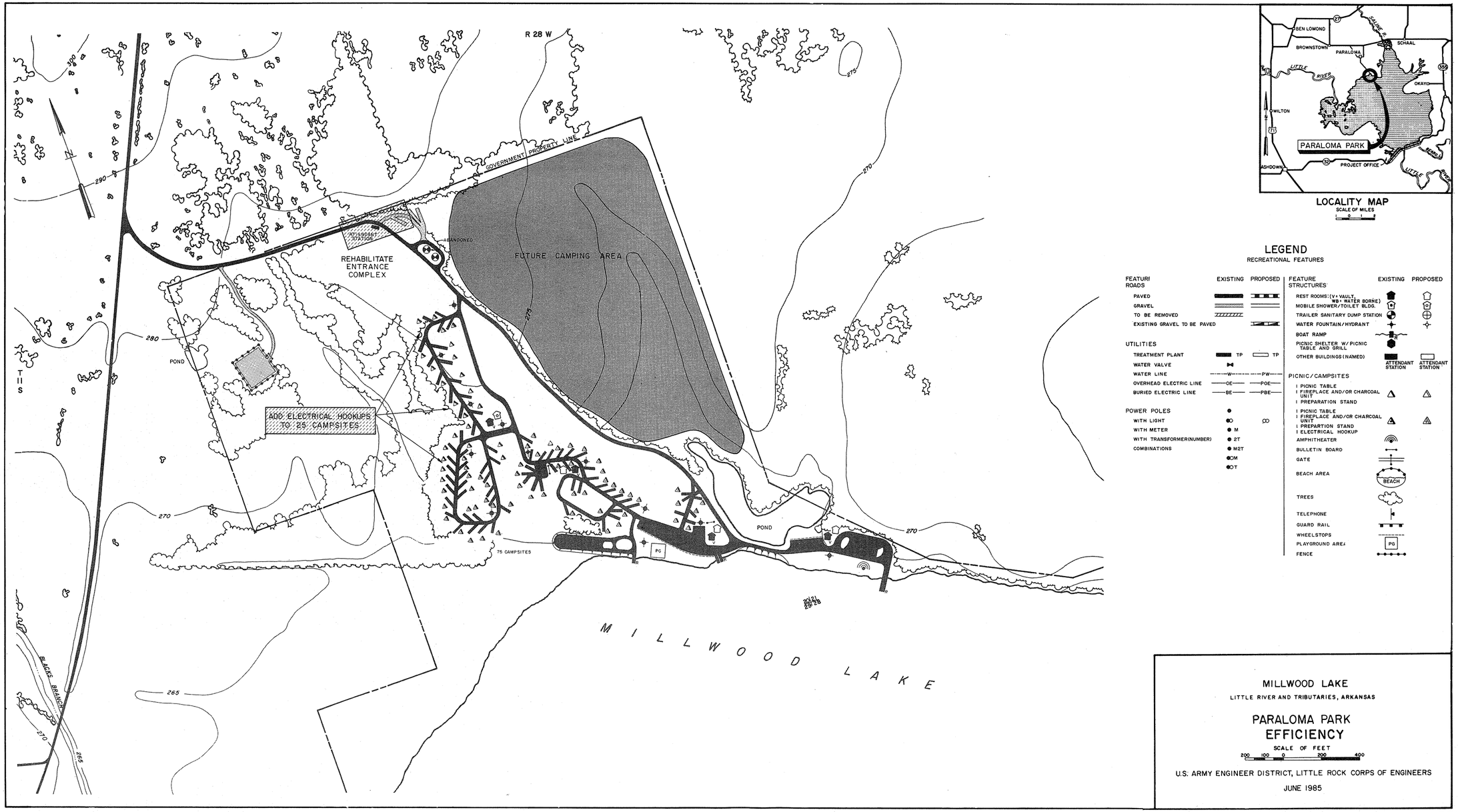
EFFICIENCY

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LEGEND

RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T, OM, OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V= VAULT, WB= WATER BORNE)		
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WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
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AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

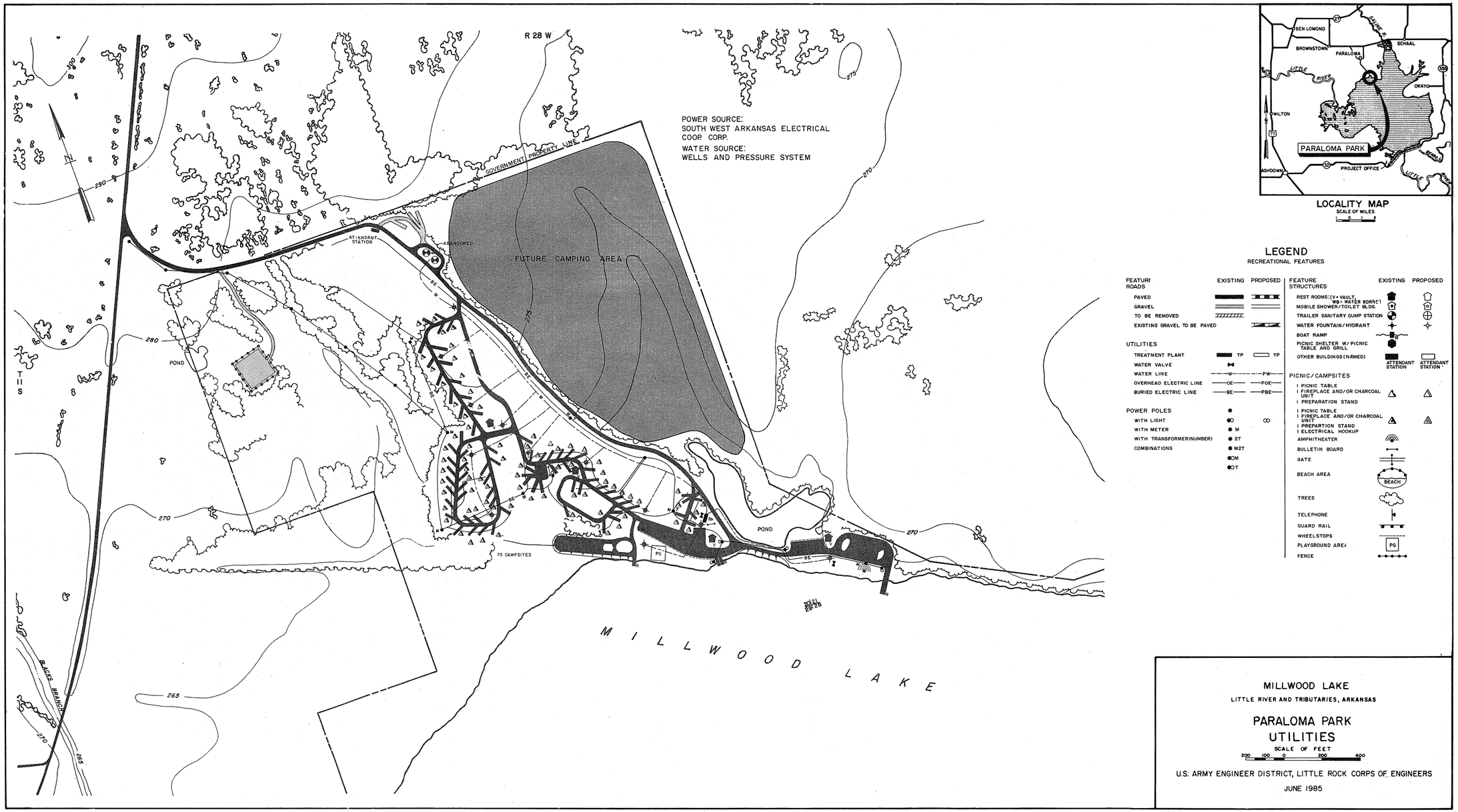
PARALOMA PARK EFFICIENCY

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES
0 1 2

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS:(V= VAULT, WB= WATER BORNE)		
MOBILE SHOWER/TOILET BLDG.		
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WATER FOUNTAIN/HYDRANT		
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BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

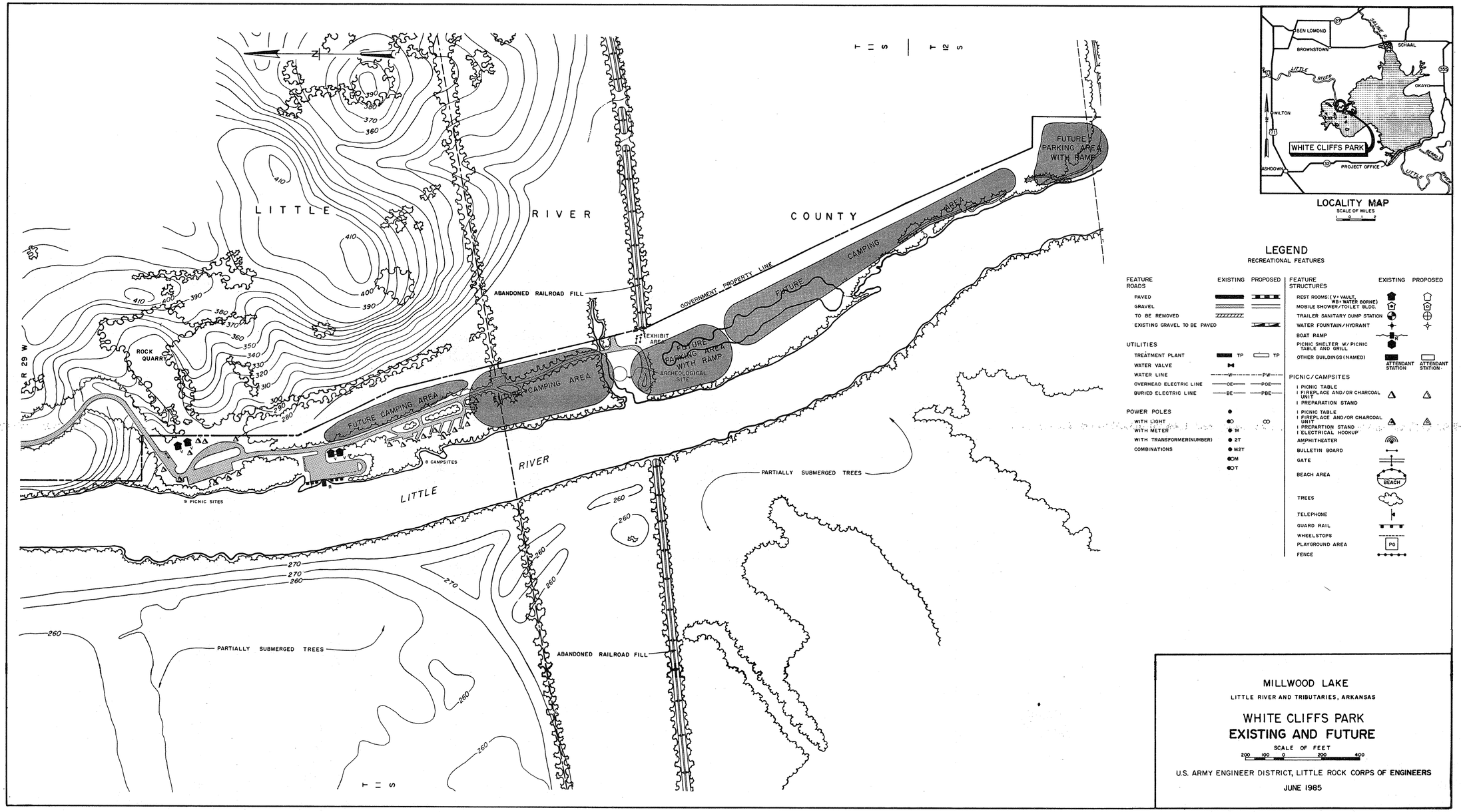
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PARALOMA PARK
UTILITIES

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES 0 1 2

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	O	O
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS:(V= VAULT, WB= WATER BORNE)		
MOBILE SHOWER/TOILET BLDG.		
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AMPHITHEATER		
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BEACH AREA		
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA		
FENCE		

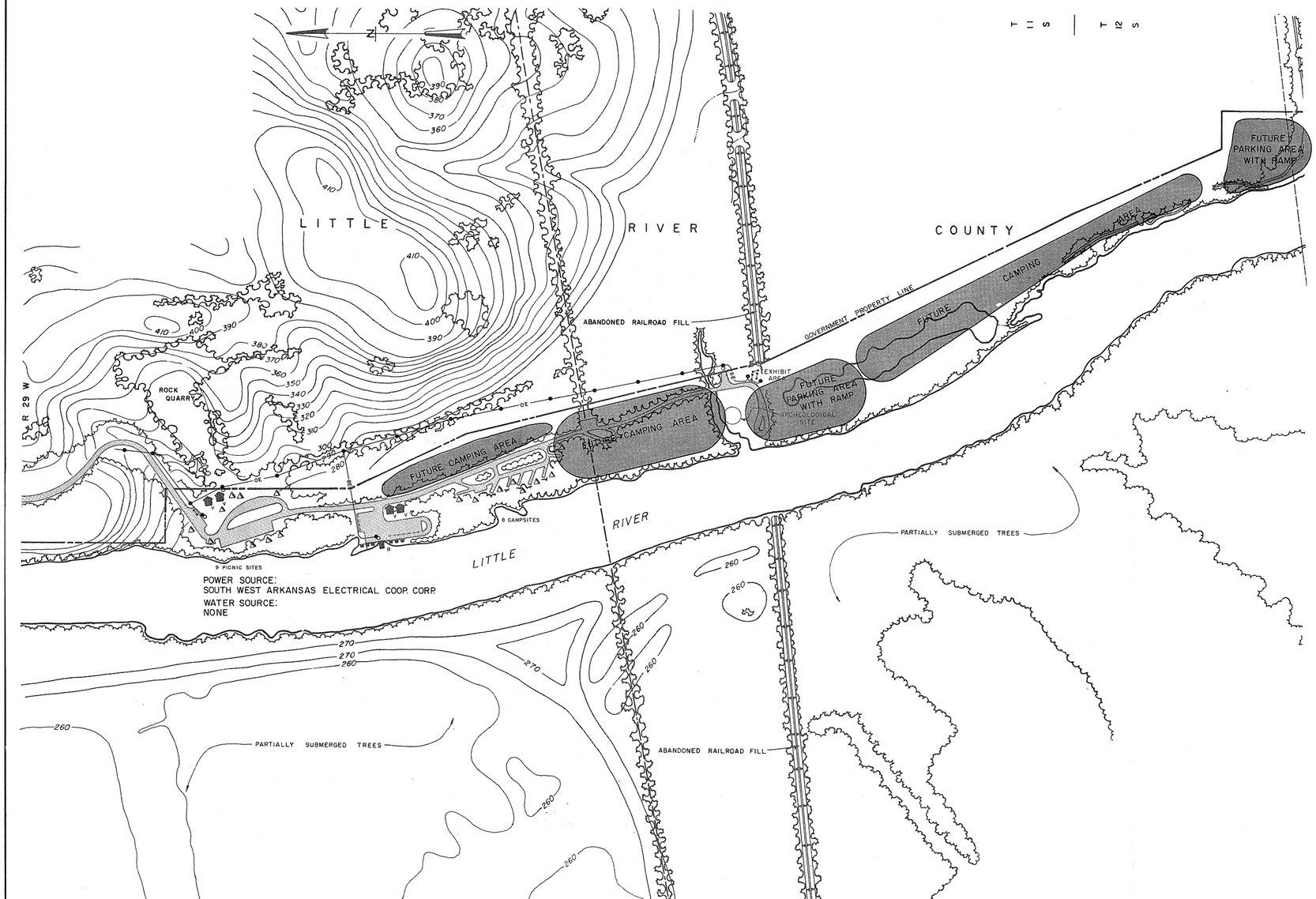
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

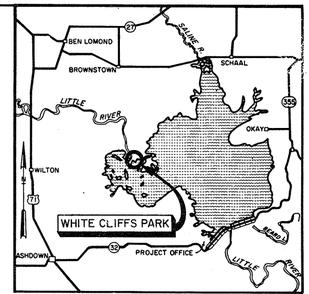
WHITE CLIFFS PARK
EXISTING AND FUTURE

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985





LOCALITY MAP
SCALE OF MILES

LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T, OM, OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
REST ROOMS: (V= VAULT, WB= WATER BORNE)	V	V
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
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BULLETIN BOARD		
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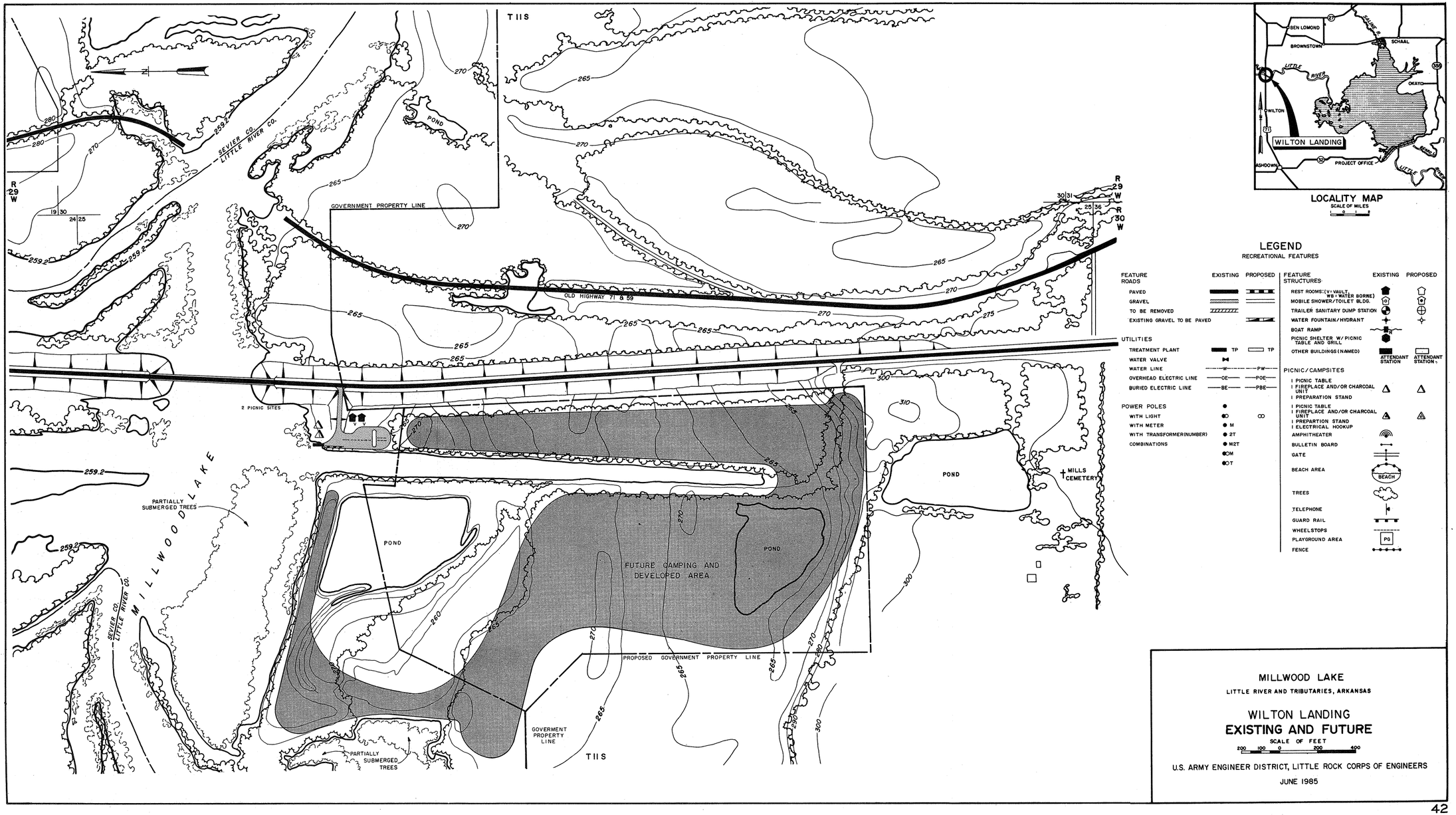
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

WHITE CLIFFS PARK
UTILITIES

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985



LOCALITY MAP
SCALE OF MILES
0 1 2

LEGEND
RECREATIONAL FEATURES

FEATURE	EXISTING	PROPOSED
ROADS		
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
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WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE	EXISTING	PROPOSED
STRUCTURES		
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TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

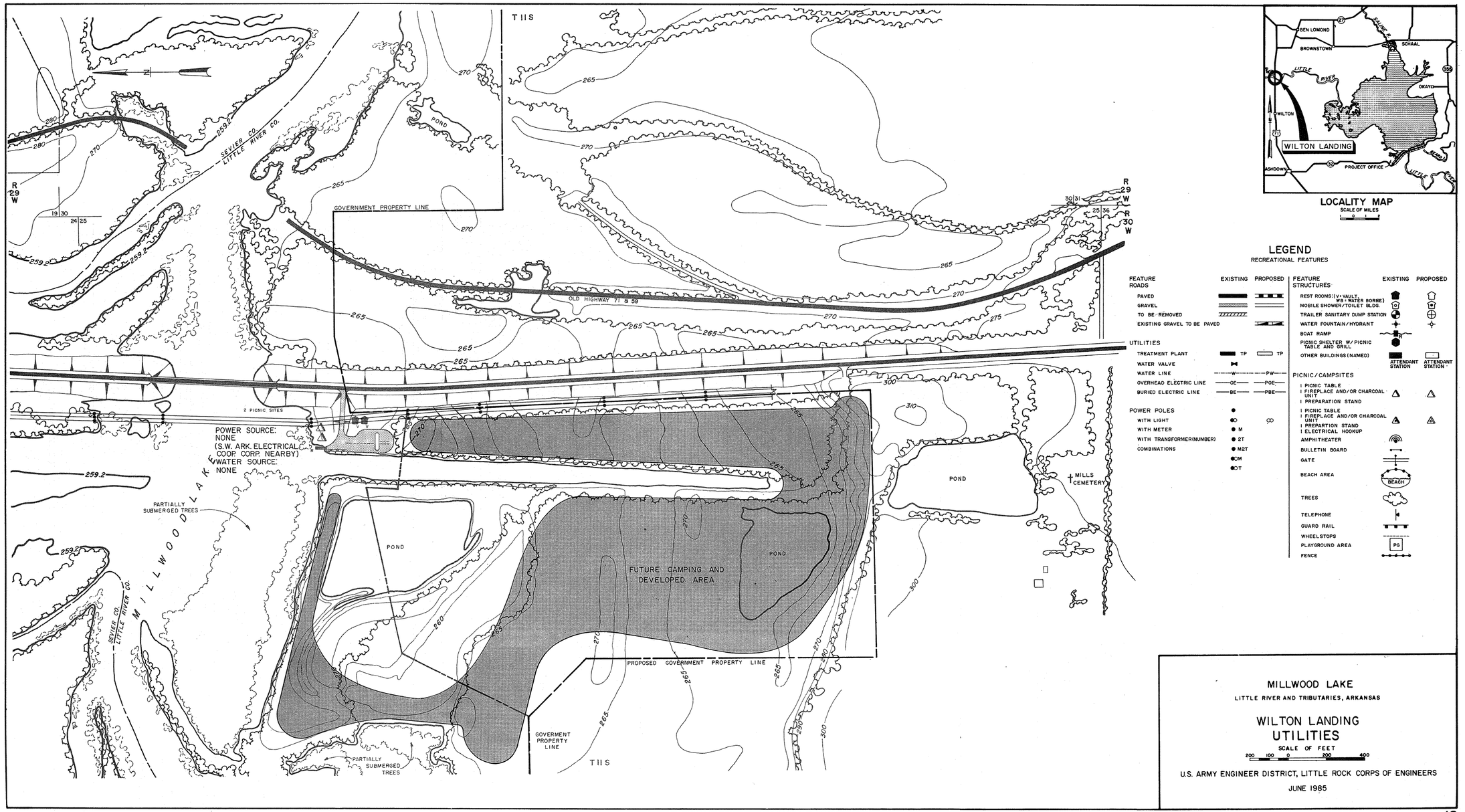
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

WILTON LANDING
EXISTING AND FUTURE

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985



LOCALITY MAP
SCALE OF MILES

LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		

UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE

POWER POLES	
WITH LIGHT	● ○ ∞
WITH METER	● M
WITH TRANSFORMER(NUMBER)	● 2T
COMBINATIONS	● M2T ● OM ● OT

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V= VAULT, WB= WATER BORNE)	V	V
MOBILE SHOWER/TOILET BLDG.	W	W
TRAILER SANITARY DUMP STATION	D	
WATER FOUNTAIN/HYDRANT		
BOAT RAMP	R	
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION

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TREES		
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WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

WILTON LANDING UTILITIES
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS

JUNE 1985

SWDCO-RP (SWLCO-L/SWLED-P/7 Feb 85) 3rd End
SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 2

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 21 MAY 1985

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

Approved.

FOR THE COMMANDER:

A. P. HUTCHISON
Chief, Construction-Operations Division

5 Encls
wd all encls

CF (w/basic & encls):
DAEN-CWO-R (5 cys)

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

REPLY TO
ATTENTION OF
SWLCO-L/SWLED-P

7 February 1985

SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 2

Commander, Southwestern Division
ATTN: SWDCO-R

1. The purpose of this supplement is to show a proposed restroom location and request FY 85, Code 711 Funds for this urgently needed sanitary facility in Beard's Bluff Park. The facility consists of a waterborne restroom with showers and a sewage treatment system. The existing dump station which now uses holding tanks will also be tied into the treatment system.

2. Beard's Bluff Park is one of the three fee collection parks on the lake. Thirty-three sites served 65,900 paid campers in 1984, with $7,990 fees collected. The proposed restroom will replace two existing vault restrooms constructed of corrugated steel pipe. (See inclosure 1.) These primitive, unsightly facilities are located in a highly visible area along State Highway 32 near the damsite overlook.

3. The waterborne facility will enable the camping area to move up to a Class A area and increase fee potential as shown in the inclosed economic analysis. There will also be an estimated 25 percent increase in use due to the greater desirability of the area.

4. Annual O&M costs on the two existing vault restrooms is $600 each and pumpout for the dump station is $800 for a total of $2,000. Estimated O&M costs for the proposed facility are $2,000 annually.

5. Inclosed is an economic analysis displaying the costs and benefits of the proposed construction (Incl 2). The analysis is not an attempt to completely justify the facility economically, since it is an urgently needed sanitary facility. Also inclosed is a site plan showing the location of the proposed facility (Incl 3).

6. Approval of the proposed facility is recommended.

FOR THE COMMANDER:

3 Incl
as

JEROME B. SIDIO
Major, Corps of Engineers
Deputy District Engineer



RESTROOMS TO BE REMOVED

BEARDS BLUFF PARK

Once

SWDCO-R (SWLCO-L/SWLED-P 7 Feb 85) 1st End
SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 2

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75242-0216 22 MAR 1985

TO: Commander, Little Rock District

1. Construction of the proposed restroom is disapproved for the following reasons:

a. Cost of $225,000 for this type of facility is excessive. Waterborne restrooms with showers are being constructed in other districts for about $100,000.

b. Sanitation funds (Code 711) are not authorized for this type of facility.

2. This correspondence was received in this office on 26 February 1985. Future letters should not be dated until the correspondence is signed and ready for mailing.

FOR THE COMMANDER:

John H. Atkinson
COL, CE
Dep Div Engr

LEROY D. HAMMOND
Colonel, EN
Deputy Commander

Enclosures
nc

SWLCO-L (SWLCO-L/SWLED-P 7 Feb 85) 2d End
SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 2

DA, Little Rock District, Corps of Engineers, P.O. Box 867, Little Rock, Arkansas 72203-0867 MAY 10 1985

TO: Commander, Southwestern Division
ATTN: SWDCO-R

1. The restroom now proposed is a convertible vault restroom with low flush fixtures and a holding tank. The facility will be designed to be easily converted to a waterborne restroom with showers when the need is justified and funding becomes available. The cost of the structure, parking area, and removal of three campsites, using FY 85 SRUF Funds, is estimated to be $100,500.

2. Provision of the restroom as proposed will not change the fee classification of the park, but it will satisfy the requirement for an urgently needed sanitary facility. It is estimated that a 25 percent increase in visitation to the park will be realized because of the greater desirability of a modern restroom.

3. Enclosed is an economic analysis (Encl 4) that partially justifies the proposed restroom. Also enclosed is a site plan showing the location of the proposed restroom (Encl 5).

FOR THE COMMANDER:

JEROME B. SIDIO
Major, Corps of Engineers
Deputy District Engineer

5 Encl
1. nc (9 cys)
wd encl 2-3
4. Cost Analysis (9 cys)
5. Site Plan (9 cys)

ECONOMIC ANALYSIS

Capital Investment

Construct restroom, parking area, and remove three campsites.	$100,500

Annual Costs

Amortized cost of capital investment for 30 years at 8 3/8 percent interest ($100,500 X 0.09199)	$9,245	
Increased O&M cost of new facility over O&M cost of existing corrugated metal restroom	1,000	
TOTAL	$10,245	

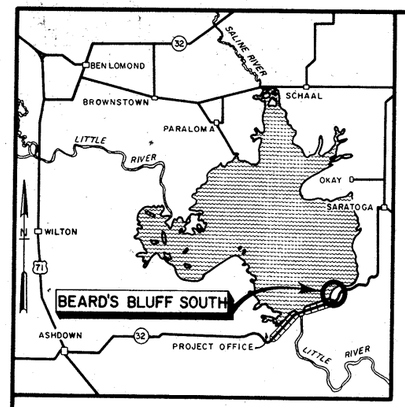
Added Annual Revenues Anticipated

Income from increased visitation resulting from providing desired facility. Fee collection of 1984 ($7,952) X 25 percent increase	$1,988	

Estimated Annual Benefits

($1,988 - $10,245)	$8,257	Loss

Exce 4



LOCALITY MAP

SCALE OF MILES 0 1 2

N

LAKE

R28W | R27W

T 12 S

13 | 24

18 | 19

OVERLOOK

COMMERCIAL CONCESSION SITE

ARKANSAS STATE HWY. 32

70

360

EXISTING SANITARY STATION

PROPOSED RESTROOM

END OF RAMP ELEV. 250

RELOCATE

RELOCATE

BEARD'S BLUFF AREA

350

340

330

320

310

300

PROPERTY LINE

GOVERNMENT

G.N. & A. R.R.

MATCH SHEET 93/8

BEACH

PROPOSED 6' WIDE CONCRETE WALK

PARKING OVERLOOK

MATCH SHEET 93/6

R 27 W

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

BEARD'S BLUFF SOUTH

SCALE OF FEET 200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

REVISED MAY 1985

2450-DM5-93/7

ENCLOSURE TO SUPPLEMENT NO. 2

SWDCO-RP (SWLCO-L 23 Dec 80) 1st Ind
SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 1

DA, Southwestern Division, Corps of Engineers, Main Tower Building, 1200 Main Street, Dallas, TX 75202 9 JAN 1981

TO: District Engineer, Little Rock

Supplement No. 1 to DM No. 5B, Revised Master Plan, Millwood Lake, is approved.

FOR THE DIVISION ENGINEER:

wd all incl

A. P. HUTCHISON
Chief, Construction-
Operations Division

CF: w/basic & incl
HQDA(DAEN-CWO-R) 2 cys

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

REPLY TO
ATTENTION OF

SWLCO-L

23 December 1980

SUBJECT: Millwood Lake, Little River, Arkansas, Design Memorandum No. 5B, Revised Master Plan, Supplement No. 1

Division Engineer, Southwestern
ATTN: SWDCO-R

1. The purpose of this supplement is to make approximately 30 acres of Government land available for the development of Jack's Isle Park by Little River County, Arkansas, under a 50-year lease. Of the total area to be designated as Operations: Recreation-Intensive Use, 28 acres are presently allocated as Operations: Wildlife Management and 2 acres as Operations: Natural Area. The location of the lease area is identified on the inclosed Exhibit A.

2. Leasing of this land will be contingent upon consummation of a cost sharing agreement with Little River County. The plan of development presently under consideration is shown on the inclosed Exhibit B.

3. Recreational use of the area is considered the best use of this land. Expeditious approval of this supplement is recommended.

2 Incl (9 cys)
as

Dale K. Randels

DALE K. RANDELS, P.E.
Colonel, Corps of Engineers
District Engineer

R 30 W R 29 W

N

WILTON

KANSAS CITY SOUTHERN

HICKS CH.

MT. MORIAH CHURCH

JACK'S ISLE PARK

OAK GROVE CH.

ELMORE CH.

NEW HOPE CHURCH

PEYTONVILLE

TO ASHDOWN

59

71

32

T 12 S

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROAD RELOCATIONS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2

SHEET INDEX

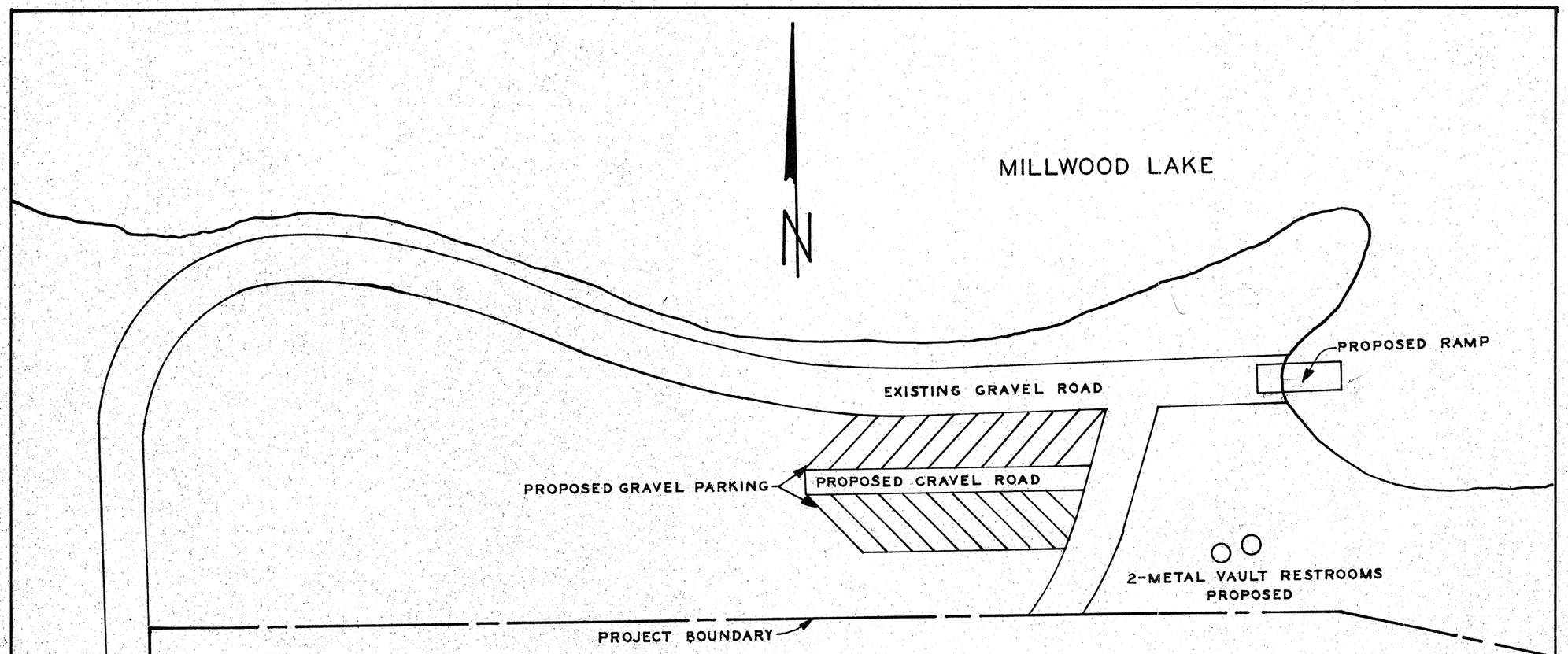
		15		
10	9	8	7	
3	4	5	6	
		2	1	13
			11	14
			12	

MILLWOOD

UTILIZATION SHEET 2

REVISED DECEMBER 1980

EXHIBIT A TO SUPPLEMENT NO. 1



COST ESTIMATE

ITEM	COST
2-METAL VAULT RESTROOMS	$9,000
1-LAUNCHING RAMP	5,000
GRAVEL ROAD AND PARKING	3,500
4-REFUSE CANS	500
ENGINEERING AND DESIGN	2,000
TOTAL COST	$20,000

JACK'S ISLE PARK
ON
MILLWOOD LAKE

EXHIBIT B TO SUPPLEMENT NO. 1

SWDPL-R (SWTED-DA 16 Sep 74) 3rd Ind
SUBJECT: Millwood Lake, Little Rock, Ark., Design Memorandum No. 5B, Revised Master Plan

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, TX 75202 25 MAR 1975

TO: District Engineer, Tulsa

The revised Master Plan for development and management of Millwood Lake is approved subject to comments in the previous indorsements and the following comment:

Reference paragraph d, of 2nd Ind. - The drawings show typical toilet designs and architectural treatment. During the next design stage the selection of architectural treatment should be made to be compatible with existing structures and environmental surroundings.

FOR THE DIVISION ENGINEER:

Barry G. Rought

BARRY G. ROUGHT
Chief, Planning Division

CF:
DAEN-CWP-V (dupe)

DAEN-CWP-V (16 Sep 74) 2nd Ind
SUBJECT: Millwood Lake, Little River, Ark., Design Memorandum No. 5 B, Revised Master Plan

DA, Office of the Chief of Engineers, Washington, D. C. 20314 27 Feb 75

TO: Division Engineer, Southwestern, ATTN: Chief, Planning Division

The revised Master Plan for Development and Management of Millwood Lake is approved subject to the comments contained in 1st Indorsement and the following:

a. Paragraph 7-03. To have a complete plan of the project lands, we suggest that this paragraph be augmented with descriptions of facilities provided at the 20-acre Millwood Park area by the Little River County Rural Development Authority.

b. Paragraph 10-01 and paragraph 1.i., Inclosure 2, SWDPL-R 1st Indorsement. The narrative in Table 7-1 and the Land Utilization Sheets 1 through 15 (Dwgs. 93/18-/32) show 93,432 acres of flowage easement. We believe that the suggested expanded narrative should show general descriptions of the land under easement, the permitted uses, the management and administrative requirements.

c. Utilization Sheets 1,2,6 show in the Legend a designation "PRIVATE DEVELOPMENT". The basis for setting aside these lands from other non-project lands should be clarified, probably with listings and notes placed directly on the drawings.

d. Consideration should be given to improving the architectural treatment of shower and Toilet Building No. 1 to be at lease equal to that of Toilet Building No. 2.

FOR THE CHIEF OF ENGINEERS:

wd all incl

ALEX SKWAIKO
Acting Chief, Planning Division
Directorate of Civil Works

41 NOV 15 1974

SWDPL-R (SWTED-DA 16 Sept 1974) 1st Ind.
SUBJECT: Millwood Lake, Little River, Ark., Design Memorandum No. 5 B, Revised Master Plan

DA, Southwestern Division, Corps of Engineers, 1114 Commerce Street, Dallas, Texas, 75202

TO: HQDA (DAEN-CWP-V) Washington DC 20314

1. Forwarded recommending approval of that portion of the subject updated master plan pertaining to land allocation subject to the following comments:

a. Para. 4-04 d, last sentence. Since the lands are zoned in this master plan, this sentence should state what was done in the allocation of the lands including the shortleaf and loblolly pine forest.

b. Para. 4-05 c. "Lands acquired specifically for recreation development" should be designated on the land use plan but should not be allocated for this purpose since it is a designation of "acquisition" and not "use". Discussions with OCE personnel indicated ER 1120-2-400 will be revised to reflect the above.

c. Para. 7-01. Project zoning (land allocations) should be stated in accordance with change 1 to ER 1120-2-400. In this regards, lands designated as "natural areas" should be those project operations lands allocated for preservation of unique scientific, ecological, historical, archeological or visual values or for protection of habitat for rare and endangered species. While it is noted in paragraph 7-01 i (1) that lands have been designated as "natural areas" for visual resource protection, the uniqueness is questionable. Without the uniqueness, the lands between intensive recreational developments would logically be allocated Operations: Recreation - Low Density Use. However, certain areas which provide habitat for the southern bald eagle and American alligator (see paragraph 5-15) might be designated as "natural areas" on this basis. In view of the above, it is recommended that reconsideration be given to allocation of the lands now zoned "natural areas".

2. Those portions of the plan pertaining to site development and management are approved subject to the inclosed comments which should be considered and incorporated in the plan, as appropriate, prior to implementing the development or action involved.

FOR THE DIVISION ENGINEER:

for Larry G. Wilson
LARRY G. ROUGHT
Chief, Planning Division

2 Incl
1. wd 4 cys
added 1 Incl
2. [illegible]

CF: SWTED-PE

SWDO Comments on Design Memorandum No. 5B, Revised Master Plan for Millwood Lake, Little River, Ark.

1. Narrative.

a. Para 1-05. P. L. 86-717, providing for the protection of forest cover for reservoir areas, should be added to the list of authorities cited and discussed accordingly.

b. Para 1-06 a. This subparagraph should be expanded to reflect the planned development and management of resources other than public use development, particularly that for wildlife habitat and forest management.

c. Para 5-03. An additional subparagraph should be provided to describe the soils in the project area and to discuss the management implication of each. If necessary, a map should be provided which delineates soil types.

d. Para 5-13, Figure 5-1. We do not disagree that the visitation will ultimately peak at approximately 3,000,000 recreation days; however, since the 1973 visitation was recorded at 2,305,000, the time frame in which the "expected visition" will reach 3,000,000 appears unrealistic. In view of the above, it is recommended that this curve be reviewed and altered accordingly.

e. Para 5-14 a. It should be noted here that EC 1130-2-121 advanced the cost sharing requirement to 1 July 1973 and only allows development without cost sharing where operation, maintenance and replacement cost may be recaptured through implementation of a user fee program.

f. Section VII. A design load analysis should be included of facilities required to accomodate the current and projected visitation.

g. Para 9-02. A more detailed description of the fish and wildlife resources available at the project should be provided, including principal game and fish species and their relative abundance. Also, this discussion would more appropriately be placed under Section IV.

h. Para 9-02 b. This paragraph should discuss the southern bald eagle and other endangered wildlife species as appropriate.

i. Para 10-01. This paragraph should be expanded to provide a concept plan for management of the resources. Specifically, it should state the broad objectives for each land-use allocation in light of needs and constraints and describe briefly how these objectives will be met. Details of Management are set forth in the management appendices listed.

2. Cost Estimates, Table 11-1.

a. 220 wood vault toilets are proposed to be developed. Review of the site layout plans indicates an average spacing of 600' between units which exceeds criteria setforth in EM 1110-2-400 for provision of toilets in picnic areas. In camping areas, the siting requirements in the EM of "not more than

300' from the farthest space" has not been followed in some instances. In view of the above, it is recommended that siting be reconsidered with an objective of reducing the number of wood vault units required since most are subject to inundation (adding to operation and maintenance costs).

b. A significant number of acres are proposed for "Site preparation, clearing and cleanup". In this regard, use of the word "clearing" has precipitated some adverse comments and questions concerning same. Discussion with District personnel indicates that the clearing involved here is actually "brushing out". In view of the above, it is recommended that this item be reworded to better describe the work proposed.

3. Drawings.

a. Dwg 93/11. Since the Okay Dike area is basically a fishing attraction, the need for 194 camp sites and 86 picnic units is questioned. Justification should be furnished for development as proposed; otherwise, it is recommended that a significant reduction in picnic and camp units be made.

b. Dwg 93/38.

✓ (1) Wood Vault Toilet. A new design, more aesthetically attractive and more harmonious with the environment and other designs or the Ft. Worth District Wood Frame Toilet Design should be used instead of the proposed design.

✓ (2) Group Picnic Shelter. The Little Rock District Group Picnic Shelter design should be used instead of the proposed design. Refer to par i, 1st Ind to SWTED-DS/SWTED-G letter on Dierks Lake, Public Use Areas, Stage I, Facilities, for modifications that should be incorporated in the Little Rock design.

c. Dwg 93/39, Change House. Split-face CMU should be included as a construction material option for economy because of the project location, availability of materials, and available labor skills.

✓ d. Dwgs 93/40 and 41. Split-face CMU should be used for all exterior walls to reduce maintenance costs and the number of different construction materials and to provide a facility that will blend with its surroundings (EM 1110-2-38, para 6a).

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

SWTED-DA

16 September 1974

SUBJECT: Millwood Lake, Little River, Ark., Design Memorandum No. 5B, Revised Master Plan

Division Engineer, Southwestern
ATTN: SWDPL-R

1. Subject design memorandum (Incl 1), for the development and management of Millwood Lake, is submitted for review and approval. It has been prepared for the purpose of providing a concerted effort to meet the national emphasis on development and management of natural resources for use of our own and future generations.

2. The design memorandum includes existing and planned development. Conceptual management objectives and plans will be implemented over time by the Project Resource Manager and District personnel. Detailed site plans and proposed development will be prepared as funds become available under some future code 710 cost-sharing program. All site plans will be forwarded for approval prior to implementation of any part of the proposed development.

FOR THE DISTRICT ENGINEER:

Welden M Gamel

WELDON M. GAMEL
Chief, Engineering Division

1 Incl (9 cys)
as

45 copies prepared

MILLWOOD LAKE
LITTLE RIVER, ARKANSAS

DESIGN MEMORANDUM NO. 5B
REVISED MASTER PLAN

DEPARTMENT OF THE ARMY
TULSA DISTRICT CORPS OF ENGINEERS
OKLAHOMA
SEPTEMBER 1974

MILLWOOD LAKE
LITTLE RIVER, ARKANSAS

DESIGN MEMORANDUM NO. 5B
REVISED MASTER PLAN

TABLE OF CONTENTS

Paragraph	Title	Page
	I - INTRODUCTION	
1-01	Project authorization and related legislation	1-1
1-02	Project purposes	1-1
1-03	Purpose of this updated master plan	1-1
1-04	Prior pertinent design memorandums	1-1
	a. General design	1-1
	b. Preliminary master plan	1-2
	c. Real estate for damsite and reservoir	1-2
	d. Project buildings	1-2
	e. Reservoir clearing	1-2
	f. Left abutment access road and overlook	1-2
	g. Master plan	1-2
	h. Real estate, additional land for public-use areas	1-3
1-05	Application of public laws	1-3
	a. Public Law 534, Flood Control Act of 1944	1-3
	b. Public Law 85-624, Fish and Wildlife Coordination Act	1-3
	c. Public Law 89-72, Federal Water Project Recreation Act of 1965	1-3
	d. Public Law 89-90, Water Resources Planning Act	1-4
1-06	Scope of Master Plan	1-4
	a. General	1-4
	b. Zoning	1-4
	c. Implementation	1-4
	II - PROJECT DESCRIPTION	
2-01	Location	2-1
2-02	Project data	2-1
	a. Climate	2-1
	b. Lake	2-2
	c. Project structures	2-2
2-03	Project operation	2-3
	a. Flood control	2-3
	b. Periodic drawdown	2-8
2-04	Visitation	2-8

TABLE OF CONTENTS (CON.)

Paragraph	Title	Page
	III - PROJECT STATUS	
3-01	Project development and operation chronology	3-1
3-02	Chronology of expenditures for public use and environmental resource development	3-1
	a. Federal Government	3-1
	b. Non-Federal agencies	3-4
	c. Private investment	3-4
	IV - RECREATIONAL AND ENVIRONMENTAL RESOURCES OF THE PROJECT AREA	
4-01	Geological resources	4-1
4-02	Archeological resources	4-1
4-03	History	4-2
	a. River traffic	4-2
	b. Trails	4-2
	c. Paraclifta	4-2
	d. Washington	4-3
	e. Brochure	4-3
4-04	Ecology	4-3
	a. General	4-3
	b. Lake	4-3
	c. Bottom land hardwood forest	4-4
	d. Shortleaf and loblolly pine forest	4-4
4-05	Environmental and scenic qualities	4-4
	a. Topography	4-4
	b. Vegetation	4-4
	c. Land uses	4-4
	d. Visual	4-5
	e. Water quality	4-5
4-06	Recreation	4-5
	a. Existing recreational use	4-5
	b. Recreational uses to be featured	4-8
	V - FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT	
5-01	General considerations	5-1
5-02	Demographic considerations	5-1
	a. Housing development	5-1
	b. Industry	5-1
	c. Agriculture	5-2
	d. Socio-economic	5-2

TABLE OF CONTENTS (CON.)

Paragraph	Title	Page
	V - FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT (CON.)	
5-03	Topography and geology	5-4
	a. Terrain	5-4
	b. Geology	5-4
5-04	Accessibility	5-5
	a. Roads	5-5
	b. Airports	5-6
5-05	Area of influence	5-6
	a. Population	5-6
	b. Economy	5-6
	c. Visitation market area	5-7
5-06	Related recreational, historical, and scientific areas	5-8
5-07	Reservoir plan of operation	5-11
5-08	Relocations	5-11
	a. Roads	5-11
	b. Cemeteries	5-11
	c. Utilities	5-11
5-09	Borrow areas	5-11
5-10	Water quality	5-11
5-11	Adaptability of spillway and other project structures for public use	5-14
5-12	Preproject exploitation of mineral and timber resources	5-14
	a. Minerals	5-14
	b. Timber	5-14
5-13	Anticipated attendance and demand for facilities	5-14
	a. Attendance	5-14
	b. Facilities	5-16
5-14	Application of Public Law 89-72	5-16
	a. Project status	5-16
	b. Cost-sharing waivers	5-16
	c. Cost-sharing agreement	5-16
	d. User fee program	5-17
5-15	Environmental and ecological features	5-17
	a. Archeology	5-17
	b. Timber	5-17
	c. Wildlife	5-17
	VI - COORDINATION WITH OTHER AGENCIES	
6-01	General	6-1
6-02	Fish and Wildlife Service	6-1

TABLE OF CONTENTS (CON.)

Paragraph	Title	Page
	VI - COORDINATION WITH OTHER AGENCIES (CON.)	
6-03	Arkansas Fish and Game Commission	6-1
	a. Conservation pool elevation	6-1
	b. Aquatic vegetation control	6-1
6-04	Arkansas Planning Commission	6-1
	a. Recreational development	6-1
	b. Cost sharing	6-1
6-05	Arkansas Department of Parks and Tourism	6-1
	a. Beard's Bluff	6-1
	b. Cypress Slough	6-1
6-06	Paraloma Landing Development Corporation	6-2
6-07	Public meetings	6-2
	a. General	6-2
	b. Paraloma Landing	6-2
	c. Aquatic vegetation control	6-2
	d. Recreation facilities study	6-2
6-08	Cost-sharing letters	6-2
	VII - PHYSICAL PLAN OF DEVELOPMENT	
7-01	Zoning	7-1
	a. Recreation	7-1
	b. Conservation	7-1
	c. Natural areas	7-1
	d. Historical	7-1
	e. Archeological	7-1
	f. Geological	7-1
	g. Interim land use	7-2
	h. Additional land	7-2
	i. Environmental resources	7-2
	j. Summary	7-2
7-02	Project structures	7-4
7-03	Recreation site plans	7-4
	a. Cypress Slough (drawings 93/3 and 93/4)	7-4
	b. River Run (drawing 93/5)	7-5
	c. Beard Lake (drawing 93/6)	7-5
	d. Beard's Bluff (drawings 93/7 and 93/8)	7-6
	e. Saratoga Landing (drawings 93/9 and 93/10)	7-6
	f. Okay Dike (drawing 93/11)	7-7
	g. Cottonshed Landing (drawings 93/12 and 93/13)	7-7
	h. Paraloma Landing (drawing 93/14)	7-8
	i. White Cliffs (drawing 93/15)	7-8
	j. Wilton Landing (drawing 93/16)	7-9
7-04	Schedule of development	7-9
7-05	Cost estimates	7-9

TABLE OF CONTENTS (CON.)

Paragraph	Title	Page
	VIII - FACILITY LOAD AND OTHER DESIGN CRITERIA	
8-01	Siting	8-1
	a. Flooding	8-1
	b. Boat ramps	8-1
	c. Campsites	8-1
	d. Picnic sites	8-1
	e. Playgrounds	8-2
	f. Sport areas	8-2
	g. Facilities for the handicapped	8-2
	h. Trails	8-2
	i. Fishing areas	8-2
8-02	Water systems	8-2
	a. Wells	8-2
	b. Lake systems	8-2
8-03	Waste collection and treatment systems	8-5
	a. Flooding	8-5
	b. Humidity	8-5
	c. Tile fields	8-5
	d. Septic tanks	8-5
	e. Waste disposal methods	8-5
	f. Supplementary facilities	8-9
	g. Approval of waste disposal plans	8-9
8-04	Roads	8-9
	a. Types	8-9
	b. Stage construction	8-9
	c. Drainage	8-9
8-05	Parking areas	8-9
	a. General	8-9
	b. Vehicles with trailers	8-9
	c. Vehicles without trailers	8-9
	d. Picnic sites	8-10
	e. Campsites	8-10
8-06	Launching ramps	8-10
8-07	Docks, piers, and mooring facilities	8-10
	a. Marinas	8-10
	b. Loading docks	8-10
	c. Fishing piers	8-10
	d. Mooring facilities	8-11
8-08	Picnic units	8-11
8-09	Camping units	8-11
	a. Individual	8-11
	b. Informal group	8-11
	c. Combination picnicking-camping sites	8-11
8-10	Swimming beaches	8-11

TABLE OF CONTENTS (CON.)

Paragraph	Title	Page
	VIII - FACILITY LOAD AND OTHER DESIGN CRITERIA (CON.)	
8-11	Structures	8-12
	a. Shelters	8-12
	b. Comfort stations	8-12
	c. Changehouses	8-13
8-12	Overlook structures	8-13
8-13	Playground facilities	8-13
	a. Existing	8-13
	b. Proposed	8-13
8-14	Bridges	8-13
	a. Vehicular	8-13
	b. Pedestrian	8-14
8-15	Electrical distribution and security lighting	8-14
	a. General	8-14
	b. Distribution	8-14
	c. Security lighting	8-14
8-16	Trails	8-14
8-17	Site improvement, grading, and landscape planting	8-14
	a. Site improvement	8-14
	b. Landscape plantings	8-14
	c. Reforestation	8-15
8-18	Signs	8-15
8-19	Interpretive devices	8-15
	a. Audio	8-15
	b. Nature trail markers	8-15
	c. Displays	8-15
	d. Interpretive markers	8-15
8-20	Small boat navigation aids	8-15
	a. Information	8-15
	b. Safety	8-16
8-21	Waste disposal	8-16
	a. Trash cans	8-16
	b. Septic tanks	8-16
	c. Toilet vaults	8-16
	d. Trailer sanitary stations	8-16
8-22	Visitor safety controls and convenience features	8-16
	a. Barricades	8-16
	b. Fencing	8-16
	c. Fishing piers	8-16
	d. Ramps	8-17
8-23	Active sports facilities	8-17
	a. Softball	8-17
	b. Basketball-tennis	8-17

TABLE OF CONTENTS (CON.)

Paragraph	Title	Page
	IX - SPECIAL PROBLEMS	
9-01	Natural resource preservation and interpretation	9-1
	a. Preservation	9-1
	b. Interpretation	9-1
9-02	Fish and wildlife resources	9-1
	a. General	9-1
	b. Endangered species	9-1
9-03	Archeological and historical resources	9-2
	a. Archeological sites	9-2
	b. Historical sites	9-2
	c. Displays	9-2
9-04	Fee systems and collection	9-2
	a. Existing areas	9-2
	b. Proposed areas	9-2
	X - PROJECT RESOURCE MANAGEMENT	
10-01	General	10-1
	XI - COST ESTIMATES	
11-01	Recreational developments	11-1
11-02	Land acquisition	11-36
11-03	Operation and maintenance costs	11-36
	XII - CONCLUSIONS	
12-01	General	12-1
12-02	Development needs	12-1
12-03	Local participation	12-1
12-04	Development priorities	12-1
12-05	Summary	12-2
	XIII - RECOMMENDATION	
13-01	Recommendation	13-1

TABLE INDEX

Table	Title	Page
1-1	Summary of Benefits and Percentages	1-1
2-1	Pertinent Data	2-3
2-2	Recorded Visitation at Millwood Lake, 1967-1972	2-9
3-1	Expenditures by the Federal Government for Public Use	

TABLE OF CONTENTS (CON.)

TABLE INDEX (CON.)

Table	Title	Page
4-1	Average Rates of Participation in Recreational Activities at Millwood Lake, 1970-1972	4-7
5-1	Social and Economic Characteristics of the Four-County Area Surrounding Millwood Lake	5-3
5-2	Population Trends in the Millwood Area	5-6
5-3	Cities with Populations of 1,000 or More Located Within Visitation Market Area of Millwood Lake	5-8
5-4	Related Recreation Areas	5-10
5-5	Water Quality Data for Millwood Lake	5-13
7-1	Allocation of Land and Water Areas	7-3
8-1	Water Supply Facilities	8-4
8-2	Waste Water Treatment Facilities	8-7
11-1	Summary of Estimated Cost for Recreational Facilities	11-2
11-2	Detailed Estimate of Cost for Recreational Facilities	11-7
11-3	Cost of Additional Lands	11-36
11-4	Estimated Annual Operation and Maintenance Costs	11-37
12-1	Development Priorities by Areas and Facilities	12-1

FIGURE INDEX

Figure	Title	Page
2-1	Area and Capacity Curves	2-5
2-2	Pool Elevation Duration Curve	2-6
2-3	Pool Elevation Probability Curve	2-7
5-1	Projected Visitation Curve	5-15

EXHIBIT INDEX

Exhibit	Title
A	Correspondence

DRAWING INDEX

Basic Drawing	Title	Utilities Drawing	Aerial Photo
2450-DM5B-93/1	Project Location and Related Recreation Areas		
93/2	Public Use Areas		

TABLE OF CONTENTS (CON.)

DRAWING INDEX (CON.)

Basic Drawing	Title	Utilities Drawing	Aerial Photo
2450-DM5B-93/3	Cypress Slough - Sheet 1	93/3U	93/3A
93/4	Cypress Slough - Sheet 2	93/4U	93/4A
93/5	River Run	93/5U	93/5A
93/6	Beard Lake	93/6U	93/6A
93/7	Beard's Bluff South	93/7U	93/7A
93/8	Beard's Bluff North	93/8U	93/8A
93/9	Saratoga Landing - Sheet 1	93/9U	93/9A
93/10	Saratoga Landing - Sheet 2	93/10U	93/10A
93/11	Okay Dike	93/11U	93/11A
93/12	Cottonshed Landing - Sheet 1	93/12U	93/12A
93/13	Cottonshed Landing - Sheet 2	93/13U	93/13A
93/14	Paraloma Landing	93/14U	93/14A
93/15	White Cliffs	93/15U	93/15A
93/16	Wilton Landing	93/16U	93/16A
93/17	Utilization Sheet Index		
93/18	Utilization Sheet 1		
93/19	Utilization Sheet 2		
93/20	Utilization Sheet 3		
93/21	Utilization Sheet 4		
93/22	Utilization Sheet 5		
93/23	Utilization Sheet 6		
93/24	Utilization Sheet 7		
93/25	Utilization Sheet 8		
93/26	Utilization Sheet 9		
93/27	Utilization Sheet 10		
93/28	Utilization Sheet 11		
93/29	Utilization Sheet 12		
93/30	Utilization Sheet 13		
93/31	Utilization Sheet 14		
93/32	Utilization Sheet 15		
93/33	Typical Road Sections and Typical Culvert Sections		
93/34	Boat Ramp		
93/35	Camp Site, Picnic Site, Foot Bridge, and Mooring Rings		
93/36	Loading Dock		
93/37	Picnic Facilities		
93/38	Picnic Shelter and Wood Vault Toilet		
93/39	Shower and Toilet Building No. 2, Trail Shelter, and Changehouse		
93/40	Shower and Toilet Building No. 1		
93/41	Waterborne Toilet Building		

TABLE OF CONTENTS (CON.)

DRAWING INDEX (CON.)

Basic Drawing	Title	Utilities Drawing	Aerial Photo
2450-DM5B-93/42	Masonry Vault Toilet		
93/43	Typical Playground		
93/44	Standard Planting Plans for Comfort Stations, Wheelchair Trail, and Pedestrian Trail		
93/45	Wastewater Disposal Systems		
93/46	Trailer Sanitary Station		

MILLWOOD LAKE
LITTLE RIVER, ARKANSAS

DESIGN MEMORANDUM NO. 5B
REVISED MASTER PLAN

I - INTRODUCTION

1-01. Project authorization and related legislation. - Millwood 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 Millwood Reservoir authorized by the Flood Control Act approved 24 July 1946 (Public Law 526, 79th Congress, Chapter 596, 2d Session, H.R. 6597).

1-02. Project purposes. - Millwood Lake is operated for flood control as a unit in the seven-reservoir Little River system which also includes the existing Pine Creek and Broken Bow Lakes, the authorized only Lukfata Lake, and DeQueen, Gillham, and Dierks Lakes which are under construction. Project purposes of Millwood Lake other than flood control are fish and wildlife and water supply. Table 1-1 is a summary of the benefits attributed to Millwood Lake.

TABLE 1-1

SUMMARY OF BENEFITS AND PERCENTAGES

Purpose	Benefit	Percent of total
	$	
Flood control	1,683,800	76
Water supply	516,000	23
Fish and wildlife	30,000	1
Total	2,229,800	100

1-03. Purpose of this updated master plan. - This design memorandum presents an updated plan for development and management of the resources at Millwood Lake. The concept of the plan, including optimizing the overall project management objectives, is to obtain the optimum utilization of the project area for public use and to provide proper stewardship of the natural resources.

1-04. Prior pertinent design memorandums.

a. General design. - Design Memorandum No. 3, General Design, dated 12 January 1960, established the size of the initial

and ultimate operating pools, the configuration of the dam and outlet works, and the location of public-use areas.

b. Preliminary master plan. - Design Memorandum No. 5A, Preliminary Master Plan - Part of the Master Plan for Millwood Reservoir, dated 15 January 1960, designated lands to be purchased for recreational development based on projected visitation at that time.

c. Real estate for damsite and reservoir. - Design Memorandum No. 6, Real Estate for Dam Site and Reservoir Area, dated 22 January 1960, delineated the lands to be purchased in fee for operation of the project and recreational development, and flowage easement lands.

d. Project buildings. - Design Memorandum No. 8, Construction of Project Buildings, dated 15 December 1960, contained plans for construction and landscape planting of the project administration buildings and the right abutment overlook.

e. Reservoir clearing. - Design Memorandum No. 19, Reservoir Clearing, dated 15 August 1963, described the areas to be cleared on project lands and in the lake area.

f. Left abutment access road and overlook. - Design Memorandum No. 29, Construction of Left Abutment Access Road and Overlook, dated 30 July 1963, included plans for construction and landscaping of the Beard's Bluff overlook structure.

g. Master plan. - Design Memorandum No. 5B, Master Plan for Millwood Reservoir, dated 7 February 1964, described the project resources and the proposed development of project lands to accommodate an estimated initial annual visitation of 300,000 and an ultimate visitation of 360,000. Supplements to Design Memorandum No. 5B were submitted as follows:

(1) Supplement No. 1, dated 18 March 1966, proposed modification of the originally proposed Cypress Slough public-use area, deletion of the Saline Landing public-use area, and addition of the Outlet Channel (River Run) and Beard's Lake public-use areas below the dam.

(2) Supplement No. 2, dated 11 January 1968, proposed establishment of a commercial concession site in the Beard's Bluff public-use area.

(3) Supplement No. 3, dated 29 August 1968, proposed expansion of existing public-use areas, establishment of Paraloma Landing and Trent Landing as new public-use areas, re-establishment

of Wilton Landing and White Cliffs public-use areas, and waiver of the cost-sharing requirement for development of new public-use areas not developed during project construction. A recreation facilities study was included as an inclosure to 4th Indorsement SWTED-AD, dated 3 August 1970, to letter SWTED-AD dated 29 August 1968, subject: Millwood Dam and Reservoir, Little River and Tributaries, Design Memorandum No. 5B, Master Plan for Millwood Reservoir, Supplement No. 3. The study proposed extensive development in existing areas, establishment of Cottonshed Landing and Okay Dike public-use areas, and purchase of additional lands needed to accommodate the projected 3,000,000 annual visitors based on visitation experienced up to that time. Supplement No. 3 and the recreation facilities study were approved and the cost-sharing requirement for Paraloma Landing was waived by 6th Indorsement ENGCW-PV/ENGCW-OR, dated 9 December 1970, to above-referenced letter.

(4) Supplement No. 4, dated 20 January 1972, proposed an alternate purchase area for expansion of Saratoga Landing public-use area.

h. Real estate, additional land for public-use areas. - Design Memorandum No. 6-6, Real Estate, Additional Land for Public-Use Areas, dated 23 February 1971, described in detail the boundaries of the additional lands proposed for expansion of public-use areas in Supplement No. 3 to Design Memorandum No. 5B. Supplement No. 1, dated 10 December 1971, to Design Memorandum No. 6-6 proposed changing the acquisition area for expansion of Saratoga Landing in accordance with Supplement No. 4 to the Master Plan.

1-05. Application of public laws.

a. Public Law 534, Flood Control Act of 1944. - Section 4 of the act provides the basis for the Corps to initially construct, maintain, and operate public parks and recreational facilities on Millwood Lake and to grant leases and licenses for lands, including facilities, preferably to Federal, State, or local governmental agencies.

b. Public Law 85-624, Fish and Wildlife Coordination Act. - This act, as amended, states the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resources development programs. Adverse effects on fish and wildlife and opportunities for improving these resources shall be examined along with other purposes which might be served by water resources development.

c. Public Law 89-72, Federal Water Project Recreation Act of 1965. - The act, which provides the basis for all new recreation

development, requires that a non-Federal public body share not less than one-half the separable costs of developing recreational facilities at Federal reservoir projects.

d. Public Law 89-90, Water Resources Planning Act. - The Water Resources Council was established by this act and given the responsibility to encourage the conservation, development, and use of the Nation's water and related land resources on a comprehensive and coordinated basis.

1-06. Scope of Master Plan.

a. General. - The Master Plan proposed public-use development necessary to develop project lands now owned and those proposed for acquisition to realize the optimum recreational capacity of the project (the maximum use the project will support without major deterioration of the environment). Emphasis has been placed on providing access to the water to accommodate fishermen, who are the principal users of the lake, but adequate supporting land-based facilities are also proposed. Facilities necessary to implement an information-education program to call attention to the geoglogical, archaeological, and biological resources of the lake area are included in the plan. One area, which has suitable terrain, is proposed for development specifically designed to accommodate the handicapped. Recreation, education, and information facilities would be included in this area.

b. Zoning. - This plan also proposes zoning of all project lands and waters to allow maximum utilization by recreationists and at the same time preserve the scenic, scientific, and wildlife resources of the project.

c. Implementation. - Implementation of the plan will occur as funds become available in the code 710 construction program, either through cost-sharing agreements with local public agencies or private organizations or by establishment of user fee programs to recoup operation, maintenance, and replacement costs.

II - PROJECT DESCRIPTION

2-01. Location. - The Millwood Dam is located on the Little River, 16.0 river miles above its confluence with the Red River. The Cossatot and Saline Rivers join the Little River in the project area. Millwood Lake is in southwestern Arkansas and is bordered by Little River, Hempstead, Howard, and Sevier Counties. Access to the project is via Arkansas State Highways 32, 27, 355, and 73. U.S. Highway 71 runs north and south approximately 10 miles west of the dam, and Interstate Highway 30 and U.S. Highway 67 both run in a northeast-southwest direction about 11 miles southeast of the damsite.

2-02. Project data.

a. Climate. - The Little River Basin lies in a region having moderate winters and comparatively long summers with relatively high temperatures. The summer rains usually occur as thunderstorms of short duration, high intensity, and limited areal coverage. The winter rains are generally of several days' duration, low in intensity, and have relatively large areal coverage. The maximum recorded flow past the Millwood damsite was 120,900 c.f.s. which occurred during the 14 February-8 May 1945 flood. A summary of the hydrologic and climatic characteristics of the Little River Basin is shown below.

Rainfall(1)

Mean annual	51.00 inches
Maximum annual	74.00 inches
Minimum annual	31.07 inches
Percent occurring during growing season	50.00

Snowfall

Mean annual	4.00 inches

Temperature

Mean annual	65° F.
Maximum recorded (Okay, Arkansas, 10 August 1936)	116° F.
Minimum recorded (DeQueen, Arkansas, 2 February 1951)	-14° F.

Evaporation (annual potential)(2)

Normal precipitation periods	57.65 inches
Drought periods	65.92 inches

(1) Period of record - January 1930 through September 1970.
(2) U.S. Weather Bureau class A pan.

b. Lake. - At conservation pool, elevation 259.2, a wide, shallow lake is formed, with short arms extending up the Saline and Little Rivers. The total length of shoreline, excluding islands, is about 78 miles. The shoreline is flat and marshy at most areas on the lake but rises sharply out of the water along the east side near the dam and at White Cliffs on the east side of the Little River in the upper reaches of the lake.

c. Project structures.

(1) Principal features. - Key structures of Millwood Lake are a 17,554-foot-long earthfill embankment and an 887-foot-long concrete spillway with thirteen 40-foot by 32-foot tainter gates for flood control regulation. The outlet works consists of two 5'-8"x6' sluices for low flow releases. A 78-inch-diameter water supply pipe is located in the left concrete nonoverflow section for future water supply requirements. A levee, 14,872 feet long with an average height of 37 feet, which was built for the protection of a cement company, is located approximately 5 miles northeast of the main embankment. Table 2-1 presents pertinent data for the project.

TABLE 2-1

PERTINENT DATA

LOCATION

Little River at mile 16.0

DRAINAGE AREA

4,144 square miles above the dam

ELEVATIONS, AREAS, AND STORAGES

Feature	Elevation (feet, m.s.l.)	Area (acres)	Storage (acre-feet)	Runoff (inches)
Top of dam	301.0	-	-	-
Maximum pool	294.3	113,400	2,623,200	11.88
Top of flood control pool(1)	287.0	95,200	1,854,900	8.40
Top of conservation pool	259.2	29,200	204,970	0.93
Spillway crest	255.0	20,000	101,370	0.46
Top of inactive pool	252.0	13,100	51,710	0.23
Flood control storage	259.2-287.0	-	1,649,960	7.47
Water supply storage	252.0-259.2	-	153,260	0.69

(1) Top of gates.

(2) Project buildings. - The project administration area contains a combined project office and maintenance building, a separate metal building which contains workshops and storage area, a paint storage building, and a fenced storage yard.

(3) Overlooks. - Two overlook structures were built during project construction. One is located at the entrance to Cypress Slough public-use area and the other is located in Beard's Bluff public-use area.

2-03. Project operation.

a. Flood control.

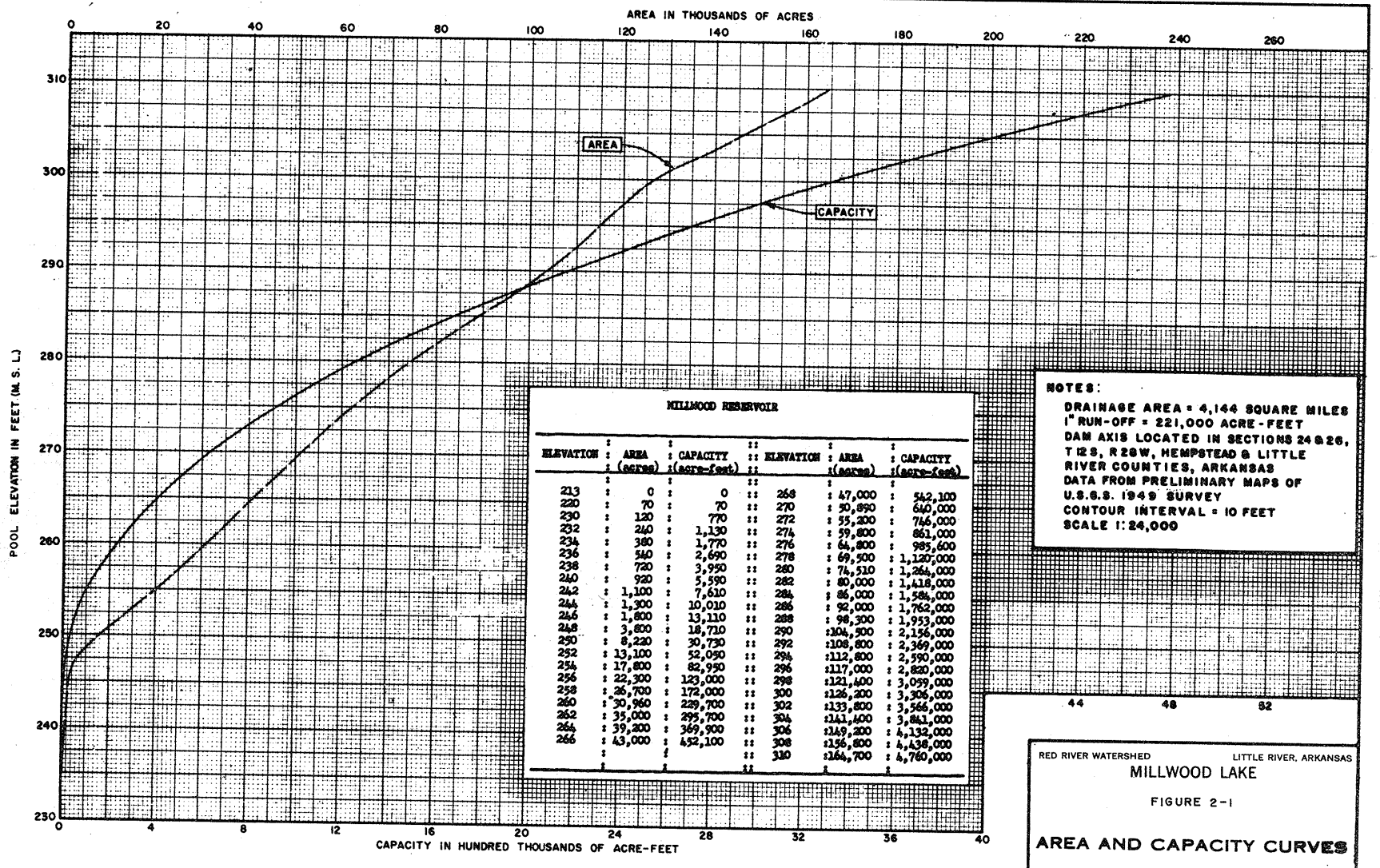
(1) Millwood Lake is operated in conjunction with upstream lakes on the Little River and tributaries for maximum flood reduction on the Little River from Millwood Dam to its mouth and in conjunction with Denison Dam on the Red River and Pat Mayse Lake

on the Sanders Creek tributary of the Red River for the reduction of floods on the lower Red River.

(2) The area and capacity curves for Millwood Lake, figure 2-1, show the surface area of the lake in acres and the capacity of the lake in acre-feet for various pool elevations.

(3) The pool elevation duration curve, figure 2-2, shows the percent of time various pool elevations can be expected to be equaled or exceeded. For example, elevation 261.0 can be expected to be equaled or exceeded 6 percent of the time.

(4) The pool elevation probability curve, figure 2-3, gives the recurrence interval in years for each pool elevation. As an example, elevation 269.0 can be expected to be reached once every 5 years and elevation 276.0 once every 10 years.



MILLWOOD RESERVOIR

ELEVATION	AREA (acres)	CAPACITY (acre-feet)	ELEVATION	AREA (acres)	CAPACITY (acre-feet)
213	0	0	268	47,000	542,100
220	70	70	270	50,890	640,000
230	120	770	272	55,200	746,000
232	240	1,130	274	59,800	861,000
234	380	1,770	276	64,800	985,600
236	540	2,690	278	69,500	1,120,000
238	720	3,950	280	74,510	1,264,000
240	920	5,590	282	80,000	1,418,000
242	1,100	7,610	284	86,000	1,584,000
244	1,300	10,010	286	92,000	1,762,000
246	1,800	13,110	288	98,300	1,953,000
248	3,800	18,710	290	104,500	2,156,000
250	8,220	30,730	292	108,800	2,369,000
252	13,100	52,050	294	112,800	2,590,000
254	17,800	82,950	296	117,000	2,820,000
256	22,300	123,000	298	121,400	3,059,000
258	26,700	172,000	300	126,200	3,306,000
260	30,960	229,700	302	133,800	3,566,000
262	35,000	295,700	304	141,400	3,841,000
264	39,200	369,900	306	149,200	4,132,000
266	43,000	452,100	308	156,800	4,436,000
			310	164,700	4,760,000

NOTES:

DRAINAGE AREA = 4,144 SQUARE MILES
1" RUN-OFF = 221,000 ACRE-FEET
DAM AXIS LOCATED IN SECTIONS 24 & 26, T 12 S, R 28 W, HEMPSTEAD & LITTLE RIVER COUNTIES, ARKANSAS
DATA FROM PRELIMINARY MAPS OF U.S.G.S. 1949 SURVEY
CONTOUR INTERVAL = 10 FEET
SCALE 1:24,000

RED RIVER WATERSHED — LITTLE RIVER, ARKANSAS

MILLWOOD LAKE

FIGURE 2-1

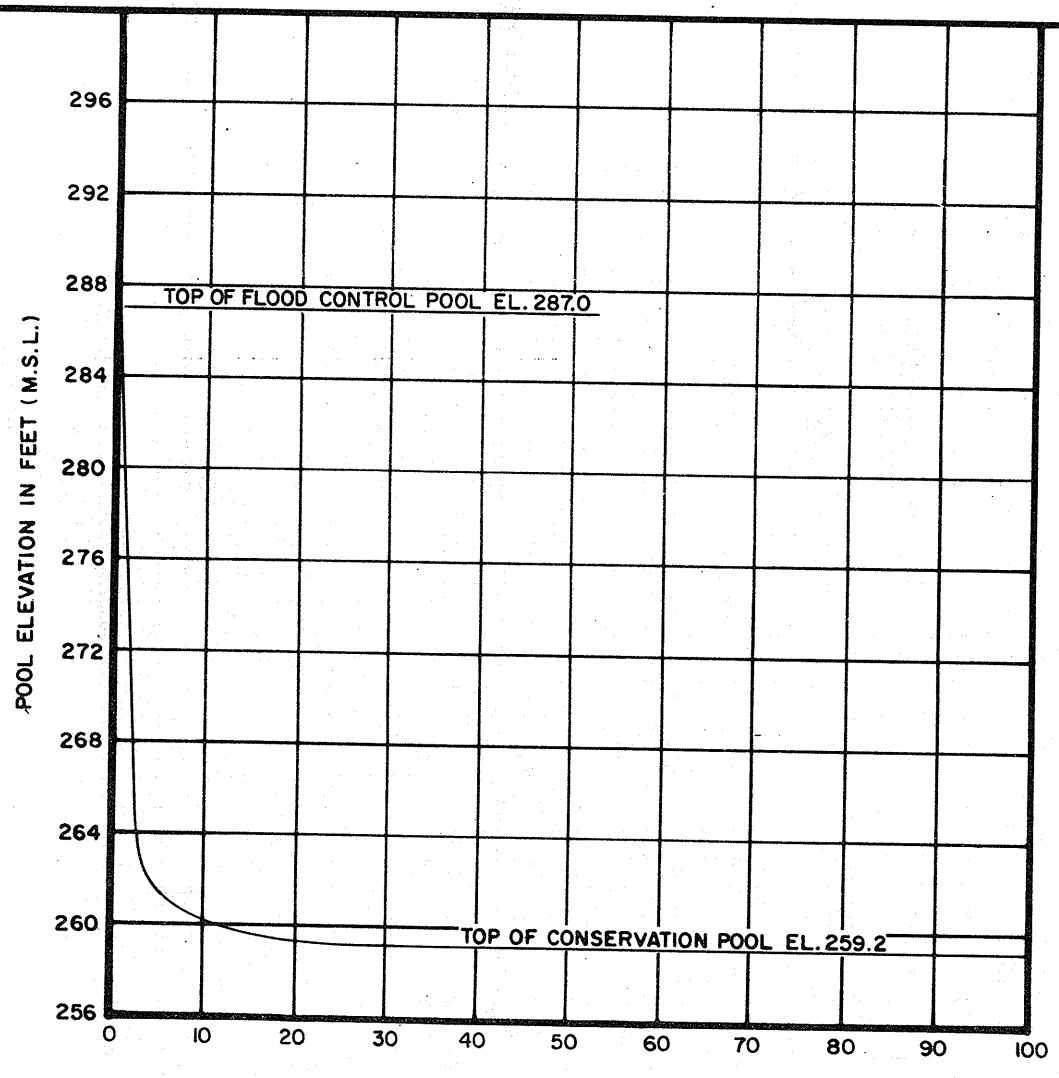
AREA AND CAPACITY CURVES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS DEC 72

DRAWN: L.A.C.
CHECKED:

2-5

FIGURE 2-1



NOTE:

CURVES ARE BASED ON ALL EXISTING AND AUTHORIZED RESERVOIRS OPERATING

RED RIVER WATERSHED — LITTLE RIVER, ARKANSAS

MILLWOOD LAKE

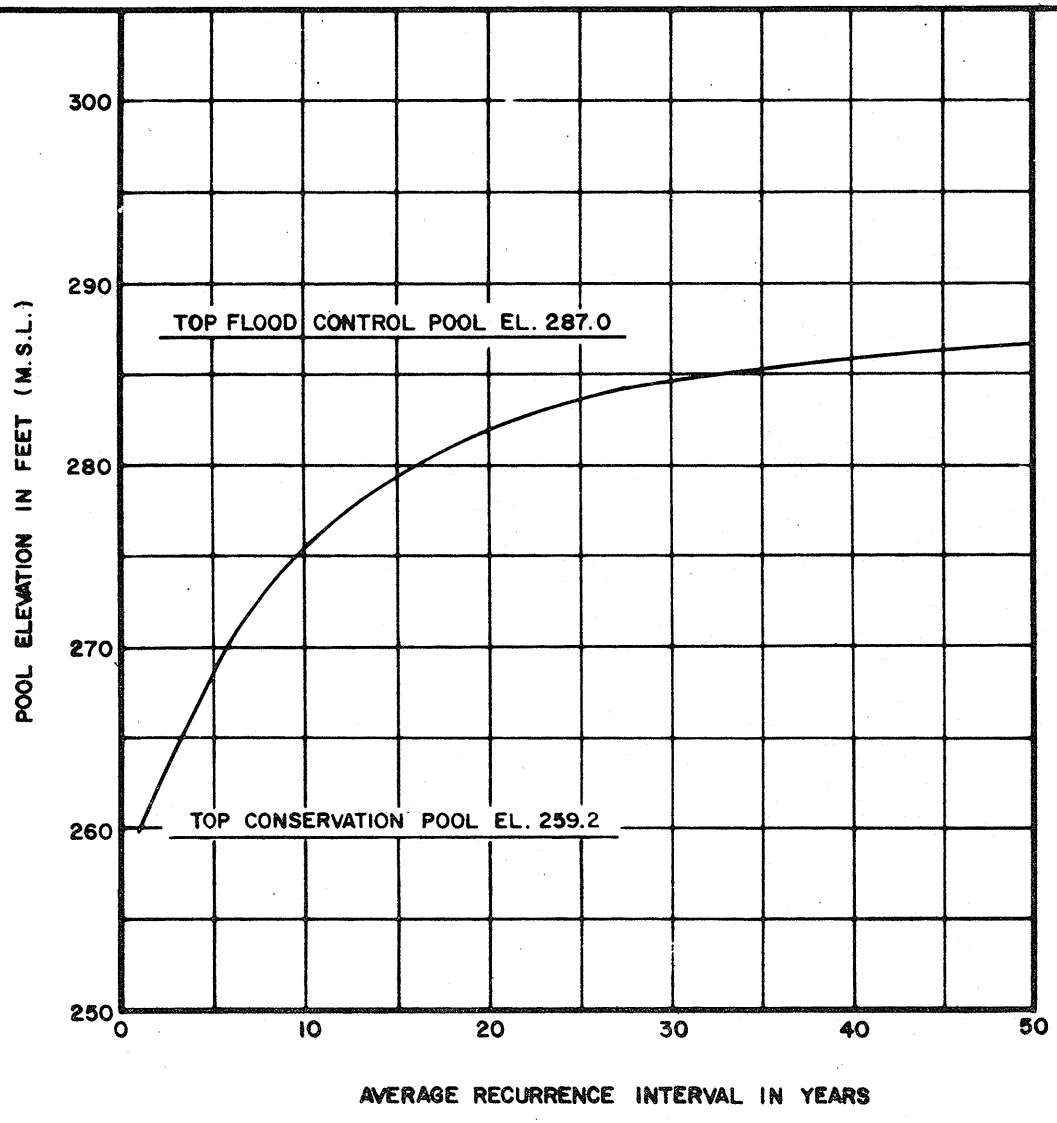
FIGURE 2-2

POOL ELEVATION DURATION CURVE

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

2-6

FIGURE 2-2



NOTES:

1. THE CURVE SHOWN IS BASED ON A PROBABILITY STUDY USING METHODS DEVELOPED IN ER - 1110 - 2 - 1450.

2. BASIC DATA ARE THE PEAK ELEVATIONS OF THE RESERVOIR OBTAINED FROM HYPOTHETICAL OPERATION FROM OCTOBER 1937 THROUGH SEPTEMBER 1958 OPERATED IN CONJUNCTION WITH AUTHORIZED AND EXISTING FLOOD CONTROL RESERVOIRS FOR MAXIMUM BENEFITS ON LITTLE RIVER AND TRIBUTARIES AND RED RIVER BELOW DENISON RESERVOIR.

RED RIVER WATERSHED — LITTLE RIVER, ARKANSAS

MILLWOOD LAKE

FIGURE 2-3

POOL ELEVATION PROBABILITY CURVE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS DEC 72
DRAWN: E.B.S.
CHECKED: H.O.R.

FIGURE 2-3

b. Periodic drawdown. - Every 3 years the conservation pool at Millwood Lake is drawn down to elevation 255.0 as soon as practicable after Labor Day and held at or near this elevation until 1 February. On 1 February the conservation pool is returned to elevation 259.2. This procedure is followed to increase the game fish population and decrease the number of rough fish. This periodic drawdown is practiced to ensured future years of good quality fishing at Millwood, and is accomplished with minimum interference with other project purposes.

2-04. Visitation. - In the Master Plan for Millwood Lake, dated February 1964, the annual visitation was predicted to be about 300,000 initially, increasing ultimately to 360,000. This estimate was based on the characteristics of the lake (inadequate water depth, marshy shoreline, and limited surface area free of obstruction) which restrict its scenic value and limit water contract sports and pleasure boating. However, these characteristrics of the lake, together with an active fishery management program conducted by the Arkansas Game and Fish Commission, produced a slackwater fishery which was so productive that it won national acclaim, and visitation soon exceeded the original estimates by 900 percent. Recorded visitation during the first 6 full years of project operation is shown in table 2-2.

TABLE 2-2

RECORDED VISITATION AT MILLWOOD LAKE, 1967-1972(1)

Area	1967	1968	1969	1970	1971	1972	Average	Percent of total for lake
Cypress Slough	9,200	68,000	174,000	272,800	289,200	316,800	188,300	9.0
River Run	290,300	438,000	380,000	382,400	312,000	315,500	353,000	17.0
Beard Lake(2)	-	-	-	-	-	-	-	-
Beard's Bluff	174,300	174,400	234,400	370,600	312,400	298,400	260,800	12.5
Saratoga Landing	97,700	186,000	290,000	494,400	513,600	540,000	353,600	17.0
Cottonshed Landing	(3)	(3)	(3)	(3)	(3)	33,600	33,600	1.6
Paraloma Landing	(3)	22,200	34,400	52,700	105,400	175,400	78,000	3.7
White Cliffs	(3)	13,200	12,600	13,200	26,000	20,800	17,200	0.8
Wilton Landing	35,500	69,200	59,000	30,600	71,200	59,200	54,100	2.6
Millwood Park(4)	(3)	(3)	32,600	140,400	320,800	272,300	191,500	9.2
Overlook	183,500	386,100	292,900	376,800	618,890	424,800	380,500	18.3
Other areas	(3)	(3)	(3)	106,200	204,000	201,100	170,400	8.3
Total	790,500	1,357,100	1,509,900	2,240,100	2,773,490	2,657,900	2,081,000	100.0

(1) Based on monthly project visitation data reports.
(2) Not recorded separately - included in total for River Run.
(3) Not recorded.
(4) Administered by others.

III - PROJECT STATUS

3-01. Project development and operation chronology. - Construction of Millwood Dam began in September 1961, and the project was placed in operation in August 1966. The conservation pool was raised from the initial operating level, elevation 257.0, to the ultimate elevation, 259.2, in 1969 to enhance the recreation potential of the project. The first of a series of periodic drawdowns was made during 1971 for control of aquatic growth and enhancement of the fishery.

3-02. Chronology of expenditures for public use and environmental resource development.

a. Federal Government.

(1) Expenditures by the Federal Government through fiscal year 1973 are shown in table 3-1 which contains a breakdown of facilities built during initial project construction and those constructed under the code 710 construction program. A breakdown of existing facilities and costs to date by public-use areas is included in table 11-2. The numbers of existing facilities are based on an actual inventory and do not necessarily match the total shown on the latest PB-3. Additional facilities have been constructed using value engineering savings, savings derived from construction of facilities with hired labor instead of by contract, and savings from land purchases. The well drilled during project construction has been abandoned because the water it produced was unsuitable, and it is not included in the total quantities even though its cost has been included. Some existing campsites at Cypress Slough are proposed for conversion to picnic sites under the current plan and are included in the number of picnic sites in tables 3-1 and 11-2.

TABLE 3-1

EXPENDITURES BY THE FEDERAL GOVERNMENT FOR PUBLIC USE
(Amounts in thousands of dollars)

Item	Unit	Initial construction		Code 710 construction		Total existing		Average cost per unit
		Quantity	Cost	Quantity	Cost	Quantity	Cost	
			$		$		$	$
Roads								
Paved, two-way	Mile	5.9	208.0	-	-	5.9	208.0	35.30
Gravel, two-way	Mile	2.3	36.0	0.9	13.2	3.2	49.2	15.40
Gravel, one-way	Mile	1.7	12.3	0.7	5.8	2.4	18.1	7.40
Parking								
Paved, car trailer	Space	183	29.2	15	2.4	198	31.6	0.16
Paved, car	Space	70	5.6	-	-	70	5.6	0.08
Gravel, car trailer	Space	102	8.2	28	2.2	130	10.4	0.08
Gravel, car	Space	10	0.4	5	0.2	15	0.6	0.04
Boat ramps								
Double lane	Each	-	-	4	22.0	4	22.0	5.50
Single lane	Each	4	16.5	1	2.5	5	19.0	3.80
Sanitary facilities								
Shower-toilet	Each	-	-	1	40.0	1	40.0	40.00
Wood frame concrete vault	Each	12	18.0	16	17.8	28	35.8	1.30
Water supply								
Lake pump and filter	Each	-	-	2	73.0	2	73.0	36.50
Well, hand pump	Each	(1)1	3.4	2	7.0	3	10.4	3.50
Well, pressure	Each	-	-	2	7.0	2	7.0	3.50
Storage tank	Each	-	-	3	6.5	3	6.5	2.2
Water distribution lines	L.F.	-	-	19,980	42.9	19,980	42.9	0.002
Hydrants	Each	-	-	2	0.2	2	0.2	0.1
Fountains	Each	-	-	6	2.4	6	2.4	0.4

TABLE 3-1 (CON.)

Item	Unit	Initial construction		Code 710 construction		Total existing		Average cost per unit
		Quantity	Cost	Quantity	Cost	Quantity	Cost	
			$		$		$	$
Sewage disposal								
Oxidation pond	Each	-	-	1	7.5	1	7.5	7.5
Septic tank w/pump	Each	-	-	1	5.0	1	5.0	5.0
Sewage collection lines	Each	-	-	1	12.9	1	12.9	12.9
Powerlines, underground	L.F.	-	-	11,660	20.0	11,660	20.0	0.002
Navigation lights	Each	-	-	1	0.2	1	0.2	0.2
Campsites, trailer(2)	Each	(3)26	15.6	-	-	26	15.6	0.6
Picnic units(4)	Each	(3)49	20.2	72	46.6	121	66.8	0.55
Table, concrete	Each	6	2.3	7	2.7	13	5.0	0.4
Fireplaces	Each	-	-	10	0.9	10	0.9	0.09
Refuse can	Each	-	-	16	1.3	16	1.3	0.08
Individual picnic shelters	Each	-	-	9	2.4	9	2.4	0.27
Signs								
Entrance	Each	4	2.2	1	0.8	5	3.0	0.6
Directional	Each	6	0.5	3	0.4	9	0.9	0.1
Information	Each	5	0.6	6	1.3	11	1.9	0.17
Loading dock	Each	-	-	1	0.4	1	0.4	0.4
Pedestrian bridge	Each	-	-	1	0.5	1	0.5	0.5
Playgrounds	Each	-	-	1	0.6	1	0.6	0.6
Chain link fence	L.F.	350	1.0	100	4.0	450	1.4	0.003
Additional land acquisition	Acre	-	-	302	173.1	302	173.1	0.6
Total			380.0		525.7		902.1	

(1) Facility built during initial construction has been abandoned.
(2) Includes car trailer pulloff, table, fireplace, and refuse can.
(3) Nine units originally designated as campsites are proposed for conversion to picnic sites and are included in the number of existing picnic sites.
(4) Includes parking, table, fireplace, and refuse can.

(2) No expenditures of operation and maintenance funds for public use or environmental resource development are on record, and no special appropriations for recreational development at Millwood Lake have been received.

b. Non-Federal agencies.

(1) The Little River County Rural Development Authority has developed a 190-acre recreation area, part of which is in Government ownership. This area, Millwood Park, contains 50 trailer campsites with electrical hookups, water and sewer connections, and gravel pulloffs; 30 tent campsites; two shower-toilets, one two-lane boat ramp; picnic areas and undeveloped campgrounds; two picnic shelters; a parking area; and a water supply system. Total cost of the fixed assets to date is estimated to be $155,000.

(2) The Howard County Judge constructed a gravel access road to Government property at Cottonshed Landing in anticipation of Federal development of the area. Estimated cost of the road is $5,000.

(3) The Arkansas State Highway Department constructed a single-lane boat ramp and parking area at Wilton Landing during the relocation of U.S. Highway 71. Definite cost figures are not available, but the estimated cost is $5,000.

c. Private investment.

(1) The concessionaire at Cypress Slough operates a marina which provides 46 covered boat stalls, 10 houseboat moorings, boat servicing facilities, refreshments, fishing supplies, and boat rental services. The total cost is about $100,000.

(2) The concession at Beard's Bluff, leased to the marina operator at Cypress Slough, once contained the marina facilities now located at Cypress Slough. Adverse wave action necessitated relocation of the boat docks to their present site. However, it was determined that concession facilities were needed on both sides of the lake, so the concession at Beard's Bluff is still operating as a bait shop, service station, and boat rental facility under a sublease arrangement. Cost of the existing development is included in the cost of the Cypress Slough concession.

IV - RECREATIONAL AND ENVIRONMENTAL RESOURCES OF THE PROJECT AREA

4-01. Geological resources. - The Millwood area contains type localities (the specific location of the formation as originally identified and described) for several Upper Cretaceous fossiliferous formations. These are the Tokio, Brownstown, Ozan, Marlbrook marl, and Saratoga chalk formations. The alternate strata of limestones, marls, sandstones, and clays combine to produce physiographic features such as the rolling hills and escarpments, which improve the visual characteristics of the area. Because of the scenic qualities, the geological formations are of interest to the general public as well as the serious student or scholar of geology.

4-02. Archeological resources. - The Millwood Lake archeology is important not only to the immediate area, but to the entire Little River System and the Caddoan cultural area. With the exception of Paleo-Indian sites (8,000-14,000 years ago), a complete sequence of human history can be reconstructed at Millwood. Early Archaic (8000 B.C.), Middle Archaic (3000 B.C.), Late Archaic, Fourche Maline, Coles Creek, Gibson, and Fulton time periods are all represented. Three archaeological surveys have been conducted by the National Park Service and the Smithsonian Institution in cooperation with the Corps of Engineers and the Bureau of Reclamation. These surveys located 66 sites in the Millwood Lake area. Subsequent discovery of one other important village site has brought the total to 67 documented sites. There are 33 village sites, nine of which have been excavated, and 34 campsites. Information obtained from the surveys and subsequent excavations indicates that the earliest prehistoric occupation in the Millwood Lake area is represented by a small dual-component site dating from approximately 8000-5000 B.C. The people who inhabited the area during this period sustained themselves principally by hunting, and to some degree, gathering. Associated with the occupations are side-notched projectile point forms of the early Archaic period. The Late Archaic period (2000-1000 B.C.) is represented by three village sites and is recognized by an increased dependence on horticulture. The Caddoan period was the last prehistoric occupation of Millwood. During this time, from possibly 700 A.D. to 1600 A.D., fairly large villages of primarily farming families could be found. The versatile use of pottery by the Caddo people was one of their most outstanding characteristics. The Corps of Engineers will continue to cooperate with the National Park Service and the Arkansas Archeological Survey to encourage the identification and salvage or protection of archeological sites in the project area. Park rangers will be instructed in methods of protecting archeological sites from the public. The sites on project lands are already subject to vandalism by "pothunters" and the need for protection is a reality. Tentative plans are to establish an interpretive center in the project office with a general display of archeological components, supplemented

with limited artifact displays. Artifacts that have already been recovered, plus artifacts excavated in the future, will provide an ample source of material for rotational displays. Dioramas or actual reconstructions based on archeological data would further complement these resources.

4-03. History.

a. River traffic. - For more than 300 years, the flow of the Red River was restricted by a logjam, or "raft," which was over 25 feet deep in places and covered the width of the valley. By 1805 the raft extended upstream for almost 150 miles from north central Louisiana to the southern border of Arkansas. It created marshes, sloughs, and natural lakes and made the river practically impassable except during periods of high water. In 1825 the Corps of Engineers began a program to clear the log raft from the river to open the Red River to navigation. The clearing program suffered many interruptions, but was finally completed in 1872. Instead of making the river navigable, as expected, the removal of the raft released the impoundments, drained the marshes, lowered the water level, and made the river even less navigable in many areas. However, draining the marshes and the elimination of the accompanying health hazards made the area more habitable and opened southwestern Arkansas to heavier settlement. People living in the Millwood area during the early 1800's relied on steamboat and keelboat landings along the Red River during high water periods for sugar, rice, and other supplies which could not be manufactured in the home. The oldest such landing in Little River County was Rocky Comfort. Millwood Landing, for which Millwood Lake was named, was in use from 1845 to 1875. Cottonshed Landing is so named because of the large shed once built there to store cotton until the Saline River reached flood stage, allowing barge access to that point.

b. Trails. - Several important trails crossed this section of Arkansas in its early history, a number of them intersecting at Washington, Arkansas. The Southwest Trail, otherwise known as the Military Road or the Natchitoches Trail, was the first to cross the territory. The Chihuahua Trail passed through Washington and Fulton Landing. A segment of the Washington or Old Shreveport Road passed through the area inundated by Millwood Lake. These trails offered an alternative to the river routes for access to the area.

c. Paraclifta. - The town of Paraclifta, formerly located about 6 miles northwest of Wilton Landing, was the cultural center of the region encompassing southwestern Arkansas, northeast Texas, and southeastern Oklahoma from about 1820 to 1872. Teas and social functions were frequently held in its antebellum homes with their southern colonial flavor. An agrarian society, the inhabitants looked forward to navigation of the Red River to make possible the shipment of their farm products to market. When the removal of

the Red River log raft made the river even less navigable, Paraclifta began to decline. In 1872, the same year the log raft removal was completed, the Missouri-Kansas-Texas Railroad was completed to Denison, Texas, bypassing southwestern Arkansas and stimulating growth to the west. Paraclifta was abandoned. The bank was moved to the present location of Lockesburg, and all that remains of a once-thriving community is a sealed subterranean vault containing the town records and some cast-iron columns surrounding a stone monument.

d. Washington. - The town of Washington, located on Arkansas State Highway 73 approximately 10 miles east of Millwood Lake, is one of the oldest incorporated towns in Arkansas. During the early days of Arkansas, Washington was the scene of a number of historic events. There, in 1831, James Black fashioned the knife that was made famous by Jim Bowie. In 1836, Sam Houston gathered his troops in Washington to plot the Texas Revolution. When Little Rock was captured by Union forces during the Civil War, Washington became the Confederate capital of Arkansas and remained so until the war ended. The Washington Telegraph, which published news from the Confederate standpoint, was one of the few newspapers not forced out of business by circumstances of the war.

e. Brochure. - The project brochure calls attention to the history of the area. An information sign identifying the Cottonshed Landing site will be erected as part of the recreational development. Historical information and displays will also be included in the planned interpretive center.

4-04. Ecology.

a. General. - The Millwood Lake area is characterized by rolling and hilly uplands, occasional prairie, and extensive bottom land cover types. The lake is situated mostly in the bottom lands with the outer areas of project lands extending into the rolling hills. There are three major ecosystems now associated with the project area - the lake, the bottom land hardwood forest, and the shortleaf and loblolly pine forest.

b. Lake. - The lake ecosystem will not be changed drastically by the development proposed in this plan. However, there will be a direct impact on the system from the increased use. The additional people will impose increased demands on the fishery. This is not necessarily an undesirable impact, but is one that creates change. Also, people add pollution in the forms of solid waste, sewage, dust, and noise. These pollutants cause mostly adverse changes and degrade the environment. Constant monitoring of this ecosystem will be necessary to ensure that such degradation is not allowed to exceed tolerable limits.

c. Bottom land hardwood forest. - Adjacent to the lake and along its tributary rivers and streams are found the bottom land hardwood forests. This ecosystem is an important producer of most of the wildlife species in the area and, unfortunately, also provides the best locations for public-use areas. Development in three of the four proposed public-use areas will change this type of ecosystem into the artificial type, characteristic of a public-use area. These portions will lose most of their natural productivity. The development will add people who will potentially pollute the area and the environment and its aesthetic appeal. Wastes attract undesirable insects and vermin, creating an unhealthy situation. The same monitoring described above will be required for this ecosystem.

d. Shortleaf and loblolly pine forest. - The shortleaf and loblolly pine forest ecosystem is located on the higher ground with some intermingling with the bottom land hardwood forests. Only fractional areas of this type will be affected by the proposed plan of development. Some large areas of this type will be zoned for wildlife and either left in their natural state or managed for wildlife.

4-05. Environmental and scenic qualities.

a. Topography. - Millwood Lake is located in a wide, flat valley which offers few significant variations in the configuration of the terrain. Exceptions are the bluffs which rise sharply out of the water along the east shore near the dam at Beard's Bluff, along the east shoreline of the Little River at White Cliffs public-use area, and the steep slopes along the southwest shoreline where Millwood Park is located. The contrast that these steep slopes offer to the otherwise flat, monotonous terrain makes them quite scenic.

b. Vegetation. - The forest area around Millwood Lake is principally hardwoods interspersed with scattered pines. On the flood plains, hardwoods such as ash, river birch, black gum, hackberry, hickory, sycamore, willow, willow oak, water oak, and various other species of oak are predominant. On higher ground, the cover consists of loblolly pine, southern red oak with associated red gum, shortleaf pine, post oak, and persimmon. Most of the project lands are moderately to heavily forested, but small open areas which were cultivated or used for pastureland are still scattered throughout the wooded areas.

c. Land uses. - Project lands are allocated to one of three uses: project operation, recreation, or wildlife management. Lands allocated for recreation are further divided into three categories: intensive recreation use, natural areas, and lands acquired specifically for recreation development. Due to the limited amount of public land and the large visitation experienced at the project, these

purposes are considered to be the only use for which project lands should be allocated to achieve the goals of conservation of project resources and accommodation of recreationists. Most lands adjoining the fee lands are flowage easement lands and consequently cannot be developed extensively. These lands are principally used for production of timber and agricultural products. Where private land overlooks the main body of the lake, however, subdivisions and trailer parks are being developed in close proximity to public-use areas which is the case at Millwood Park and at Saratoga Landing where, in addition to private residences, a concession and motel have been developed adjacent to and overlooking the public-use area. This type of development detracts from the natural beauty of the shoreline and conflicts with public enjoyment of the lake, but little can be done to control it except to monitor the accompanying pollution.

d. Visual. - Millwood is a relatively unattractive lake because of the shallow water, the large expanses of dead timber left standing in the water, and the extensive mudflats in some areas of the shoreline. Several scenic areas do exist, however, including the vista from the Beard's Bluff overlook and the steep bluffs at White Cliffs and Millwood Park. Other areas on the lake which offer no scenic vistas still produce a pleasant aesthetic experience when one enters them. The heavily forested areas at Cypress Slough, Cottonshed Landing, and Wilton Landing offer a pleasing combination of tall pines, hardwoods, and characteristic understory. The evergreens provide year-round beauty which is enhanced by the spring and fall colors of the hardwoods and the flowering periods of the understory trees. At other locations in shallow areas of the lake, cypress trees with Spanish moss in their branches, dead trees standing in the water, varied wildlife species, and early morning haze combine to create swampland environments that provide a unique visual experience for the visitor.

e. Water quality. - The water quality of the lake is excellent by most standards, but adds little to the scenic qualities because of the geographic characteristics of the lake. The open, shallow areas which dominate the lake are often turbid from wave action. However, the swampy areas of standing vegetation in the upper end of the lake are enhanced by the high quality inflows from tributaries rising in the mountainous areas of southwestern Arkansas and southeastern Oklahoma.

4-06. Recreation.

a. Existing recreational use. - The attendance figures during the first 6 years of project operation are summarized in table 2-2. The participation rates for various activities during the past 3 years (1970-1972) are listed in table 4-1. To date, fishing has been the principal recreation activity, accounting

for almost 50 percent of the total participation. Second in percent of participants is sightseeing, followed by picnicking, then camping. Boating for pleasure is fifth, although the percentage of boaters would be significantly higher if the visitors who fish from boats were included in the number of boaters. Swimmers account for less than 1 percent of participants, and the percentage of skiers is nearly zero.

TABLE 4-1

AVERAGE RATES OF PARTICIPATION IN RECREATIONAL ACTIVITIES AT MILLWOOD LAKE, 1970-1972(1)

Area	Average percent of visitors participating in activity								Total (2)
	Camping	Picnicking	Boating	Fishing	Hunting	Sightseeing	Skiing	Swimming	
Cypress Slough	21.8	10.4	17.0	61.2	-	10.8	0.4	2.5	124.1
River Run	9.3	5.6	5.3	73.7	-	13.9	-	-	107.8
Beard Lake(3)	-	-	-	-	-	-	-	-	-
Beard's Bluff	22.0	10.6	17.9	54.1	-	8.9	0.5	4.8	118.8
Saratoga Landing	18.1	8.7	11.6	66.7	-	4.6	-	0.9	110.6
Cottonshed Landing	14.5	-	25.3	65.2	-	-	-	-	105.0
Paraloma Landing	31.0	7.8	18.7	62.6	-	7.0	-	-	127.1
White Cliffs	21.0	9.4	16.7	60.2	-	5.8	-	-	113.1
Wilton Landing	10.7	6.5	27.6	71.5	-	8.1	-	-	124.4
Millwood Park	29.3	8.6	21.2	59.1	-	10.2	-	-	128.4
Overlooks	-	34.3	-	-	-	72.8	-	-	107.1
Other areas	9.1	7.0	11.7	48.5	31.4	9.8	-	-	117.5
Millwood Lake (overall)	14.5	15.2	11.3	52.1	2.5	20.6	0.1	0.9	117.2

(1) Based on field estimates recorded on monthly project vistitation data reports.
(2) Totals exceeded 100 percent because many visitors participate in more than one activity per visit.
(3) Not recorded separately - included in total for River Run.

b. Recreational uses to be featured. - The unique character of the lake accounts for the peculiar nature of the visitation. The amount of cleared water area is limited, and even those areas are shallow and have many hidden obstructions. This condition limits power boating to small craft, and all but prohibits water skiing. The lake bottom is muddy and the water somewhat turbid near the shoreline, making for limited swimming potential. Camping and picnicking participation rates compare favorably with other projects in the area, although limited land area and facilities create overcrowded conditions in most camping and picnicking areas. The quality of the fishery and, to a lesser degree, the minimal amount of interference from swimmers, water skiers, and pleasure boaters account for the extremely large percentage of fishermen. A critical need exists to supply facilities to meet the needs of current and future project visitation, and the largest percentage of visitors can be accommodated by building more access roads, boat ramps, and parking areas. However, balanced development is also necessary, and more emphasis should be placed on realization of the educational/scientific potential of the project. Recreational trends indicate that more and better camping and picnicking facilities are needed, but a demand for hiking and nature trails, interpretive facilities, and facilities to accommodate the handicapped is developing. The plan formulated herein proposes the maximum development of existing lands and lands approved for purchase to accommodate as much of the existing and anticipated visitation as possible without destroying the natural resources of the project. Limitations imposed by the terrain, shoreline, and conditions of flooding prohibit the siting and development of all the facilities necessary to serve the maximum anticipated peak-day attendance. Plans for facilities to accommodate the handicapped and visitors who desire to participate in new forms of recreational activities have also been included.

V - FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT

5-01. General considerations. - Properly planned and administered, the complete development of the project to accommodate as much of the expected visitation as possible will do more to conserve the resources listed in section IV than nondevelopment under existing visitation pressure. Natural vegetation and shorelines in undeveloped and underdeveloped areas are already being damaged by the large numbers of visitors who frequent the areas. When implemented, the planned development will point out the recreational and environmental resources of the project and encourage the visitor to enjoy them with a minimum of damage to the resources.

5-02. Demographic considerations.

a. Housing development. - Land use adjacent to Government property does much to discourage further recreational development. Most of the area that is not subject to flooding has been subdivided for homesites. At Saratoga Landing in particular, homes and trailer houses overlook the existing public-use area and severely limit its aesthetic value and desirability for public use. More seriously, some landfills a private developer recently constructed on a hill immediately above a portion of Saratoga Landing public-use area failed after heavy rains and caused a mud slide which buried many public-use facilities. Most available land which is not subject to flooding is being developed in the same indiscriminate manner, making future acquisition of additional land suitable for recreational development very difficult.

b. Industry. - Industry on and near the project has little effect on resource development, except in one case. The Ideal Cement Company, located at Okay, Arkansas, near the proposed Okay Dike public-use area, carries on quarrying operations which they say would endanger lake visitors to the peninsula west of the plant. The Saline Landing public-use area, formerly proposed on that peninsula, was abandoned for that reason, although natural conditions there are conducive to recreational development. The Ideal Cement Company also controls the access to the former Saline Landing area as well as to the currently proposed Okay Dike public-use area and sometimes restricts public access to these areas. For this reason, purchase of an easement for an access road to Okay Dike is proposed under the current plan. The only other industry adjacent to the project is the Braswell Sand and Gravel Company, a sand and gravel quarrying and classifying operation located partially on Government property on the south bank of the Little River about one-third mile east of U.S. Highway 71 (see plate 93/22). The quarrying operation is extensive and the large scar on the landscape as well as the classifier and material stockpiles have created an adverse

visual effect. The operation is quite noisy, and the washing and screening process contributes to the turbidity of the Little River at the discharge point. Other than its adverse effect on the aesthetics of the general area, the operation offers no direct interference with recreational development of project lands. The closest public-use area is Wilton Landing, which is screened from the sand and gravel plant by U.S. Highway 71. The Nekoosa-Edwards papermill in Ashdown, Arkansas, takes water from the lake to be used in the manufacture of paper products, and the Weyerhaeuser Company conducts logging operations on flowage easement lands. Neither of these activities has interfered with development since the project went into operation, although the lumber industry, prior to relinguishing the land, cleared most of the large trees from some areas purchased for public use.

c. Agriculture. - Agricultural activities on or adjacent to project lands have not interfered with development of project resources, except in a few isolated cases. Purchase of additional land for recreational development was approved in Supplement No. 3 to the Master Plan, but the proposal was later abandoned when the owner cleared the proposed purchase area to plant soybeans, making it practically worthless for recreational development. Almost all the flowage easement lands are used for agricultural and grazing purposes, which do not conflict with the development and management of project resources.

d. Socio-economic. - Table 5-1, which was compiled from 1970 census figures, summarizes some of the social and economic characteristics of the population of the four-county area surrounding Millwood Lake, as compared with the averages for the State of Arkansas and the United States as a whole. Although most of the characteristics for the four-county area roughly correspond to the averages for the State of Arkansas, several significant differences are evident between the four-county averages and the national averages. The area has a high percentage of rural households, both on farms and otherwise. The median income is significantly lower, and the percent of families with incomes below the poverty level and the percent of unemployed are high. The educational level is lower than the national average, and the median age is higher. All these figures indicate that the area immediately surrounding Millwood Lake is an economically depressed, predominantly rural area, with a higher percentage of older citizens. Fishing at Millwood Lake is the principal recreational activity for many of the area residents, and fish is probably a staple in the diet of some. The depressed economy and the rural character of the area are deterrents to obtaining local cooperation in development of recreation areas at Millwood Lake.

TABLE 5-1

SOCIAL AND ECONOMIC CHARACTERISTICS OF THE FOUR-COUNTY AREA SURROUNDING MILLWOOD LAKE
(1970 census)

Item	Hempstead County	Howard County	Little River County	Sevier County	Four-county average	State of Arkansas	United States average
Population	19,308	11,412	11,194	11,272	-	-	-
Percent rural							
Nonfarm	41.3	49.9	56.7	53.8	50.4	38.3	22.4
Farm	12.9	14.9	13.0	12.4	13.3	11.7	4.1
Median income	$5,457	$6,307	$6,587	$6,552	$6,226	$6,273	$9,590
Percent of families with income below poverty level	28.3	19.3	23.9	19.9	22.8	22.8	13.7
Percent of families with income of $15,000 or more	6.9	5.5	5.9	5.2	5.9	8.1	20.7
Percent unemployed	5.9	3.6	7.5	4.3	5.3	5.7	4.4
Median age	34.1	35.6	27.2	34.5	32.9	29.1	28.1
Median school years completed (persons 25 years of age and older)	10.4	9.7	9.7	10.2	10.0	10.5	12.1

5-03. Topography and geology.

a. Terrain. - The topography of the project area is flat to gently sloping, with the exceptions of the steep hills along the east shore near the dam and in the White Cliffs and Millwood Park regions. The flat terrain, coupled with the frequency of flooding, is a deterrent to development in most public-use areas. Eight of the 10 existing and planned public-use areas are subject to total or nearly total inundation when a 50-year flood occurs, and 70 percent inundation with a 5-year flood. This degree of flooding makes construction of costly structures that are subject to damage by water and wave action impractical and prevents the siting of sewage disposal facilities. However, the heavy visitation makes development of these areas imperative. Facilities have therefore been proposed in locations subject to degrees of flooding that at another project would cause planners to seek alternate sites. At Millwood, there are no alternate sites; the choice is between developing facilities which will be subject to frequent flooding or developing no facilities at all. Consequently, extensive developments are planned in all areas, but waterborne toilets are provided in only those areas where treatment facilities can be located above the flood pool. Insufficient water depths at normal pool elevation are caused by mild slopes which continue below the water level. These conditions cause problems in siting boat ramps and marina facilities, which can only be solved by excavation or locating the facilities in old river channels. Both of these solutions have been employed in the plan of development. Excessive slopes are not as recurrent a problem as flooding or water depths, but in the two areas on public land that are above the flood pool the steep slopes cause difficulties in siting roads, camping facilities, and sewage disposal units. Extensive cuts and fills have been avoided because, besides being aesthetically undesirable, they cause slide problems in the type soil that is predominant at Millwood. Again, as in areas subject to flooding, necessity dictated that facilities be located in areas which are not highly conducive to development. Modification of standard layouts was necessary in many cases in order to site as many facilities as possible with minimum damage to the natural environment.

b. Geology. - Geologic formations on and near project lands are some of the area's more important resources. Fossil-bearing formations and type localities contribute to the scientific value of the project area. The major geological constraints to resource development are the soil types common to the project area. In particular, the Marlbrook marl in and around Saratoga Landing public-use area makes a poor foundation material. Its instability, together with the frequency of flooding, makes construction and maintenance of roads difficult and expensive.

5-04. Accessibility.

a. Roads.

(1) Interstate. - Interstate Highway 30, a four-lane limited access highway, crosses from northeast to southwest about 11 miles south of the dam, providing access from major population centers in Arkansas and Texas.

(2) Federal. - U.S. Highway 71, a paved two-lane highway which runs north and south, crosses the upper end of the lake at Wilton Landing public-use areas. U.S. Highway 67, also a paved two-lane road, parallels Interstate Highway 30 about 11 miles south of the project.

(3) State. - Arkansas State Highway 355 runs north and south near the east shore of the lake, and State Highway 27 runs east and west about 5 to 10 miles north of the project. State Highway 32, which crosses the dam and provides access to the south side of the lake, connects with State Highway 355 and U.S. Highway 71. These are all good quality paved two-lane roads. State Highway 108, which runs east and west and terminates at Wilton, Arkansas, and State Highway 234, which follows the Kansas City Southern Railway and terminates at Allene, Arkansas, are both paved two-lane roads but are of poorer quality than the other State highways.

(4) County. - Most of the county roads in and near the project area are two-lane gravel roads and are generally well maintained. This is particularly true of the access roads to the public-use areas. The connecting road between the existing development at Saratoga Landing public-use area and State Highway 32 is paved.

(5) Private. - Access to one proposed public-use area, Okay Dike, is currently via a private road maintained by the Ideal Cement Company. Since this road can be closed to the public, an easement for an alternate access route would be purchased prior to development of the area.

(6) Access. - Only a few new access roads are proposed in this plan since good access roads are already provided by other public agencies. Access to the additional land at Saratoga Landing would be by way of an existing private road which will be purchased with the land and improved. As previously mentioned, an access road easement would be purchased at Okay Dike public-use area. The Howard County Judge has constructed a gravel access road to the Government property line on the west side of Cottonshed Landing, but an easement for an additional access road is proposed to tie into another existing county road one-half mile east of the new one. An access ramp easement would be requested from the Arkansas State Highway Department to allow construction of an additional road into Wilton Landing.

b. Airports. - Two commercial airports are located near the project. Texarkana Municipal Airport is approximately 17 air miles from Millwood Lake, and Hope Municipal Airport is 18 air miles from the project.

5-05. Area of influence.

a. Population. - Millwood Lake is located approximately in the center of a four-county study area comprised of Hempstead, Howard, Little River, and Sevier Counties in southwestern Arkansas. The four-county area is sparsely populated, with the 1970 census figures showing a total of 53,186. As shown in table 5-2, this is a gain of 3,280 over the 1960 population (49,906) and a loss of 9,219 from the 1950 population (62,405). The total population of the four-county area is expected to increase to 57,500 in 1980, 66,600 in 2000, and 76,500 in 2020.

TABLE 5-2

POPULATION TRENDS IN THE MILLWOOD AREA

County	Recorded population			Projected population		
	1950	1960	1970	1980	2000	2020
Little River	11,690	9,211	11,194	13,500	15,600	18,000
Sevier	12,293	10,156	11,272	12,500	14,500	17,000
Howard	13,342	10,878	11,412	12,000	14,000	16,500
Hempstead	25,080	19,661	19,308	19,500	22,500	25,000
Total	62,405	49,906	53,186	57,500	66,600	76,500

b. Economy. - Total employment for the Office of Business Research Economic Area 131, which includes the four counties bordering Millwood Lake, has increased at a steady rate since 1959 and is expected to continue to increase in the future. Historical and projected income for the area are: manufacturing; wholesale and retail trade; civilian government; services; transportation; community and public utilities; agriculture; forestry and fisheries; and contract construction. Industrial production and employment in the four-county area is centered around the forest industry, poultry processing, and production of cement. The Ideal Cement Company at Okay, the Nekoosa-Edwards papermill at Ashdown, and the Weyerhaeuser Company are the three principal employers in the area. The most important agricultural resource in the four-county area is livestock, although some crops are grown. Soybeans and hay are the leading field crops. In recent years the application of modern agricultural practices, diversification of farm revenue producing activities, and an increase

in average farm size, accompanied by a decrease in the total number of farms, have combined to improve agricultural economy.

c. Visitation market area. - The visitation market area is the area from which 90 percent of the visitors to the project originate. For Millwood, this is estimated to be the region within 75 highway miles of the project. The visitation market area has been broken down further into increments of 10, 20, 30, 40, 50, and 75 highway miles, as shown on drawing 93/1. Table 5-3 shows cities with populations of 1,000 or more which are located within the visitation market area of Millwood Lake.

TABLE 5-3

CITIES WITH POPULATIONS OF 1,000 OR MORE LOCATED WITHIN VISITATION MARKET AREA OF MILLWOOD LAKE

Zone	City	1970 population	Highway distance (miles)
10 miles	-	-	-
20 miles	Ashdown, Arkansas	3,522	11
	Nashville, Arkansas	4,016	17
30 miles	Foreman, Arkansas	1,132	28
	Hope, Arkansas	8,810	29
	Texarkana, Arkansas and Texas	52,179	29
40 miles	DeQueen, Arkansas	3,863	31
	Murfreesboro, Arkansas	1,333	31
	Dierks, Arkansas	1,144	35
50 miles	Hooks, Texas	2,545	41
	Prescott, Arkansas	3,921	45
	New Boston, Texas	4,034	46
	Maud, Texas	1,105	49
	Queen City, Texas	1,200	49
75 miles	Lewisville, Arkansas	1,669	52
	Atlanta, Texas	5,007	53
	Glenwood, Arkansas	1,198	55
	DeKalb, Texas	2,181	56
	Broken Bow, Oklahoma	2,980	58
	Stamps, Arkansas	2,446	58
	Waldo, Arkansas	1,658	59
	Gardon, Arkansas	2,052	60
	Idabel, Oklahoma	5,946	63
	Magnolia, Arkansas	11,303	65
	Linden, Texas	1,994	66
	Naples, Texas	1,706	72
	Arkadelphia, Arkansas	9,841	73
	Stephens, Arkansas	1,169	74

5-06. Related recreational, historical, and scientific areas. - Table 5-4 lists points of interest within the visitation market area of the project. These sites are also shown on the vicinity

map, drawing 93/1. Although several water-oriented recreation areas are located in the zone of influence of Millwood Lake, none exhibit the peculiar characteristics that make Millwood so popular with fishermen.

TABLE 5-4

RELATED RECREATION AREAS

Area	Approximate highway distance (miles)	Type
Washington, Arkansas	10	Water-oriented recreation area
Murfreesboro Lake (authorized)	22	Do.
Dierks Lake (under construction)	35	Do.
Lake Greeson	37	Do.
Lake Texarkana	39	Do.
Ouachita National Forest	40	Forest, campgrounds
DeQueen Lake (under construction)	40	Water-oriented recreation area
Gillham Lake (under construction)	50	Do.
Broken Bow Lake	60	Do.
White Oak Lake	65	Do.
Poison Spring Battleground	70	Historical site
DeGray Lake	70	Water-oriented recreation area
Beaver's Bend State Park	70	Recreation-scenic area
McCurtain County Wilderness Area	70	Natural-scientific-scenic area
Black Bayou Lake (under construction)	70	Water-oriented recreation area
Bayou Bodcau Lake	80	Do.

5-07. Reservoir plan of operation. - The effects of flood control operation on public-use areas have already been discussed in paragraph 5-03. Raising the permanent pool elevation to the ultimate level in 1971 improved accessibility and water depths and increased public use and enjoyment of the lake. The periodic drawdown for control of aquatic vegetation leaves most access points dry and causes visitation to decrease for the 3- or 4-month period during which it is in effect. Without the drawdown, however, aquatic vegetation would reduce the quality of the fishery within a few years, and visitation would decline considerably.

5-08. Relocations.

a. Roads. - In general, road relocations accomplished during project construction improved the accessibility of the lake and increased visitation. However, the improved access also encouraged private development around the lake, which in turn degrades the quality of the natural environment and limits land available for public use.

b. Cemeteries. - Cemetery relocations have had no significant effect on the development of project resources.

c. Utilities. - One relocated high voltage powerline crosses an area which is being purchased for public-use development at Saratoga Landing. This powerline would be relocated again under the current plan. Other relocated powerlines near fee lands provide service to public-use areas and allow development of more sophisticated facilities.

5-09. Borrow areas. - Two earth borrow areas used during project construction are still evident on fee lands. One, containing about 50 acres, is located approximately 1 mile northwest of the Resident Office and is used as a sanitary landfill. The second is an 80-acre site located at the left abutment of the dam. Both of these areas are shown on drawing 93/18. Neither is in an area proposed for intensive development and, except for their adverse visual impact, neither has a significant effect on recreational development. Several old borrow areas are located in the water area. Generally, these borrow areas increase water depth and create more shoreline suitable for public use. This is the case at three public-use areas, Cypress Slough, Okay Dike, and Wilton Landing. Further excavations to improve water depths are proposed in the borrow areas at Cypress Slough and Okay Dike.

5-10. Water quality. - The water quality of the Little River system is considered excellent. Concentrations of all chemical constituents tested over the period of record indicate they are well within the U.S. Public Health Service drinking water standards.

A few water quality factors, such as iron, manganese, turbidity, and color, occasionally exceed the suggested limits of the Public Health Service but do not cause the water to be rejected for drinking water purposes. The water in Millwood Lake is slightly high in turbidity due to suspended solids in the inflow and wave action within the shallow lake. The lake, however, is lower in total dissolved solids than the water in the Little River at Horatio, Arkansas. The majority of the data recorded for the Millwood tailwater are based on one sample taken approximately 1 year after impoundment of the lake. These figures have probably improved in the subsequent years. During the first few years after inundation of an area of uncleared vegetation, such as Millwood Lake, organic decay lowers dissolved oxygen and increases such factors as biochemical oxygen demand, total dissolved solids, and color. As Millwood Lake matures, these factors can be expected to improve as the amount of organic decay decreases. Completion of several upstream lakes currently under construction will aid in lowering turbidity by reducing the suspended solids flowing into Millwood Lake from the Cossatot, Saline, and Little Rivers. In summary, the water quality in Millwood Lake and tailrace is within acceptable drinking water standards and several of the less desirable factors can be expected to improve in the future. Water quality, including physical, chemical, and biological analyses, has been recorded for the Little River at Horatio, Arkansas, since October 1968. Data for Millwood Lake and the tailrace area has been collected since September 1971. Grab samples in the tailwater and at various locations in the lake have been taken periodically, and readings of temperature, conductivity, and dissolved oxygen have been recorded monthly. The water quality data at Millwood Lake and the Horatio gage is shown in table 5-5.

TABLE 5-5

WATER QUALITY DATA FOR MILLWOOD LAKE

Quality factor	U.S. Public Health Service drinking water standards (1962)		Horatio gage(1)			Millwood Lake			Millwood tailrace		
	Suggested limit	Cause for rejection	Minimum recorded	Overall average	Maximum recorded	Minimum recorded	Overall average	Maximum recorded	Minimum recorded	Overall average	Maximum recorded
Barium (mg/l)	-	1.0	-	-	-	-	-	-	-	(2)0.03	-
Cadmium (mg/l)	-	0.01	-	-	-	-	-	-	-	(2)0	-
Chloride (mg/l)	250	-	2.0	8.3	30	(4)5.0	(4)9.7	(4)24	(3)2.7	(3)5.3	(3)8.1
Chromium (mg/l)	-	0.05	-	-	-	-	-	-	-	(2).0006	-
Copper (mg/l)	1.0	-	-	-	-	-	-	-	-	(2).001	-
Fluoride (mg/l)	(5)0.7-1.2	(5)1.4-2.4	-	-	-	-	-	-	(3)0	(3)0.05	(3)0.1
Iron (mg/l)	0.3	-	0.15	0.5	1.0	-	-	-	(3)0.03	(3)0.14	(3)0.37
Lead (mg/l)	-	0.05	-	-	-	-	-	-	-	(2).001	-
Manganese (mg/l)	0.05	-	0	0.03	-	-	-	-	(3)0	(3)0.17	(3)0.51
Nitrate (mg/l)	45	-	0	0.24	1.10	-	-	-	(3)0.2	(3)0.3	(3)0.5
Silver (mg/l)	-	0.05	-	-	-	-	-	-	-	(2).00006	-
Sulfate (mg/l)	250	-	2.0	5.8	11.0	(4)1.6	(4)4.3	(4)7.6	(3)2.7	(3)4.1	(3)7.2
Zinc (mg/l)	5	-	-	-	-	-	-	-	-	(2)0	-
Total Dissolved Solids (mg/l)	500	-	30	85	131	(4)52	(4)68	(4)102	(3)42	(3)52	(3)64
Specific Conductance ($\frac{\text{UMHOS}}{\text{CM}}$)	-	-	32	53.8	90	(6)40	(6)90	(6)300	(6)42	(6)78.3	(6)100
Turbidity (JTU)	5	-	-	-	-	-	-	-	(3)7.6	(3)12	(3)15
Color (Units)	15	-	0	20	50	-	-	-	(3)10	(3)22	(3)38
Dissolved Oxygen (mg/l)	-	-	6.0	8.8	12.5	(6)0.2	(6)6.0	(6)11.9	(6)6.0	(6)8.0	(6)13.2
Biochemical Oxygen Demand - 5-Day (mg/l)	-	-	0	1.9	5.1	-	-	-	-	-	-
Radium 226 (pCl/l)	-	3	-	-	-	-	-	-	-	(2).1	-
Strontium 90 (pCl/l)	-	10	-	-	-	-	-	-	-	(2)3.7	-

(1) Bimonthly samples on Little River near Horatio, Arkansas, October 1968 to September 1971, Water Resources Data for Arkansas, Part 2. Water Quality Records, 1969-1971.
(2) Single sample taken 9 November 1967, Water Resources Data for Arkansas, Part 2. Water Quality Records, U.S. Department of the Interior, Geological Survey, 1968.
(3) Four samples taken during water year October 1967 to September 1968, Water Resources Data for Arkansas, Part 2. Water Quality Records, 1968.
(4) Five samples taken at various depths and locations on Millwood Lake, September 1971, U.S. Army Corps of Engineers.
(5) Temperature dependent.
(6) Monthly sampling at various depths and locations on Millwood Lake, September 1971 to December 1972, U.S. Army Corps of Engineers.

5-11. Adaptability of spillway and other project structures for public use. - The area below the spillway and stilling basin is a popular spot for bank fishing. The paved roads from both ends of the embankment provide good access, but more parking area is needed close to the fishing area.

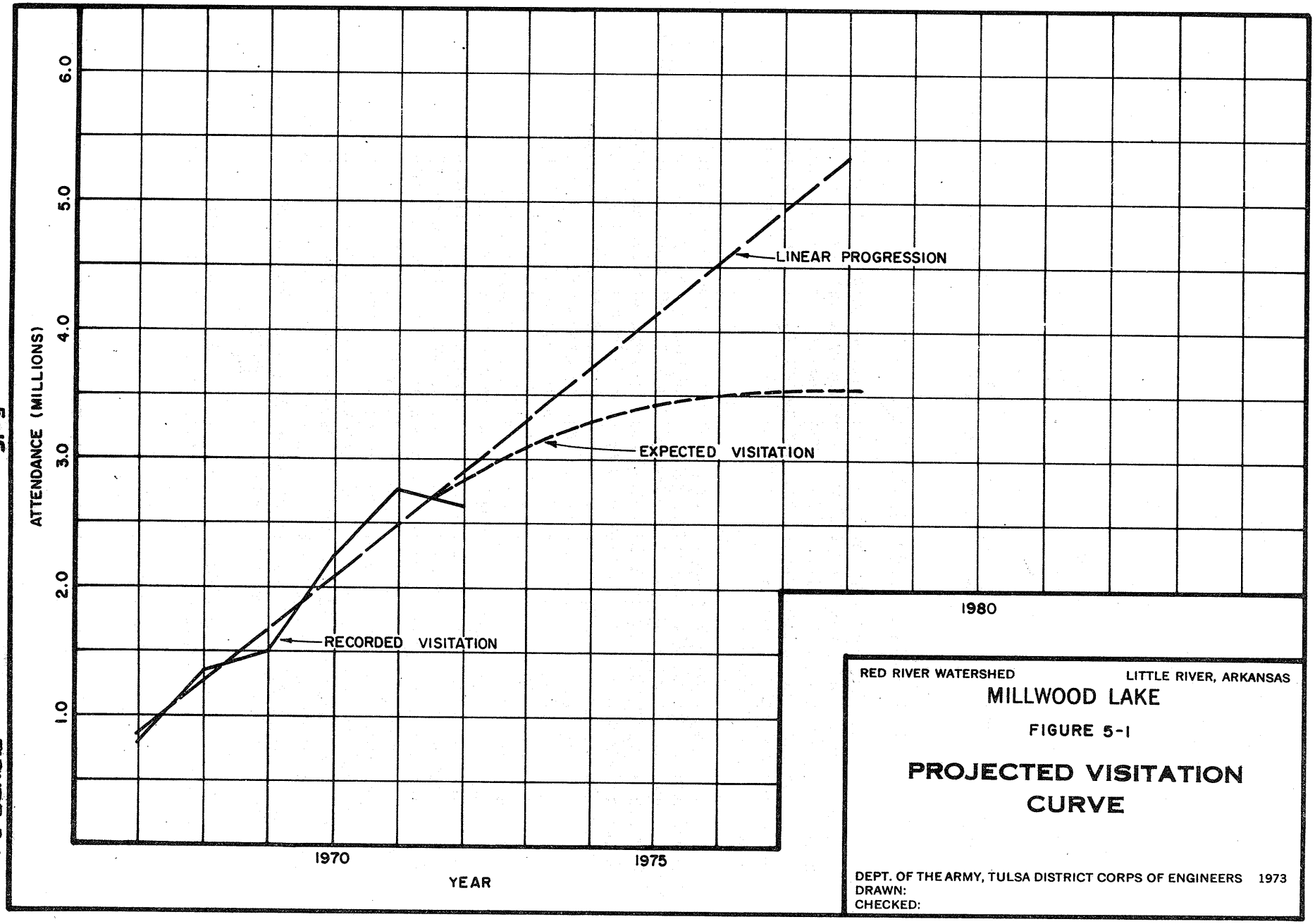
5-12. Preproject exploitation of mineral and timber resources.

a. Minerals. - The cement company and the sand and gravel operation mentioned in paragraph 5-02 above have an adverse effect on the aesthetics of the areas and the cement company restricts access to a previously planned public-use area, but the actual removal of the minerals has had an insignificant effect on the recreational potential of the project.

b. Timber. - Timber resources of the project area were apparently well managed before project construction began, but considerable damage was done to them during the land acquisition and construction phases of the project. As discussed earlier, the most desirable trees were removed from the Paraloma Landing area by the former owners just prior to its purchase, reducing its aesthetic and recreational value considerably. The embankment contractor cleared broad, straight swaths through the timber in the Cypress Slough area for haul roads, and the borrow area located there caused still more trees to be destroyed. The borrow operation at the left abutment scalped a hill there and neither the trees nor the ground cover have yet been restored. Fill for the Okay Dike was taken from the adjacent proposed recreation area, leaving little woody vegetation. Extensive block planting is proposed at Okay Dike public-use area, but the Paraloma Landing and Cypress Slough areas will be developed using the existing vegetation.

5-13. Anticipated attendance and demand for facilities.

a. Attendance. - Anticipated attendance is reflected in figure 5-1. A linear projection indicates the project will have 5,300,000 visitors by 1978 if the current trend continues. However, this projection is based on only a 6-year attendance record which is insufficient to make a valid quantitative projection. Visitation at almost all other projects in the Tulsa District increased at a rapid rate during the first 5 to 10 years of project operation, then stabilized or increased at a much slower rate. This is the pattern Millwood visitation is expected to follow. As the number of recreationists expand beyond the limits of the project resource it is expected that the visitation curve shall approximate that of the dashed line shown on the graph.



RED RIVER WATERSHED LITTLE RIVER, ARKANSAS

MILLWOOD LAKE

FIGURE 5-1

PROJECTED VISITATION CURVE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 1973
DRAWN:
CHECKED:

FIGURE 5-1

b. Facilities. - Participation rates and the resultant demand for facilities are not expected to change significantly. Provision of more day use and camping facilities will alleviate some of the overcrowding and make particiation in these activities more pleasant, thus creating slight increases in picnicking and camping. Similarly, as trails, playgrounds, and beaches become available, good use of these facilities is expected. Overall, however, the rates of participation are expected to remain much the same, with fishing being the predominant recreational activity. The present demand at Millwood and other District projects for facilities which are not provided currently or are in limited supply includes concession services, group campsites where several vehicles can park in close proximity to one another, playground facilities, hiking and nature trails, and interpretive facilities. All these facilities are included in this plan.

5-14. Application of Public Law 89-72.

a. Project status. - Millwood Lake became operational in fiscal year 1967, which placed it in category B for cost-sharing purposes according to ER 1120-2-404. That regulation provides that areas partially developed during project construction can be expanded or completed without cost sharing through 1980. Any new areas are subject to cost sharing.

b. Cost-sharing waivers. - A waiver of the cost-sharing requirements for development of Paraloma Landing, a new public-use area, was granted by 6th Indorsement ENGCW-PV/ENGCW-OR, dated 9 December 1970, to letter SWTED-AD, dated 29 August 1968, subject: Millwood Dam and Reservoir, Little River and Tributaries, Arkansas, Design Memorandum No. 5B, Master Plan for Millwood Reservoir, Supplement No. 3. A request for a similar waiver for development of Cottonshed Landing public-use area was denied by 10th Indorsement DAEN-CWP/V, dated 2 February 1973, to letter SWTED-PE, dated 12 April 1971, subject: Millwood Lake, Development of Cottonshed Landing Public-Use Area. No answer has been received to letter SWTED-PE, dated 18 August 1971, subject: Millwood Lake - Expansion of Public-Use Areas, which requested waiver of the requirement for implementation of a cost-sharing agreement prior to purchase of additional lands for recreational purposes. EC 1130-2-121, dated 14 March 1973, requires either 50 percent cost sharing or implementation of a user fee program which would recover all operation and maintenance and replacement costs for all recreational developments after 1 July 1973. The proposed expansion of existing areas as well as the construction of new areas at Millwood Lake under this plan would be subject to cost sharing under this administrative requirement.

c. Cost-sharing agreement. - Cypress Slough public-use area has been selected as the location of a proposed State park.

Negotiations with representatives of the State of Arkansas toward implementation of a cost-sharing agreement are underway.

d. User Fee Program. - The user fee program for public-use facilities will be implemented in accordance with existing regulations.

5-15. Environmental and ecological features.

a. Archeology. - Archeological and paleontological sites are abundant in the project area. Some of the more important sites have already been identified and these will be protected or avoided during public-use area construction activities. Others, however, have not yet been located and probably will not be until they are encountered during construction. Evaluation of their scientific value and determination of action to be taken will be made at that time, in cooperation with the National Park Service and the Arkansas Archeological Survey.

b. Timber. - The heavy tree cover offers a pleasing visual experience, contributes to the abundance of wildlife, and enhances the recreational potential of the project. Construction activities and heavy recreation use will have an adverse effect on the forest resources, particularly the stands of pines in Cypress Slough, Cottonshed Landing, and Paraloma Landing. However, roads and facilities have been planned and will be constructed with minimal tree removal, and recreation will be restricted in areas where overuse could cause excessive damage to the trees. Appendix B will present a comprehensive plan for management of the forest resources.

c. Wildlife. - The wildlife population will diminish in areas where recreation facilities are expanded, better access is provide, and more people congregate. Some large areas allocated for wildlife management will be left in their present state and managed by the Corps of Engineers. The area between Beard's Bluff and Saratoga Landing, which is used as a wintering area by bald eagles, is set aside as a natural area to preserve these birds and to allow them to be viewed from the water. Alligators are present in the project area, but are seldom seen, and will not be significantly disturbed by the proposed development.

VI - COORDINATION WITH OTHER AGENCIES

6-01. General. - Coordination with other governmental agencies and the public since 1966 is discussed in this section. Copies of significant correspondence are included in exhibit A.

6-02. Fish and Wildlife Service. - In a letter dated 13 September 1968, the Fish and Wildlife Service commented on the proposal to raise the conservation pool to elevation 259.2 for recreation purposes.

6-03. Arkansas Fish and Game Commission.

a. Conservation pool elevation. - The Arkansas Fish and Game Commission furnished their comments on the proposal to raise the conservation pool elevation in a letter dated 6 August 1968.

b. Aquatic vegetation control. - The Commission commented on the periodic drawdown for control of aquatic vegetation in a letter dated 22 January 1970.

6-04. Arkansas Planning Commission.

a. Recreational development. - The Commission discussed recreational development needed at Millwood Lake in a letter dated 26 July 1968.

b. Cost sharing. - On 22 October 1968, a meeting among representatives of the Arkansas Planning Commission, the Corps of Engineers, and local interests was held at the Millwood Resident Office. Development of various public-use areas and the requirement for cost sharing new recreational developments were discussed.

6-05. Arkansas Department of Parks and Tourism.

a. Beard's Bluff. - Representatives of the Arkansas Department of Parks and Tourism and the Corps of Engineers attended a meeting at the Arkansas State Capitol on 20 May 1968 to discuss establishment of a State park at Beard's Bluff. In a letter dated 28 March 1969, the Department expressed continued interest in the Beard's Bluff area.

b. Cypress Slough. - Meetings between representatives of the Corps of Engineers and the Arkansas Department of Parks and Tourism were held on 10 May 1973 at Devil's Den State Park, Arkansas, and on 24 May and 18 June 1973 at Millwood Lake to discuss cost-sharing development of a State park at Millwood Lake. Cypress Slough was selected as the site for the park at the 18 June meeting. Coordination is continuing on an informal basis.

6-06. Paraloma Landing Development Corporation. - This organization was incorporated as a local public agency to participate in the development of Paraloma Landing, as stated in their letter of 2 September 1970. However, it was determined that the Corporation is not a bona fide public agency as defined by Public Law 89-72, and the request was denied.

6-07. Public meetings.

a. General. - Recreational development at nine existing and proposed public-use areas was discussed in a public meeting conducted by the Corps of Engineers at Nashville, Arkansas, 17 May 1969.

b. Paraloma Landing. - On 22 July 1970, an informal meeting with local interests was held at the Millwood Resident Office to discuss recreational development at Paraloma Landing.

c. Aquatic vegetation control. - A public meeting conducted by the Arkansas Fish and Game Commission at Ashdown, Arkansas, on 25 May 1971, was attended by representatives of the Corps of Engineers. The periodic drawdown for control of aquatic vegetation and enhancement of the fishery was the subject of the meeting.

d. Recreation facilities study. - A public meeting conducted by the Corps of Engineers was held at Hope, Arkansas, on 9 July 1971. The land acquisitions and recreational developments proposed by the recreation facilities study approved in December 1970 were discussed at that meeting.

6-08. Cost-sharing letters. - The Tulsa District letter included in exhibit A was sent to the agencies listed below in an attempt to obtain expressions of interest in cost sharing at Millwood Lake. A similar letter was sent to the Governor of the State of Arkansas by the Little Rock District on 6 April 1973. No replies, other than those discussed above, have been received.

County Judge, Hempstead County, Arkansas
County Judge, Howard County, Arkansas
County Judge, Little River County, Arkansas
County Judge, Sevier County, Arkansas
Mayor of Ashdown, Arkansas
Mayor of Hope, Arkansas
Mayor of Nashville, Arkansas

VII - PHYSICAL PLAN OF DEVELOPMENT

7-01. Zoning.

a. Recreation. - Recreation sites and areas are shown on drawings 93/2 and 93/18 through 93/32. In light of the heavy visitation and the limited amount of public land available, all available areas having reasonable access to the water, suitable road access, and/or land suitable for recreational development were zoned "Recreation-Intensive Use."

b. Conservation. - Fish and wildlife conservation and management areas are shown on drawings 93/18 through 93/32. To date, the Arkansas Game and Fish Commission has exhibited no interest in obtaining a license to manage these lands. They will be maintained in their natural state and managed by the Corps for wildlife purposes. Hunting will be permitted on these lands during authorized seasons.

c. Natural areas. - Natural areas have been designated where narrow strips of public land occur between the lake and private lands. In general, these areas are so narrow that intensive development would be impractical. Most are quite scenic, and their best use is as a buffer zone to screen existing and future private developments from the lake. No grazing leases or hunting will be allowed in these areas.

d. Historical. - Two historical sites which are discussed in paragraph 4-03 are indicated on the drawings. These are Cottonshed Landing, drawing 93/23, and Paraclifta, drawing 93/26. Cottonshed Landing will be marked by a sign with a brief description of its significance. Paraclifta is already marked by a monument erected by others.

e. Archeological. - Archeological sites are also shown on the drawings but will not be marked on the ground until sufficient protection can be provided or until individual sites have been completely excavated. It is possible that some of the sites could be reconstructed for public display or marked at some future date, but until all the desired scientific data is obtained from them, erecting signs or markers would only invite pothunting and vandalism.

f. Geological. - Significant geological and paleontological sites are indicated on the drawings. Some of these sites have considerable scientific value, but for the most part the sites are of only passing interest to the general public. However, three sites have large numbers of readily visible fossils and should be of general interest. These are the formations at White Cliffs, Saratoga Landing, and Beard's Bluff. Unlike the archeological sites, these sites are

not highly subject to vandalism and signs are planned to point them out to visitors.

g. Interim land use. - No interim uses of project lands are planned. The available project land area at Millwood is so limited that all areas are needed for the purposes designated on the drawings.

h. Additional land. - Additional land requirements for public use are shown in tables 7-1 and 11-3. More land is needed than was previously proposed for Cottonshed Landing to allow the main area to follow an existing trail and minimize disturbance to the tree cover. Additional acreage is also needed at Wilton Landing to make additional desirable land available for development.

i. Environmental resources.

(1) Visual. - The visual resources of the project will be preserved by allocating fee lands which are not designated for project operations, recreation-intensive use, or wildlife management as "natural areas." This action will preserve a scenic strip of land between the lake and the adjacent private lands which are being developed rapidly.

(2) Biotic. - The biotic resources will be preserved to the maximum extent practicable by allocation of all lands which will not be intensively developed to wildlife management or natural areas. In intensively developed areas, natural vegetation will be disturbed as little as possible.

(3) Aquatic. - The aquatic resources of the project are protected by the character of the lake itself and by the management programs carried out by the Arkansas Game and Fish Commission in cooperation with the Corps of Engineers. High-speed boating will be prohibited, both by zoning and natural obstructions, in uncleared water areas.

j. Summary. - Table 7-1 summarizes the project land and water allocations for various purposes.

Note: Acreages in table 7-1 are in error, total acreages should be checked against R.E. land utilization chart before using them for any purpose.

TABLE 7-1

ALLOCATION OF LAND AND WATER AREAS

Purpose	Acreage		
	Existing	Proposed	Total
Operations			
Recreation-intensive use			
Cypress Slough	366	-	366
River Run	130	-	130
Beard Lake	74	-	74
Beard's Bluff	165	29	194
Saratoga Landing	132	252	384
Okay Dike	201	-	201
Cottonshed Landing(1)	135	157	292
Paraloma Landing	132	-	132
White Cliffs	58	-	58
Wilton Landing(1)	38	69	107
Millwood Park(2)	20	-	20
Total, Recreation-intensive use	1,451	507	1,958
Natural area	1,350	-	1,350
Wildlife management	5,600	-	5,600
Project operations			
Project administration area	58	-	58
Embankment	183	-	183
Okay Dike	213	-	213
Total, Project operations	454	-	454
Total, Land area	8,855	507	9,362
Water area			
Cleared	5,200	-	5,200
Uncleared(3)	19,300	-	19,300
Total, Water area	24,500	-	24,500
Total, Land and water areas	33,355	507	33,862

TABLE 7-1 (CON.)

Purpose	Acreage		
	Existing	Proposed	Total
Easements			
Roadway			
Saratoga Landing	-	5	5
Okay Dike(2)	-	2	2
Cottonshed Landing(2)	-	2	2
Total, Roadway	-	9	9
Flowage	93,432	(4)-280	93,152
Total, Easements	93,432	-271	93,161
Total, Fee land and easements	126,787	-	127,023

(1) Subject to cost sharing under Public Law 89-72.
(2) Developed and administered by Little River County Rural Development Authority, together with approximately 170 acres of adjacent private land.
(3) Boating speeds greater than 5 m.p.h. prohibited.
(4) Flowage easement lands included in proposed fee purchase area.

7-02. Project structures. - Both overlook structures and the project office have been landscaped using indigenous and introduced species of shrubs and trees.

7-03. Recreation site plans. - Descriptions of the public-use areas and the facilities proposed for each area are as follows:

a. Cypress Slough (drawings 93/3 and 93/4).

(1) Existing. - This is a low, flat, and heavily wooded area that is subject to frequent flooding. It is heavily used, however, and serves as a campground for fishing tournaments of both regional and national importance. The only marina facility on the lake is located here. Existing public-use facilities include two boat ramps, campsites, picnic sites, a beach, a playground, drinking water, and sanitary facilities including one shower-toilet. An overlook with waterborne toilets is located at the entrance to the area. The existing campsites have been shown as picnic sites on the drawings because it is planned to convert them to picnic sites when some of the proposed camping areas are developed. This action will permit greater control and better separation of activities. In the interim, the existing area will continue to be designated as a camping area.

(2) Proposed. - Proposed facilities include additional roads, parking, boat ramps, campsites, picnic sites, water supply, a softball field, a tennis-basketball court, vault-type toilets, and an educational display. No additional waterborne sanitary facilities are proposed because of the susceptibility to flooding. Extensive excavation in the old borrow area and small coves is proposed to create adequate water depths for boat launching and to make more shoreline accessible. The Cypress Slough area and adjoining lands have been selected as the site for a State park to be developed jointly by the Arkansas Department of Parks and Tourism and the Federal Government.

b. River Run (drawing 93/5).

(1) Existing. - Formerly named Outlet Channel public-use area, this site has been developed to accommodate fishermen and picnickers. Existing facilities include parking, picnic sites. and wood vault toilets.

(2) Proposed. - The proposed plan is to expand the existing facilities to include more parking for fishermen, more picnic facilities, two concrete boat ramps, two landing docks, drinking water, and additional wood vault toilets. The first phase of development will be construction of access roads and parking along both sides of the outlet channel, followed by development of boat launching and picnicking facilities.

c. Beard Lake (drawing 93/6).

(1) Existing. - The Beard Lake area is located on an old natural oxbow lake immediately below the dam. It is limited in area, and a proposal to purchase additional land to the south along both sides of the lake was abandoned when the present owner cleared the area of all tree cover. Existing in the area are picnicking facilities, wood vault toilets, a playground, and parking.

(2) Proposed. - It is proposed to develop the east side of the lake to accommodate the physically limited, although day use by able-bodied persons will be allowed. The terrain is flat, and the shoreline is conducive to the development of fishing docks accessible by ramps. Hard-surfaced trails are proposed to allow wheelchair access to all parts of the development. Combined picnic sites and campsites are designed to accommodate both day users and the limited number of physically limited persons who engage in overnight camping. No camping by able-bodied persons, except campanions of the physically limited, will be permitted in this area.

Waterborne sanitary facilities are proposed even though they will be sited below the flood pool, because of the difficulties encountered by physically limited persons when attempting to use vault-type facilities. A nature study area is planned to accommodate wheelchair visitors as well as the blind. The existing playground facilities will be relocated and a facility especially designed for physically limited children will be built. Design details are not yet complete for this area, but will be submitted prior to its construction. First priorities of development are the fishing docks and one waterborne toilet. Construction of the picnic and camp areas, the nature study area, and the boat ramp should then follow in that order. A cooperative program with the Arkansas Game and Fish Commission to keep the lake well stocked could also be instituted for the benefit of physically limited fishermen. It is proposed to develop the west side of the lake for camping and picnicking for able-bodied persons. Masonry vault toilets are proposed along with two wood frame vault toilets. Development of this area will be of lower priority than that of the eastern portion of the area.

d. Beard's Bluff (drawings 93/7 and 93/8).

(1) Existing. - The Beard's Bluff area is extensively used by boaters, campers, picnickers, swimmers, and sightseers. Facilities already constructed include camping and picnicking facilities, a boat ramp, a beach, and an overlook structure. The area is well forested with pines and hardwoods and is one of the few areas of the lake where facilities can be sited out of the flood pool.

(2) Proposed. - Acquisition of a 29-acre tract adjoining the existing area to the north is proposed. Access to this new area is provided by a gravel county road leading to an adjacent subdivision. The area encompasses a small pond which further enhances its recreational value. Proposed development in the existing and new areas includes additional picnicking facilities, waterborne sanitary facilities, relocation of the beach farther from the ramp, a nature trail, and both individual and informal group camping facilities. Priority of development is as follows: purchase of the additional land, construction of additional camping and access roads, excavation and construction of the additional boat ramp, development of the nature trail, construction of water supply and sanitary facilities, and completion of the camping, picnicking, and recreation areas.

e. Saratoga Landing (drawings 93/9 and 93/10).

(1) Existing. - Saratoga Landing is one of the most heavily used areas on the lake despite its limited area and the overcrowding that occurs there throughout the fishing season. Existing facilities include one double-lane and two single-lane boat ramps, parking, picnicking facilities, and vault-type toilets.

(2) Proposed. - Acquisition of 252 acres of additional land to the north of the existing Saratoga Landing development is proposed as shown on the site layout sheet, drawing 93/10, and drawings 93/18 and 93/23. This land is low near the lakeshore, rising abruptly to steep hills 600 to 800 feet from the lake. Tree cover is sparse to moderate and composed mostly of young hardwoods. The area is bisected by a high-voltage powerline. Although not particularly conducive to recreational development, most of this area is out of the flood pool, and high ground available for purchase is becoming scarce at Millwood. This was the determining factor in the decision to purchase this area for recreation. An access road right-of-way will be purchased along with the land. Proposed development includes a shoreline road connecting the existing public-use area with the additional acquisition, an extensive boat launching complex with provisions for a marina facility, picnicking areas, camping areas (to include informal group campsites), hiking trails, waterborne and vault-type sanitary facilities, beaches, playgrounds, and a softball field. The first priority of development is construction of the road connecting the two areas and improvement of the existing access to the new area. This will be followed by excavation of the necessary areas and development of the boat launching complex. Construction of the camping and picnicking loops, trails, and sports facilities will then follow.

f. Okay Dike (drawing 93/11).

(1) Existing. - This new public-use area, adjacent to the dike built for protection of the Ideal Cement Company, receives a number of visitors when the owner of the road leading to the area does not restrict public access. No facilities have been constructed, but fishermen launch their boats at natural ramps in the area to gain access to the upper end of the lake. The area, once a borrow area, is low and flat and treeless except along a small creek which runs through it.

(2) Proposed. - Proposed facilities include boat ramps, picnicking and camping facilities, a beach, vault-type toilet facilities, and drinking water. Reforestation of the area with block plantings is the first development priority. Construction of the access road, boat ramps, and parking areas should occur next, followed by development of the beach, camping, and picnicking areas.

g. Cottonshed Landing (drawings 93/12 and 93/13).

(1) Existing. - This new area is one of the most attractive on the lake. Heavily wooded with a mixture of evergreens and hardwoods, the gently rolling terrain is ideal for development of campsites. It is located on the old left bank of the Saline River which affords deep water for siting boat launching facilities.

The major disadvantage is that it is subject to flooding, which prohibits siting waterborne sanitary facilities. The Howard County Judge has constructed a gravel road to the Government property line on the west side of the area, and fishermen and hunters are using the area in spite of the lack of facilities.

(2) Proposed. - Purchase of an additional 157 acres is planned at this location. This is an increase of 15 acres over the amount previously approved. The additional acreage, a 250- by 2,000-foot strip, is needed to provide a buffer between the proposed recreational development and adjacent private property and to allow siting a circulatory road along an existing trail to minimize destruction to vegetation. The proposed development includes one double and two single boat ramps, individual and informal group campsites, picnic sites, playgrounds, softball fields, water supply, vault-type sanitary facilities, and provisions for a marina facility. All the commercial concession facilities will be floating structures due to the susceptibility of the area to flooding. Development will proceed from the end of the existing county road around the point, with access roads and ramps to be constructed first in each complex.

h. Paraloma Landing (drawing 93/14).

(1) Existing. - This area is low and flat, with moderate to heavy tree cover. Existing facilities include one double and one single boat ramp, a camping area, picnicking facilities, and vault-type sanitary facilities.

(2) Proposed. - Additional development proposed includes expansion of the existing camping area, addition of an informal camping area and a picnicking loop, an additional boat ramp, a softball field, a playground, a nature trail, water supply facilities, and vault-type sanitary facilities. Completion of the existing development will be accomplished first, to be followed by the development on the east side of the existing road.

i. White Cliffs (drawing 93/15).

(1) Existing. - This proposed area is significant from scientific as well as recreational and aesthetic standpoints. Prominent geologic formations laden with fossils are visible from the area, and several archeological sites have been identified and partially excavated in this area. Unfortunately, the area in Government ownership is subject to flooding, a fact which prohibits development of reconstructed archeological sites or expensive displays. The available public land is a long strip along the left bank of the Little River which affords water depths conducive to development of boat launching facilities.

(2) Proposed. - The development proposal is to construct a single two-way park road along an existing trail running the length of the site, with boat launching and parking loops, a camping loop, and individual camping and picnicking facilities distributed along the road. Development will occur in two stages, the first stage encompassing the road, ramp, and camping facilities from the existing county road south to the abandoned railroad fill. All the remaining development will be accomplished in the second stage.

j. Wilton Landing (drawing 93/16).

(1) Existing. - This area is adjacent to the relocated U.S. Highway 71 and is used by local fishermen who desire access to the Little River and the Cossatot River at the upper end of Millwood Lake. The Arkansas State Highway Department constructed an access ramp off the highway and a boat ramp. All the accessible public land has been developed; the remaining land is cut off by a long, narrow area into which the lake backs up.

(2) Proposed. - Additional land acquisition is proposed to make more area available for development and to allow construction of a road around the borrow area. The land proposed for acquisition is flat to gently sloping, moderately wooded, and includes two small ponds. The proposed development includes additional access and circulatory roads, an additional boat ramp, more picnic sites, campsites, vault-type sanitary facilities, and drinking water. Development will continue from the existing parking area along the old borrow area, then around the south end of the borrow area into the new acquisition area, in that order.

7-04. Schedule of development. - The proposed plan indicates the optimum development of project lands and additional acquisitions to accommodate as much of the project visitation as possible. The plan will be implemented as funds become available, but yearly appropriations of construction funds for recreation facilities at completed projects are limited and are now subject to cost sharing with local agencies. The recreational development is therefore designed for construction in stages with the least costly stage occurring first and subsequent stages being accomplished as funds permit. No definitive breakdown of the proposed development has been made because of the unpredictability of fund appropriations and the required flexibility to construct facilities where they are most needed.

7-05. Cost estimates. - Table 11-1 gives a summary of all the existing and proposed recreation facilities and their cost. Table 11-2 contains a breakdown of facility costs by recreation area. Table 11-3 gives the cost of additional land proposed for acquisition for recreational purposes.

VIII - FACILITY LOAD AND OTHER DESIGN CRITERIA

8-01. Siting.

a. Flooding. - The principal limiting factor in locating proposed facilities is the susceptibility of the site to flooding. In general, costly structures such as waterborne toilets are sited above elevation 287.0. Exceptions are made at Cypress Slough, where a shower-toilet is presently under construction at elevation 270.0 and at Beard Lake, where waterborne facilities are necessary to accommodate the handicapped. In all cases, water treatment and sewage disposal facilities were sited above the flood pool. However, the majority of the campsites, picnic sites, roads, playgrounds, and vault-type toilets were sited in the flood pool because virtually all the available land in seven of the 10 recreation areas is below elevation 287.0. Facilities are located above elevation 270.0 (7-year flood) wherever possible, but even this was not feasible in many instances. Fortunately, because of the standing timber in the water area and the protected locations of the public-use areas, damage from wave action should not be severe when facilities are flooded.

b. Boat ramps. - Whenever possible, boat ramps are sited in old river channels or other locations having adequate water depths under drawdown conditions. The maximum bottom elevation desired is 252.0, 3 feet below the periodic drawdown. At Cypress Slough, Beard's Bluff (North), Saratoga Landing, and Okay Dike, however, extensive dredging will be required to gain the depth needed. Some excavation will be required at Paraloma Landing and Wilton Landing. Clearing in the water area will be necessary at Saratoga Landing, Cottonshed Landing, and Wilton Landing.

c. Campsites. - Campsites are sited in flat or gently sloping terrain whenever possible, but the critical shortage of land required that some be sited on steep slopes, especially in the additional acquisition at Saratoga Landing. Where this was necessary, pulloffs are designed running parallel to the road, with the picnic tables and other facilities located down the slope a short distance. Railroad-tie retaining walls will be used to control erosion and present a pleasing appearance. In spite of attempts to use every available area, it was not feasible to site adequate camping facilities to support even the current visitation.

d. Picnic sites. - Criteria for picnic sites are much the same as for campsites, but picnic sites can be located on more severe slopes since the areal requirement is smaller and the parking spaces need not be as level. Picnic sites were usually spaced closer together than individual campsites, making more sites possible. For this reason, it was possible to site an adequate number of

picnicking facilities to support the maximum number of visitors expected.

e. Playgrounds. - Playgrounds are sited in camping and picnicking areas in locations where the natural terrain could be integrated into the play experience. Mounds, boulders, trees, and adequate ground cover are some of the desirable features of a site.

f. Sport areas. - Softball fields and other sports areas are sited in flat, grassy areas, and when possible, where minimal clearing will be necessary.

g. Facilities for the handicapped. - Facilities for the physically limited require gentle slopes (less than 1V on 12H) to allow ramps and walks for wheelchairs. Otherwise, desirable site characteristics are the same as those for conventional camping and picnicking sites.

h. Trails. - Pedestrian trails are sited in areas with good tree cover and variable topography. However, steep bluffs, gullies, and other hazardous areas are avoided where possible.

i. Fishing areas. - Shoreline fishing areas are sited where steep bank slopes and adequate water depths allow bank fishermen to get close enough to cast into promising spots.

8-02. Water systems.

a. Wells. - A well with an 8,000-gallon storage tank and pressure pump is under construction at Saratoga Landing and is shown as existing on the plans. New wells with storage tanks and pressure pumps are proposed at five additional areas (Okay Dike, Cottonshed Landing, Paraloma Landing, White Cliffs, and Wilton Landing). The design capacities of the wells at the various areas are shown in table 8-1. Geological information indicates that potable water can be obtained from wells drilled 700 to 750 feet deep, but that yields of only about 5 g.p.m. can be expected. For this reason, new wells were planned only at areas having no waterborne sanitary facilities. An existing artesian well at Paraloma Landing has been redrilled as a source of water in that area.

b. Lake systems. - Lake intake and filter systems are currently under construction at Cypress Slough and Beard's Bluff and are shown as existing facilities on the site layout sheets. An additional unit is proposed in the previously undeveloped portion of Saratoga Landing. The treatment plant at Cypress Slough is being constructed on the site, but the systems at Beard's Bluff and Saratoga

Landing will be package units. The treatment facilities at Cypress Slough and Beard's Bluff are low-yield units, and it will be necessary to supplement them when the need to serve all the proposed development arises. The ultimate capacities proposed for all three units are shown in table 8-1.

TABLE 8-1

WATER SUPPLY FACILITIES

Area	Requirement (1) (g.p.d.)	Water source	Yield of well treatment unit (g.p.m.) Existing	Yield of well treatment unit (g.p.m.) Proposed	Capacity of storage tanks (gal.) Existing	Capacity of storage tanks (gal.) Proposed
Cypress Slough	15,000	Lake	3	10	2,000	13,000
River Run	4,500	Lake	-	(2)	-	(3)
Beard Lake	12,000	Lake	-	(2)	-	17,000
Beard's Bluff (South)	7,000	Lake	2	25	2,500	5,000
Beard's Bluff (North)	10,000	Lake	-	(2)	-	10,000
Saratoga Landing (South)	8,000	Well	5	-	8,000	-
Saratoga Landing (North)	57,000	Lake	-	50	-	57,000
Okay Dike	9,500	Two wells	-	10	-	10,000
Cottonshed Landing	8,500	Two wells	-	10	-	10,000
Paraloma Landing	3,500	Well	-	5	-	4,000
White Cliffs	3,000	Well	-	5	-	3,000
Wilton Landing	3,000	Well	-	5	-	3,000

(1) Based on criteria in EM 1110-2-400.
(2) Water supply drawn from lake intake and filter system at Beard's Bluff (South).
(3) Combined with Beard Lake storage tank.

8-03. Waste collection and treatment systems.

a. Flooding. - Most of the public lands are below flood pool, making siting of any type of disposal system for waterborne wastes infeasible. Only two areas have both waterborne toilets and disposal facilites sited above the flood control pool, elevation 287.0. At two other areas, wastes are collected from waterborne toilets and pumped to disposal facilities located above the flood pool. No suitable site for disposal facilities could be located at the other six areas, so only vault-type toilets are proposed.

b. Humidity. - The humidity is abnormally high in the region where the project is located, causing the evaporation rate to be low (see table 2-1). This climatic characteristic prohibits use of total retention ponds, a relatively inexpensive and maintenance-free sewage disposal method. An oxidation pond to handle the wastes from Cypress Slough public-use area is currently under construction and will discharge into the outlet channel. No other facilities of this type are proposed.

c. Tile fields. - Tile fields cannot be sited below the flood pool elevation, and in most locations where elevations are not prohibitive, the grades are too steep. Only one file field is proposed, to dispose of the waste from a waterborne trailer sanitary station at Okay Dike.

d. Septic tanks. - Each of the treatment facilities adopted use septic tanks for initial treatment from which the liquid waste flows or is pumped to an oxidation pond, a tile field, or a subsurface sand filter followed by chlorination and discharge, as shown on drawing 93/45.

e. Waste disposal methods. - A list of the public-use areas and the method of waste disposal proposed for each follows. Table 8-2 summarizes the types of waste treatment facilities proposed and shows the required capacity of each.

(1) Cypress Slough. - Wastes from the shower-toilet currently under construction will be collected in a spetic tank, then the liquid wastes will be pumped around the right abutment of the dam to an oxidation pond on the downstream side of the dam. Overflows from the pond will be discharged into the outlet channel. The elevation of the bottom of the pond will be 295.0. All additional toilets proposed are vault type. They will be pumped out periodically and the wastes hauled to a municipal disposal facility.

(2) River Run, Cottonshed Landing, Paraloma Landing, White Cliffs, and Wilton Landing. - All existing and proposed facilities for these areas are vault type. Vaults are pumped out periodically and the wastes hauled to a municipal disposal facility.

(3) Beard Lake. - Liquid wastes from two septic tanks serving the waterborne toilets will be pumped to a subsurface sand filter located on a hill above the recreation area. The elevation of the sand filter will be approximately 350.0. Effluent from the sand filter will be chlorinated and discharged into the outlet channel.

(4) Beard's Bluff. - Wastes from the septic tank serving the waterborne toilet at Beard's Bluff (South) will be pumped to the Beard Lake facility for treatment. Wastes from the four waterborne toilets in the Beard's Bluff (North) area will be pumped from septic tanks to a sand filter for treatment. The effluent will be chlorinated and discharged into the lake. Elevation of the sand filter will be approximately 340.0.

(5) Saratoga Landing. - The two waterborne toilets proposed in the presently developed area will discharge their wastes into holding tanks which will be pumped out periodically. It will be necessary to pump out the tanks two or three times a week during the peak recreation season, but the heavy use currently experienced by this area warrants the additional maintenance. The waterborne facilities in the new development area north of the existing area will discharge into septic tanks, from which wastes will be pumped to sand filters located at elevation 300.0. After it passes through the sand filters, the effluent will be chlorinated and discharged into the lake.

(6) Okay Dike. - All the toilet facilities proposed are vault type. Vaults will be pumped out periodically and hauled to a municipal facility for disposal. A waterborne sanitary station is proposed on the access road, however. Wastes from this facility will be disposed of using a septic tank and tile field located at approximate elevation 295.0.

TABLE 8-2

WASTE WATER TREATMENT FACILITIES

Area	Waste flow (1) (g.p.d.)	Treatment facilities: Existing	Treatment facilities: Proposed	Final disposal
Cypress Slough	4,500	Septic tank and oxidation pond	-	Outlet channel
River Run	(2)None	-	-	-
Beard Lake	4,900	-	Two septic tanks, sand filter, and chlorinator	Outlet channel
Beard's Bluff (North)	8,100	-	Four septic tanks, sand filter, and chlorinator	Lake
Beard's Bluff (South)	6,700	-	One septic tank(3)	(3)
Saratoga Landing (North):				
North system	15,000	-	Six septic tanks, sand filter, and chlorinator	Lake
South system	7,200	-	Four septic tanks, sand filter, and chlorinator	Lake
Saratoga Landing (South)	7,100	-	Two holding tanks	-
Okay Dike	1,000	-	One septic tank and tile field	-

TABLE 8-2 (CON.)

Area	Waste flow: (1) (g.p.d.)	Treatment facilities: Existing	Treatment facilities: Proposed	Final disposal
Cottonshed Landing	(2)None	-	-	-
Paraloma Landing	(2)None	-	-	-
White Cliffs	(2)None	-	-	-
Wilton Landing	(2)None	-	-	-

(1) Based on U.S. Public Health Service Publication 526.
(2) All sanitary facilities will have holding tanks.
(3) Waste pumped to Beard Lake treatment plant.

f. Supplementary facilities. - Sanitary facilities described above will be supplemented, when necessary, by portable chemical toilets.

g. Approval of waste disposal plans. - All sanitary facility plans will be submitted to the Arkansas Department of Health for review and approval prior to construction.

8-04. Roads.

a. Types. - All proposed roads will be paved park roads, to be constructed with a minimum of excavation and clearing. One-way and two-way roads are indicated on the site layout drawings. Bituminous paving is also proposed for existing gravel roads. Paved roads are more dust-free and require less maintenance, particularly in areas subject to flooding; they also provide better traction on steep slopes. Typical road sections are shown on drawing 93/34.

b. Stage construction. - Most proposed roads will be constructed in stages as shown on drawing 93/33, for engineering and economical reasons. The unstable character of the soil in the Millwood Lake area, particularly in low-lying areas, makes the proposed method of construction the best way to ensure that a durable road will result. The proposed method can also be implemented with hired labor, using construction funds which normally are made available in limited amounts on a year-to-year basis.

c. Drainage. - Drainage structures are not shown on the site layout drawings except where roads cross fingers of the lake. Drawing 93/33 shows details of drainage structures to be used. Costs of culverts are included in the unit costs of roads in tables 11-1 and 11-2.

8-05. Parking areas.

a. General. - All proposed parking areas will be paved, using the same construction sequence followed in building roads. Concrete, natural timber, railroad ties, or boulders will be used for wheelstops as shown on drawing 93/34.

b. Vehicles with trailers. - Proposed parking layouts for boat ramps are designed to allow vehicular access to and egress from the ramp without passing through the parking area. Angular parking spaces (10- by 40-foot) for vehicles and boat trailers will be provided at each ramp and at marinas and mooring sites.

c. Vehicles without trailers. - Parking facilities at picnic shelters, beaches, playgrounds, ballfields, nature trails, fishing areas, and toilets are designed to accommodate vehicles

without trailers (10- by 20-foot spaces). Most of the parking spaces at these areas are perpendicular to the road. Except for these two factors, the design and construction is much the same as for boat ramp parking.

d. Picnic sites. - Proposed parking at picnic sites may be either multiple- or single-vehicle, depending on the design of the picnic area and the characteristics of the site (see drawing 93/35). Where multiple-vehicle parking spaces are planned, parking areas are usually limited to four vehicles or less to avoid destruction of vegetation and to allow picnickers to park as near their table as possible. Individual paved pulloffs for vehicles without trailers will be provided for most proposed picnic sites.

e. Campsites. - Campsites will have 60- to 70-foot-long paved pulloffs capable of accommodating vehicles and trailers. Most of the pulloffs planned are designed for a trailer to be backed into them. However, some are planned to run parallel to the road on steep slopes. Typical layouts and cross sections are shown on drawing 93/35.

8-06. Launching ramps. - Details of launching ramps are shown on drawing 93/34. Proposed single-lane ramps will be 14 feet wide, and double-lane ramps will be 32 feet wide, with a 4-foot median between the lanes. Bottom elevation of ramps will be 252.0, whenever possible, but never higher than 254.0. The minimum elevation of the tops of the ramps will be 265.0. Grades will be from 12 to 14 percent.

8-07. Docks, piers, and mooring facilities.

a. Marinas. - The existing marina at Cypress Slough has dock space for 96 boats. The proposed marinas at Saratoga and Cottonshed Landings will each have 20 boat stalls. All the docks are designed to accommodate only small fishing boats, since the shallow water and large uncleared water areas discourage the use of larger power boats or sailboats.

b. Loading docks. - Floating loading docks are proposed at all existing and proposed boat ramps as a convenience to boat passengers and to clear the ramp for other launchings. Details of the loading docks are shown on drawing 93/36.

c. Fishing piers. - Fixed fishing piers are proposed at the Beard Lake area. The piers will be designed to allow safe and easy use by the physically limited. Design details have not yet been finalized for the fishing piers nor the other facilities proposed at Beard Lake.

d. Mooring facilities. - Mooring rings are proposed in shoreline areas where large numbers of boats are expected to tie up. They will be sited at or near elevation 260.0, making them accessible at normal pool elevation. A mooring ring detail is shown on drawing 93/35.

8-08. Picnic units. - A permanent picnic unit consists of a concrete table on a concrete pad, a pedestal fireplace, a utility table, a refuse can, and a vehicular parking space. Parking may be an individual pulloff or multiple spaces. Details of picnic units and components are shown on drawings 93/35 and 93/37. Combination picnicking-camping sites for the physically limited are proposed at Beard Lake. Each pulloff will be over 40 feet long to accommodate an automobile and a travel trailer. These sites are shown as picnic sites on the drawing because most physically limited persons who use the area are not expected to be overnight visitors.

8-09. Camping units. - Three types of campsites are proposed: individual, informal group, and combination picnicking-camping.

a. Individual. - Individual campsites include a paved pulloff of sufficient length to accommodate a vehicle and a camper-trailer (50-foot plus), a concrete picnic table, pedestal fireplace, utility table, and refuse can. Pulloffs may be parallel to the road so that vehicles can drive through the pulloff, or at an obtuse angle to the direction of traffic to allow a trailer to be backed into the pulloff easily. Since parallel pulloffs require a greater length of supporting roadway, they are only proposed on steep slopes where back-in pulloffs cannot be sited. Individual campsite layouts are shown on drawing 93/35.

b. Informal group. - Informal group campsites consist of a short paved loop off the main road, with four trailer spaces around the inside of the loop. Three picnic tables with supporting facilities are arranged in the middle of the loop. This arrangement will allow two or more groups of campers traveling together to camp in close proximity to one another. A typical layout of this type of facility is shown on drawing 93/35.

c. Combination picnicking-camping sites. - Combination picnicking-camping sites are discussed in paragraph 8-08.

8-10. Swimming beaches. - Four beach developments (Cypress Slough, Beard's Bluff, Saratoga Landing, and Okay Dike) are proposed to meet the demand for swimming facilities on the project. The beaches will be constructed by stripping and grading the shoreline and lake bottom to remove undesirable materials and attain the desired 4 to 5 percent slope. This can best be accomplished during one of the periodic drawdowns. Sand will then be hauled in to provide

a suitable beach surface. Changehouses are planned at each proposed beach, and all will have shower facilities either at the changehouses or at nearby toilets.

8-11. Structures.

a. Shelters. - Three types of shelters are included in the plan: group picnic, trail, and individual picnic.

(1) Group picnic. - Group picnic shelters with parking facilities and water hydrants are proposed in most of the public-use areas. Details of the structures are shown on drawing 93/38.

(2) Trail. - Trail shelters are planned at scenic points and other locations on proposed hiking and nature trails to provide rest stops and emergency protection from the elements. A concept plan of the structure is included on drawing 93/39. The open front of the structure will face the best view or will face away from the prevailing wind where there is no vista.

(3) Individual picnic. - Individual picnic shelters are existing at picnic sites in presently developed areas where no natural shade is available. No additional shelters are included in the proposed plan because adequate tree cover is either existing or proposed at all areas where picnic facilities are planned. Details of the existing structures are in OCE Standard Plans for Recreation Facilities, drawing PS-2.

b. Comfort stations. - Three types of waterborne comfort stations and two types of vault facilities are included in the plan.

(1) Waterborne facilities.

(a) Shower-toilet with laundries will be provided in some camping areas where a high level of development is planned. Details of this facility are included on drawing 93/39.

(b) Shower-toilets without laundry facilities are planned at highly developed camping areas and near the beach at Beard's Bluff. The shower-toilet under construction at Cypress Slough is in a camping area proposed for conversion to picnicking, but it will also serve the beach development. Details of the structure are provided on drawing 93/40.

(c) Waterborne toilets are planned in proposed areas which are out of the flood pool and in the area proposed for the physically limited. Plans for a waterborne toilet are shown on drawing 93/41.

(2) Concrete vault facilities.

(a) Masonry concrete vault toilets are planned in certain areas where the frequency of flooding is not severe, but where sewage treatment facilities could not be sited nearby. Drawing 93/42 contains details for a masonry vault toilet.

(b) Wood frame concrete vault toilets are proposed in all areas subject to frequent flooding. Drawing 93/38 shows details for wood vault toilets.

(c) Metal concrete vault toilets. - Toilets constructed of corrugated metal pipe may be used in lieu of the standard wood frame concrete vault toilets in some areas. Details for this structure are not currently available, however.

c. Changehouses. - Changehouses are proposed at all existing and proposed beaches. The changehouses at Saratoga Landing and Okay Dike will contain showers. Shower-toilets are provided in close proximity to the beaches at Beard's Bluff and Cypress Slough.

8-12. Overlook structures. - Two overlook structures were built during initial project construction. The Cypress Slough overlook was constructed using red brick, and contains waterborne toilets. The Beard's Bluff overlook, which has a better view of the lake area, has one wall and is open on the remaining three sides. The areas around both structures were landscaped using indigenous and introduced species of shrubs and trees. No additional overlook structures are proposed.

8-13. Playground facilities.

a. Existing. - One playground is located at Cypress Slough, using standard metal playground equipment which will be replaced by more natural-appearing play apparatus.

b. Proposed. - A new playground at Beard Lake will be especially designed to accommodate physically limited children. Eight additional playgrounds are proposed at four public-use areas. The playgrounds will be individually designed to be compatible with the natural characteristics of each area, but materials, layouts, and types of facilities will be similar to the one shown on drawing 93/43. Natural wood is proposed for use in preference to metal or plastics, and multiuse play structures which exercise the child's imagination are planned, as opposed to single-purpose equipment such as swings, slides, and merry-go-rounds.

8-14. Bridges.

a. Vehicular. - One vehicular bridge is proposed to serve the boat launching complex at the new portion of Saratoga

Landing. A bridge is proposed in this particular location instead of the fills and culverts proposed elsewhere, to permit boat traffic circulation as well as improved water circulation around the island formed by the channel excavation. A two-lane concrete bridge similar to those used on county roads will be used. Design details will be forwarded for approval prior to initiation of construction.

b. Pedestrian. - Footbridges are proposed at locations where they will enhance the accessibility and utility of an area. They will be constructed of wood, using the design shown on drawing 93/35. One footbridge has been constructed at Saratoga Landing.

8-15. Electrical distribution and security lighting.

a. General. - Electrical power is planned in all areas to serve floodlights, waterborne and masonry vault toilets, water supply facilities, sewage disposal facilities, marina developments, and trailer or camper electrical outlets in highly developed campsite areas.

b. Distribution. - Overhead supply lines inside the boundaries of public-use areas will be underground, except in areas where the scenic resources are insignificant.

c. Security lighting. - Floodlights are existing or planned at boat ramps, wood vault toilets, picnic shelters, shoreline fishing areas and docks, and other areas where visitor safety would be enhanced. The administration and maintenance area is floodlighted for security reasons. Indoor incandescent lighting will be provided at masonry vault and waterborne toilets.

8-16. Trails. - Nature trails are provided in four public-use areas offering suitable tree cover and terrain. A typical cross section of a pedestrian trail is included on drawing 93/44. Clearing and alteration of the natural terrain will be minimized, and natural drainage channels will be bridged or culverted. Paved trails are planned to accommodate wheelchairs in the areas planned for the physically limited at Beard Lake. A typical cross section is shown on drawing 93/44.

8-17. Site improvement, grading, and landscape planting.

a. Site improvement. - Where site improvement and grading is necessary, it will be planned to blend with the natural topography as nearly as possible. Natural vegetation will be re-established on graded areas as soon as practicable.

b. Landscape plantings. - Landscape plantings around structures and ramps will be accomplished using indigenous or well

adapted trees and shrubs which blend with the surrounding area and require minimal maintenance once they are established. Drawing 93/44 shows typical plantings around toilet facilities.

c. Reforestation. - Block plantings are proposed in areas where reforestation is desirable. This method is used instead of individual plantings because it is less expensive and because of the rapid growth rate characteristic of the area. Flood tolerant species such as cypress, cottonwood, river birch, sycamore, hackberry, ash, and honey locust will be used in areas below elevation 287.0. The forthcoming Forest Management Plan (Appendix B) will discuss the proposed plantings in more detail.

8-18. Signs. - Signs will be built in accordance with designs in the SWD Sign Handbook, dated 30 June 1969, as revised January 1972. Only entrance, information, directional, one-way traffic, and warning signs are shown on the accompanying drawings. Other traffic control signs for roads will be sited in contract plans.

8-19. Interpretive devices.

a. Audio. - A tape recording at the Beard's Bluff overlook informs the visitor of project history, purposes, management, and other pertinent data.

b. Nature trail markers. - Proposed nature trails will include signs and markers pointing out and describing natural phenomena. A typical drawing of the type of interpretive sign to be used is included on drawing 93/44. A plaque containing a message in braille can be added to this sign, making it suitable for use on the nature trail planned for the physically limited at Beard Lake.

c. Displays. - A display containing exhibits of archeological, geological, paleontological, historical, and ecological features of the project is planned for the project office. Design details will be submitted prior to construction. The estimated cost is included in tables 11-1 and 11-2 for the Cypress Slough area.

d. Interpretive markers. - Roadside signs pointing out significant historical, geological, or ecological features will be erected at the sites which are on or visible from Government property. The signs will be similar to those used on nature trails, shown on drawing 93/44.

8-20. Small boat navigation aids.

a. Information. - Natural and artificial channels will be marked with standard buoys spaced so that any two buoys are within sight of each other. Slow speed areas, hazard areas, and areas in which boating is prohibited will be marked by floating signs.

Plans for buoys and floating markers are shown on the SWD Sign Handbook drawing 93/1.0.

b. Safety. - Navigation lights are planned at all existing and proposed breakwaters, to serve as beacons and safety lights to keep boats from striking the breakwaters at night.

8-21. Waste disposal.

a. Trash cans. - Refuse cans are proposed at campsites, picnic sites, boat ramps, parking lots, toilets, beaches, and other locations where solid waste receptacles will be needed. Drawing 92/37 includes details of refuse cans.

b. Septic tanks. - Septic tanks will serve as waste water collection stations at all waterborne toilet facilities. Pumps will be added to the septic tanks in cases where the treatment facility is located at a higher elevation than the septic tank. Drawing 93/45 shows details of the septic tanks and subsurface filter systems to be used.

c. Toilet vaults. - Concrete vaults are provided to collect wastes at nonflush-type toilets and trailer sanitary stations. Drawings 93/38 and 93/46 include details of concrete vaults for these facilities.

d. Trailer sanitary stations. - Trailer sanitary stations are proposed at all public-use areas with camping facilities. All will have concrete vault holding tanks except the waterborne facilities at Okay Dike, for which a septic tank and tile field is planned, as shown on drawing 93/45. Details of vault-type and waterborne trailer sanitary stations are included on drawing 93/46. No marine sanitary stations are proposed because the character of the lake prohibits use of large boats with toilet facilities.

8-22. Visitor safety controls and convenience features.

a. Barricades. - Barricades in public-use areas will be constructed using natural materials such as logs, boulders, or plantings wherever feasible. Barricades along major access roads will be standard highway guardrails or guard posts.

b. Fencing. - Protective fencing is existing or planned around operation and maintenance areas, water and sewage treatment facilities, and other dangerous areas. Chain link fencing on steel posts will be used.

c. Fishing piers. - Fixed fishing piers are proposed at the Beard Lake area. The piers will be designed to allow safe

and easy use by the physically limited. Design details have not yet been finalized for the fishing piers or the other facilities proposed for the handicapped.

d. Ramps. - Ramps will be provided at all facilities where terrain permits, to allow access by the physically limited. Ramps will be surfaced with concrete, asphalt, or wood, depending on the location, with a maximum slope of 9 percent for short distances and 5 percent for distances of 30 feet or more.

8-23. Active sports facilities.

a. Softball. - Softball fields are proposed at five public-use areas. Development of these areas will be minimal, limited mainly to clearing, grading, planting grass, and construction of a backstop.

b. Basketball-tennis. - One combination basketball-tennis court is proposed at Cypress Slough. Construction will be concrete or asphaltic concrete, with chain link backstops around both ends of the court.

IX - SPECIAL PROBLEMS

9-01. Natural resource preservation and interpretation.

a. Preservation.

(1) The three major ecosystems associated with the project will be affected by the proposed development as described in paragraph 4-04. Expansion of the public-use areas will decrease the amount of available wildlife habitat, but proper management of the remaining lands designated for wildlife management and natural areas would mitigate the losses to some extent. The increased pressure on the lake ecosystem caused by greater numbers of fishermen will be controlled by the Arkansas Game and Fish Commission, who monitors populations and sets creel limits accordingly. Control of pollution caused by visitors will be accomplished by cleanup activities, dustproofing roads, proper disposal of sewage, erosion control, revegetation, and closing areas, when necessary, to allow them to rejuvenate.

(2) Geological and paleontological sites will not be significantly damaged by surface hunting, but excavations by other than educational or scientific organizations will be prohibited for safety purposes as well as for protection of the resources.

b. Interpretation.

(1) An interpretive center which will display samples of geological formations and illustrations and discussions of the ecosystems of the project, as well as archeological and historical artifacts, is planned for the project administration building.

(2) Nature trails are planned to point out the ecological and geological features of project lands. Interpretive signs which identify and explain the significance of prominent features will be erected at strategic points along the trails.

9-02. Fish and wildlife resources.

a. General. - There are no special problems pertaining to seasons, bag limits, or food and cover plantings. The designated public-use areas effectively serve as wildlife sanctuaries because hunting in them is prohibited under Title 36. Although no specific plans or developments are proposed for any sanctuaries as such, they are part of the overall plan of management for the fish and wildlife resources.

b. Endangered species. - The American alligator, a nationally listed endangered species, is known to inhabit parts of Millwood Lake. A species that is restricted in movement because

of its physical nature and habitat requirements, it needs special consideration. The wildlife management plan being prepared for the project will establish a refuge area for this species in the upper reaches of the lake. In addition to this, project personnel will be mindful of the possible existence of alligators at all times, and prior to any proposed development or operational activity, they will determine if the species will be adversely affected. If so, a coordinated survey will be conducted by the State of Arkansas, the U.S. Fish and Wildlife Service, and the Corps, and a proper course of action determined.

9-03. Archeological and historical resources.

a. Archeological sites. - Unlike geological sites, archeological sites are highly subject to vandalism and "pothunting," especially in areas where there are heavy concentrations of people. Fortunately, the only known major site located in an area proposed for intensive development is at White Cliffs, a new area. The National Park Service and the Arkansas Archeological Survey will be encouraged to complete excavation and salvage operations prior to development of the area. National and State antiquities laws will be enforced by Park Rangers to discourage unauthorized collecting.

b. Historical sites. - Cottonshed Landing, the one historic site on project land, contains no known remains of structures or other artifacts, so the site is not subject to vandalism or accidental destruction. A sign identifying the site and briefly explaining its significance will be erected in the public-use area.

c. Displays. - Historical and archeological information and displays will be included in the interpretive center at the project administration building.

9-04. Fee systems and collection.

a. Existing areas. - When FY 73-74 Code 711 construction is completed at Millwood Lake, Cypress Slough will be the only existing public-use area that will meet the criteria for collection of user fees. However, the Cypress Slough area has been selected as the site for a State park to be developed jointly by the Arkansas Department of Parks and Tourism and the Federal Government. Therefore, the collection of user fees by the Corps at Cypress Slough will be temporary and subject to further negotiations with the State of Arkansas.

b. Proposed areas. - All future camping areas are planned as fee areas, and are designed with minimum numbers of entrances to facilitate control. In most cases, however, it was not desirable to have only one entrance to a major area because of circulation problems and the hazard that would be created in case of fire or flooding.

Electrical outlets and shower-toilets with laundry facilities are planned in all camping areas where flooding is not a prohibitive factor.

X - PROJECT RESOURCE MANAGEMENT

10-01. General. - The Millwood project resources will be managed as presented in the preceding sections and as set forth in further detail in the following appendices.

a. Appendix A - Project Resource Management Plan

b. Appendix B - Forest Management Plan

c. Appendix C - Fire Protection Plan

d. Appendix D - Fish and Wildlife Management Plan

e. Appendix E - Project Safety Plan

XI - COST ESTIMATES

11-01. Recreational developments. - Table 11-1 is a summary of the estimated cost of development of all public-use areas on Millwood Lake. Table 11-2 gives a breakdown of costs of recreational facilities by public-use area.

TABLE 11-1

SUMMARY OF ESTIMATED COST FOR RECREATIONAL FACILITIES

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES							
	Roads							
	Paved							
	Two-way	Mile	5.9	208,000	19.3	1,042,200	25.2	1,250,200
	One-way	Mile	-	-	21.4	513,600	21.4	513,600
	Gravel							
	Two-way	Mile	3.2	49,200	-	-	3.2	49,200
	One-way	Mile	2.4	18,100	-	-	2.4	18,100
	Existing gravel to be paved							
	Two-way	Mile	-	-	3.2	80,000	3.2	80,000
	One-way	Mile	-	-	2.4	43,200	2.4	43,200
	Parking							
	Paved							
	Car-trailer	Space	198	31,600	1,019	224,180	1,217	255,780
	Car	Space	70	5,600	835	91,850	905	97,450
	Gravel							
	Car-trailer	Space	130	10,400	-	-	130	10,400
	Car	Space	15	600	-	-	15	600
	Existing gravel to be paved							
	Car-trailer	Space	-	-	130	13,000	130	13,000
	Car	Space	-	-	15	750	15	750
	Boat ramps, concrete							
	Double lane	Each	4	22,000	4	32,000	8	54,000
	Single lane	Each	5	19,000	15	90,000	20	109,000

TABLE 11-1 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)							
	Sanitary facilities							
	Shower-toilet-laundry	Each	-	-	13	273,000	13	273,000
	Shower-toilet	Each	1	40,000	1	37,000	2	77,000
	Toilet, waterborne	Each	-	-	5	175,000	5	175,000
	Toilet, masonry vault	Each	-	-	3	48,000	3	48,000
	Toilet, wood vault	Each	28	35,800	220	462,000	248	497,800
	Relocate toilet, wood vault	Each	-	-	4	4,400	4	4,400
	Bath changehouse	Each	-	-	3	30,000	3	30,000
	Changehouse	Each	-	-	2	18,000	2	18,000
	Trailer sanitary stations							
	Waterborne	Each	-	-	1	4,000	1	4,000
	Concrete vault	Each	-	-	9	22,500	9	22,500
	Water supply system							
	Lake pump and filter plant	Each	2	73,000	3	124,000	5	197,000
	Well, pressure	Each	2	7,000	7	42,000	9	49,000
	Well, hand pump	Each	1	3,400	1	4,700	2	8,100
	Storage tank	Each	3	6,500	11	94,500	14	101,000
	Booster pump	Each	-	-	13	52,000	13	52,000
	Water distribution lines	L.F.	19,980	42,900	42,830	535,570	162,810	578,470
	Hydrants	Each	2	200	100	13,480	102	13,680
	Fountains	Each	6	2,400	96	38,400	102	40,800
	Sewage disposal system							
	Sand filter and chlorinator	Each	-	-	4	32,000	4	32,000
	Oxidation pond	Each	1	7,500	-	-	1	7,500
	Tile field	Each	-	-	1	1,800	1	1,800
	Septic tank w/pump	Each	1	5,000	12	60,000	13	65,000

TABLE 11-1 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)							
	Sewage disposal system (con.)							
	Septic tank	Each	-	-	6	21,000	6	21,000
	Holding tank	Each	-	-	2	24,000	2	24,000
	Sewage collection lines	Job	-	12,900	-	125,390	-	138,290
	Powerlines							
	Underground	L.F.	11,600	20,000	52,410	266,560	164,070	286,560
	Trailer electrical hookups	Each	-	-	46	6,900	46	6,900
	Navigation lights	Each	1	200	2	400	3	600
	Campsites							
	Group	Each	-	-	26	104,000	26	104,000
	Trailer	Each	26	15,600	823	740,700	849	756,300
	Picnic sites							
	Picnic units	Each	121	66,770	637	293,020	758	359,790
	Tables	Each	13	5,000	-	-	13	5,000
	Fireplaces	Each	10	850	-	-	10	850
	Refuse cans	Each	16	1,280	384	38,400	400	39,680
	Relocate sites	Each	-	-	12	2,400	12	2,400
	Combination picnic-campsite for handicapped	Each	-	-	46	34,500	46	34,500
	Table shelters							
	Single	Each	9	2,400	-	-	9	2,400
	Group	Each	-	-	14	70,000	14	70,000
	Trail shelters	Each	-	-	2	400	2	400
	Signs							
	Entrance	Each	5	3,000	8	10,400	13	13,400
	Directional	Each	9	900	245	61,250	254	62,150
	Information	Each	11	1,900	40	18,000	51	19,900

TABLE 11-1 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$		$		$
014.	RECREATION FACILITIES (CON.)							
	Docks							
	Loading dock at ramp	Each	1	400	26	83,200	27	83,600
	Fishing pier	Each	-	-	2	16,800	2	16,800
	Trails							
	Nature	L.F.	-	-	17,850	49,060	17,850	49,060
	Hard-surface	L.F.	-	-	7,800	27,300	7,800	27,300
	Bridges							
	Vehicular, concrete	Each	-	-	1	50,000	1	50,000
	Pedestrian, wood	Each	1	500	2	4,000	3	4,500
	Swimming beaches	Each	-	-	5	12,900	5	12,900
	Playgrounds	Each	1	600	9	45,000	10	45,600
	Softball fields	Each	-	-	5	5,350	5	5,350
	Tennis-basketball courts	Each	-	-	1	7,500	1	7,500
	Educational display	Each	-	-	1	10,000	1	10,000
	Site preparation							
	Clearing and cleanup							
	Land area	Acre	-	-	770.5	231,150	770.5	231,150
	Water area	Acre	-	-	35.5	35,500	35.5	35,500
	Grading	Job	-	-	-	38,700	-	38,700
	Seeding	Acre	-	-	97.5	14,620	97.5	14,620
	Turfing-erosion control	Job	-	-	-	34,300	-	34,300
	Reforestation (block planting)	Acre	-	-	219.5	12,070	219.5	12,070
	Landscaping							
	Structural	Job	-	-	-	75,000	-	75,000
	Ramps	Job	-	-	-	13,500	-	13,500
	Channel excavation	Job	-	-	-	353,000	-	353,000

TABLE 11-1 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$		$		$
014.	RECREATION FACILITIES (CON.)							
	Landscaping (con.)							
	Breakwater	Job	-	-	-	5,500	-	5,500
	Embankment	Job	-	-	-	3,700	-	3,700
	Chain link fence	L.F.	450	1,400	3,460	16,790	3,910	18,190
	Retaining wall	Job	-	-	-	3,000	-	3,000
	Mooring rings	Each	-	-	270	6,750	270	6,750
	Subtotal			721,900		7,175,140		7,897,040
	Contingencies, 12%±			-		860,260		860,260
	Total			721,900		8,035,400		8,757,300

TABLE 11-2

DETAILED ESTIMATE OF COST FOR RECREATIONAL FACILITIES

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES								
	Saratoga Landing								
	Roads								
	Paved								
	Two-way	Mile	0.3	10,600	54,000.00	4.2	226,800	4.5	237,400
	One-way	Mile	-	-	24,000.00	3.6	86,400	3.6	86,400
	Gravel								
	Two-way	Mile	1.4	21,600	22,000.00	-	-	1.4	21,600
	One-way	Mile	0.7	5,700	10,000.00	-	-	0.7	5,700
	Existing gravel to be paved								
	Two-way	Mile	-	-	25,000.00	1.4	35,000	1.4	35,000
	One-way	Mile	-	-	18,000.00	0.7	12,600	0.7	12,600
	Parking								
	Paved								
	Car-trailer	Space	65	10,300	220.00	133	29,260	198	39,560
	Car	Space	4	300	110.00	106	11,660	110	11,960
	Gravel								
	Car-trailer	Space	62	5,000	110.00	-	-	62	5,000
	Existing gravel to be paved								
	Car-trailer	Space	-	-	100.00	62	6,200	62	6,200
	Boat ramps, concrete								
	Double lane	Each	1	5,500	8,000.00	-	-	1	5,500
	Single lane	Each	2	11,000	6,000.00	2	12,000	4	23,000

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Unit cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)								
	Saratoga Landing (con.)								
	Sanitary facilities								
	Shower-toilet-laundry	Each	-	-	21,000.00	10	210,000	10	210,000
	Toilet, waterborne	Each	-	-	35,000.00	2	70,000	2	70,000
	Toilet, wood frame	Each	6	7,740	2,100.00	16	33,600	22	41,340
	Relocate toilet, wood vault	Each	-	-	1,100.00	2	2,200	2	2,200
	Bath-changehouse	Each	-	-	10,000.00	2	20,000	2	20,000
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	2	5,000	2	5,000
	Water supply system								
	Lake pump and filter plant	Each	-	-	60,000.00	1	60,000	1	60,000
	Well, pressure	Each	1	3,500	6,000.00	-	-	1	3,500
	Well, hand pump	Each	-	-	4,700.00	1	4,700	1	4,700
	Storage tank	Each	1	4,000	30,000.00	1	30,000	2	34,000
	Booster pump	Each	-	-	4,000.00	4	16,000	4	16,000
	Water distribution lines	L.F.	-	-	3.75	34,240	128,390	34,240	128,390
	Hydrants	Each	-	-	135.00	34	4,590	34	4,590
	Fountains	Each	-	-	400.00	17	6,800	17	6,800

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Saratoga Landing (con.)								
	Sewage disposal system								
	Sand filter and chlorinator	Each	-	-	8,000.00	2	16,000	2	16,000
	Septic tank w/pump	Each	-	-	5,000.00	6	30,000	6	30,000
	Septic tank	Each	-	-	3,500.00	4	14,000	4	14,000
	Holding tank	Each	-	-	12,000.00	2	24,000	2	24,000
	Sewage collection lines	Job	-	-	L.S.	-	39,210	-	39,210
	Powerlines								
	Underground	L.F.	-	-	1.75	38,660	67,620	38,660	67,620
	Navigation lights	Each	1	200	200.00	1	200	2	400
	Campsites								
	Group	Each	-	-	4,000.00	7	28,000	7	28,000
	Trailer	Each	-	-	900.00	155	139,500	155	139,500
	Picnic sites								
	Picnic units	Each	70	38,500	460.00	79	36,340	149	74,840
	Refuse cans	Each	-	-	100.00	66	6,600	66	6,600
	Table shelters								
	Single	Each	9	2,400	650.00	-	-	9	2,400
	Group	Each	-	-	5,000.00	2	10,000	2	10,000
	Signs								
	Entrance	Each	1	600	1,300.00	1	1,300	2	1,900
	Directional	Each	1	100	250.00	47	11,750	48	11,850
	Information	Each	2	340	450.00	7	3,150	9	3,490

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Saratoga Landing (con.)								
	Loading dock at ramp	Each	-	-	3,200.00	4	12,800	4	12,800
	Trail, nature	L.F.	-	-	2.75	8,600	23,640	8,600	23,640
	Bridges								
	Vehicular, concrete	Each	-	-	50,000.00	1	50,000	1	50,000
	Pedestrian, wood	Each	1	500	2,000.00	1	2,000	2	2,500
	Swimming beaches	Each	-	-	2,450.00	2	4,900	2	4,900
	Playgrounds	Each	-	-	5,000.00	2	10,000	2	10,000
	Softball fields	Each	-	-	950.00	1	950	1	950
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	30	9,000	30	9,000
	Water area	Acre	-	-	1,000.00	5	5,000	5	5,000
	Grading	Job	-	-	L.S.	-	10,000	-	10,000
	Seeding	Acre	-	-	150.00	20	3,000	20	3,000
	Turfing-erosion control	Job	-	-	L.S.	-	30,300	-	30,300
	Reforestation (block planting)	Acre	-	-	55.00	74	4,070	74	4,070
	Landscaping								
	Structures	Job	-	-	L.S.	-	12,500	-	12,500
	Ramps	Job	-	-	L.S.	-	3,000	-	3,000
	Channel excavation	Job	-	-	L.S.	-	104,000	-	104,000
	Breakwater	Job	-	-	L.S.	-	3,000	-	3,000

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES								
	Saratoga Landing (con.)								
	Landscaping (con.)								
	Chain link fence	L.F.	-	-	4.85	600	2,910	600	2,910
	Mooring rings	Each	-	-	25.00	70	1,750	70	1,750
	Subtotal			127,880			1,731,690		1,859,570
	Contingencies, 12%+			-			207,610		207,610
	Total, Saratoga Landing			127,880			1,939,300		2,067,180
	Cypress Slough								
	Roads								
	Paved								
	Two-way	Mile	1.1	38,800	54,000.00	2.9	156,600	4	195,400
	One-way	Mile	-	-	24,000.00	3.5	84,000	3.5	84,000
	Gravel								
	Two-way	Mile	0.2	3,000	22,000.00	-	-	0.2	3,000
	One-way	Mile	0.7	5,200	10,000.00	-	-	0.7	5,200
	Existing gravel to be paved								
	Two-way	Mile	-	-	25,000.00	0.2	5,000	0.2	5,000
	One-way	Mile	-	-	18,000.00	0.7	12,600	0.7	12,600
	Parking								
	Paved								
	Car-trailer	Space	15	2,400	220.00	137	30,140	152	32,540
	Car	Space	-	-	110.00	111	12,210	111	12,210

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Unit cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)								
	Cypress Slough (con.)								
	Parking (con.)								
	Gravel								
	Car-trailer	Space	28	2,200	110.00	-	-	28	2,200
	Car	Space	15	600	55.00	-	-	15	600
	Existing gravel to be paved								
	Car-trailer	Space	-	-	100.00	28	2,800	28	2,800
	Car	Space	-	-	50.00	15	750	15	750
	Boat ramps, concrete								
	Double lane	Each	1	5,500	8,000.00	-	-	1	5,500
	Single lane	Each	1	5,500	6,000.00	3	18,000	4	23,500
	Sanitary facilities								
	Shower-toilet	Each	1	40,000	37,000.00	-	-	1	40,000
	Toilet, wood frame	Each	6	7,740	2,100.00	32	67,200	38	74,940
	Changehouse	Each	-	-	9,000.00	1	9,000	1	9,000
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	1	2,500	1	2,500
	Water supply system								
	Lake pump and filter plant	Each	1	37,000	32,000.00	1	32,000	2	69,000
	Storage tank	Each	1	1,000	6,500.00	1	6,500	2	7,500
	Water distribution lines	L.F.	12,160	25,700	3.75	17,960	67,350	30,120	93,050
	Hydrants	Each	-	-	135.00	8	1,080	8	1,080
	Fountains	Each	6	2,400	400.00	12	4,800	18	7,200

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES								
	(CON.)								
	Cypress Slough (con.)								
	Sewage disposal								
	system								
	Oxidation pond	Each	1	7,500	7,500.00	-	-	1	7,500
	Septic tank w/pump	Each	1	5,000	5,000.00	-	-	1	5,000
	Sewage collection								
	lines	Job	-	12,900	L.S.	-	-	-	12,900
	Powerlines, under-								
	ground	L.F.	6,500	11,200	1.75	18,740	32,780	25,240	43,980
	Campsites, trailer	Each	-	-	900.00	115	103,500	115	103,500
	Picnic sites								
	Picnic units	Each	34	18,920	460.00	117	53,820	151	72,740
	Refuse cans	Each	1	80	100.00	52	5,200	53	5,280
	Table shelters, group	Each	-	-	5,000.00	3	15,000	3	15,000
	Signs								
	Entrance	Each	1	600	1,300.00	-	-	1	600
	Directional	Each	3	300	250.00	30	7,500	33	7,800
	Information	Each	1	170	450.00	4	1,800	5	1,970
	Loading dock at ramp	Each	1	400	3,200.00	4	12,800	5	13,200
	Bridge, pedestrian,								
	wood	Each	-	-	2,000.00	1	2,000	1	2,000
	Swimming beach	Each	-	-	1,000.00	1	1,000	1	1,000
	Playgrounds	Each	1	600	5,000.00	-	-	1	600
	Softball fields	Each	-	-	950.00	1	950	1	950

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Cypress Slough (con.)								
	Tennis-basketball courts	Each	-	-	7,500.00	1	7,500	1	7,500
	Educational display	Each	-	-	10,000.00	1	10,000	1	10,000
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	150	45,000	150	45,000
	Water area	Acre	-	-	1,000.00	3	3,000	3	3,000
	Grading	Job	-	-	L.S.	-	5,000	-	5,000
	Seeding	Acre	-	-	150.00	22	3,300	22	3,300
	Reforestation (block planting)	Acre	-	-	55.00	4	220	4	220
	Landscaping								
	Structures	Job	-	-	L.S.	-	9,500	-	9,500
	Ramps	Job	-	-	L.S.	-	1,500	-	1,500
	Channel excavation	Job	-	-	L.S.	-	95,000	-	95,000
	Chain link fence	L.F.	400	1,400	4.85	-	-	450	1,400
	Mooring rings	Each	-	-	25.00	40	1,000	40	1,000
	Subtotal			236,110			929,900		1,166,010
	Contingencies, 12%+			-			111,100		111,100
	Total, Cypress Slough			236,110			1,041,000		1,277,110

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	River Run								
	Roads, paved								
	Two-way	Mile	0.3	105,700	54,000.00	0.8	43,200	3.8	148,900
	One-way	Mile	-	-	24,000.00	1.4	33,600	1.4	33,600
	Parking, paved								
	Car-trailer	Space	56	9,000	220.00	40	8,800	96	17,800
	Car	Space	15	1,200	110.00	120	13,200	135	14,400
	Boat ramps, concrete, single lane	Each	-	-	6,000.00	2	12,000	2	12,000
	Sanitary facilities								
	Toilets, wood frame	Each	6	7,620	2,100.00	12	25,200	18	32,820
	Water supply system								
	Water distribution lines	L.F.	-	-	3.75	13,710	51,410	13,710	51,410
	Fountains	Each	-	-	400.00	11	4,400	11	4,400
	Powerlines, underground	L.F.	-	-	1.75	13,290	23,240	13,290	23,240
	Picnic sites								
	Picnic units	Each	3	1,650	460.00	118	54,280	121	55,930
	Refuse cans	Each	-	-	100.00	30	3,000	30	3,000
	Table shelters, group	Each	-	-	5,000.00	1	5,000	1	5,000
	Signs								
	Entrance	Each	-	-	1,300.00	2	2,600	2	2,600
	Directional	Each	1	100	250.00	16	4,000	17	4,100
	Information	Each	6	1,050	450.00	6	2,700	12	3,750

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES								
	(CON.)								
	River Run (con.)								
	Loading dock at ramp	Each	-	-	3,200.00	2	6,400	2	6,400
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	43	12,900	43	12,900
	Grading	Job	-	-	L.S.	-	500	-	500
	Seeding	Acre	-	-	150.00	7	1,050	7	1,050
	Landscaping								
	Structures	Job	-	-	L.S.	-	5,000	-	5,000
	Ramps	Job	-	-	L.S.	-	1,000	-	1,000
	Embankment	Job	-	-	L.S.	-	1,000	-	1,000
	Subtotal			126,320			314,480		440,800
	Contingencies, 12%±			-			37,520		37,520
	Total, River Run			126,320			352,000		478,320
	Beard Lake								
	Roads								
	Paved								
	Two-way	Mile	0.8	28,200	54,000.00	0.2	10,800	1	39,000
	One-way	Mile	-	-	24,000.00	1	24,000	1	24,000
	Gravel, two-way	Mile	0.1	1,500	22,000.00	-	-	0.1	1,500
	Existing gravel to be paved, two-way	Mile	-	-	25,000.00	0.1	2,500	0.1	2,500

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Unit cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)								
	Beard Lake (con.)								
	Parking, paved								
	Car-trailer	Space	-	-	220.00	18	3,960	18	3,960
	Car	Space	4	300	110.00	41	4,510	45	4,810
	Boat ramps, concrete, single lane	Each	-	-	6,000.00	1	6,000	1	6,000
	Sanitary facilities								
	Toilets								
	Waterborne	Each	-	-	35,000.00	2	70,000	2	70,000
	Masonry	Each	-	-	16,000.00	3	48,000	3	48,000
	Wood frame	Each	2	2,540	2,100.00	-	-	2	2,540
	Vault	Each	-	-	1,100.00	2	2,200	2	2,200
	Water supply system								
	Storage tank	Each	-	-	8,500.00	1	8,500	1	8,500
	Booster pump	Each	-	-	4,000.00	1	4,000	1	4,000
	Water distribution lines	L.F.	2,360	5,200	3.75	6,260	23,470	8,620	28,670
	Hydrants	Each	-	-	135.00	3	400	3	400
	Fountains	Each	-	-	400.00	5	2,000	5	2,000
	Sewage disposal system								
	Sand filter and chlorinator	Each	-	-	8,000.00	1	8,000	1	8,000
	Septic tank w/pump	Each	-	-	5,000.00	2	10,000	2	10,000
	Sewage collection lines	Job	-	-	L.S.	-	61,950	-	61,950

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Beard Lake (con.)								
	Powerlines, underground	L.F.	-	-	1.75	9,560	16,720	9,560	16,720
	Campsite, trailer	Each	-	-	900.00	24	21,600	24	21,600
	Picnic sites								
	Picnic units	Each	7	3,850	460.00	16	7,360	23	11,210
	Refuse cans	Each	-	-	100.00	15	1,500	15	1,500
	Relocate sites	Each	-	-	200.00	7	1,400	7	1,400
	Combination picnic-campsite for handicapped	Each	-	-	750.00	46	34,500	46	34,500
	Table shelters, group	Each	-	-	5,000.00	1	5,000	1	5,000
	Trail shelter	Each	-	-	200.00	1	200	1	200
	Signs								
	Entrance	Each	1	600	1,300.00	-	-	1	600
	Directional	Each	-	-	250.00	9	2,250	9	2,250
	Information	Each	-	-	450.00	1	450	1	450
	Docks								
	Loading dock at ramp	Each	-	-	3,200.00	1	3,200	1	3,200
	Fishing pier	Each	-	-	8,400.00	2	16,800	2	16,800
	Trails, hard-surface	L.F.	-	-	3.50	7,300	25,550	7,300	25,550
	Playgrounds	Each	-	-	5,000.00	1	5,000	1	5,000
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	37	11,100	37	11,100

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Beard Lake (con.)								
	Site preparation (con.)								
	Seeding	Acre	-	-	150.00	3	450	3	450
	Reforestation (block planting)	Acre	-	-	55.00	0.5	30	0.5	30
	Landscaping								
	Structures	Job	-	-	L.S.	-	3,000	-	3,000
	Ramps	Job	-	-	L.S.	-	500	-	500
	Chain link fence	L.F.	-	-	4.85	280	1,360	280	1,360
	Subtotal			42,190			448,260		490,450
	Contingencies, 12%+			-			53,740		53,740
	Total, Beard Lake			42,190			502,000		544,190
	Beard's Bluff								
	Roads								
	Paved								
	Two-way	Mile	0.7	24,700	54,000.00	0.9	48,600	1.6	73,300
	One-way	Mile	-	-	24,000.00	1.2	28,800	1.2	28,800
	Gravel								
	Two-way	Mile	0.1	1,500	22,000.00	-	-	0.1	1,500
	One-way	Mile	0.8	5,800	10,000.00	-	-	0.8	5,800

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Unit cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)								
	Beard's Bluff (con.)								
	Roads (con.)								
	Existing gravel to be paved								
	Two-way	Mile	-	-	25,000.00	0.1	2,500	0.1	2,500
	One-way	Mile	-	-	18,000.00	0.8	14,400	0.8	14,400
	Parking, paved								
	Car-trailer	Space	62	9,900	220.00	66	14,520	128	24,420
	Car	Space	47	3,800	110.00	25	2,750	72	6,550
	Boat ramps, concrete, double lane	Each	1	5,500	8,000.00	1	8,000	2	13,500
	Sanitary facilities								
	Shower-toilet-laundry	Each	-	-	21,000.00	3	63,000	3	63,000
	Shower-toilet	Each	-	-	37,000.00	1	37,000	1	37,000
	Toilet, waterborne	Each	-	-	35,000.00	1	35,000	1	35,000
	Toilet, wood frame	Each	6	7,620	2,100.00	2	4,200	8	11,820
	Changehouse	Each	-	-	9,000.00	1	9,000	1	9,000
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	1	2,500	1	2,500
	Water supply system								
	Lake pump and filter plant	Each	1	36,000	32,000.00	1	32,000	2	68,000
	Well, hand pump	Each	1	3,400	4,700.00	-	-	1	3,400

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Beard's Bluff (con.)								
	Water supply system (con.)								
	Storage tank	Each	1	1,500	7,500.00	1	7,500	2	9,000
	Booster pump	Each	-	-	4,000.00	1	4,000	1	4,000
	Water distribution lines	L.F.	5,460	12,000	3.75	13,340	50,020	18,800	62,020
	Hydrants	Each	2	200	135.00	6	810	8	1,010
	Fountains	Each	-	-	400.00	6	2,400	6	2,400
	Sewage disposal system								
	Sand filter and chlorinator	Each	-	-	8,000.00	1	8,000	1	8,000
	Septic tank w/pump	Each	-	-	5,000.00	4	20,000	4	20,000
	Septic tank	Each	-	-	3,500.00	1	3,500	1	3,500
	Sewage collection lines	Job	-	-	L.S.	-	23,750	-	23,750
	Powerlines								
	Underground	L.F.	1,540	2,600	1.75	10,560	18,470	12,100	21,070
	Trailer electrical hookups	Each	-	-	150.00	46	6,900	46	6,900
	Navigation lights	Each	-	-	200.00	1	200	1	200
	Campsites								
	Group	Each	-	-	4,000.00	4	16,000	4	16,000
	Trailer	Each	15	9,000	900.00	30	27,000	45	36,000

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Beard's Bluff (con.)								
	Picnic sites								
	Picnic units	Each	-	-	460.00	21	9,660	21	9,660
	Tables	Each	13	5,000	250.00	-	-	13	5,000
	Fireplaces	Each	10	850	100.00	-	-	10	850
	Refuse cans	Each	15	1,200	100.00	18	1,800	33	3,000
	Relocate sites	Each	-	-	200.00	5	1,000	5	1,000
	Table shelters, group	Each	-	-	5,000.00	2	10,000	2	10,000
	Trail shelter	Each	-	-	200.00	1	200	1	200
	Signs								
	Entrance	Each	1	600	1,300.00	1	1,300	2	1,900
	Directional	Each	4	400	250.00	25	6,250	29	6,650
	Information	Each	2	340	450.00	2	900	4	1,240
	Loading dock at ramp	Each	-	-	3,200.00	2	6,400	2	6,400
	Trails								
	Nature	L.F.	-	-	2.75	4,800	13,190	4,800	13,190
	Hard-surface	L.F.	-	-	3.50	500	1,750	500	1,750
	Swimming beaches	Each	-	-	3,000.00	1	3,000	1	3,000
	Playgrounds	Each	-	-	5,000.00	1	5,000	1	5,000
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	27	8,100	27	8,100
	Grading	Job	-	-	L.S.	-	1,000	-	1,000
	Seeding	Acre	-	-	150.00	6	900	6	900
	Reforestation (block planting)	Acre	-	-	50.00	1	50	1	50

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Beard's Bluff (con.)								
	Landscaping								
	Structures	Job	-	-	L.S.	-	4,000	-	4,000
	Ramps	Job	-	-	L.S.	-	500	-	500
	Channel excavation	Job	-	-	L.S.	-	10,600	-	10,600
	Breakwater	Job	-	-	L.S.	-	2,500	-	2,500
	Chain link fence	L.F.	-	-	4.85	280	1,360	280	1,360
	Subtotal			131,910			580,280		712,190
	Contingencies, 12%+			-			69,820		69,820
	Total, Beard's Bluff			131,910			550,100		782,010
	Okay Dike								
	Roads, paved								
	Two-way	Mile	-	-	54,000.00	3.1	167,400	3.1	167,400
	One-way	Mile	-	-	24,000.00	3.3	79,200	3.3	79,200
	Parking, paved								
	Car-trailer	Space	-	-	220.00	142	31,240	142	31,240
	Car	Space	-	-	110.00	128	14,080	128	14,080
	Boat ramps, concrete, double lane	Each	-	-	8,000.00	2	16,000	2	16,000
	Sanitary facilities								
	Toilet, wood frame	Each	-	-	2,100.00	44	92,400	44	92,400
	Bath changehouse	Each	-	-	10,000.00	1	10,000	1	10,000

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Okay Dike (con.)								
	Trailer sanitary station, waterborne	Each	-	-	4,000.00	1	4,000	1	4,000
	Water supply system								
	Well, pressure	Each	-	-	6,000.00	2	12,000	2	12,000
	Storage tank	Each	-	-	2,500.00	2	5,000	2	5,000
	Booster pump	Each	-	-	4,000.00	2	8,000	2	8,000
	Water distribution lines	L.F.	-	-	3.75	13,760	51,600	13,760	51,600
	Hydrants	Each	-	-	135.00	17	2,290	17	2,290
	Fountains	Each	-	-	400.00	14	5,600	14	5,600
	Sewage disposal system								
	Tile field	Each	-	-	1,800.00	1	1,800	1	1,800
	Septic tank	Each	-	-	3,500.00	1	3,500	1	3,500
	Sewage collection lines	Job	-	-	L.S.	-	480	-	480
	Powerlines, underground	L.F.	-	-	1.75	13,900	24,310	13,900	24,310
	Campsites, trailer	Each	-	-	900.00	194	174,600	194	174,600
	Picnic sites								
	Picnic units	Each	-	-	460.00	86	39,560	86	39,560
	Refuse cans	Each	-	-	100.00	47	4,700	47	4,700
	Table shelters, group	Each	-	-	5,000.00	1	5,000	1	5,000

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES								
	(CON.)								
	Okay Dike (con.)								
	Signs								
	Entrance	Each	-	-	1,300.00	1	1,300	1	1,300
	Directional	Each	-	-	250.00	26	6,500	26	6,500
	Information	Each	-	-	450.00	4	1,800	4	1,800
	Loading dock at ramp	Each	-	-	3,200.00	2	6,400	2	6,400
	Swimming beaches	Each	-	-	4,000.00	1	4,000	1	4,000
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	6	1,800	6	1,800
	Grading	Job	-	-	L.S.	-	15,000	-	15,000
	Seeding	Acre	-	-	150.00	6	900	6	900
	Reforestation (block planting)	Acre	-	-	55.00	140	7,700	140	7,700
	Landscaping								
	Structures	Job	-	-	L.S.	-	12,000	-	12,000
	Ramps	Job	-	-	L.S.	-	2,000	-	2,000
	Channel excavation	Job	-	-	L.S.	-	65,000	-	65,000
	Chain link fence	L.F.	-	-	4.85	800	3,880	800	3,880
	Subtotal			-			881,040		881,040
	Contingencies, 12%+			-			105,960		105,960
	Total, Okay Dike			-			987,000		987,000

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Cottonshed Landing								
	Roads, paved								
	Two-way	Mile	-	-	54,000.00	4	216,000	4	216,000
	One-way	Mile	-	-	24,000.00	4.3	103,200	4.3	103,200
	Parking, paved								
	Car-trailer	Space	-	-	220.00	266	58,520	266	58,520
	Car	Space	-	-	110.00	173	19,030	173	19,030
	Boat ramps, concrete								
	Double lane	Each	-	-	8,000.00	1	8,000	1	8,000
	Single lane	Each	-	-	6,000.00	2	12,000	2	12,000
	Sanitary facilities								
	Toilets, wood frame	Each	-	-	2,100.00	60	126,000	60	126,000
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	2	5,000	2	5,000
	Water supply system								
	Well, pressure	Each	-	-	6,000.00	2	12,000	2	12,000
	Storage tank	Each	-	-	2,500.00	2	5,000	2	5,000
	Booster pump	Each	-	-	4,000.00	2	8,000	2	8,000
	Water distribution lines	L.F.	-	-	3.75	22,780	85,420	22,780	85,420
	Hydrants	Each	-	-	135.00	18	2,430	18	2,430
	Fountains	Each	-	-	400.00	16	6,400	16	6,400
	Powerlines, underground	L.F.	-	-	1.75	24,420	42,710	24,420	42,710

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Cottonshed Landing (con.)								
	Campsites								
	Group	Each	-	-	4,000.00	15	60,000	15	60,000
	Trailer	Each	-	-	900.00	160	144,000	160	144,000
	Picnic sites								
	Picnic units	Each	-	-	460.00	47	21,620	47	21,620
	Refuse cans	Each	-	-	100.00	91	9,100	91	9,100
	Table shelters, group	Each	-	-	5,000.00	3	15,000	3	15,000
	Signs								
	Entrance	Each	-	-	1,300.00	2	2,600	2	2,600
	Directional	Each	-	-	250.00	49	12,250	49	12,250
	Information	Each	-	-	450.00	5	2,250	5	2,250
	Loading dock at ramp	Each	-	-	3,200.00	3	9,600	3	9,600
	Playgrounds	Each	-	-	5,000.00	4	20,000	4	20,000
	Softball fields	Each	-	-	1,150.00	2	2,300	2	2,300
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	318	95,400	318	95,400
	Water area	Acre	-	-	1,000.00	26	26,000	26	26,000
	Grading	Job	-	-	L.S.	-	6,000	-	6,000
	Seeding	Acre	-	-	150.00	12	1,800	12	1,800
	Landscaping								
	Structures	Job	-	-	L.S.	-	15,000	-	15,000
	Ramps	Job	-	-	L.S.	-	1,500	-	1,500

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Cottonshed Landing (con.)								
	Landscaping (con.)								
	Channel excavation	Job	-	-	L.S.	-	73,700	-	73,700
	Chain link fence	L.F.	-	-	4.85	800	3,880	800	3,880
	Mooring rings	Each	-	-	25.00	160	4,000	160	4,000
	Subtotal			-			1,235,710		1,235,710
	Contingencies, 12%+			-			148,290		148,290
	Total, Cottonshed Landing			-			1,384,000		1,384,000
	Paraloma Landing								
	Roads								
	Paved								
	Two-way	Mile	-	-	54,000.00	0.3	16,200	0.3	16,200
	One-way	Mile	-	-	24,000.00	1.3	31,200	1.3	31,200
	Gravel								
	Two-way	Mile	1.3	20,100	22,000.00	-	-	1.3	20,100
	One-way	Mile	0.2	1,400	10,000.00	-	-	0.2	1,400
	Existing gravel to be paved								
	Two-way	Mile	-	-	25,000.00	1.3	32,500	1.3	32,500
	One-way	Mile	-	-	18,000.00	0.2	3,600	0.2	3,600

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Paraloma Landing (con.)								
	Parking								
	Paved								
	Car-trailer	Space	-	-	220.00	42	9,240	42	9,240
	Car	Space	-	-	110.00	42	4,620	42	4,620
	Gravel								
	Car-trailer	Space	40	3,200	110.00	-	-	40	3,200
	Existing gravel to be paved								
	Car-trailer	Space	-	-	100.00	40	4,000	40	4,000
	Boat ramps, concrete								
	Double lane	Each	1	5,500	8,000.00	-	-	1	5,500
	Single lane	Each	1	2,500	6,000.00	1	6,000	2	8,500
	Sanitary facilities								
	Toilets, wood frame	Each	2	2,540	2,100.00	18	37,800	20	40,340
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	1	2,500	1	2,500
	Water supply system								
	Well, pressure	Each	1	3,500	6,000.00	1	6,000	2	9,500
	Storage tank	Each	-	-	2,000.00	1	2,000	1	2,000
	Booster pump	Each	-	-	4,000.00	1	4,000	1	4,000
	Water distribution lines	L.F.	-	-	3.75	7,060	26,470	7,060	26,470

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Paraloma Landing (con.)								
	Water supply system (con.)								
	Hydrants	Each	-	-	135.00	5	670	5	670
	Fountains	Each	-	-	400.00	5	2,000	5	2,000
	Powerlines, underground	L.F.	3,620	6,200	1.75	6,400	11,190	10,020	17,390
	Campsites, trailer	Each	11	6,600	900.00	58	52,200	69	58,800
	Picnic sites								
	Picnic units	Each	7	3,850	460.00	63	28,980	70	32,830
	Refuse cans	Each	-	-	100.00	22	2,200	22	2,200
	Signs								
	Entrance	Each	1	600	1,300.00	-	-	1	600
	Directional	Each	-	-	250.00	18	4,500	18	4,500
	Information	Each	-	-	450.00	4	1,800	4	1,800
	Loading dock at ramp	Each	-	-	3,200.00	3	9,600	3	9,600
	Trails, nature	L.F.	-	-	2.75	4,450	12,230	4,450	12,230
	Playgrounds	Each	-	-	5,000.00	1	5,000	1	5,000
	Softball fields	Each	-	-	1,150.00	1	1,150	1	1,150
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	65.5	19,650	65.5	19,650
	Water area	Acre	-	-	1,000.00	1	1,000	1	1,000
	Seeding	Acre	-	-	150.00	12	1,800	12	1,800

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost $	Proposed Unit cost $	Proposed Quantity	Proposed Cost $	Total Quantity	Total Cost $
014.	RECREATION FACILITIES (CON.)								
	Paraloma Landing (con.)								
	Landscaping								
	Structures	Job	-	-	L.S.	-	4,500	-	4,500
	Ramps	Job	-	-	L.S.	-	1,000	-	1,000
	Channel excavation	Job	-	-	L.S.	-	2,500	-	2,500
	Subtotal			55,990			348,300		404,290
	Contingencies, 12%+			-			41,700		41,700
	Total, Paraloma Landing			55,990			390,000		445,990
	White Cliffs								
	Roads, paved								
	Two-way	Mile	-	-	54,000.00	1.1	59,400	1.1	59,400
	One-way	Mile	-	-	24,000.00	0.8	19,200	0.8	19,200
	Parking, paved								
	Car-trailer	Space	-	-	220.00	106	23,320	106	23,320
	Car	Space	-	-	110.00	38	4,180	38	4,180
	Boat ramps, concrete, single lane	Each	-	-	6,000.00	3	18,000	3	18,000
	Sanitary facilities								
	Toilets, wood frame	Each	-	-	2,100.00	14	29,400	14	29,400

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	White Cliffs (con.)								
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	1	2,500	1	2,500
	Water supply system								
	Well, pressure	Each	-	-	6,000.00	1	6,000	1	6,000
	Storage tank	Each	-	-	15,000.00	1	15,000	1	15,000
	Booster pump	Each	-	-	4,000.00	1	4,000	1	4,000
	Water distribution lines	L.F.	-	-	3.75	5,300	19,870	5,300	19,870
	Hydrants	Each	-	-	135.00	4	540	4	540
	Fountains	Each	-	-	400.00	4	1,600	4	1,600
	Powerlines, underground	L.F.	-	-	1.75	6,600	11,540	6,600	11,540
	Campsites, trailer	Each	-	-	900.00	31	27,900	31	27,900
	Picnic sites								
	Picnic units	Each	-	-	460.00	47	21,620	47	21,620
	Refuse cans	Each	-	-	100.00	21	2,100	21	2,100
	Table shelters, group	Each	-	-	5,000.00	1	5,000	1	5,000
	Signs								
	Entrance	Each	-	-	1,300.00	1	1,300	1	1,300
	Directional	Each	-	-	250.00	12	3,000	12	3,000
	Information	Each	-	-	450.00	4	1,800	4	1,800
	Loading dock at ramp	Each	-	-	3,200.00	3	9,600	3	9,600

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	White Cliffs (con.)								
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	39	11,700	39	11,700
	Grading	Job	-	-	L.S.	-	500	-	500
	Landscaping								
	Structures	Job	-	-	L.S.	-	4,000	-	4,000
	Ramps	Job	-	-	L.S.	-	1,500	-	1,500
	Chain link fence	L.F.	-	-	4.85	360	1,750	360	1,750
	Subtotal			-			306,320		306,320
	Contingencies, 12%+			-			36,680		36,680
	Total, White Cliffs			-			343,000		343,000
	Wilton Landing								
	Roads								
	Paved								
	Two-way	Mile	-	-	54,000.00	1.8	97,200	1.8	97,200
	One-way	Mile	-	-	24,000.00	1	24,000	1	24,000
	Gravel, two-way	Mile	0.1	1,500	22,000.00	-	-	0.1	1,500
	Existing gravel to be paved, two-way	Mile	-	-	25,000.00	0.1	2,500	0.1	2,500
	Parking, paved								
	Car-trailer	Space	-	-	220.00	69	15,180	69	15,180
	Car	Space	-	-	110.00	51	5,610	51	5,610

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Wilton Landing (con.)								
	Boat ramps, concrete, single lane	Each	-	-	6,000.00	1	6,000	1	6,000
	Sanitary facilities								
	Toilets, wood frame	Each	-	-	2,100.00	22	46,200	22	46,200
	Trailer sanitary station, concrete vault	Each	-	-	2,500.00	1	2,500	1	2,500
	Water supply system								
	Well, pressure	Each	-	-	6,000.00	1	6,000	1	6,000
	Storage tank	Each	-	-	15,000.00	1	15,000	1	15,000
	Booster pump	Each	-	-	4,000.00	1	4,000	1	4,000
	Water distribution lines	L.F.	-	-	3.75	8,420	31,570	8,420	31,570
	Hydrants	Each	-	-	135.00	5	670	5	670
	Fountains	Each	-	-	400.00	6	2,400	6	2,400
	Powerlines, underground	L.F.	-	-	1.75	10,280	17,980	10,280	17,980
	Campsites, trailer	Each	-	-	900.00	56	50,400	56	50,400
	Picnic sites								
	Picnic units	Each	-	-	460.00	43	19,780	43	19,780
	Refuse cans	Each	-	-	100.00	22	2,200	22	2,200
	Signs								
	Directional	Each	-	-	250.00	13	3,250	13	3,250
	Information	Each	-	-	450.00	3	1,350	3	1,350

TABLE 11-2 (CON.)

Cost Acct. No.	Item	Unit	Existing Quantity	Existing Cost	Proposed Unit cost	Proposed Quantity	Proposed Cost	Total Quantity	Total Cost
				$	$		$		$
014.	RECREATION FACILITIES (CON.)								
	Wilton Landing (con.)								
	Loading dock at ramp	Each	-	-	3,200.00	2	6,400	2	6,400
	Site preparation								
	Clearing and cleanup								
	Land area	Acre	-	-	300.00	55	16,500	55	16,500
	Water area	Acre	-	-	1,000.00	0.5	500	0.5	500
	Grading	Job	-	-	L.S.	-	500	-	500
	Seeding	Acre	-	-	150.00	9.5	1,420	9.5	1,420
	Turfing-erosion control	Job	-	-	L.S.	-	4,000	-	4,000
	Landscaping								
	Structures	Job	-	-	L.S.	-	5,500	-	5,500
	Ramps	Job	-	-	L.S.	-	1,000	-	1,000
	Channel excavation	Job	-	-	L.S.	-	2,200	-	2,200
	Embankment	Job	-	-	L.S.	-	2,700	-	2,700
	Chain link fence	L.F.	-	-	4.85	340	1,650	340	1,650
	Retaining walls	Job	-	-	L.S.	-	3,000	-	3,000
	Subtotal			1,500			399,160		400,660
	Contingencies, 12%+			-			47,840		47,840
	Total, Wilton Landing			1,500			447,000		448,500

11-02. Land acquisition. - Table 11-3 presents the cost of additional lands proposed for acquisition in fee to allow optimum development of Millwood Lake.

TABLE 11-3

COST OF ADDITIONAL LANDS

Area	Fee	
	Acreage	Cost
		$
Beard's Bluff	29	32,000
Saratoga Landing	252	122,000
Cottonshed Landing	157	37,500
Wilton Landing	69	28,000
Total	507	219,500
Administrative costs		36,000
Contingencies, 15%±		34,900
Total cost		290,400

11-03. Operation and maintenance costs. - Estimated annual operation and maintenance costs for development proposed in this plan are presented in table 11-4. The total annual costs, $420,000, represents an increase of $258,000 over the amount budgeted for Millwood in FY 1973 ($162,000).

TABLE 11-4

ESTIMATED ANNUAL OPERATION
AND MAINTENANCE COSTS

Public-use areas	Operation and maintenance costs		
	Camping areas	Day-use areas (1)	Total
	$	$	$
Cypress Slough	15,000	55,000	70,000
River Run	-	43,000	43,000
Beard Lake	3,000	25,000	28,000
Beard's Bluff	8,000	18,000	26,000
Saratoga Landing	23,000	53,000	76,000
Okay Dike	25,000	30,000	55,000
Cottonshed Landing	26,000	19,000	45,000
Paraloma Landing	9,000	24,000	33,000
White Cliffs	4,000	17,000	21,000
Wilton Landing	8,000	15,000	23,000
Total	121,000	299,000	420,000

(1) Includes boat ramps.

XII - CONCLUSIONS

12-01. General. - Millwood Lake is unique because of its shallow water depth and its vast expanse of uncleared areas which, combined with an active fishery management program, make it an outstanding slack-water fishery. Other recreational uses of the lake are limited by the shallow, marshy shoreline, numerous submerged water hazards, and the limited amount of open water. Development is restricted by the frequency and extent of flooding in public-use areas, the limited amount of public land available, poor soil conditions, and, in some cases, steep slopes. However, available lands around the lake, if developed, could afford recreational, aesthetic, and educational opportunities not presently available to the people in the region around the lake.

12-02. Development needs. - The immediate need is for additional facilities to support the current visitation, which is overtaxing the limited existing facilities and degrading the quality of the environment. The highest priority is development of facilities for access to the water and parking for fishermen, followed closely by construction of additional campsites for fishermen-campers. Day-use facilities, playgrounds, nature trails, facilities for the handicapped, an interpretive center, and active sports fields are all needed to broaden the range of recreational and educational opportunities to be provided for the visitor.

12-03. Local participation. - The Arkansas Department of Parks and Tourism has expressed a desire to participate in the development of a recreation area on Millwood Lake, and negotiations with that agency are continuing. Some of the counties and towns surrounding the lake have expressed a willingness to participate in development of planned recreation areas on a limited and informal basis, but indications are that none are financially able to enter into a formal long-term cost-sharing contract. Efforts to obtain cost-sharing agreements with local agencies are continuing.

12-04. Development priorities. - Current cost-sharing requirements dictate that development for which cost-sharing agreements can be obtained will receive the highest priority, followed by developments which will pay for their own operation, maintenance, and replacement costs through a user fee program. Table 12-1 lists the public-use areas in order of their development priority, assuming no cost-sharing constraints.

TABLE 12-1

DEVELOPMENT PRIORITIES BY AREAS AND FACILITIES

Area priority	Area	Facility priority: Access, ramps, and parking	Camping facilities	Day-use facilities
1	Cottonshed Landing	1	2	3
2	Saratoga Landing	1	2	3
3	Paraloma Landing	1	2	3
4	Cypress Slough	1	2	3
5	Beard's Bluff	2	1	3
6	Beard Lake	2	3	1
7	White Cliffs	1	2	3
8	Wilton Landing	1	2	3
9	River Run	1	-	2
10	Okay Dike	1	3	2

12-05. Summary. - The popularity of Millwood Lake as a regional recreation area is demonstrated by the visitation, which is extremely high for such a small lake with limited scenic resources and minimal development. The projected optimum visitation, expected to occur around 1978, is probably the maximum that the project can sustain without excessive degradation of the environment. The plan for development and management herein will enable future visitors to continue to have a quality recreational experience without permanent damage to project resources.

XIII - RECOMMENDATION

13-01. Recommendation. - I recommend that this plan be approved as the basis for future development and management of the resources of Millwood Lake.

John G Driskill

JOHN G. DRISKILL
Colonel, CE
District Engineer

EXHIBIT A

CORRESPONDENCE

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
POST OFFICE BOX 1306
ALBUQUERQUE, NEW MEXICO 87103

September 13, 1968

District Engineer
Corps of Engineers, U. S. Army
P. O. Box 61
Tulsa, Oklahoma 74102

Dear Sir:

Reference is made to Mr. M. W. DeGeer's letter dated July 26, 1968, SWTED-PE, to Regional Director William T. Krummes, concerning the possibility of raising the conservation pool level in Millwood Reservoir, Arkansas, from 257.0 feet to 259.2 feet.

Not knowing how overall operation of the reservoir would be affected by a change in conservation pool level, only general comments on probable effects are possible.

We are in agreement with the letter from Mr. Hugh A. Hackler, Director, Arkansas Game and Fish Commission, dated August 6, 1968, to Mr. M. W. DeGeer of your office in regard to the effect on fish from an enlarged conservation pool. If the enlarged conservation pool resulted in a raising of water levels during spring months, sport fish habitat would improve as would the quality of fishing in the reservoir. However, this would not necessarily result in more fishing as there are more reservoirs in the area now than can be fully utilized by the fisherman.

If an enlarged conservation pool would result in raising water levels slightly in the fall, more waterfowl would use the reservoir with a resultant increase in waterfowl hunting.

We would appreciate receiving reservoir operation data on the proposed changes when they become available.

Sincerely yours,

W. O. Nelson, Jr.
Acting Regional Director

cc:
Director, Arkansas Game and Fish Commission, Little Rock, Arkansas
Field Supervisor, BSFW, Div. of River Basin Studies, Tulsa, Oklahoma

Ltr 5

State of Arkansas
Game and Fish Commission
TELEPHONE FRanklin 6-1317 ZIP CODE 72201

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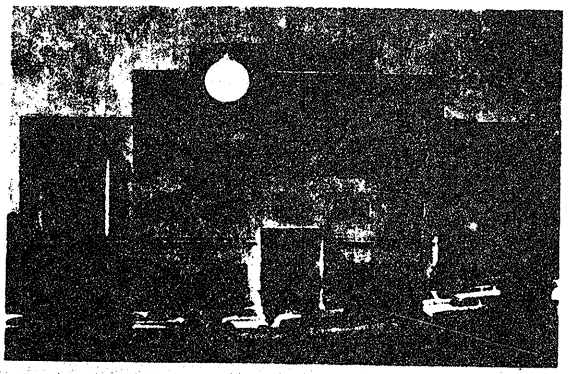

GAME AND FISH BUILDING / LITTLE ROCK

August 6, 1968

Mr. M. W. DeGeer
Chief, Engineering Division
Department of the Army
Tulsa District, Corps of Engineers
Post Office Box
Tulsa, Oklahoma 74102

Dear Mr. DeGeer:

We wish to acknowledge receipt of your letter dated July 26, 1968 concerning the possibility of raising the water level in Millwood Reservoir from 257.0' m.s.l. to 259.2' m.s.l.

It has been our experience in constructing wooded public fishing lakes that the timber will rot off at approximately normal water level in a period of five to seven years. It has also been our experience that a new impoundment usually furnishes good sport fishing the first five to seven years after which there is a sag in sport fishing success. Some reservoirs recover from this sag and some do not.

Our fish management program is designed, wherever possible, to prevent, head off, or reduce the magnitude of the sag in sport fishing success, therefore, we have the following suggestions for your consideration. Wait approximately five to seven years from the date of initial impoundment before raising the water level of Millwood Reservoir. We believe two advantages will accrue if you do this:

1. The timber will rot off at the 257' m.s.l. elevation, therefore, when the water level is raised an additional 2.2', the boats will be able to pass over the stumps which will improve the appearance of the lake and also reduce the hazard of boats running upon the stumps, hanging and/or turning over.

2. By raising the water level of Millwood Lake at about the time we would expect the sag in sport fishing success, we think that a good game fish spawn will be triggered off and since this will also increase the total surface acreage of the reservoir, we will have an increase in food production resulting in a spurt of growth of all the fishes. Fast growing fish bite better, resulting in better sport fishing.

Very truly yours,

Hugh A. Hackler
Director

HAH:AHH:ew

cc: Andrew Hulsey
William P. Mathis
Paul Choate
Keith Jackson
Office of River Basins,
Tulsa, Oklahoma

State of Arkansas
Game and Fish Commission
TELEPHONE 501/376-1317 ZIP CODE 72201

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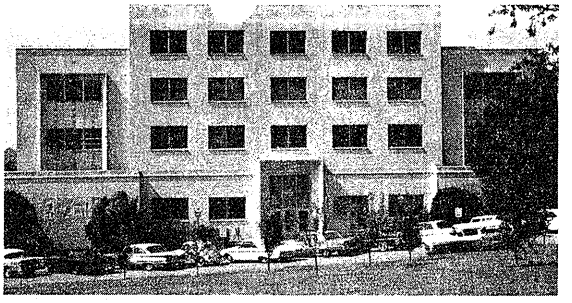
DR. P. M. JOHNSTON
FAYETTEVILLE



GAME AND FISH BUILDING / LITTLE ROCK

January 22, 1970

District Engineer
U. S. Corps of Engineers
P. O. Box 61
Tulsa, Oklahoma 74102

Dear Sir:

Consider this letter as a 'follow up' to your letter of 2 August, 1969 in which you asked for certain information on an operating regimen for Millwood Reservoir. We were then discussing fluctuating water levels as compared to static levels.

We anticipate two problems on Millwood Reservoir. First of all, an aquatic vegetation problem will develop due to the extremely shallow water around the periphery of the lake. Secondly, in this vegetated lake we expect the fish population to get badly out of balance. The second problem will be a result of and will be severely complicated by the first problem. It is the intent of this letter to propose certain operating procedures which will alleviate both problems in turn.

Fall and Winter Drawdown

There is much published information available as to the efficacy of controlling aquatic vegetation by use of this technique. Two of our publications are enclosed for your information and more are available from the Louisiana Wildlife and Fisheries if desired.

I realize that certain complications will be encountered on Millwood Reservoir. For instance, duck hunting will be a prime consideration in this decision. However, I will modify our recommendations some to take this into account. Due to the southern location of this lake, fishing starts earlier in the spring and lasts longer into the winter. With that in mind, the following is offered:

1. Beginning December 28, 1972, the lake should be dewatered gradually from 259.2'* msl to 249.2' msl, a drawdown of 10 feet. The benefits which would accrue are listed below:

   A. Vegetation control - The alternate drying and freezing thus obtained will control several species of aquatic plants.

   B. The fallen trees and limbs exposed to air

OBSERVANCE OF THE STATE AND FEDERAL GAME LAWS

would decay at a faster rate, thus opening the lake to more recreational use.

C. Allow shoreline deepening and cleanup during the drawdown.

D. Increased predation by the larger fish in the decreased volume of water would benefit by reducing the numbers of smaller fish and thereby preventing an overpopulation of such fish as shad, bream and carp.

2. As rainfall occurs, dewater the lake after each such occurrence.

3. On February 1, 1973, close the gates and allow the lake to refill to elevation 259.2' msl.

This fall and winter drawdown should be programmed to be carried out every 3rd year thereafter, or until changes are agreed upon by your staff and my District Biologist.

Variable Water Level

1. Beginning March 1 each year, allow the lake to rise to elevation 262.2' msl and remain at or above that level until the spawning season is over, or until June 1.

The reason for this recommendation is to provide suitable habitat for the desirable game fish to spawn and survive so that the second problem listed above, overpopulation of some undesirable species, can be alleviated. The flooding of the terrestrial vegetation during the spawning season provides these benefits:

A. A good spawning substrate is available which would increase the numbers of young bass and crappie, among others.

B. The increased cover thus provided the very small fish will increase survival.

C. The flooded vegetation will decay, providing an influx of food which will benefit all fish.

D. The addition of 3' of water will flood several thousand additional acres of water for use of fish and fishermen alike during this period of heavy use.

E. The added 3' of water will enable fishermen to move about the lake more easily since the water would give added depth. This is always a problem in shallow, wooded reservoirs.

2. On June 1 begin to dewater the lake very slowly so that on October 1 you will be back on your normal operating curve.

This method of operation is in effect on Lake Nimrod now. The results cannot be evaluated at this time, but we are expecting nothing but good results.

If you desire more information, please feel free to call, write, or ask for a conference.

Very truly yours,

Bill Mathis

William P. Mathis, Chief
Fisheries Division

WPM:bp
Encl.
cc: Mr. Andrew H. Hulsey
Mr. Paul Choate

*Elevations taken from Millwood Dam and Reservoir brochure, Corps of Engineers, Tulsa District, 1968.

ARKANSAS PLANNING COMMISSION

GAME AND FISH BUILDING
CAPITOL MALL
-LITTLE ROCK, ARKANSAS 72201

TELEPHONE
FR 6-3341

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July 26, 1968

Colonel Harley W. Ladd
District Engineer
U. S. Army Corps of Engineers
P. O. Box 61
Tulsa, Oklahoma

Dear Colonel Ladd:

The need for additional recreation facilities on and about the Millwood Reservoir in Southwest Arkansas has been brought to the attention of Governor Winthrop Rockefeller by Mr. Charles W. Wilson, President of the Millwood Lake Improvement Association, and through petitions signed by 998 signatores. With concern for needs for additional recreation opportunities in Arkansas and for apparent deficiences in the Millwood area, the Governor has directed me to confer with your office to determine what courses of action may be taken to improve facilities in the Millwood Lake area.

Through participation in the early stages of planning for Millwood, and my envolvement in preliminary surveys carried out by the U. S. Fish and Wildlife Service, Arkansas Game and Fish Commission, and personnel from your District office, I am familiar with original plans and proposals. Reports pursuant to these surveys note a projected loss of existing hunting, fishing and associated recreational opportunities, which would result from development of the Reservoir. These included inundation of 63 miles of stream fishery potentials, the loss of 35,500 acres of wildlife habitat covered by the average annual maximum pool of the Reservoir Proper, some 66,000 acres subject to periodic inundation, and the loss of wetlands including 6 natural lakes used by waterfowl and for fishing purposes. At that time, it was recommended that a 12,000 acre wildlife refuge be established, additional lands be purchased for a national waterfowl refuge and that 6 access areas be fully developed to permit access to and associated public use of the lake and adjacent public lands. These recommendations were proposed as compensations for losses noted above.

At the present time, recreational uses of the reservoir for fishing and boating purposes is increasing at a rapid rate. Because of the character of Millwood Lake, which provides thousands of acres of shallow water initially suitable for fish production, it is apparent that this lake will, during the first three to five years of its existence, provide exceptional fishing opportunities. Although this situation will change as the lake ages, we believe that existing and projected use of this reservoir for recreation warrants the fullest possible development of the lake.

Commissioners: • Neil Floyd, Conway • R. A. Eilbott, Jr., Pine Bluff
Abbott F. Kinney, Dermott • Martin Borchert, Little Rock • Vance Scurlock, Jonesboro
Ted E. Larimer, Green Forest • J. F. O'Kelley, Conway

A particular need at this time appears to be a more extensive development of access camping areas, boat ramps and other facilities of this type. Reference to original reports recommending such facilities list 6 areas for development. These include: 1. Cypress Slough 2. Beards Bluff 3. Peyton Landings 4. White Cliffs 5. Trent Landing 6. Saline Landing. We would particularly like to know the current status of development of these special use areas, and your plans for future developments at these locations. To satisfy public needs, we would suggest that these areas be developed to the fullest possible degree, and that other areas be considered for development in relation to increasing public uses and demands. We will appreciate whatever information you can supply concerning your current and future development plans along these lines.

On the request of the Governor's Office, I plan to meet with representatives of the Millwood Lake Improvement Association. No date has been established for this meeting, but prior to such a conference I would appreciate information in some detail concerning your plans, or an opportunity to meet with a representative of your office to discuss whatever problems exist in relation to these public requests for assistance.

I am sure you wish to implement whatever developments are desirable and which you will be able to carry out with the means available to your office. In my prior working relationship with the Tulsa Office I have found personnel from your district most cooperative and helpful. I will be happy to work with you to resolve mutual problems relating to recreation needs in the areas of the Millwood Reservoir.

Sincerely,

Harold E. Alexander
Resource-Recreation Specialist

Hea/lp

cc: Governor Winthrop Rockefeller
Dr. Ralph Gray
Charles W. Wilson
Dr. Winston C. Beard

Arkansas
PUBLICITY AND PARKS COMMISSION
State Capitol *Little Rock, Arkansas 72201*

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EXECUTIVE DIRECTOR
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March 28, 1969

Department of The Army
Tulsa District, Corps of Engineers
P. O. Box 61
Tulsa, Oklahoma 74102

Attn: Col Vernon W. Pinkey
District Engineer

Dear Sir:

Reference is made to your letter of March 24, and this is to state that we are still interested in the Beard Bluff area on Millwood, but have been pretty well occupied with the General Assembly and have not had time to persue this with you. Just as soon as time will permit, we will get in touch with you.

Very truly yours,

STATE PARKS, RECREATION AND TRAVEL

Bryan Stearns

Bryan Stearns
Associate Director Parks

BS:lw

Paraloma, Arkansas
September 2, 1970

District Engineer, Tulsa District
U. S. Army Corps of Engineers
P. O. Box 61
Tulsa, Oklahoma 74102

Dear Colonel Pinkey:

Reference is made to a meeting held in the Resident Engineer's office at Millwood Dam Arkansas, September 2, 1970, regarding studies for the Paraloma Landing and Recreation Project. At this meeting, we were informed that a park-like enhancement of landing and recreation project is within the corporation prerogative under application of Public Law 89-72.

This letter is for the purpose of advising that Paraloma Recreational Development Corporation intends to cooperate with the Federal Government in such matters of local cooperation as prescribed by this law, subject to the legal limitations involved in the expenditure of corporate funds. This includes an intent to:

1. Administer the Paraloma Landing and Recreation Project lands and water areas developed for recreation or fish and wildlife inhancement or for both these purposes, and

2. Bear all the costs of operation, maintenance and replacement incurred therefor, and

3. Pay, contribute in kind, or repay, which may be through user fees, with interest, not less than one-half the separable costs of the project assigned to recreation,

and fish and wildlife enhancement of land and water areas purchased or leased for administration by the Paraloma Recreational Development Corporation.

We feel that the environmental aspects and attractiveness of the area could be greatly enhanced with the development of a recreation area plan to complement the proposed landing project. However, to visualize a plan which would derive the fullest potential from such works, is beyond the corporation's present planning capability. Therefore, any assistance that the Corps of Engineers could give in this respect would be greatly appreciated.

Respectfully submitted,

PARALOMA RECREATIONAL DEVELOPMENT CORP

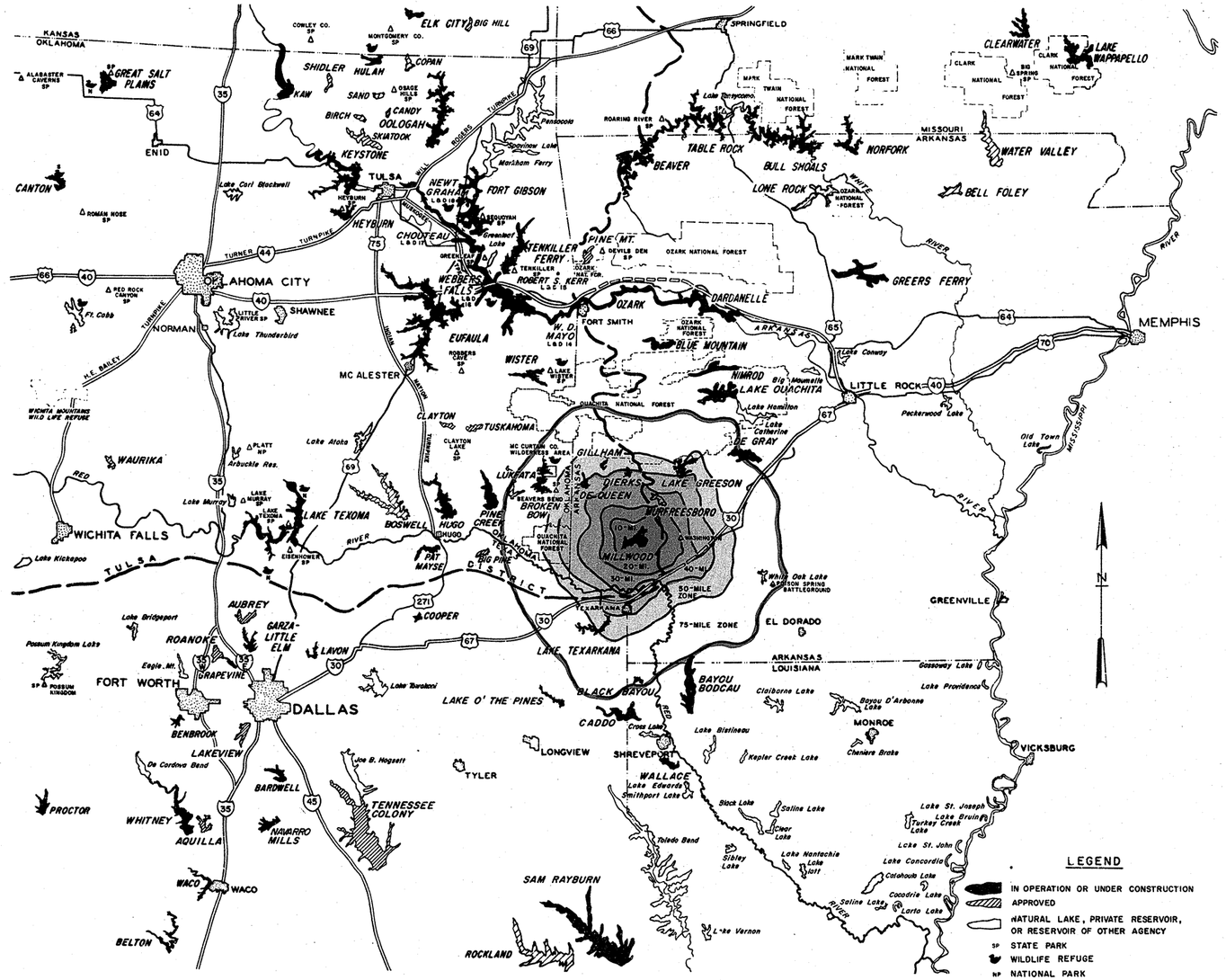
Guy Ross
Elaine Ross
J.V. Williamson
Leona Williamson
M.J. Smith

P.S. I am enclosing a copy of our incorporation papers for your examination.

MASTER PLAN

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS



LEGEND

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

INDEX TO DRAWINGS

TITLE	DISTRICT FILE NUMBER: BASIC DRAWING	UTILITIES DRAWING	AERIAL PHOTO
PROJECT LOCATION AND RELATED RECREATION AREAS	2450-DMS-93/1		
PUBLIC USE AREAS	2450-DMS-93/2		
CYPRESS SLOUGH SHEET 1	2450-DMS-93/3	-93/3U	-93/3A
CYPRESS SLOUGH SHEET 2	2450-DMS-93/4	-93/4U	-93/4A
RIVER RUN	2450-DMS-93/5	-93/5U	-93/5A
BEARD LAKE	2450-DMS-93/6	-93/6U	-93/6A
BEARD'S BLUFF SOUTH	2450-DMS-93/7	-93/7U	-93/7A
BEARD'S BLUFF NORTH	2450-DMS-93/8	-93/8U	-93/8A
SARATOGA LANDING SHEET 1	2450-DMS-93/9	-93/9U	-93/9A
SARATOGA LANDING SHEET 2	2450-DMS-93/10	-93/10U	-93/10A
OKAY DIKE	2450-DMS-93/11	-93/11U	-93/11A
COTTONSHED LANDING SHEET 1	2450-DMS-93/12	-93/12U	-93/12A
COTTONSHED LANDING SHEET 2	2450-DMS-93/13	-93/13U	-93/13A
PARALOMA LANDING	2450-DMS-93/14	-93/14U	-93/14A
WHITE CLIFFS	2450-DMS-93/15	-93/15U	-93/15A
WILTON LANDING	2450-DMS-93/16	-93/16U	-93/16A
UTILIZATION SHEET INDEX	2450-DMS-93/17		
UTILIZATION SHEETS 1-15	2450-DMS-93/18 2450-DMS-93/32		
TYPICAL ROAD SECTIONS AND TYPICAL CULVERT SECTIONS	2450-DMS-93/33		
BOAT RAMP	2450-DMS-93/34		
CAMP SITE, PICNIC SITE, FOOT BRIDGE, AND MOORING RINGS	2450-DMS-93/35		
LOADING DOCK	2450-DMS-93/36		
PICNIC FACILITIES	2450-DMS-93/37		
PICNIC SHELTER AND WOOD VAULT TOILET	2450-DMS-93/38		
SHOWER AND TOILET BUILDING NO. 2, TRAIL SHELTER, AND CHANGE HOUSE	2450-DMS-93/39		
SHOWER AND TOILET BUILDING NO. 1	2450-DMS-93/40		
WATERBORNE TOILET BUILDING	2450-DMS-93/41		
MASONRY VAULT TOILET	2450-DMS-93/42		
TYPICAL PLAYGROUND	2450-DMS-93/43		
STANDARD PLANTING PLANS FOR COMFORT STATIONS, WHEELCHAIR TRAIL, AND PEDESTRIAN TRAIL	2450-DMS-93/44		
WASTEWATER DISPOSAL SYSTEMS	2450-DMS-93/45		
TRAILER SANITARY STATION	2450-DMS-93/46		

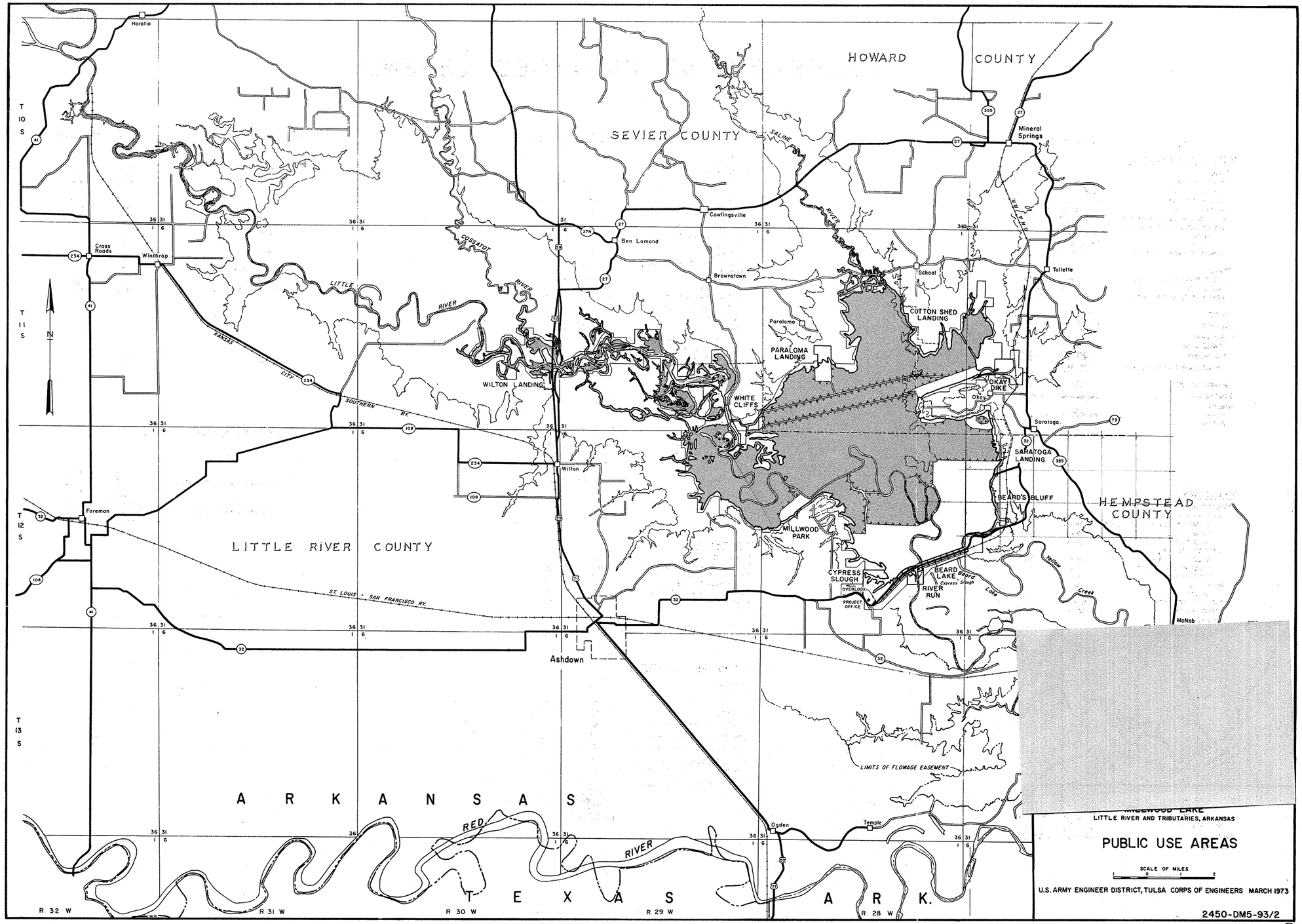
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PROJECT LOCATION AND RELATED RECREATION AREAS

SCALE OF MILES
10 0 10 20 30 40 50

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/1



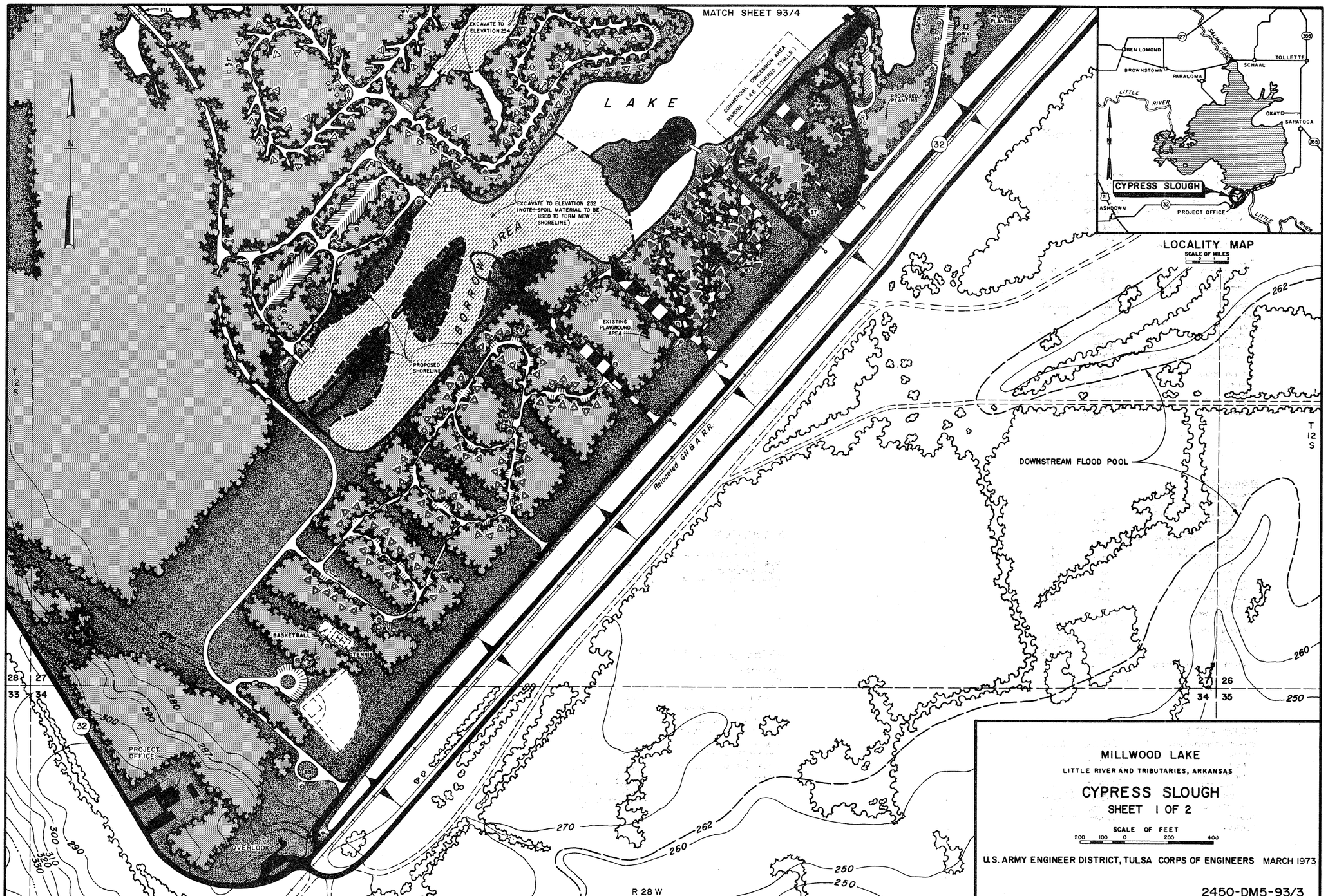
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PUBLIC USE AREAS

SCALE OF MILES 0 1 2

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/2


MATCH SHEET 93/4
FILL
EXCAVATE TO ELEVATION 254
LAKE
COMMERCIAL CONCESSION AREA MARINA (146 COVERED STALLS)
PROPOSED PLANTING
BEACH
EXCAVATE TO ELEVATION 252 (NOTE—SPOIL MATERIAL TO BE USED TO FORM NEW SHORELINE)
BORROW AREA
EXISTING PLAYGROUND AREA
PROPOSED SHORELINE
Relocated GN & A R.R.
BASKETBALL
TENNIS
PROJECT OFFICE
OVERLOOK
T 12 S
R 28 W
DOWNSTREAM FLOOD POOL
CYPRESS SLOUGH
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
LITTLE RIVER
SALINE RIVER
LOCALITY MAP
SCALE OF MILES
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
CYPRESS SLOUGH
SHEET 1 OF 2
SCALE OF FEET
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/3

MATCH SHEET 93/4U

EXCAVATE TO ELEVATION 254

EXCAVATE TO ELEVATION 252
(NOTE: SPOIL MATERIAL TO BE USED TO FORM NEW SHORELINE)

BORROW AREA

PROPOSED SHORELINE

COMMERCIAL CONCESSION AREA
MARINA (146 COVERED STALLS)

PROPOSED PLANTING

To water intake

Metering pole (Existing overhead powerlines to be relocated underground beyond this point)

EXISTING PLAYGROUND AREA

Relocated GN & A R.R.

BASKETBALL

TENNIS

PROJECT OFFICE

Existing water treatment plant to be expanded

OVERLOOK

To oxidation pond

DOWNSTREAM FLOOD POOL

T 12 S

R 28 W

LOCALITY MAP
SCALE OF MILES

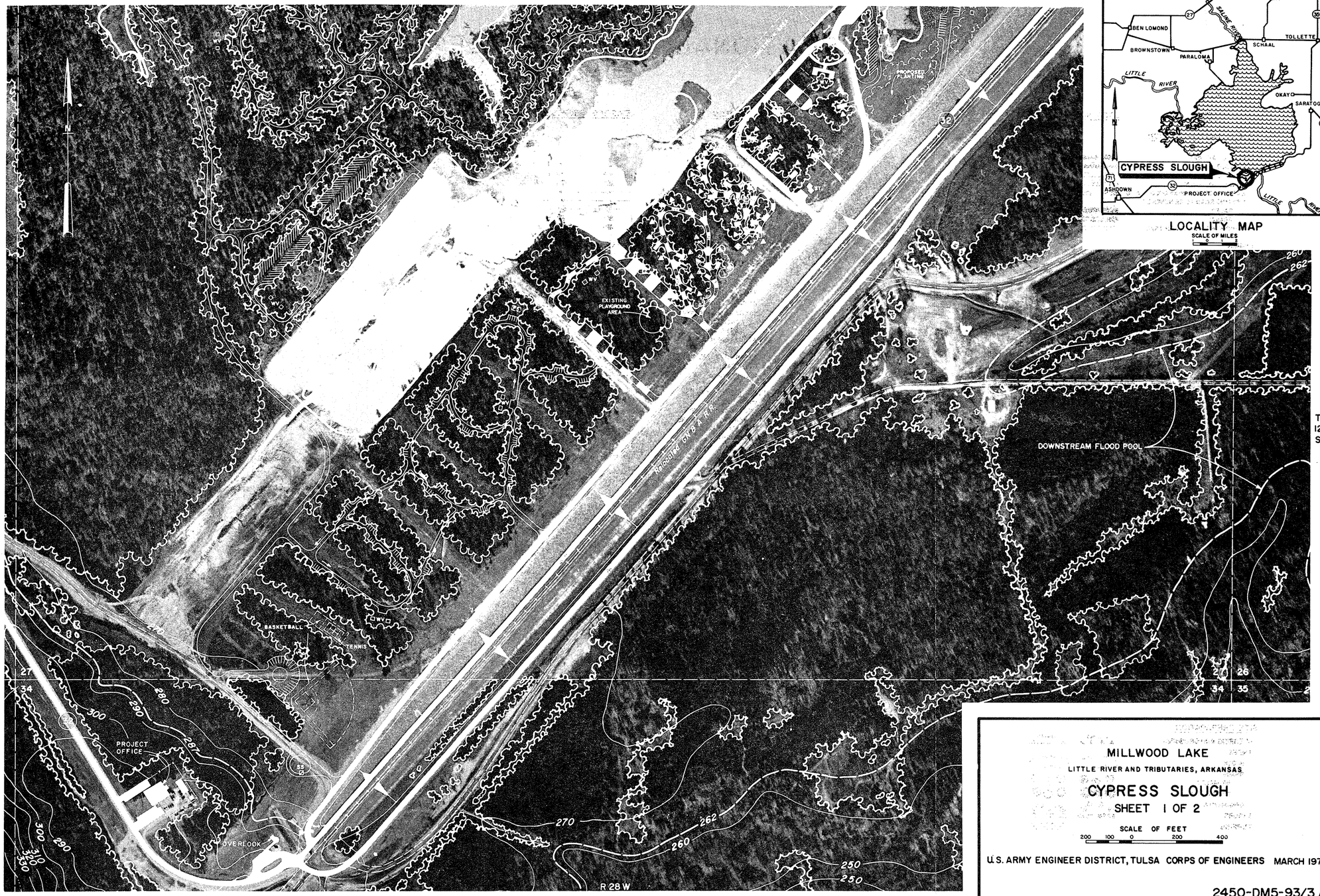
BEN LOMOND
BROWNSTOWN
PARALOMA
TOLLETTE
SCHAAL
OKAYO
SARATOGA
ASHDOWN
PROJECT OFFICE
CYPRESS SLOUGH
SALINE RIVER
LITTLE RIVER

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
CYPRESS SLOUGH
UTILITIES
SHEET 1 OF 2

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/3U



LOCALITY MAP

SCALE OF MILES

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

CYPRESS SLOUGH

SHEET 1 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/3 A

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		

ITEM	EXISTING	PROPOSED
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PI	PI
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	HD	HD
PRESSURE TANK	HDP	HDP
WELL WITH SHELTER	HD	HD
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

- ROADS
  - PAVED, TWO-WAY
  - PAVED, ONE-WAY
  - GRAVEL, TWO-WAY
  - GRAVEL, ONE-WAY
  - EXISTING GRAVEL, PROPOSED PAVING
  - EXISTING ROAD TO BE REMOVED
    - PAVED
    - GRAVEL
  - UNIMPROVED VEHICULAR TRAIL
- TRAILS
  - PEDESTRIAN (NATURE TRAIL)
  - EQUESTRIAN
  - MOTORCYCLE OR DUNEBUGGY
- BRIDGE
- CULVERT
- BOATRAMPS
  - SINGLE-LANE
  - MULTI-LANE
  - SINGLE-LANE (TO BE WIDENED)
- LOADING DOCKS
- BOAT SLIPS
- WALKS
  - STEPS
  - RAMPS

STRUCTURES

- SANITATION
  - COMFORT STATIONS, WATERBORNE
    - SHOWER-TOILET WITH LAUNDRY — ST/L
    - SHOWER-TOILET — ST
    - TOILET ONLY — WB
  - COMFORT STATIONS, CONCRETE VAULT
    - MASONRY (DOUBLE UNIT) — MV
    - MASONRY (SINGLE UNIT) — MV
    - WOOD FRAME — WV
  - WASHHOUSE — L
  - BATHHOUSE — B
  - BATH-CHANGE HOUSE — B/CH
  - CHANGE HOUSE — CH
  - SHELTERS
    - PICNIC (GROUP) — PS
    - TRAIL — S
  - SWIMMING BEACH
    - SAND
    - TURF
- (OTHER STRUCTURES NAMED)

SITE PREPARATION

- CLEARING AND GRUBBING — CLEARED
- TREES
  - BLOCK
  - SHADE
    - BROADLEAF
    - EVERGREEN
  - ORNAMENTAL
- SHRUBS
- TURFING

UTILITIES

- WATER SUPPLY
  - WELLS
    - HAND PUMP
    - PRESSURE TANK — P
    - WELL WITH SHELTER — SH
  - RAW WATER LINES — RW
  - DISTRIBUTION LINES — W
  - DISTRIBUTION LINES (BY OTHERS) — W
  - FOUNTAIN — F
  - HYDRANT — H
- SEWAGE AND WATER DISPOSAL
  - MUNICIPAL SYSTEM — S
  - SEWER LINE — S
  - SEPTIC TANK — S
  - SEPTIC TANK AND PUMP — S
  - SEPTIC TANK AND TILE FIELD — S
  - SAND FILTER — S
  - OXIDATION LAGOON — S — LAGOON
  - SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)
    - CONCRETE VAULT — SS
    - WATERBORNE — SS(WB)
  - WET GARBAGE DISPOSAL — G
- TELEPHONE LINES
  - OVERHEAD — T
  - UNDERGROUND — T
- ELECTRICAL SUPPLY
  - OVERHEAD LINES — P
  - UNDERGROUND LINES — P
  - POWERLINES BY OTHERS — P
  - ELECTRICAL OUTLETS — E
  - FLOODLIGHTS
- GAS LINE — G

PARK FURNITURE

- PICNIC TABLE
- FIREPLACE OR PEDESTAL GRILL
- CAMPFIRE CIRCLE
- TRASH RECEPTACLE
- INDIVIDUAL PICNIC SHELTER
- UTILITY TABLE

CAMPING AND PICNIC SITES

- TENT PAD
- PULL OFF
  - PAVED
  - GRAVEL
  - GRAVEL (PROPOSED PAVING)
- CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- GROUP CAMP (SEE DETAIL SHEET 93/35)

PROTECTION AND CONTROL

- GATE
- CATTLEGUARD
- BARRICADES
  - LOG
  - BOULDERS
  - GUARD RAIL
  - POSTS
- BUOYS
  - NUN
  - CAN
    - CHANNEL MARKER
    - MESSAGE (DESIGNATED)
- WARNING LIGHT
- TRAFFIC COUNTER

SIGNS

ATHLETIC FACILITIES

- BASEBALL / SOFTBALL FIELD
- GENERAL SPORTS FIELD — SPORTS

SEC. 27

CYPRESS SLOUGH

LAKE

MOORING RINGS

MOORING RINGS

EXCAVATE TO ELEVATION 252

MOORING RINGS

EXCAVATE TO ELEVATION 254

MOORING RINGS

MOORING RINGS

FILL

EXCAVATE TO ELEVATION 254

GOVERNMENT PROPERTY LINE

COMMERCIAL CONCESSION AREA MARINA (146 COVERED STALLS)

PROPOSED PLANTING

PROPOSED PLANTING

PROPOSED PLANTING

32

DOWNSTREAM FLOOD POOL

262

260

BORROW AREA

EXCAVATE TO ELEVATION 232 (NOTE: SPOIL MATERIAL TO BE USED TO FORM NEW SHORELINE.)

PROPOSED SHORELINE

EXISTING PLAYGROUND AREA

MATCH SHEET 93/3

R 28 W

T 12 S

N

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

CYPRESS SLOUGH

SHEET 2 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/4

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PA	PA
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	■O	□O
PRESSURE TANK	■OP	□OP
WELL WITH SHELTER	■O	□O
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	(W)	(W)
FOUNTAIN	■F	□F
HYDRANT	■H	□H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	(S)	(S)
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	■SS	□SS
WATERBORNE	■SS(WB)	□SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	(T)	(T)
UNDERGROUND	(T)	(T)
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	(P)	(P)
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL	▭	▭
CAMPFIRE CIRCLE	◉	◎
TRASH RECEPTACLE	●	●
INDIVIDUAL PICNIC SHELTER	⊠	⊠
UTILITY TABLE	▬	▬
CAMPING AND PICNIC SITES		
TENT PAD	□	□
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	▲	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	▲	△
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN	▲	△
CAN		
CHANNEL MARKER	■	□
MESSAGE (DESIGNATED)	■	□
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

R 28 W

SEC. 27

T 12 S

GOVERNMENT PROPERTY LINE

CYPRESS SLOUGH

LAKE

MOORING RINGS

EXCAVATE TO ELEVATION 252

EXCAVATE TO ELEVATION 254

FILL

BORROW AREA

EXCAVATE TO ELEVATION 252 (NOTE: SPOIL MATERIAL TO BE USED TO FORM NEW SHORELINE.)

PROPOSED SHORELINE

EXISTING PLAYGROUND AREA

COMMERCIAL CONCESSION AREA MARINA (45 COVERED STALLS)

PROPOSED PLANTING

BEACH

Water intake pump

Metering pole (Existing overhead powerlines to be relocated underground beyond this point)

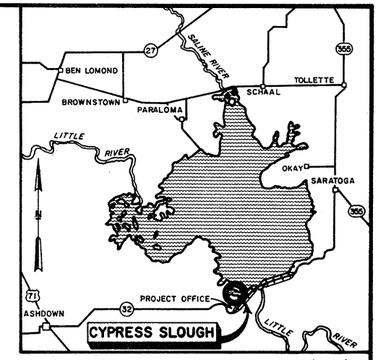
To water treatment plant & oxidation pond

DOWNSTREAM FLOOD POOL

MATCH SHEET 93/3U

R 28 W

N



LOCALITY MAP

SCALE OF MILES

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

CYPRESS SLOUGH

UTILITIES

SHEET 2 OF 2

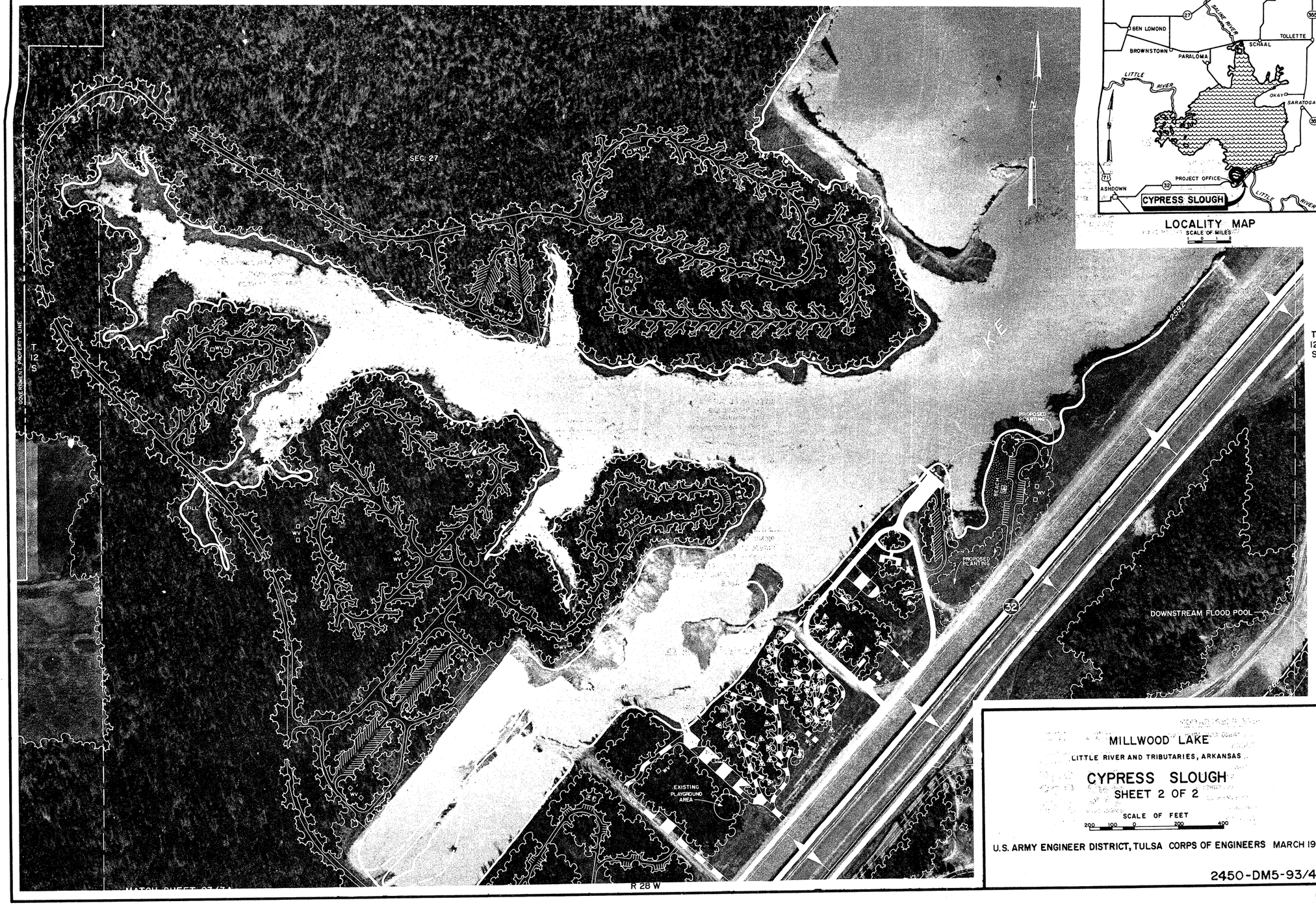
SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/4U

R 28 W



LOCALITY MAP

SCALE OF MILES

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

CYPRESS SLOUGH

SHEET 2 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/4A

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

STRUCTURES

SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PA	PA
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	OP	OP
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

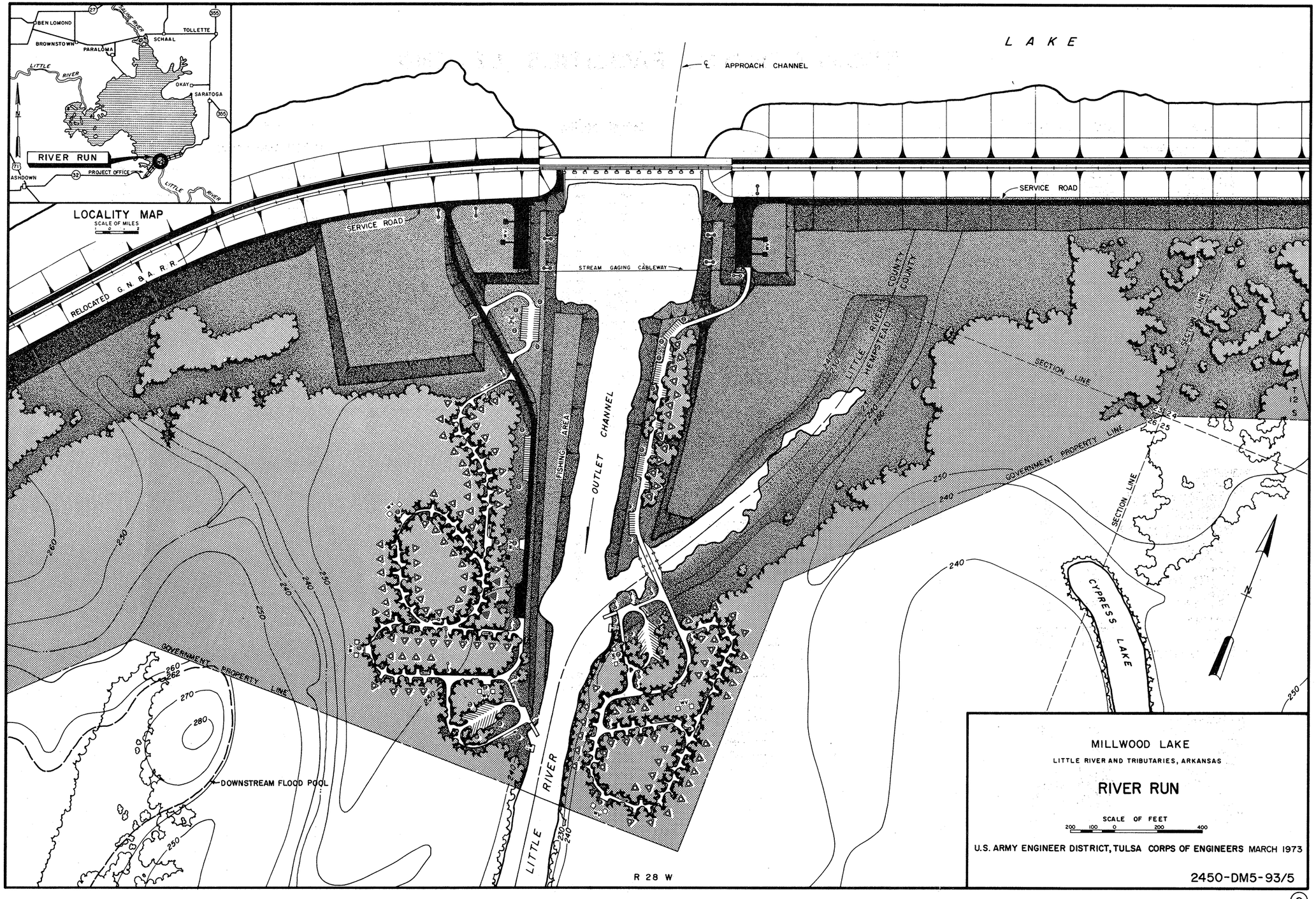
PROTECTION AND CONTROL

ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

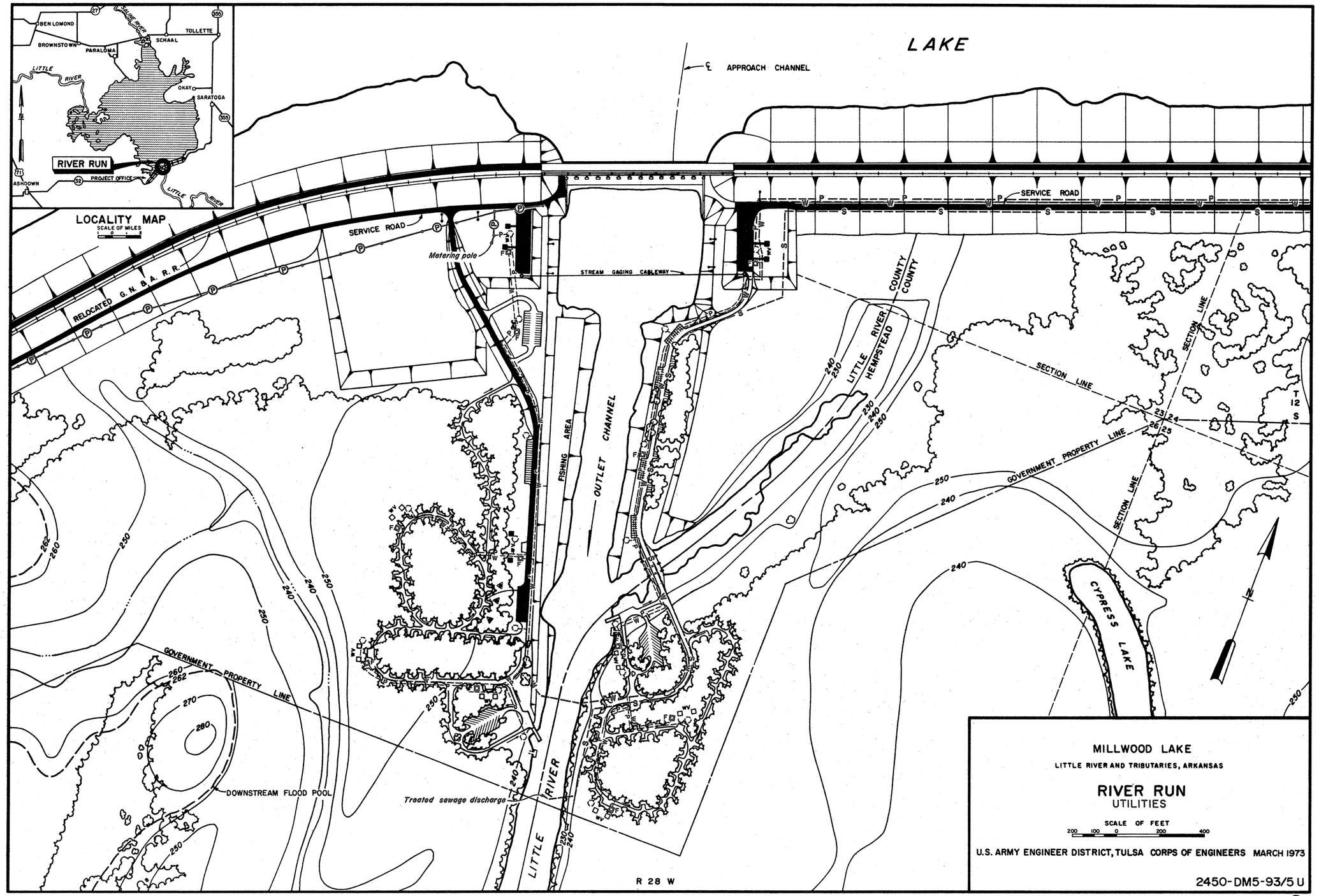

LOCALITY MAP
SCALE OF MILES
RIVER RUN
PROJECT OFFICE
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
LITTLE RIVER
SALINE RIVER
LAKE
℄ APPROACH CHANNEL
SERVICE ROAD
STREAM GAGING CABLEWAY
RELOCATED G.N. & A. R.R.
FISHING AREA
OUTLET CHANNEL
LITTLE RIVER
HEMPSTEAD COUNTY
SECTION LINE
GOVERNMENT PROPERTY LINE
CYPRESS LAKE
DOWNSTREAM FLOOD POOL
R 28 W
T 12 S
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
RIVER RUN
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/5

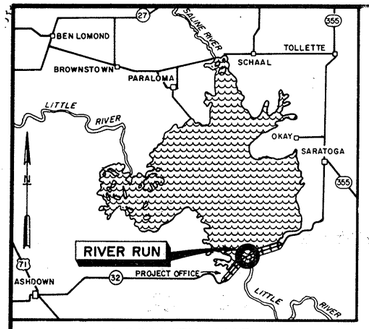
RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PI	PI
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


LAKE
℄ APPROACH CHANNEL
SERVICE ROAD
STREAM GAGING CABLEWAY
Metering pole
RELOCATED G. N. B. A. R. R.
SERVICE ROAD
COUNTY
COUNTY
LITTLE RIVER
HEMPSTEAD
SECTION LINE
SECTION LINE
SECTION LINE
T 12 S
23
24
26
25
GOVERNMENT PROPERTY LINE
GOVERNMENT PROPERTY LINE
CYPRESS LAKE
FISHING AREA
OUTLET CHANNEL
DOWNSTREAM FLOOD POOL
Treated sewage discharge
LITTLE RIVER
R 28 W
240
230
250
260
262
270
280
LOCALITY MAP
SCALE OF MILES
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
RIVER RUN
PROJECT OFFICE
LITTLE RIVER
DALUE RIVER
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
RIVER RUN
UTILITIES
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/5 U



LOCALITY MAP

SCALE OF MILES

0

T 12 S

R 28 W

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

RIVER RUN

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/5A

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		

STRUCTURES

ITEM	EXISTING	PROPOSED
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)		
TRAIL		
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

ITEM	EXISTING	PROPOSED
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

ITEM	EXISTING	PROPOSED
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

ITEM	EXISTING	PROPOSED
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

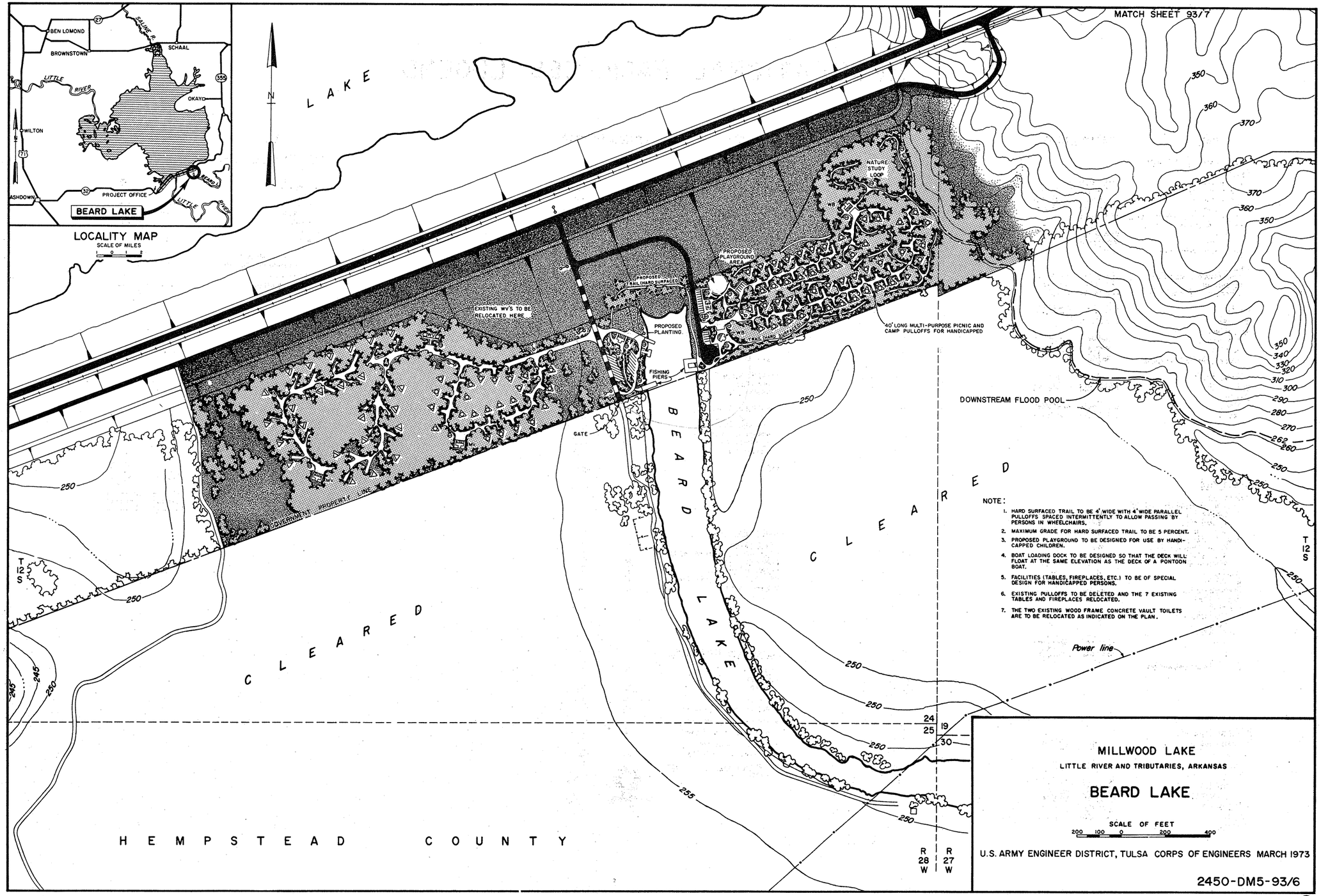
PROTECTION AND CONTROL

ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

ITEM	EXISTING	PROPOSED
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

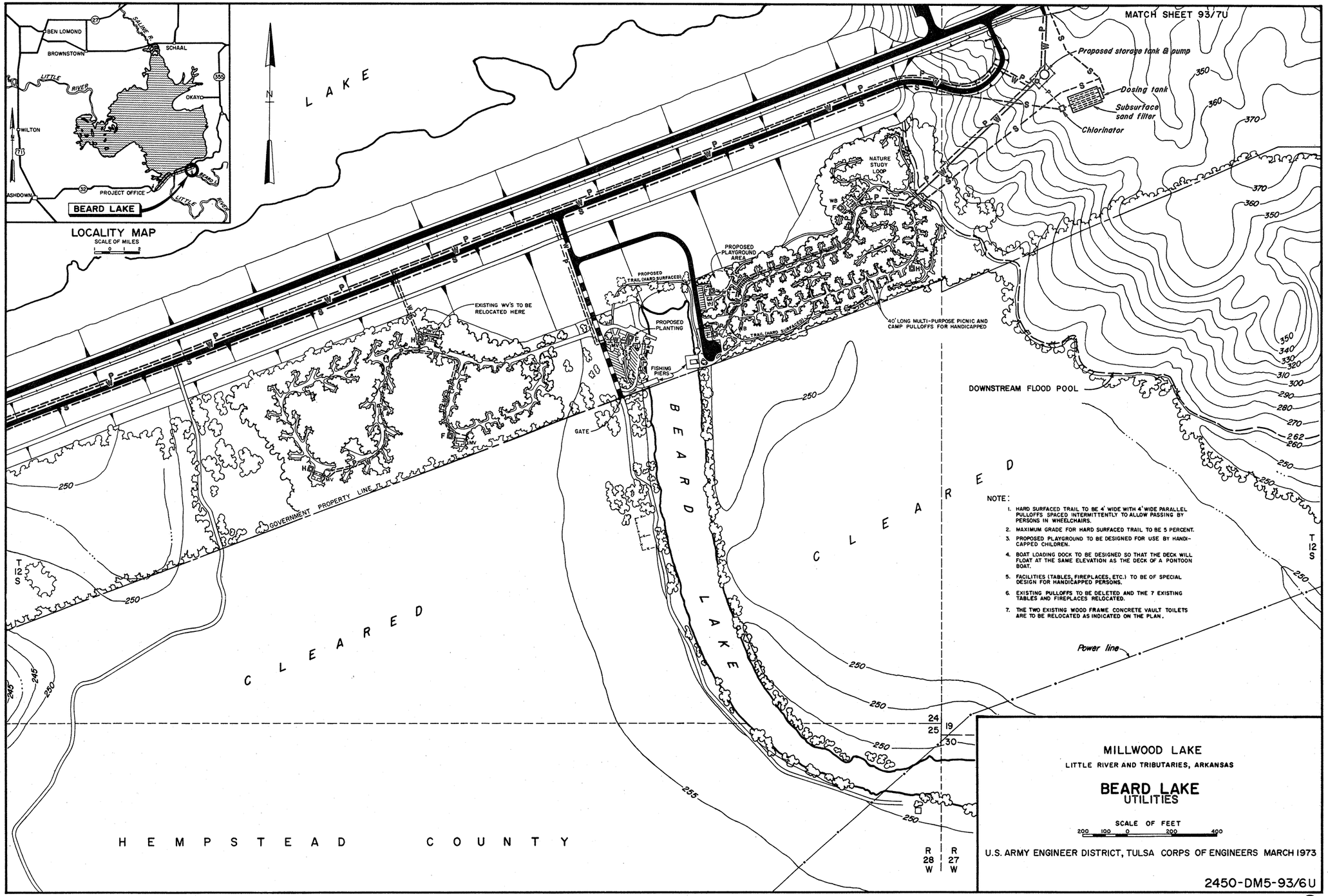

MATCH SHEET 93/7
LOCALITY MAP
SCALE OF MILES
BEN LOMOND
BROWNSTOWN
SCHAAL
LITTLE RIVER
OKAY
WILTON
ASHDOWN
PROJECT OFFICE
BEARD LAKE
LAKE
NATURE STUDY LOOP
PROPOSED PLAYGROUND AREA
PROPOSED TRAIL (HARD SURFACED)
EXISTING WV'S TO BE RELOCATED HERE
PROPOSED PLANTING
FISHING PIERS
GATE
40' LONG MULTI-PURPOSE PICNIC AND CAMP PULLOFFS FOR HANDICAPPED
DOWNSTREAM FLOOD POOL
BEARD LAKE
CLEARED
CLEARED
Power line
HEMPSTEAD COUNTY
T 12 S
R 28 W
R 27 W
NOTE:
1. HARD SURFACED TRAIL TO BE 4' WIDE WITH 4' WIDE PARALLEL PULLOFFS SPACED INTERMITTENTLY TO ALLOW PASSING BY PERSONS IN WHEELCHAIRS.
2. MAXIMUM GRADE FOR HARD SURFACED TRAIL TO BE 5 PERCENT.
3. PROPOSED PLAYGROUND TO BE DESIGNED FOR USE BY HANDICAPPED CHILDREN.
4. BOAT LOADING DOCK TO BE DESIGNED SO THAT THE DECK WILL FLOAT AT THE SAME ELEVATION AS THE DECK OF A PONTOON BOAT.
5. FACILITIES (TABLES, FIREPLACES, ETC.) TO BE OF SPECIAL DESIGN FOR HANDICAPPED PERSONS.
6. EXISTING PULLOFFS TO BE DELETED AND THE 7 EXISTING TABLES AND FIREPLACES RELOCATED.
7. THE TWO EXISTING WOOD FRAME CONCRETE VAULT TOILETS ARE TO BE RELOCATED AS INDICATED ON THE PLAN.
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD LAKE
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/6

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PA	
TRAIL		
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

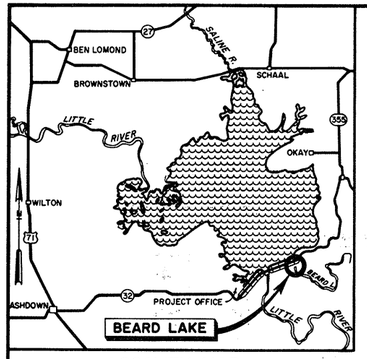
BEARD LAKE UTILITIES

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/6U



LOCALITY MAP

SCALE OF MILES

0 1 2

NOTE:

1. HARD SURFACED TRAIL TO BE 4' WIDE WITH 4' WIDE PARALLEL PULLOFFS SPACED INTERMITTENTLY TO ALLOW PASSING BY PERSONS IN WHEELCHAIRS.
2. MAXIMUM GRADE FOR HARD SURFACED TRAIL TO BE 8 PERCENT.
3. PROPOSED PLAYGROUND TO BE DESIGNED FOR USE BY HANDICAPPED CHILDREN.
4. BOAT LOADING DOCK TO BE DESIGNED SO THAT THE DECK WILL FLOAT AT THE SAME ELEVATION AS THE DECK OF A PONTOON BOAT.
5. FACILITIES (TABLES, FIREPLACES, ETC.) TO BE OF SPECIAL DESIGN FOR HANDICAPPED PERSONS.
6. EXISTING PULLOFFS TO BE DELETED AND THE 17 EXISTING TABLES AND FIREPLACES RELOCATED.
7. THE TWO EXISTING WOOD FRAME CONCRETE VAULT TOILETS ARE TO BE RELOCATED AS INDICATED ON THE PLAN.

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

BEARD LAKE

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

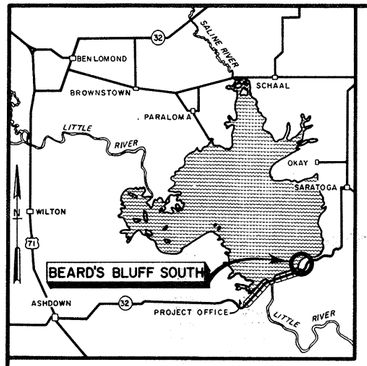
2450-DM5-93/6 A

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)		
TRAIL		
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



LOCALITY MAP

SCALE OF MILES

0

N

LAKE

R28W | R27W

T 12 S

13
24

COMMERCIAL CONCESSION SITE

END OF RAMP ELEV. 250

RELOCATE

RELOCATE

BEARD'S BLUFF AREA

PROPOSED 6' WIDE CONCRETE WALK

PARKING OVERLOOK

BEACH

ARKANSAS STATE HWY. 32

G.N. & A. R.R.

PROPERTY LINE GOVERNMENT

370
360
350
340
330
320
310
300

MATCH SHEET 93/6

MATCH SHEET 93/8

R 27 W

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

BEARD'S BLUFF SOUTH

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

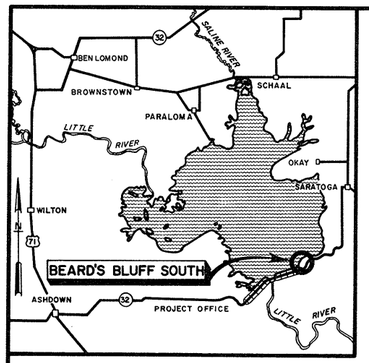
2450-DM5-93/7

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	■O	□O
PRESSURE TANK	■OP	□OP
WELL WITH SHELTER	■O	□O
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	■F	□F
HYDRANT	■H	□H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	■SS	□SS
WATERBORNE	■SS(WB)	□SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		
CAMPING AND PICNIC SITES		
TENT PAD	□	□
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



LOCALITY MAP

SCALE OF MILES 0 1 2

N

LAKE

MATCH SHEET 93/8U

T 12 S

Water intake pump

RW

Existing package water treatment plant to be expanded

W

370 Metering pole

Existing overhead powerline to be relocated underground

OVERLOOK

COMMERCIAL CONCESSION SITE

RELOCATE

END OF RAMP ELEV. 250

RELOCATE

BEARD'S BLUFF AREA

PROPERTY LINE

GOVERNMENT

G.N. & A. R.R.

350

340

330

320

310

300

BEACH

PROPOSED 6' WIDE CONCRETE WALK

PARKING OVERLOOK

R 28 W

R 27 W

MATCH SHEET 93/6U

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

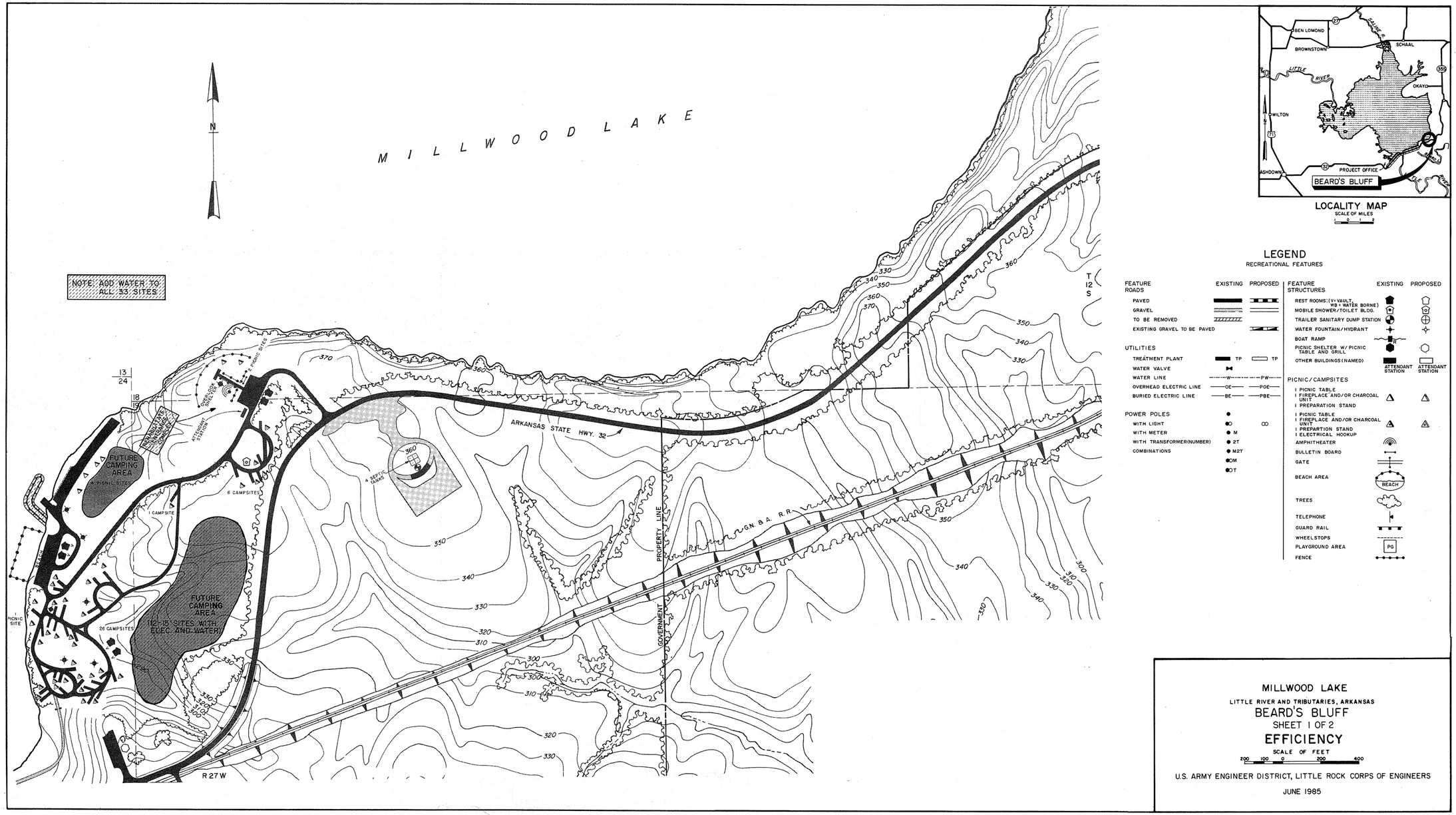
BEARD'S BLUFF SOUTH

UTILITIES

SCALE OF FEET 200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/7U



LOCALITY MAP
SCALE OF MILES
1 0 1 2

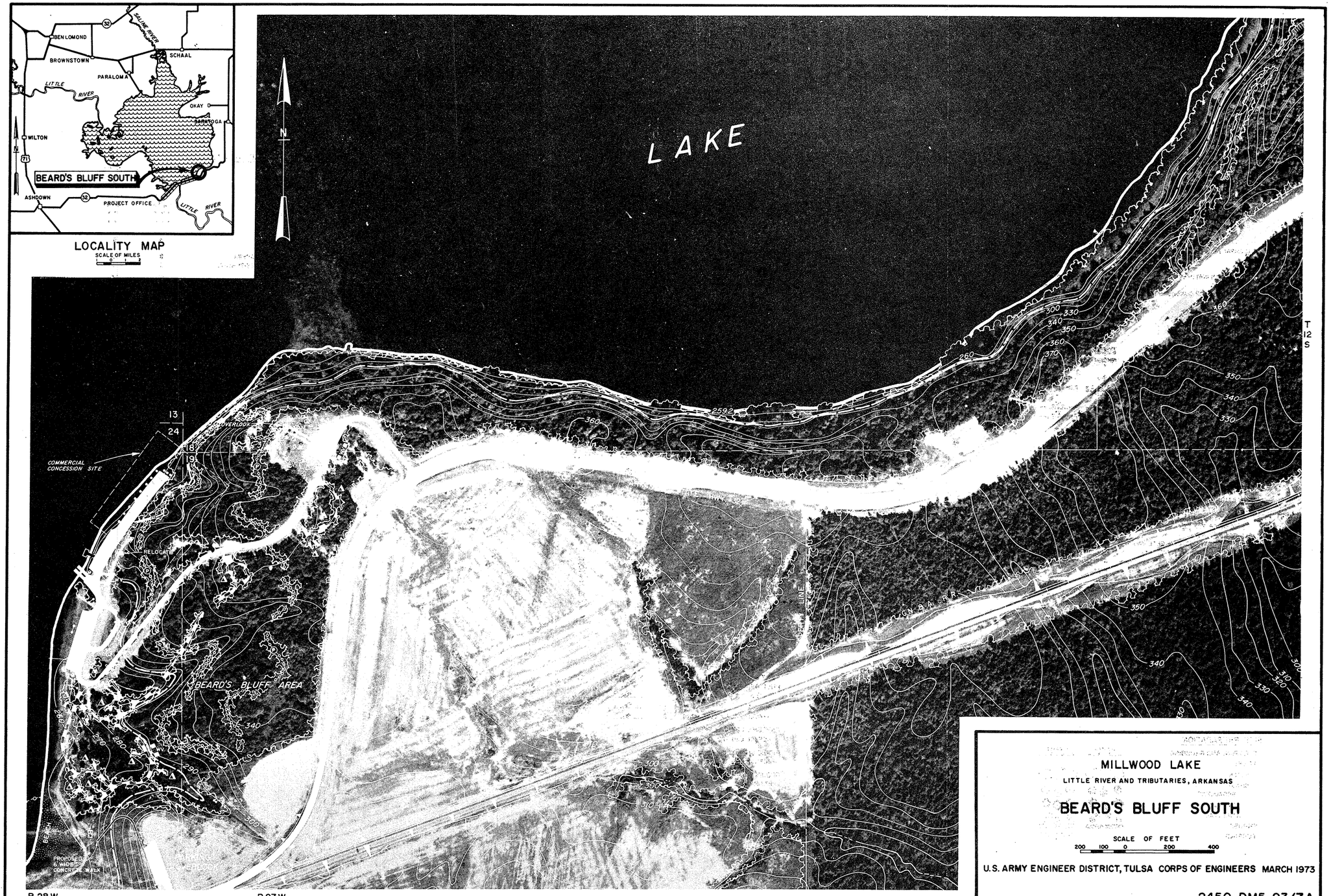
LEGEND
RECREATIONAL FEATURES

FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT		∞
WITH METER	M	
WITH TRANSFORMER(NUMBER)	2T	
COMBINATIONS	M2T	
	OM	
	OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V= VAULT, WB = WATER BORNE)	V	V
MOBILE SHOWER/TOILET BLDG.	SO	SO
TRAILER SANITARY DUMP STATION	D	D
WATER FOUNTAIN/HYDRANT		
BOAT RAMP	R	
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARTION STAND 1 ELECTRICAL HOOKUP		
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF
SHEET 1 OF 2
EFFICIENCY
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985


LOCALITY MAP
SCALE OF MILES
0 1 2
BEN LOMOND
SALINE RIVER
SCHAAL
BROWNSTOWN
PARALOMA
LITTLE RIVER
OKAY
SARATOGA
WILTON
71
BEARD'S BLUFF SOUTH
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
LAKE
N
T 12 S
13
24
18
19
COMMERCIAL CONCESSION SITE
OVERLOOK
RELOCATE
BEARD'S BLUFF AREA
PROPOSED 8' WIDE CONCRETE WALK
R 28 W
R 27 W
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF SOUTH
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/7A

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

STRUCTURES

ITEM	EXISTING	PROPOSED
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	S	S
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

ITEM	EXISTING	PROPOSED
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP	■O	□O
PRESSURE TANK	■OP	□OP
WELL WITH SHELTER	■S	□S
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	■F	□F
HYDRANT	■H	□H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

ITEM	EXISTING	PROPOSED
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

ITEM	EXISTING	PROPOSED
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

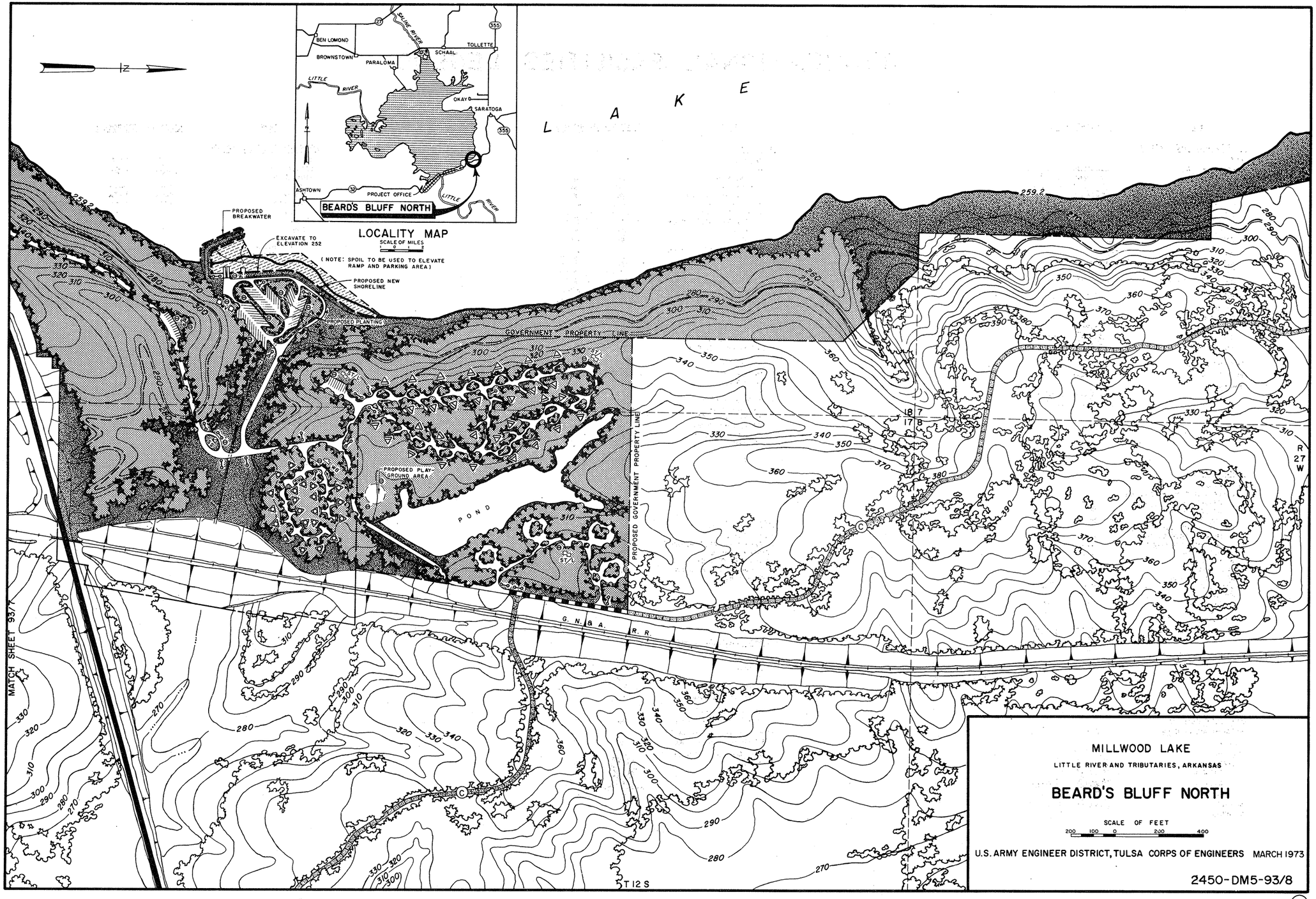
PROTECTION AND CONTROL

ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

ITEM	EXISTING	PROPOSED
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


LAKE
LOCALITY MAP
SCALE OF MILES
BEARD'S BLUFF NORTH
BEN LOMOND
BROWNSTOWN
PARALOMA
TOLLETTE
SCHAAL
OKAY
SARATOGA
ASHTOWN
PROJECT OFFICE
SALINE RIVER
LITTLE RIVER
PROPOSED BREAKWATER
EXCAVATE TO ELEVATION 252
(NOTE: SPOIL TO BE USED TO ELEVATE RAMP AND PARKING AREA)
PROPOSED NEW SHORELINE
PROPOSED PLANTING
GOVERNMENT PROPERTY LINE
PROPOSED PLAY GROUND AREA
POND
PROPOSED GOVERNMENT PROPERTY LINE
G. N. & A. R. R.
MATCH SHEET 93/7
T 12 S
R 27 W
259.2
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF NORTH
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/8

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	S	S
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	⊞D	⊏D
PRESSURE TANK	⊞DP	⊏DP
WELL WITH SHELTER	⊞D	⊏D
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	⊠F	⊠F
HYDRANT	■H	⊠H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	⊠SS	⊠SS
WATERBORNE	⊠SS(WB)	⊠SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	■E	⊏E
FLOODLIGHTS	⬡	⬡
GAS LINE	G	G

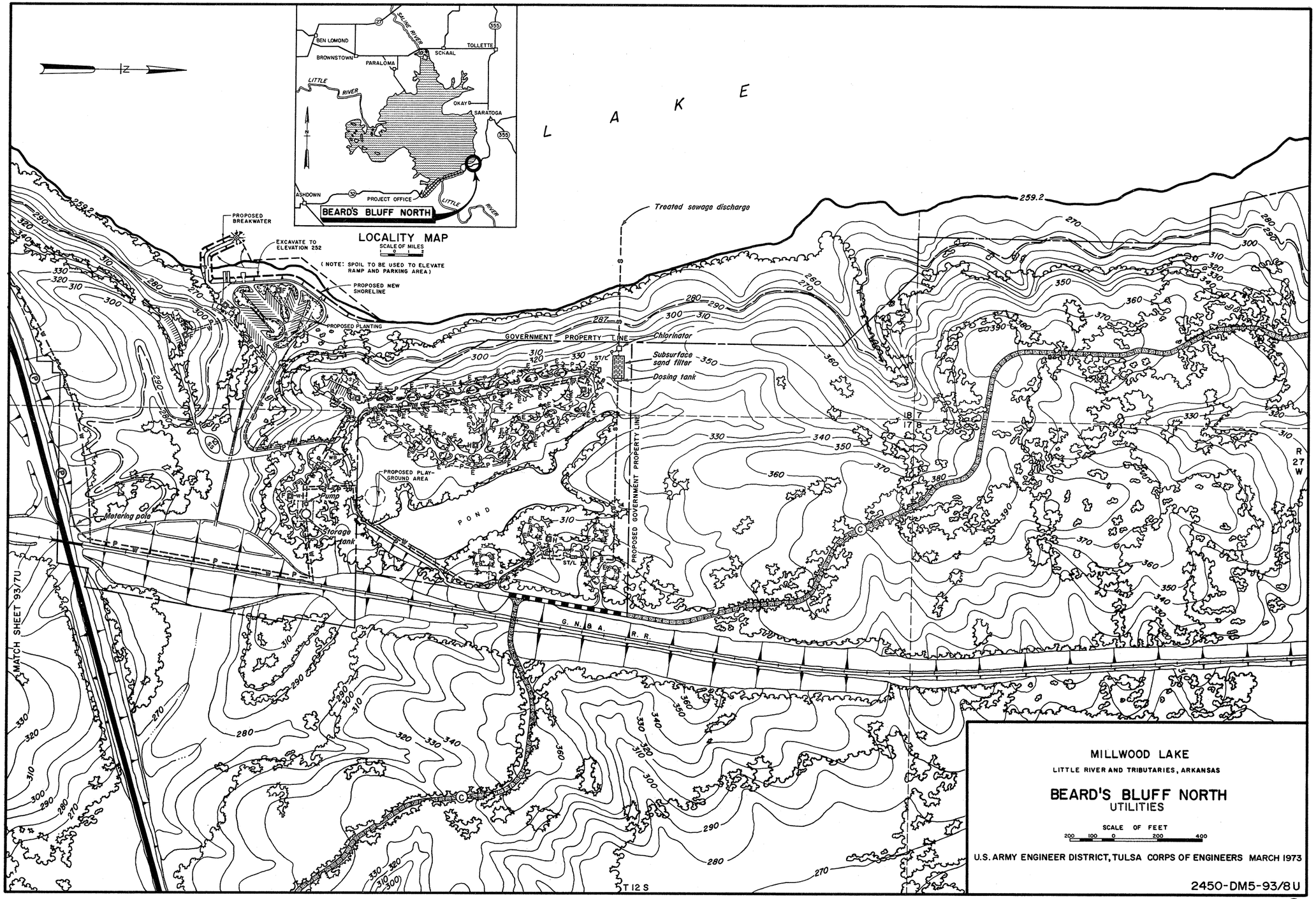
ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL	⊠	⊠
CAMPFIRE CIRCLE	⬢	⬡
TRASH RECEPTACLE	●	●
INDIVIDUAL PICNIC SHELTER	⊠	⊠
UTILITY TABLE	▬	▭

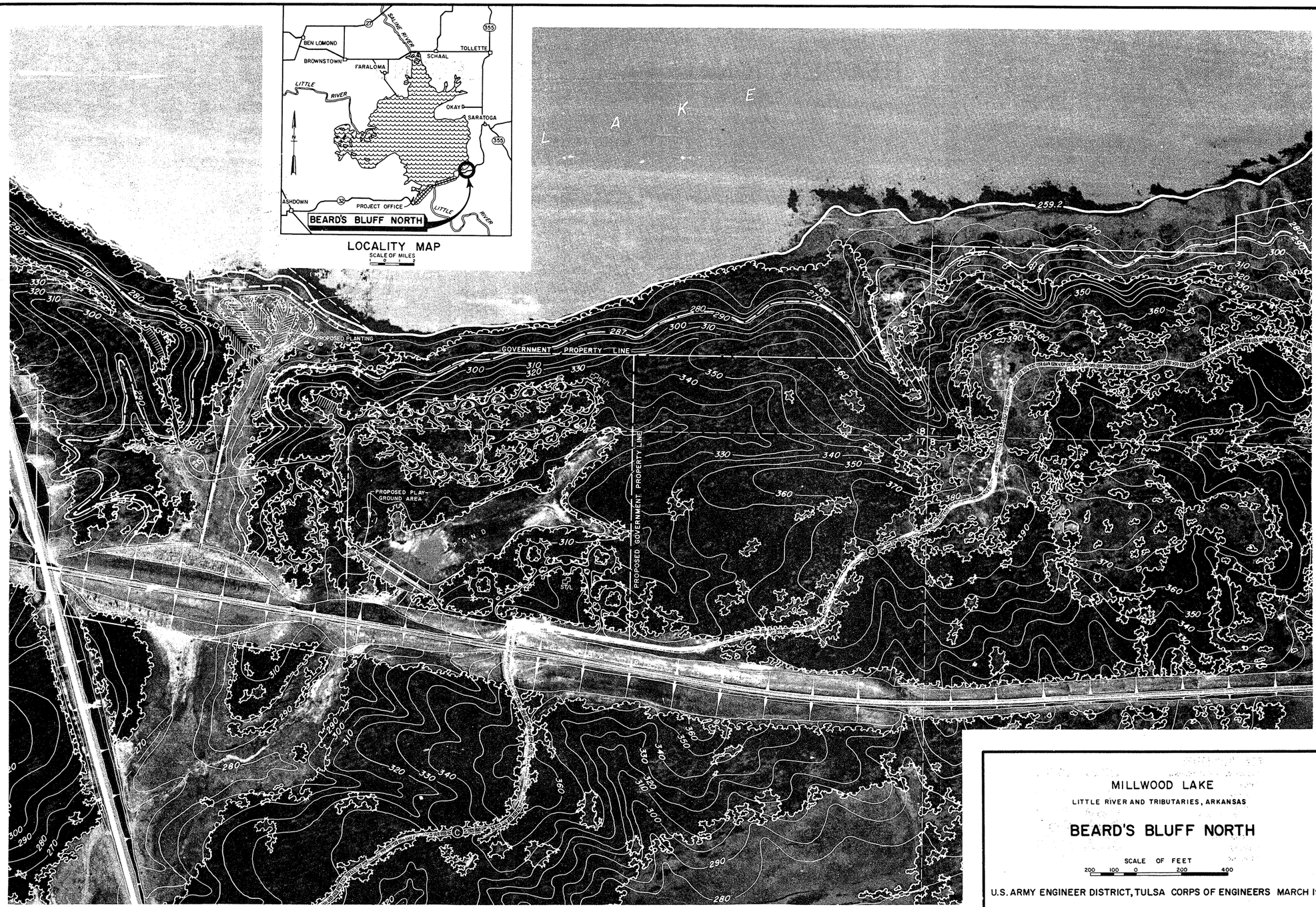
ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD	□	⬚
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	▲	▲
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN	▲	△
CAN		
CHANNEL MARKER	■	□
MESSAGE (DESIGNATED)	■	□
WARNING LIGHT		
TRAFFIC COUNTER		

ITEM	EXISTING	PROPOSED
SIGNS		

ITEM	EXISTING	PROPOSED
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


LAKE
LOCALITY MAP
SCALE OF MILES
BEARD'S BLUFF NORTH
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
SALINE RIVER
PROPOSED BREAKWATER
EXCAVATE TO ELEVATION 252
(NOTE: SPOIL TO BE USED TO ELEVATE RAMP AND PARKING AREA)
PROPOSED NEW SHORELINE
PROPOSED PLANTING
Treated sewage discharge
GOVERNMENT PROPERTY LINE
Chlorinator
Subsurface sand filter
Dosing tank
PROPOSED PLAY-GROUND AREA
Pump
Metering pole
Storage tank
POND
PROPOSED GOVERNMENT PROPERTY LINE
G. N. & A. R. R.
MATCH SHEET 93/7U
T 12 S
R 27 W
259.2
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF NORTH
UTILITIES
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/8U


LOCALITY MAP
SCALE OF MILES
0 1 2
BEN LOMOND
BROWNSTOWN
FARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
PROJECT OFFICE
BEARD'S BLUFF NORTH
SALINE RIVER
LITTLE RIVER
L A K E
259.2
GOVERNMENT PROPERTY LINE
PROPOSED PLANTING
PROPOSED PLAY-GROUND AREA
POND
PROPOSED GOVERNMENT PROPERTY LINE
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
BEARD'S BLUFF NORTH
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/8A

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ROADS
- PAVED, TWO-WAY
- PAVED, ONE-WAY
- GRAVEL, TWO-WAY
- GRAVEL, ONE-WAY
- EXISTING GRAVEL, PROPOSED PAVING
- EXISTING ROAD TO BE REMOVED
  - PAVED
  - GRAVEL
- UNIMPROVED VEHICULAR TRAIL

TRAILS
- PEDESTRIAN (NATURE TRAIL)
- EQUESTRIAN
- MOTORCYCLE OR DUNEBUGGY

BRIDGE

CULVERT

BOATRAMPS
- SINGLE-LANE
- MULTI-LANE
- SINGLE-LANE (TO BE WIDENED)

LOADING DOCKS

BOAT SLIPS

WALKS
- STEPS
- RAMPS

STRUCTURES

SANITATION
- COMFORT STATIONS, WATERBORNE
  - SHOWER-TOILET WITH LAUNDRY — ST/L
  - SHOWER-TOILET — ST
  - TOILET ONLY — WB
- COMFORT STATIONS, CONCRETE VAULT
  - MASONRY (DOUBLE UNIT) — MV
  - MASONRY (SINGLE UNIT) — MV
  - WOOD FRAME — WV
- WASHHOUSE — L
- BATHHOUSE — B
- BATH-CHANGE HOUSE — B/CH
- CHANGE HOUSE — CH
- SHELTERS
  - PICNIC (GROUP) — PI
  - TRAIL — T
- SWIMMING BEACH
  - SAND
  - TURF

(OTHER STRUCTURES NAMED)

SITE PREPARATION

CLEARING AND GRUBBING — CLEARED

TREES
- BLOCK
- SHADE
  - BROADLEAF
  - EVERGREEN
- ORNAMENTAL

SHRUBS

TURFING

UTILITIES

WATER SUPPLY
- WELLS
  - HAND PUMP
  - PRESSURE TANK — P
  - WELL WITH SHELTER
- RAW WATER LINES — RW
- DISTRIBUTION LINES — W
- DISTRIBUTION LINES (BY OTHERS) — W
- FOUNTAIN — F
- HYDRANT — H

SEWAGE AND WATER DISPOSAL
- MUNICIPAL SYSTEM — S
- SEWER LINE — S
- SEPTIC TANK
- SEPTIC TANK AND PUMP
- SEPTIC TANK AND TILE FIELD
- SAND FILTER
- OXIDATION LAGOON — LAGOON
- SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)
  - CONCRETE VAULT — SS
  - WATERBORNE — SS(WB)
- WET GARBAGE DISPOSAL — G

TELEPHONE LINES
- OVERHEAD — T
- UNDERGROUND — T

ELECTRICAL SUPPLY
- OVERHEAD LINES — P
- UNDERGROUND LINES — P
- POWERLINES BY OTHERS — P
- ELECTRICAL OUTLETS — E
- FLOODLIGHTS

GAS LINE — G

PARK FURNITURE

- PICNIC TABLE
- FIREPLACE OR PEDESTAL GRILL
- CAMPFIRE CIRCLE
- TRASH RECEPTACLE
- INDIVIDUAL PICNIC SHELTER
- UTILITY TABLE

CAMPING AND PICNIC SITES

- TENT PAD
- PULL OFF
  - PAVED
  - GRAVEL
  - GRAVEL (PROPOSED PAVING)
- CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- GROUP CAMP (SEE DETAIL SHEET 93/35)

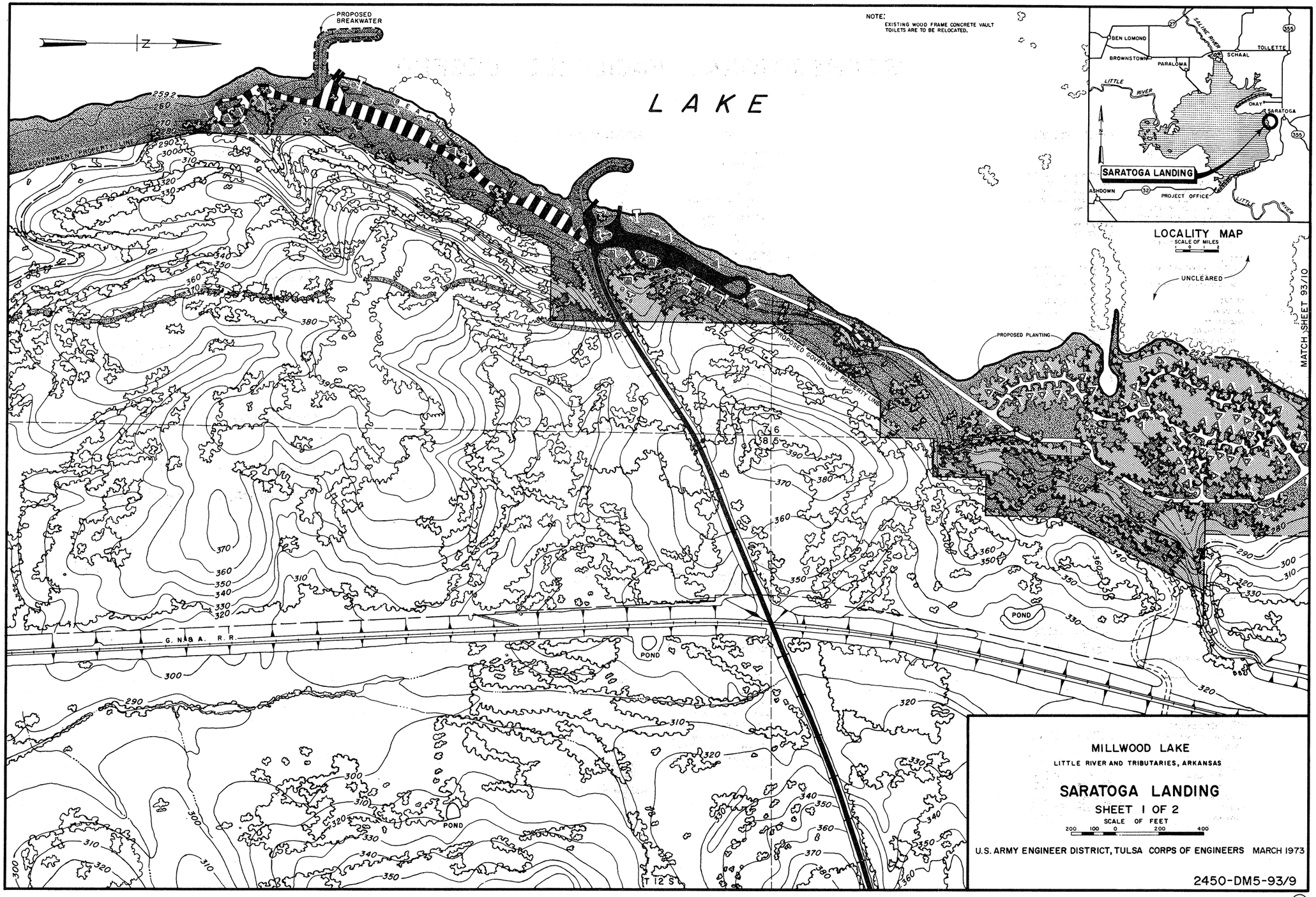
PROTECTION AND CONTROL

- GATE
- CATTLEGUARD
- BARRICADES
  - LOG
  - BOULDERS
  - GUARD RAIL
  - POSTS
- BUOYS
  - NUN
  - CAN
    - CHANNEL MARKER
    - MESSAGE (DESIGNATED)
- WARNING LIGHT
- TRAFFIC COUNTER

SIGNS

ATHLETIC FACILITIES

- BASEBALL / SOFTBALL FIELD
- GENERAL SPORTS FIELD — SPORTS


PROPOSED BREAKWATER
NOTE:
EXISTING WOOD FRAME CONCRETE VAULT TOILETS ARE TO BE RELOCATED.
LAKE
GOVERNMENT PROPERTY LINE
PROPOSED GOVERNMENT PROPERTY LINE
PROPOSED PLANTING
UNCLEARED
MATCH SHEET 93/10
G. N. & A. R. R.
POND
T 12 S
SALINE RIVER
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
LITTLE RIVER
OKAY
SARATOGA
SARATOGA LANDING
ASHDOWN
PROJECT OFFICE
LOCALITY MAP
SCALE OF MILES
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA LANDING
SHEET 1 OF 2
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/9

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PI	PI
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	O	O
PRESSURE TANK	OP	OP
WELL WITH SHELTER	W	W
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

ITEM	EXISTING	PROPOSED
SIGNS		

ITEM	EXISTING	PROPOSED
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

NOTE:
EXISTING WOOD FRAME CONCRETE VAULT TOILETS ARE TO BE RELOCATED.

DRINKING WATER TO BE PURCHASED FROM PRIVATE WELL OWNER AND PUMPED TO EXISTING 8000 GALLON STORAGE TANK.

LAKE

PROPOSED BREAKWATER

Holding tank

Existing 8000 gallon storage tank

Proposed pump

Holding tank

Private well water supply

Metering pole (Existing overhead powerline to be relocated underground beyond this point)

GOVERNMENT PROPERTY LINE

PROPOSED PLANTING

Water intake pump

UNCLEARED

Booster pump

POND

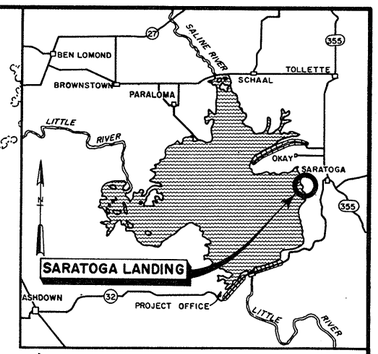
POND

POND

G. N. & A. R. R.

R 27 W

T 12 S



LOCALITY MAP
SCALE OF MILES 0 1 2

MATCH SHEET 93/10U

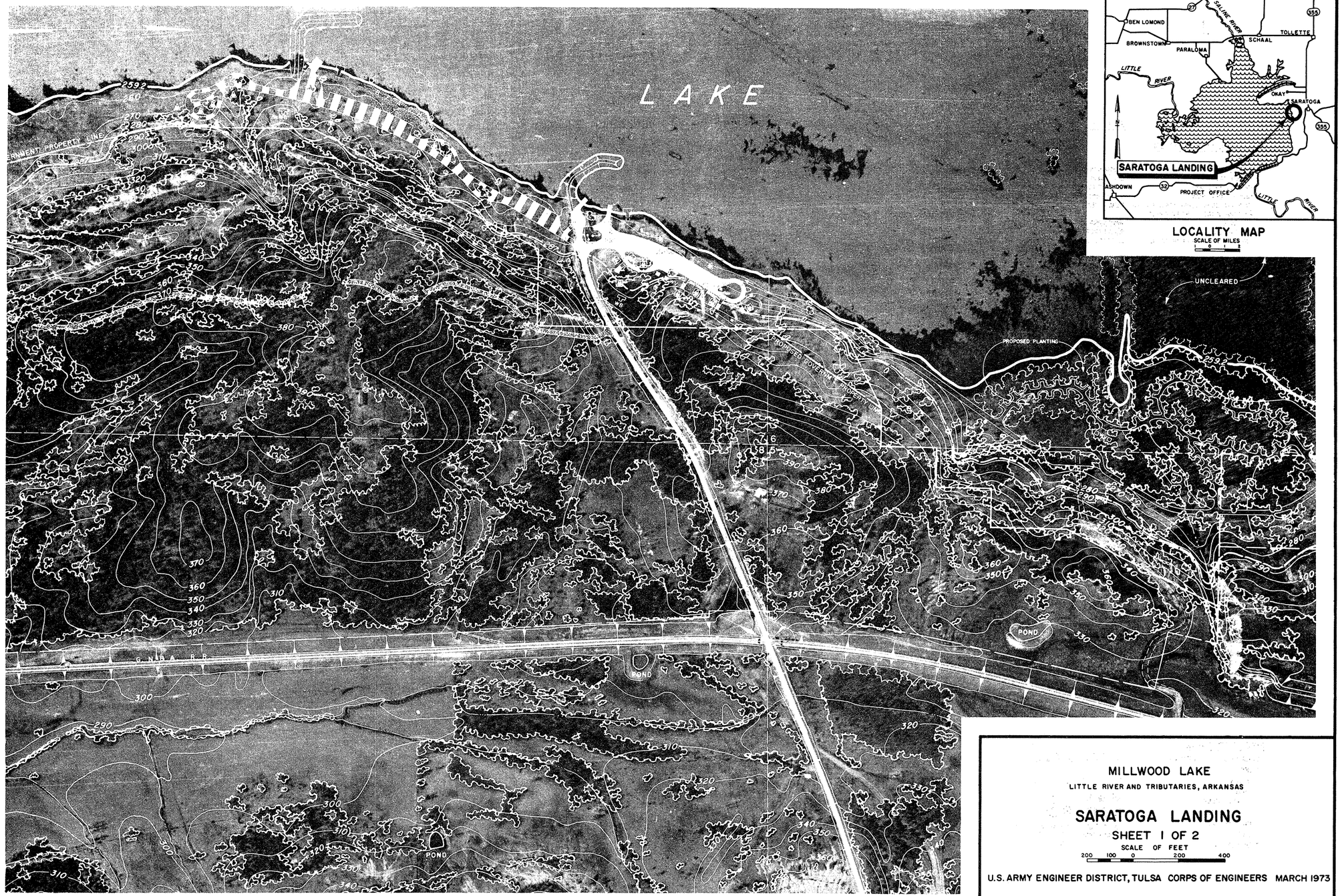
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA LANDING
UTILITIES

SHEET 1 OF 2

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/9U


LAKE
2592
CURRENT PROPERTY LINE
PROPOSED PLANTING
UNCLEARED
POND
POND
POND
G.M.&A. R.R.
FORMER POWERHOUSE SITE
FORMER POWERHOUSE SITE
FORMER POWERHOUSE SITE

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

STRUCTURES

ITEM		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	S	S
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

ITEM		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP	■O	□O
PRESSURE TANK	■OP	□OP
WELL WITH SHELTER	■O	□O
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	⊠F	⊠F
HYDRANT	■H	□H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	⊠SS	⊠SS
WATERBORNE	⊠SS(WB)	⊠SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

ITEM		
PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE	⬡	⬡
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER	⊠	⊠
UTILITY TABLE		

CAMPING AND PICNIC SITES

ITEM		
TENT PAD	□	□
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
GROUP CAMP (SEE DETAIL SHEET 93/35)		

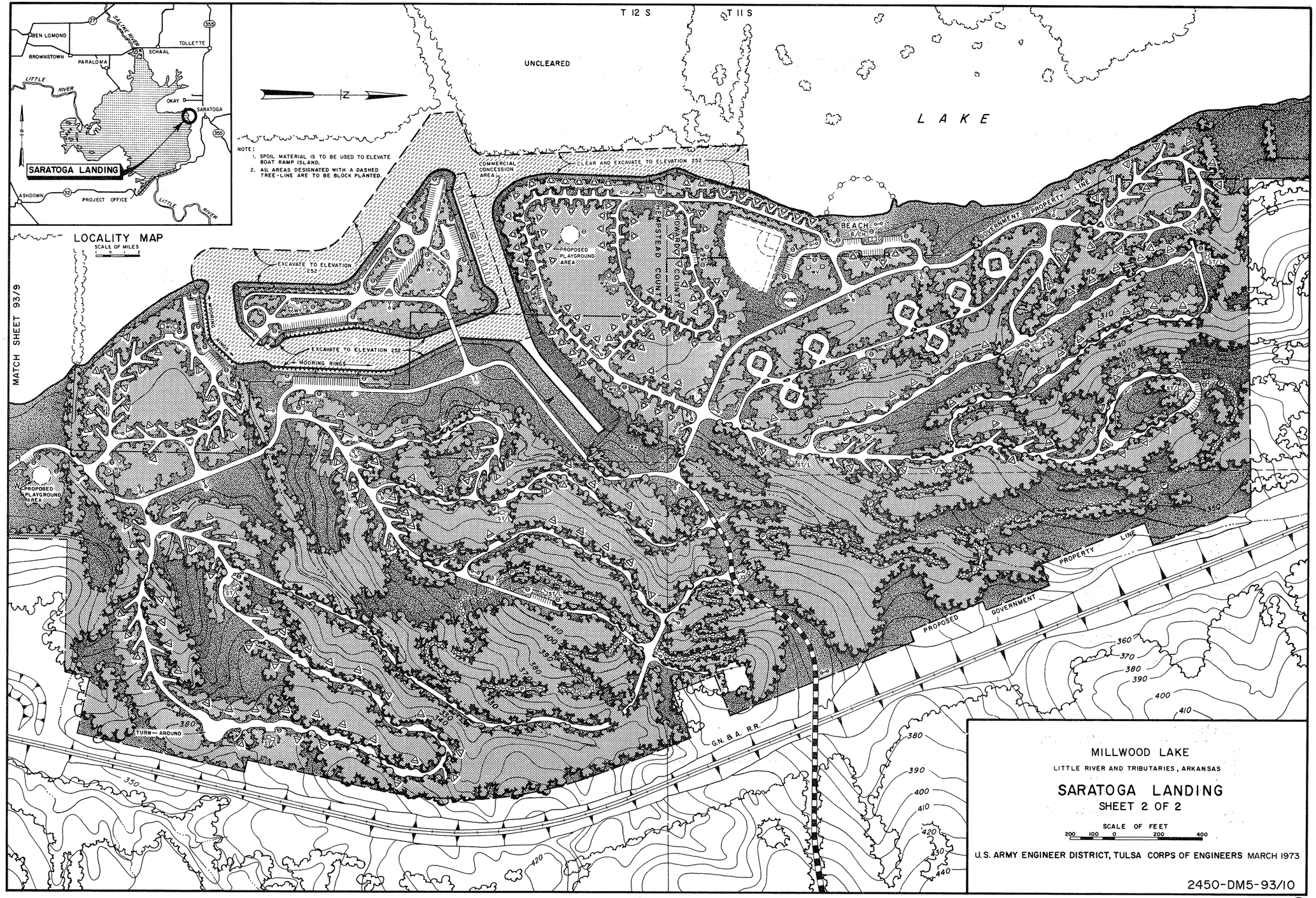
PROTECTION AND CONTROL

ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

ITEM		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

SARATOGA LANDING

SHEET 2 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/10

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

STRUCTURES

SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	S	S
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP	■O	□O
PRESSURE TANK	■OP	□OP
WELL WITH SHELTER	■O	□O
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	■F	□F
HYDRANT	■H	□H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	■SS	□SS
WATERBORNE	■SS(WB)	□SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

TENT PAD	□	□
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
GROUP CAMP (SEE DETAIL SHEET 93/35)		

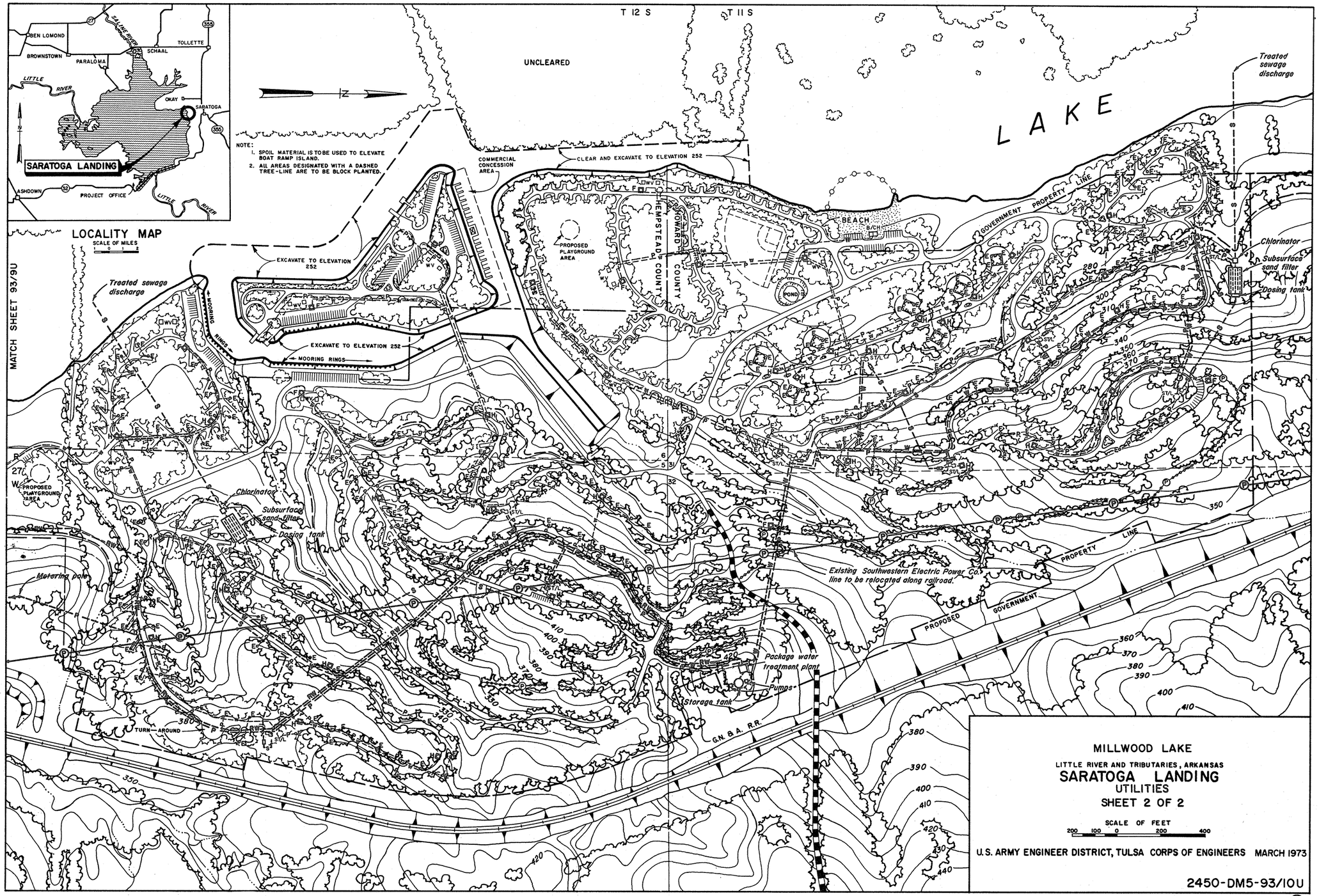
PROTECTION AND CONTROL

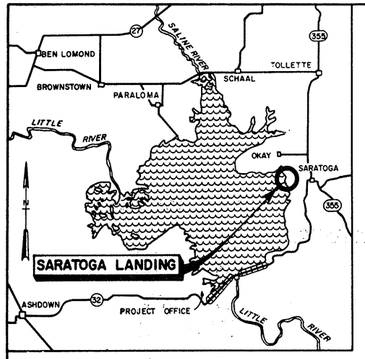
ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN	▲	△
CAN		
CHANNEL MARKER	■	□
MESSAGE (DESIGNATED)	■	□
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


BEN LOMOND
SALINE RIVER
TOLLETTE
BROWNSTOWN
PARALOMA
SCHAAL
LITTLE RIVER
OKAY
SARATOGA
SARATOGA LANDING
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
LOCALITY MAP
SCALE OF MILES
MATCH SHEET 93/9U
T 12 S
T 11 S
UNCLEARED
NOTE:
1. SPOIL MATERIAL IS TO BE USED TO ELEVATE BOAT RAMP ISLAND.
2. ALL AREAS DESIGNATED WITH A DASHED TREE-LINE ARE TO BE BLOCK PLANTED.
COMMERCIAL CONCESSION AREA
CLEAR AND EXCAVATE TO ELEVATION 252
EXCAVATE TO ELEVATION 252
EXCAVATE TO ELEVATION 252
PROPOSED PLAYGROUND AREA
PROPOSED PLAYGROUND AREA
HEMPSTEAD COUNTY
HOWARD COUNTY
POND
BEACH
B/CH
GOVERNMENT PROPERTY LINE
LAKE
Treated sewage discharge
Treated sewage discharge
MOORING RINGS
MOORING RINGS
Chlorinator
Subsurface sand filter
Dosing tank
Chlorinator
Subsurface sand filter
Dosing tank
Metering pole
TURN-AROUND
Existing Southwestern Electric Power Co.'s line to be relocated along railroad.
PROPERTY LINE
PROPOSED GOVERNMENT
Package water treatment plant
Pumps
Storage tank
G.N. & A. R.R.
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
SARATOGA LANDING
UTILITIES
SHEET 2 OF 2
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/10U



LOCALITY MAP

SCALE OF MILES

1 0 1 2

T 12 S T 11 S

UNCLEARED

LAKE

SPOIL MATERIAL IS TO BE USED TO ELEVATE BOAT RAMP ISLAND. SIDE SLOPES DESIGNATED WITH A DASHED LINE ARE TO BE BLOCK PLANTED.

COMMERCIAL CONCESSION AREA

CLEAR AND EXCAVATE TO ELEVATION 252

EXCAVATE TO ELEVATION 252

PROPOSED PLAYGROUND AREA

HEMPSTEAD COUNTY

HOWARD COUNTY

BEACH

GOVERNMENT PROPERTY LINE

MOORING RINGS

EXCAVATE TO ELEVATION 252

MOORING RINGS

PROPOSED PLAYGROUND

TURN-AROUND

PROPOSED GOVERNMENT PROPERTY LINE

K.C.S. R.R.

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

SARATOGA LANDING

SHEET 2 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/10A

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		

STRUCTURES

ITEM	EXISTING	PROPOSED
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)		
TRAIL	1	1
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

ITEM		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

ITEM	EXISTING	PROPOSED
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

ITEM	EXISTING	PROPOSED
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

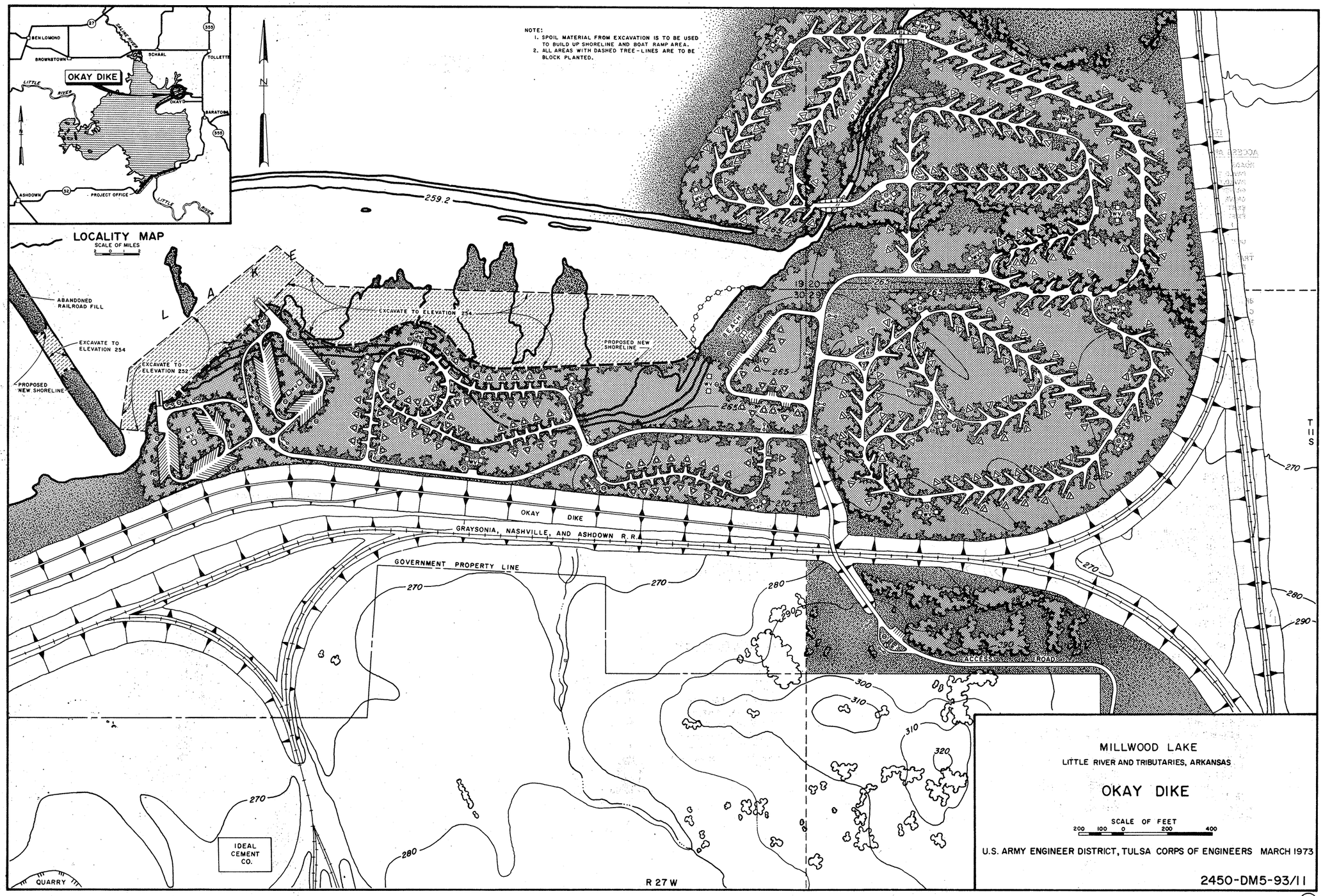
PROTECTION AND CONTROL

ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

ITEM	EXISTING	PROPOSED
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


LOCALITY MAP
SCALE OF MILES
2 0 1 2
OKAY DIKE
BEN LOMOND
BROWNSTOWN
SCHAAL
TOLLETTE
BARATORIA
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
CALIMA RIVER
NOTE:
1. SPOIL MATERIAL FROM EXCAVATION IS TO BE USED TO BUILD UP SHORELINE AND BOAT RAMP AREA.
2. ALL AREAS WITH DASHED TREE-LINES ARE TO BE BLOCK PLANTED.
N
259.2
LAKE
ABANDONED RAILROAD FILL
EXCAVATE TO ELEVATION 254
EXCAVATE TO ELEVATION 252
PROPOSED NEW SHORELINE
EXCAVATE TO ELEVATION 254
PROPOSED NEW SHORELINE
BEACH
OKAY DIKE
GRAYSONIA, NASHVILLE, AND ASHDOWN R.R.
GOVERNMENT PROPERTY LINE
ACCESS ROAD
IDEAL CEMENT CO.
QUARRY
T 11 S
R 27 W
270
280
290
300
310
320
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
OKAY DIKE
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/11

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PI	PI
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

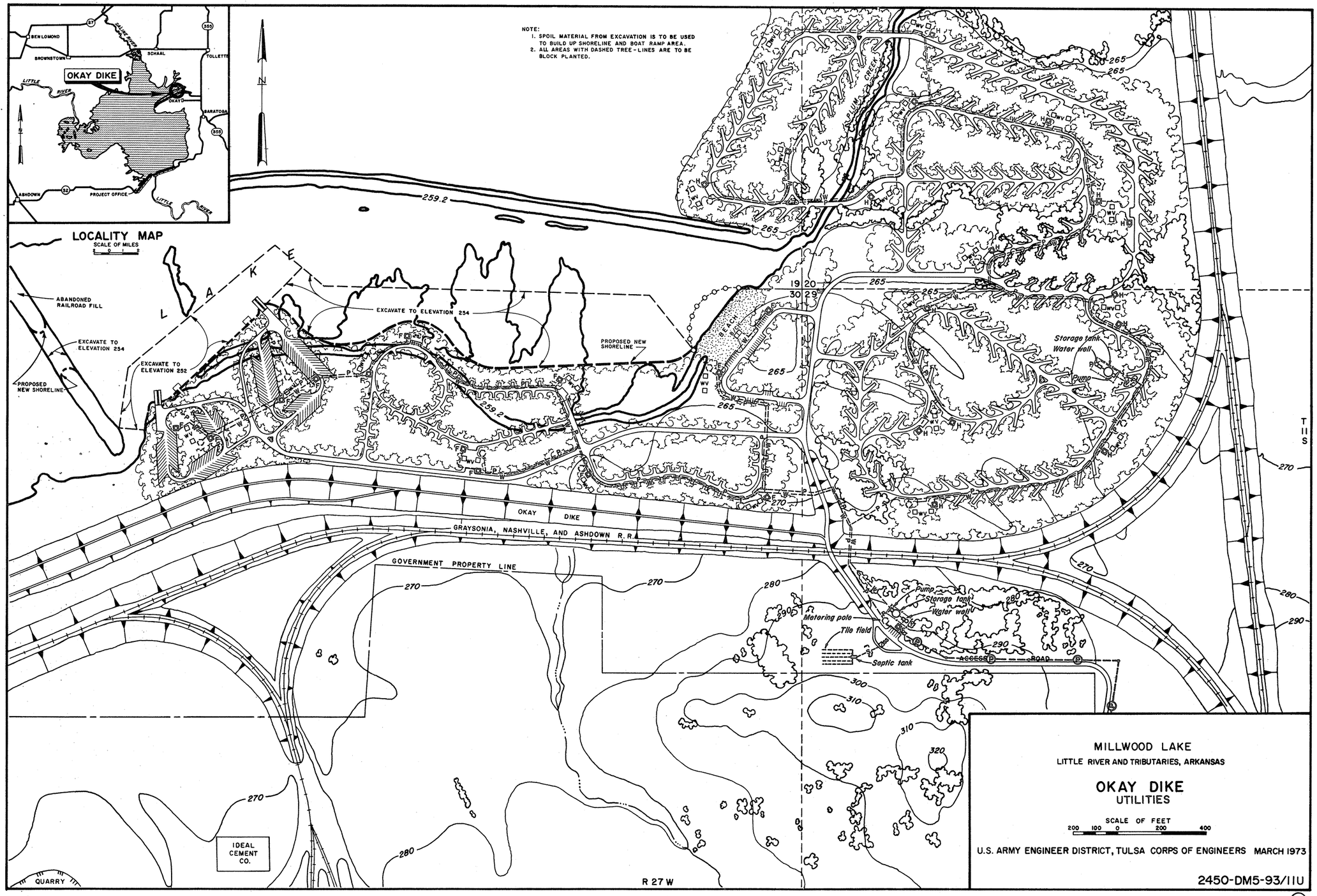
ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	O	O
PRESSURE TANK	OP	OP
WELL WITH SHELTER	O	O
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



MILLWOOD LAKE

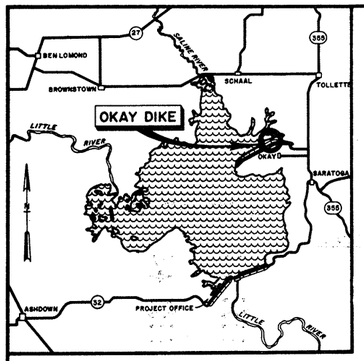
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

OKAY DIKE
UTILITIES

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/11U



LOCALITY MAP
SCALE OF MILES
0 1 2

NOTES:
1. SPOIL MATERIAL FROM EXCAVATION TO BE USED TO BUILD SHORELINE AND BERM AS SHOWN.
2. ALL AREAS WITH DASHED TREE LINES ARE TO BE CLEARED AND GRUBBED.

EXCAVATE TO ELEVATION 254

PROPOSED SHORELINE

OKAY DIKE

GRAYSONIA, NASHVILLE, AND ASHDOWN R.R.

GOVERNMENT PROPERTY LINE

ACCESS ROAD

IDEAL CEMENT CO.

R 27 W

T 11 S

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

OKAY DIKE

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/11A

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

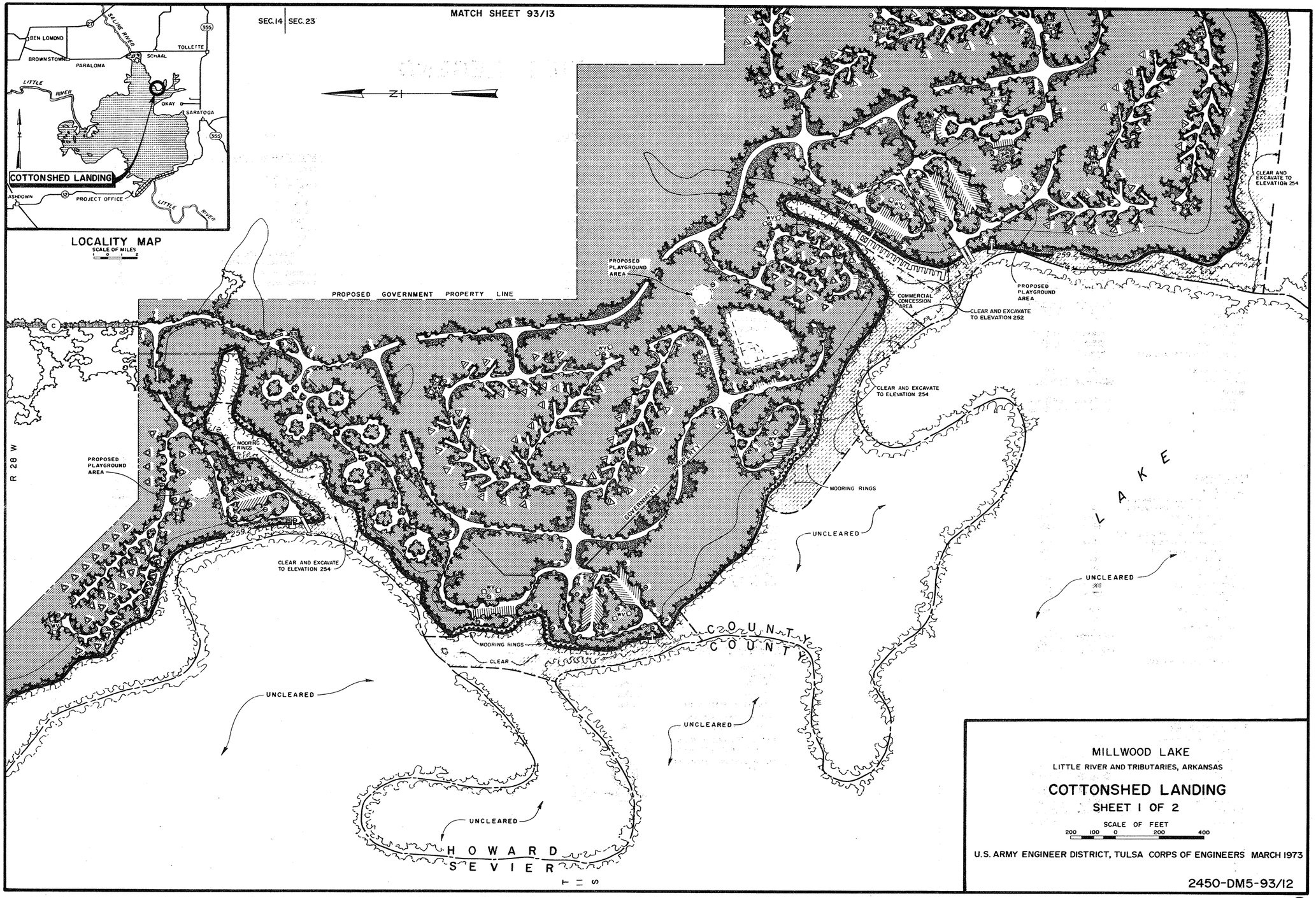
ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	⊞D	⊏D
PRESSURE TANK	⊞DP	⊏DP
WELL WITH SHELTER	⊡D	⊏D
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	⊞F	⊠F
HYDRANT	■H	⊠H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	⊠SS	⊠SS
WATERBORNE	⊠SS(WB)	⊠SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	■E	⊏E
FLOODLIGHTS	⬡	⬡
GAS LINE	G	G

ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL	⊠	⊠
CAMPFIRE CIRCLE	⬡	⬡
TRASH RECEPTACLE	⊕	⊕
INDIVIDUAL PICNIC SHELTER	⊠	⊠
UTILITY TABLE	▬	▬

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD	□	⊏⊐
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	▲	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	▲	△
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN	▲	△
CAN		
CHANNEL MARKER	■	□
MESSAGE (DESIGNATED)	■	□
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


MATCH SHEET 93/13
SEC.14 | SEC.23
LOCALITY MAP
SCALE OF MILES
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
SALINE RIVER
LITTLE RIVER
OKAY
SARATOGA
COTTONSHED LANDING
ASHDOWN
PROJECT OFFICE
PROPOSED GOVERNMENT PROPERTY LINE
PROPOSED PLAYGROUND AREA
COMMERCIAL CONCESSION AREA
CLEAR AND EXCAVATE TO ELEVATION 252
CLEAR AND EXCAVATE TO ELEVATION 254
MOORING RINGS
GOVERNMENT PROPERTY LINE
UNCLEARED
CLEAR
R 28 W
LAKE
COUNTY
HOWARD
SEVIER
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
COTTONSHED LANDING
SHEET 1 OF 2
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/12

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)	P	P
EQUESTRIAN	H	H
MOTORCYCLE OR DUNEBUGGY	M	M
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	P	P
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	⊞O	⊏O
PRESSURE TANK	⊞OP	⊏OP
WELL WITH SHELTER	⊞◫	⊏◫
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	⊞F	⊠F
HYDRANT	⊞H	⊠H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	⊠SS	⊠SS
WATERBORNE	⊠SS(WB)	⊠SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

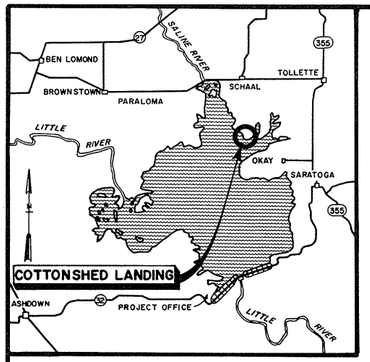
ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

ITEM	EXISTING	PROPOSED
SIGNS		

ITEM	EXISTING	PROPOSED
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

SEC. 14 | SEC. 23

MATCH SHEET 93/13U



LOCALITY MAP
SCALE OF MILES
0 1 2

N

Proposed water well
Pump
Storage tank

PROPOSED GOVERNMENT PROPERTY LINE

Metering pole

PROPOSED PLAYGROUND AREA

COMMERCIAL CONCESSION AREA

PROPOSED PLAYGROUND AREA

CLEAR AND EXCAVATE TO ELEVATION 252

CLEAR AND EXCAVATE TO ELEVATION 254

259.2

CLEAR AND EXCAVATE TO ELEVATION 254

MOORING RINGS

PROPOSED PLAYGROUND AREA

MOORING RINGS

GOVERNMENT PROPERTY LINE

MOORING RINGS

UNCLEARED

UNCLEARED

CLEAR AND EXCAVATE TO ELEVATION 254

259.2

MOORING RINGS

CLEAR

UNCLEARED

UNCLEARED

UNCLEARED

LAKE

COUNTY

HOWARD COUNTY

SEVIER COUNTY

R 28 W

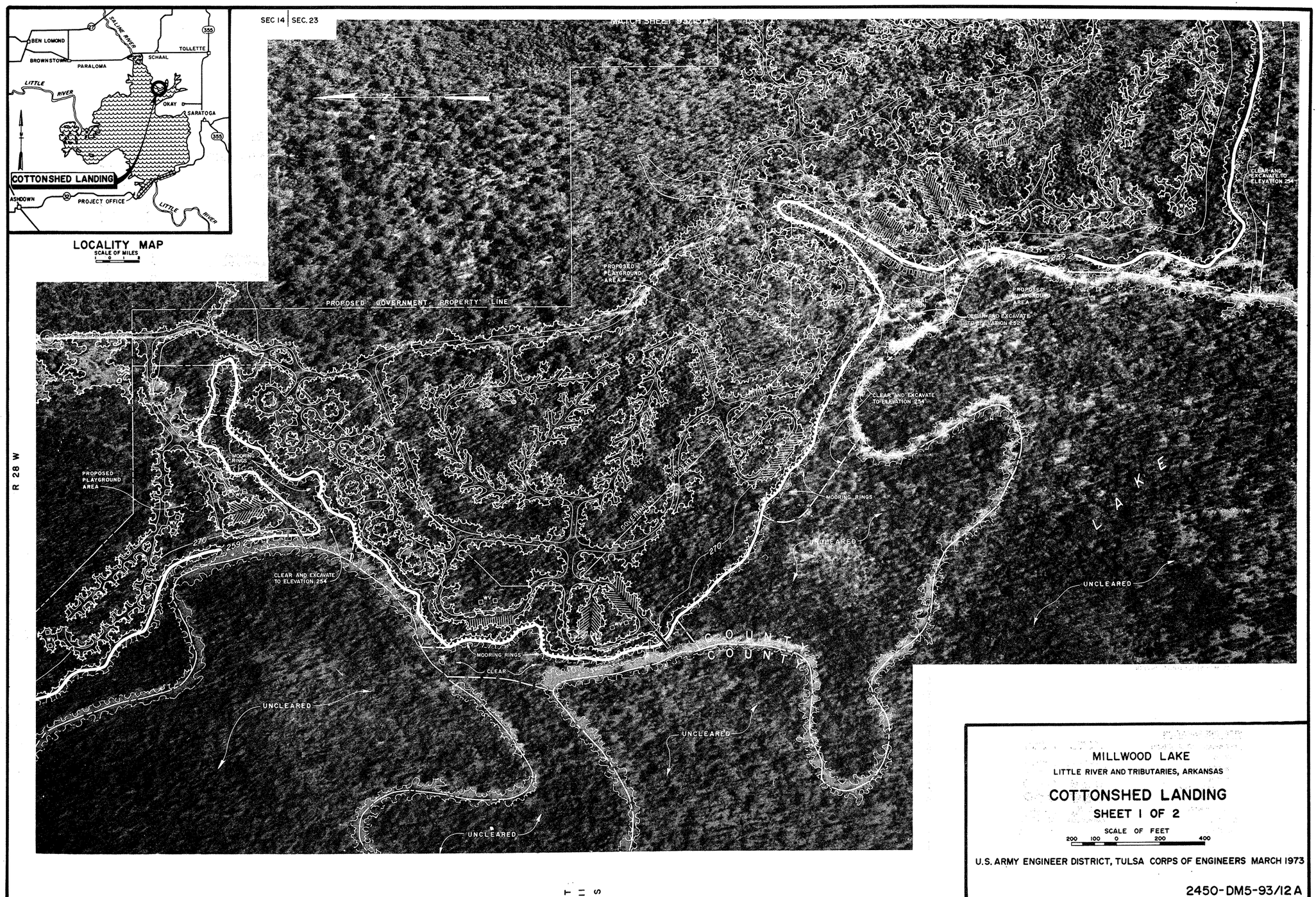
T 7 S

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
COTTONSHED LANDING
UTILITIES
SHEET 1 OF 2

SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/12U



MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

COTTONSHED LANDING

SHEET 1 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/12 A

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		

ITEM	EXISTING	PROPOSED
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	S	S
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

ITEM	EXISTING	PROPOSED
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

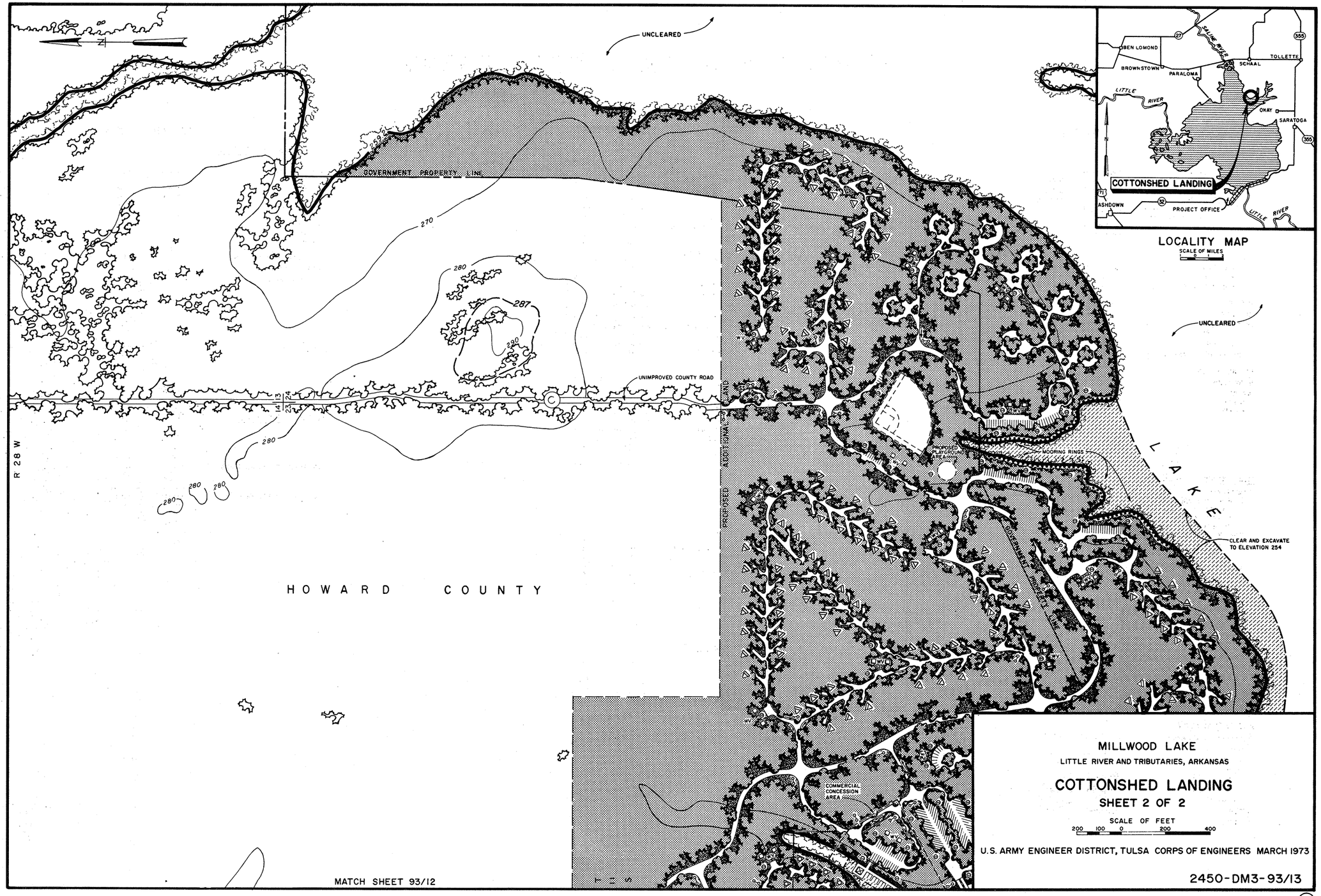
ITEM	EXISTING	PROPOSED
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

ITEM	EXISTING	PROPOSED
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

ITEM	EXISTING	PROPOSED
SIGNS		

ITEM	EXISTING	PROPOSED
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

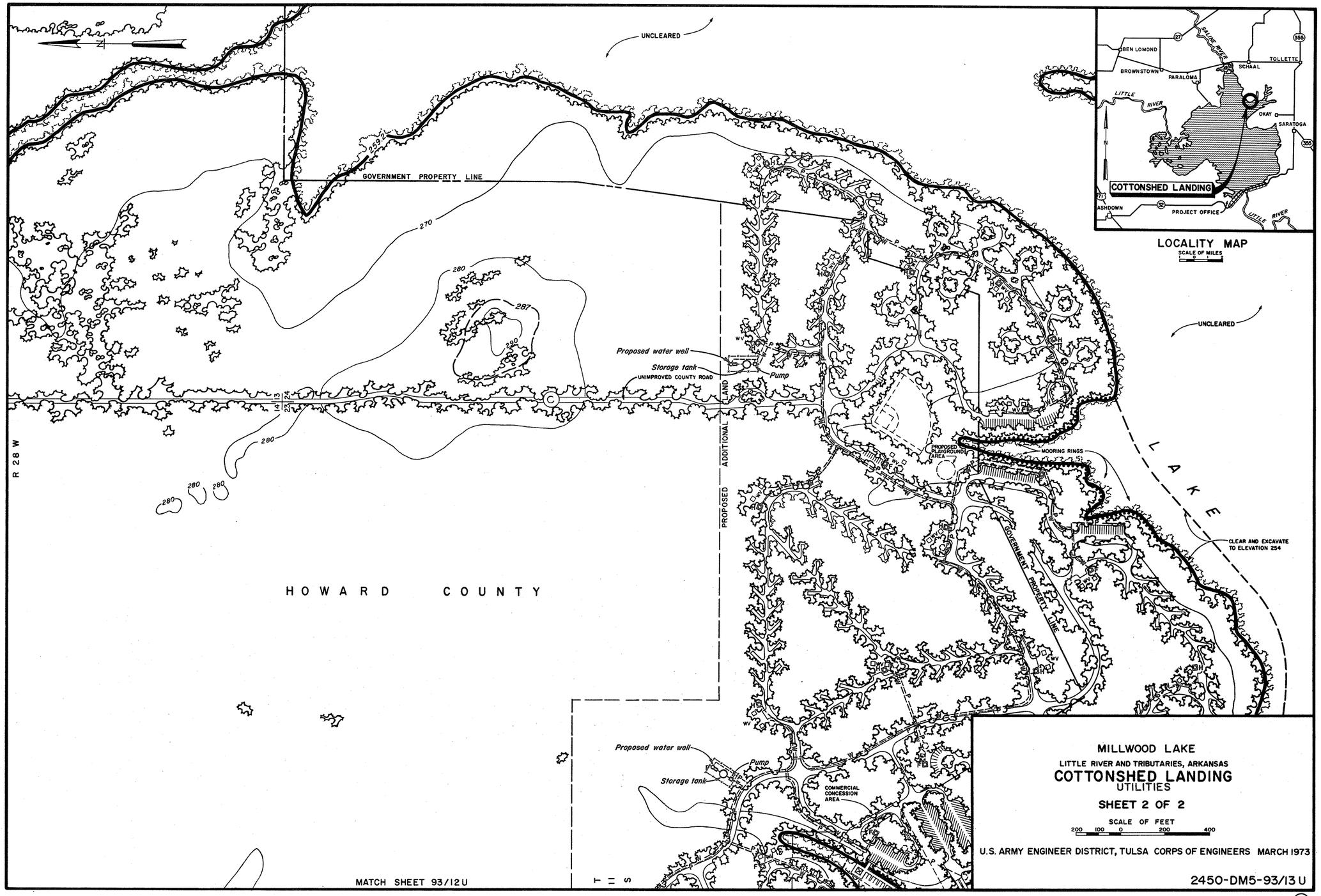

UNCLEARED
GOVERNMENT PROPERTY LINE
270
280
287
290
UNIMPROVED COUNTY ROAD
R 28 W
HOWARD COUNTY
PROPOSED ADDITIONAL LAND
PROPOSED PLAYGROUND AREA
MOORING RINGS
LAKE
CLEAR AND EXCAVATE TO ELEVATION 254
COMMERCIAL CONCESSION AREA
MATCH SHEET 93/12
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
SALINE RIVER
COTTONSHED LANDING
LOCALITY MAP
SCALE OF MILES
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
COTTONSHED LANDING
SHEET 2 OF 2
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM3-93/13

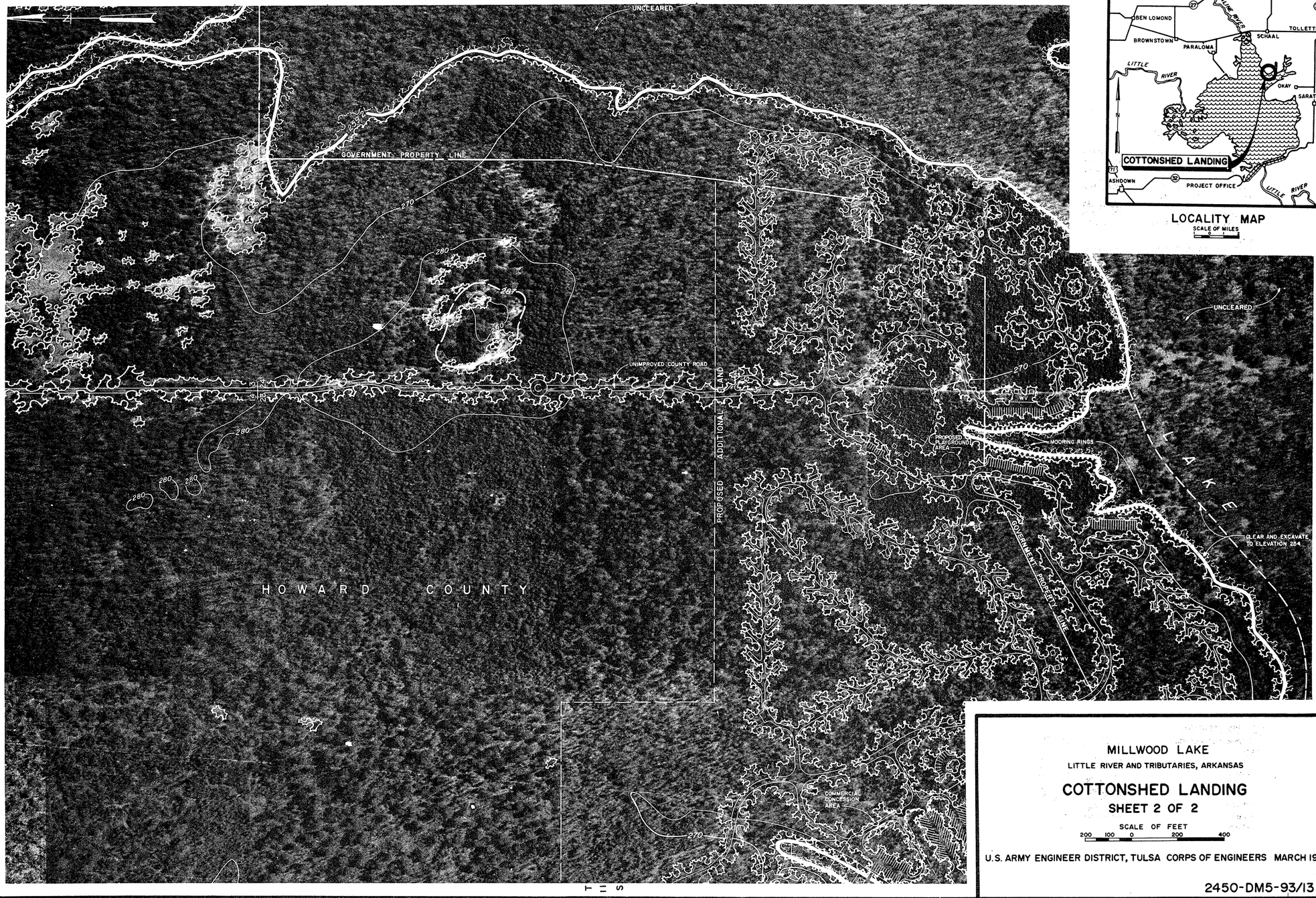
RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	S	S
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP	⊞O	⊏O
PRESSURE TANK	⊞OP	⊏OP
WELL WITH SHELTER	⊞◎	⊏◎
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	Ⓦ	Ⓦ
FOUNTAIN	⊞F	⊠F
HYDRANT	■H	⊠H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	Ⓢ	Ⓢ
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	⊠SS	⊠SS
WATERBORNE	⊠SS(WB)	⊠SS(WB)
WET GARBAGE DISPOSAL	⊕G	⊕G
TELEPHONE LINES		
OVERHEAD	Ⓣ	Ⓣ
UNDERGROUND	Ⓣ	Ⓣ
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	Ⓟ	Ⓟ
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE	△	△
FIREPLACE OR PEDESTAL GRILL	▭	▭
CAMPFIRE CIRCLE	⬢	⬡
TRASH RECEPTACLE	●	●
INDIVIDUAL PICNIC SHELTER	⊠	⊠
UTILITY TABLE	▬	▭
CAMPING AND PICNIC SITES		
TENT PAD	□	⬚
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	△	△
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)	▲	△
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN	▲	△
CAN		
CHANNEL MARKER	■	□
MESSAGE (DESIGNATED)	■	▯
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


UNCLEARED
GOVERNMENT PROPERTY LINE
259.2
270
280
287
290
Proposed water well
Storage tank
UNIMPROVED COUNTY ROAD
Pump
PROPOSED ADDITIONAL LAND
R 28 W
HOWARD COUNTY
PROPOSED PLAYGROUND AREA
MOORING RINGS
LAKE
CLEAR AND EXCAVATE TO ELEVATION 254
GOVERNMENT PROPERTY LINE
COMMERCIAL CONCESSION AREA
MATCH SHEET 93/12U
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
SALINE RIVER
COTTONSHED LANDING
LOCALITY MAP
SCALE OF MILES
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
COTTONSHED LANDING
UTILITIES
SHEET 2 OF 2
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/13 U



LOCALITY MAP

SCALE OF MILES

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

COTTONSHED LANDING

SHEET 2 OF 2

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

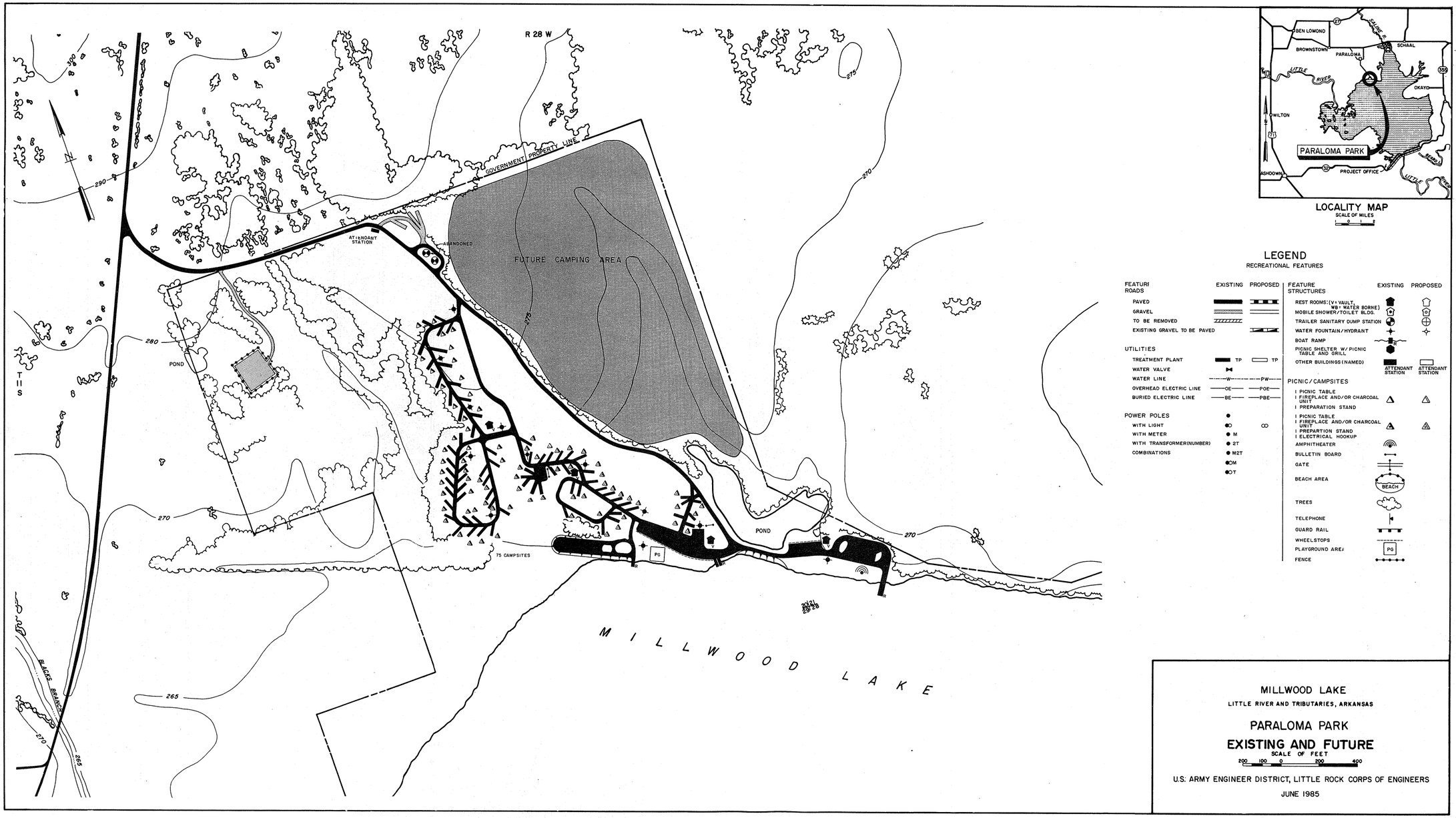
2450-DM5-93/13 A

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	P	P
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



LOCALITY MAP
SCALE OF MILES
0 1 2

LEGEND
RECREATIONAL FEATURES

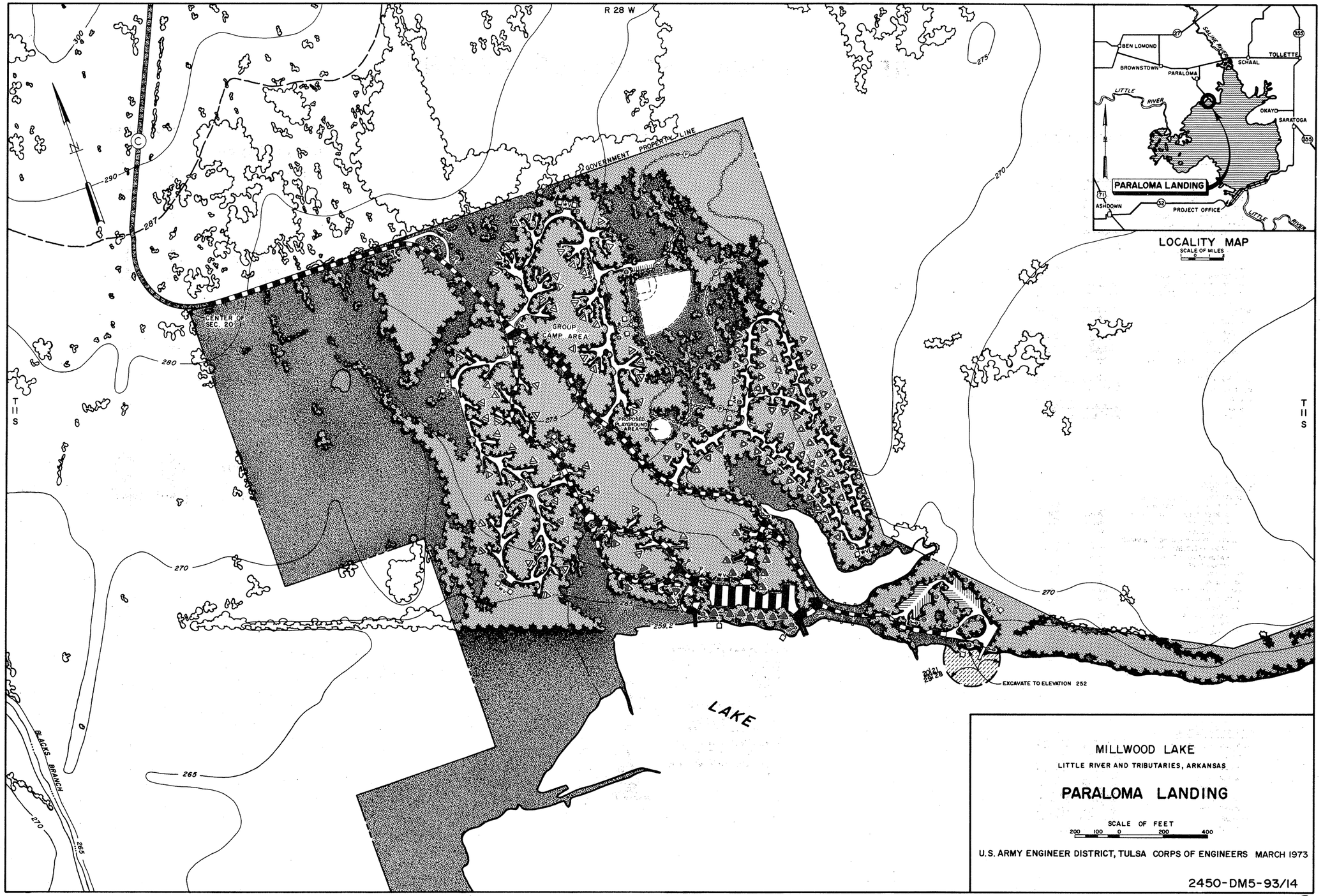
FEATURE ROADS	EXISTING	PROPOSED
PAVED		
GRAVEL		
TO BE REMOVED		
EXISTING GRAVEL TO BE PAVED		
UTILITIES		
TREATMENT PLANT	TP	TP
WATER VALVE		
WATER LINE	W	PW
OVERHEAD ELECTRIC LINE	OE	POE
BURIED ELECTRIC LINE	BE	PBE
POWER POLES		
WITH LIGHT	●O	∞
WITH METER	● M	
WITH TRANSFORMER(NUMBER)	● 2T	
COMBINATIONS	●M2T ●OM ●OT	

FEATURE STRUCTURES	EXISTING	PROPOSED
REST ROOMS: (V= VAULT, WB= WATER BORNE)	V	
MOBILE SHOWER/TOILET BLDG.		
TRAILER SANITARY DUMP STATION		
WATER FOUNTAIN/HYDRANT		
BOAT RAMP		
PICNIC SHELTER W/ PICNIC TABLE AND GRILL		
OTHER BUILDINGS (NAMED)	ATTENDANT STATION	ATTENDANT STATION
PICNIC/CAMPSITES		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARATION STAND		
1 PICNIC TABLE 1 FIREPLACE AND/OR CHARCOAL UNIT 1 PREPARTION STAND 1 ELECTRICAL HOOKUP		
AMPHITHEATER		
BULLETIN BOARD		
GATE		
BEACH AREA	BEACH	
TREES		
TELEPHONE		
GUARD RAIL		
WHEELSTOPS		
PLAYGROUND AREA	PG	
FENCE		

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PARALOMA PARK
EXISTING AND FUTURE
SCALE OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK CORPS OF ENGINEERS
JUNE 1985


R 28 W
T 11 S
GOVERNMENT PROPERTY LINE
CENTER OF SEC. 20
GROUP CAMP AREA
PROPOSED PLAYGROUND AREA
EXCAVATE TO ELEVATION 252
LAKE
BLACKS BRANCH
300
290
287
280
275
270
265
259.2
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
SALINE RIVER
PARALOMA LANDING
LOCALITY MAP
SCALE OF MILES
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
PARALOMA LANDING
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/14

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS	UP	UP
RAMPS	UP	UP

STRUCTURES

ITEM	EXISTING	PROPOSED
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PA	
TRAIL		
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

ITEM	EXISTING	PROPOSED
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	OP	OP
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

ITEM	EXISTING	PROPOSED
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

ITEM	EXISTING	PROPOSED
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

PROTECTION AND CONTROL

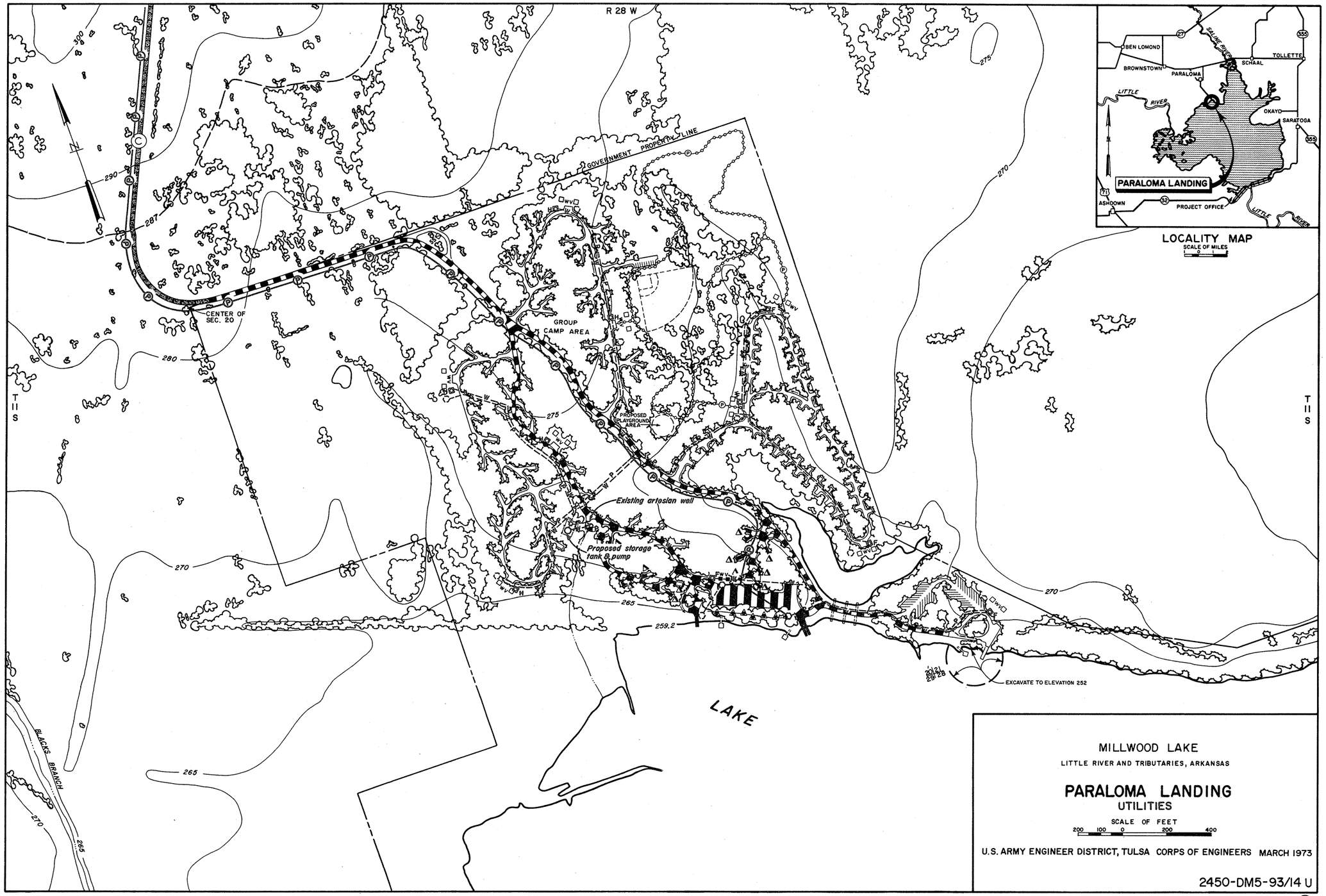
ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ITEM	EXISTING	PROPOSED
SIGNS		

ATHLETIC FACILITIES

ITEM	EXISTING	PROPOSED
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS

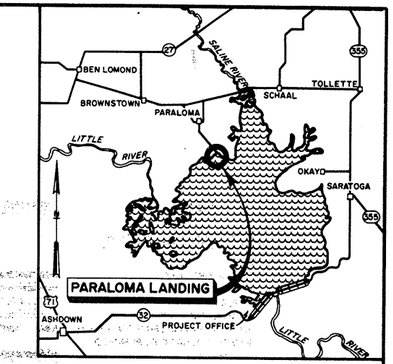

R 28 W
T 11 S
GOVERNMENT PROPERTY LINE
CENTER OF SEC. 20
GROUP CAMP AREA
PROPOSED PLAYGROUND AREA
Existing artesian well
Proposed storage tank & pump
EXCAVATE TO ELEVATION 252
LAKE
BLACKS BRANCH
300
290
287
280
275
270
265
259.2
BEN LOMOND
BROWNSTOWN
PARALOMA
SCHAAL
TOLLETTE
OKAY
SARATOGA
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
SALINE RIVER
PARALOMA LANDING
LOCALITY MAP
SCALE OF MILES
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
PARALOMA LANDING
UTILITIES
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/14 U

R 28 W

T 11 S

T 11 S





LOCALITY MAP

SCALE OF MILES

0 1

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PARALOMA LANDING

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

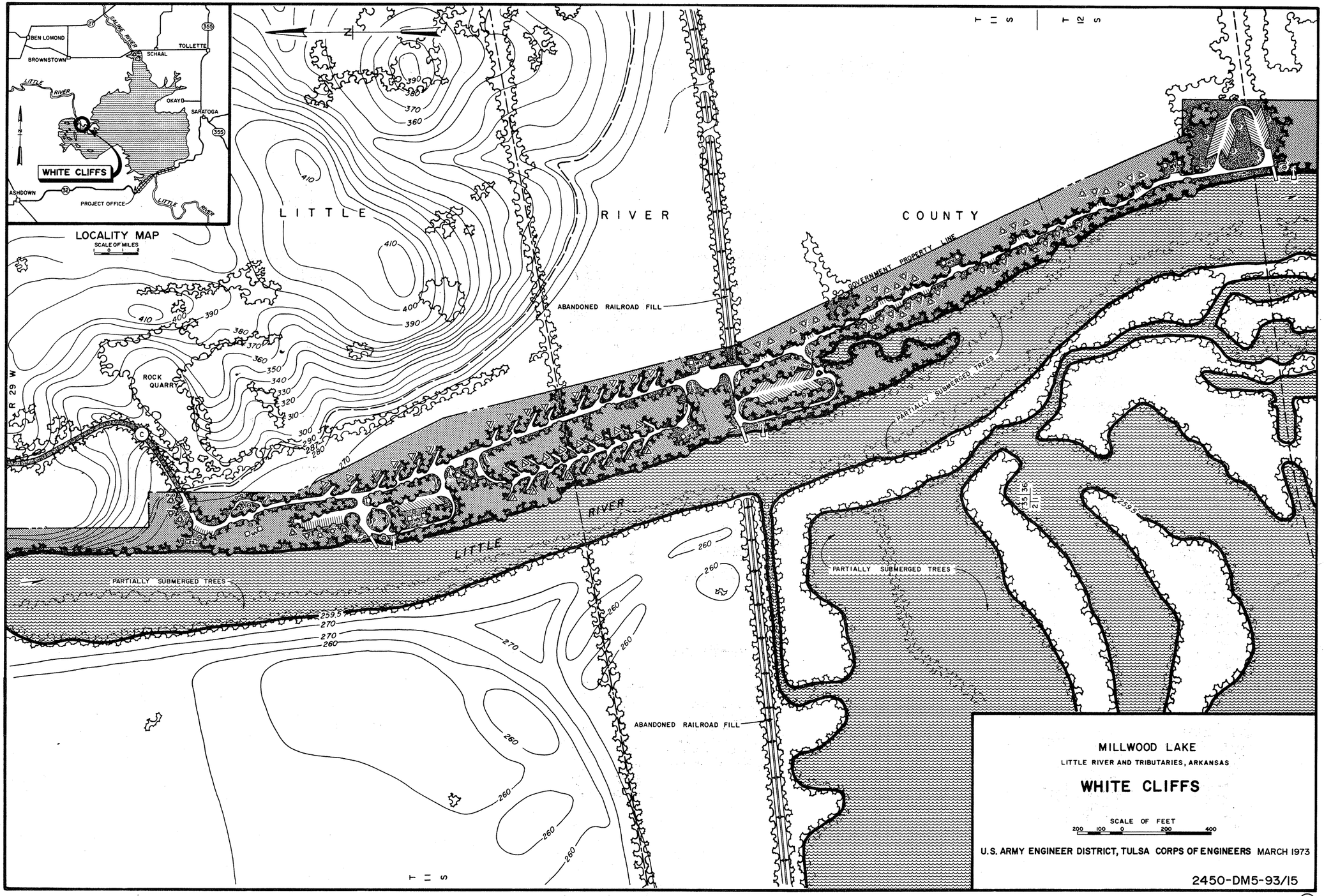
2450-DM5-93/14 A

RECREATIONAL FACILITIES LEGEND

ITEM	EXISTING	PROPOSED
ACCESS AND CIRCULATION		
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		
STRUCTURES		
SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PS	PS
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		
SITE PREPARATION		
CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

ITEM	EXISTING	PROPOSED
UTILITIES		
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G
PARK FURNITURE		
PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		
CAMPING AND PICNIC SITES		
TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

ITEM	EXISTING	PROPOSED
PROTECTION AND CONTROL		
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		
SIGNS		
ATHLETIC FACILITIES		
BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS


OBEN LOMOND
CALMAR RIVER
TOLLETTE
BROWNSTOWN
SCHAAL
LITTLE RIVER
OKAYO
SARATOGA
WHITE CLIFFS
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
LOCALITY MAP
SCALE OF MILES
0 1 2
N
LITTLE RIVER COUNTY
T 11 S
T 12 S
ABANDONED RAILROAD FILL
GOVERNMENT PROPERTY LINE
PARTIALLY SUBMERGED TREES
ROCK QUARRY
R 29 W
RIVER
LITTLE
PARTIALLY SUBMERGED TREES
ABANDONED RAILROAD FILL
T 11 S
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
WHITE CLIFFS
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/15

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ITEM	EXISTING	PROPOSED
ROADS		
PAVED, TWO-WAY		
PAVED, ONE-WAY		
GRAVEL, TWO-WAY		
GRAVEL, ONE-WAY		
EXISTING GRAVEL, PROPOSED PAVING		
EXISTING ROAD TO BE REMOVED		
PAVED		
GRAVEL		
UNIMPROVED VEHICULAR TRAIL		
TRAILS		
PEDESTRIAN (NATURE TRAIL)		
EQUESTRIAN		
MOTORCYCLE OR DUNEBUGGY		
BRIDGE		
CULVERT		
BOATRAMPS		
SINGLE-LANE		
MULTI-LANE		
SINGLE-LANE (TO BE WIDENED)		
LOADING DOCKS		
BOAT SLIPS		
WALKS		
STEPS		
RAMPS		

STRUCTURES

SANITATION		
COMFORT STATIONS, WATERBORNE		
SHOWER-TOILET WITH LAUNDRY	ST/L	ST/L
SHOWER-TOILET	ST	ST
TOILET ONLY	WB	WB
COMFORT STATIONS, CONCRETE VAULT		
MASONRY (DOUBLE UNIT)	MV	MV
MASONRY (SINGLE UNIT)	MV	MV
WOOD FRAME	WV	WV
WASHHOUSE	L	L
BATHHOUSE	B	B
BATH-CHANGE HOUSE	B/CH	B/CH
CHANGE HOUSE	CH	CH
SHELTERS		
PICNIC (GROUP)	PI	PI
TRAIL	T	T
SWIMMING BEACH		
SAND		
TURF		
(OTHER STRUCTURES NAMED)		

SITE PREPARATION

CLEARING AND GRUBBING	CLEARED	CLEARED
TREES		
BLOCK		
SHADE		
BROADLEAF		
EVERGREEN		
ORNAMENTAL		
SHRUBS		
TURFING		

UTILITIES

ITEM	EXISTING	PROPOSED
WATER SUPPLY		
WELLS		
HAND PUMP		
PRESSURE TANK	P	P
WELL WITH SHELTER		
RAW WATER LINES	RW	RW
DISTRIBUTION LINES	W	W
DISTRIBUTION LINES (BY OTHERS)	W	W
FOUNTAIN	F	F
HYDRANT	H	H
SEWAGE AND WATER DISPOSAL		
MUNICIPAL SYSTEM	S	S
SEWER LINE	S	S
SEPTIC TANK	S	S
SEPTIC TANK AND PUMP	S	S
SEPTIC TANK AND TILE FIELD	S	S
SAND FILTER	S	S
OXIDATION LAGOON	S LAGOON	S LAGOON
SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)		
CONCRETE VAULT	SS	SS
WATERBORNE	SS(WB)	SS(WB)
WET GARBAGE DISPOSAL	G	G
TELEPHONE LINES		
OVERHEAD	T	T
UNDERGROUND	T	T
ELECTRICAL SUPPLY		
OVERHEAD LINES	P	P
UNDERGROUND LINES	P	P
POWERLINES BY OTHERS	P	P
ELECTRICAL OUTLETS	E	E
FLOODLIGHTS		
GAS LINE	G	G

PARK FURNITURE

PICNIC TABLE		
FIREPLACE OR PEDESTAL GRILL		
CAMPFIRE CIRCLE		
TRASH RECEPTACLE		
INDIVIDUAL PICNIC SHELTER		
UTILITY TABLE		

CAMPING AND PICNIC SITES

TENT PAD		
PULL OFF		
PAVED		
GRAVEL		
GRAVEL (PROPOSED PAVING)		
CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)		
GROUP CAMP (SEE DETAIL SHEET 93/35)		

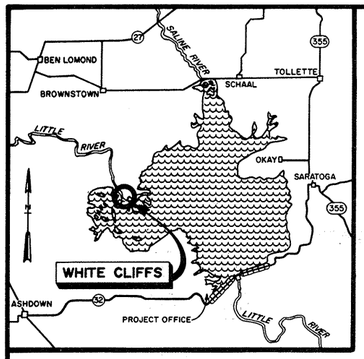
PROTECTION AND CONTROL

ITEM	EXISTING	PROPOSED
GATE		
CATTLEGUARD		
BARRICADES		
LOG		
BOULDERS		
GUARD RAIL		
POSTS		
BUOYS		
NUN		
CAN		
CHANNEL MARKER		
MESSAGE (DESIGNATED)		
WARNING LIGHT		
TRAFFIC COUNTER		

SIGNS

ATHLETIC FACILITIES

BASEBALL / SOFTBALL FIELD		
GENERAL SPORTS FIELD	SPORTS	SPORTS



LOCALITY MAP

SCALE OF MILES

T 13 S

T 12 S

R 29 W

LITTLE RIVER COUNTY

ABANDONED RAILROAD FILL

GOVERNMENT PROPERTY LINE

PARTIALLY SUBMERGED TREES

LITTLE RIVER

PARTIALLY SUBMERGED TREES

ABANDONED RAILROAD FILL

35 36 21

T 14 S

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

WHITE CLIFFS

SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/15A

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ROADS
- PAVED, TWO-WAY
- PAVED, ONE-WAY
- GRAVEL, TWO-WAY
- GRAVEL, ONE-WAY
- EXISTING GRAVEL, PROPOSED PAVING
- EXISTING ROAD TO BE REMOVED
  - PAVED
  - GRAVEL
- UNIMPROVED VEHICULAR TRAIL

TRAILS
- PEDESTRIAN (NATURE TRAIL)
- EQUESTRIAN
- MOTORCYCLE OR DUNEBUGGY

BRIDGE

CULVERT

BOATRAMPS
- SINGLE-LANE
- MULTI-LANE
- SINGLE-LANE (TO BE WIDENED)

LOADING DOCKS

BOAT SLIPS

WALKS
- STEPS
- RAMPS

STRUCTURES

SANITATION
- COMFORT STATIONS, WATERBORNE
  - SHOWER-TOILET WITH LAUNDRY — ST/L
  - SHOWER-TOILET — ST
  - TOILET ONLY — WB
- COMFORT STATIONS, CONCRETE VAULT
  - MASONRY (DOUBLE UNIT) — MV
  - MASONRY (SINGLE UNIT) — MV
  - WOOD FRAME — WV
- WASHHOUSE — L
- BATHHOUSE — B
- BATH-CHANGE HOUSE — B/CH
- CHANGE HOUSE — CH
- SHELTERS
  - PICNIC (GROUP) — PS
  - TRAIL — S
- SWIMMING BEACH
  - SAND
  - TURF

(OTHER STRUCTURES NAMED)

SITE PREPARATION

CLEARING AND GRUBBING — CLEARED

TREES
- BLOCK
- SHADE
  - BROADLEAF
  - EVERGREEN
- ORNAMENTAL

SHRUBS

TURFING

UTILITIES

WATER SUPPLY
- WELLS
  - HAND PUMP — P
  - PRESSURE TANK — P
  - WELL WITH SHELTER — P
- RAW WATER LINES — RW
- DISTRIBUTION LINES — W
- DISTRIBUTION LINES (BY OTHERS) — W
- FOUNTAIN — F
- HYDRANT — H

SEWAGE AND WATER DISPOSAL
- MUNICIPAL SYSTEM — S
- SEWER LINE — S
- SEPTIC TANK — S
- SEPTIC TANK AND PUMP — S
- SEPTIC TANK AND TILE FIELD — S
- SAND FILTER — S
- OXIDATION LAGOON — S — LAGOON
- SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)
  - CONCRETE VAULT — SS
  - WATERBORNE — SS(WB)
- WET GARBAGE DISPOSAL — G

TELEPHONE LINES
- OVERHEAD — T
- UNDERGROUND — T

ELECTRICAL SUPPLY
- OVERHEAD LINES — P
- UNDERGROUND LINES — P
- POWERLINES BY OTHERS — P
- ELECTRICAL OUTLETS — E
- FLOODLIGHTS

GAS LINE — G

PARK FURNITURE

- PICNIC TABLE
- FIREPLACE OR PEDESTAL GRILL
- CAMPFIRE CIRCLE
- TRASH RECEPTACLE
- INDIVIDUAL PICNIC SHELTER
- UTILITY TABLE

CAMPING AND PICNIC SITES

- TENT PAD
- PULL OFF
  - PAVED
  - GRAVEL
  - GRAVEL (PROPOSED PAVING)
- CAMPSITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- GROUP CAMP (SEE DETAIL SHEET 93/35)

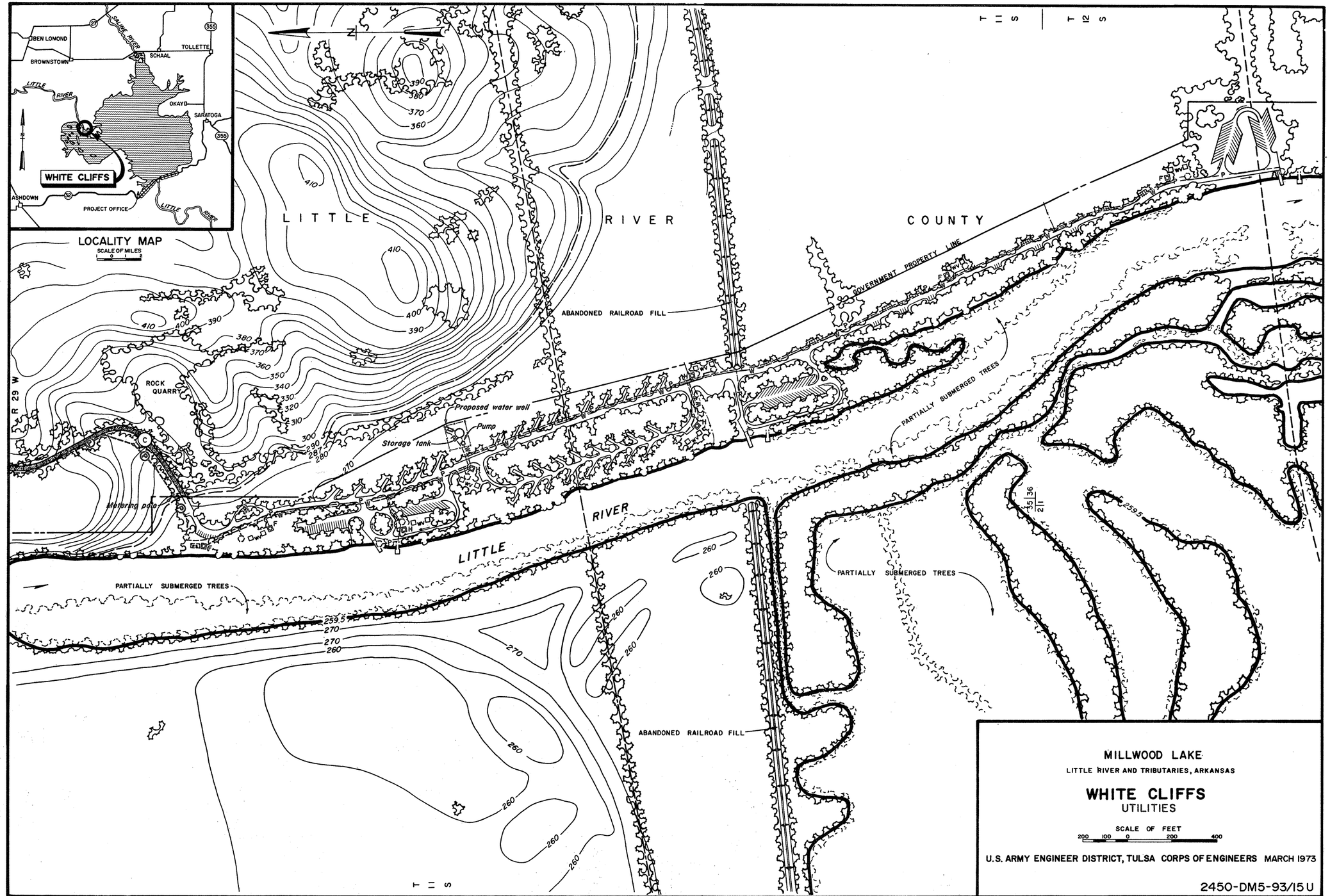
PROTECTION AND CONTROL

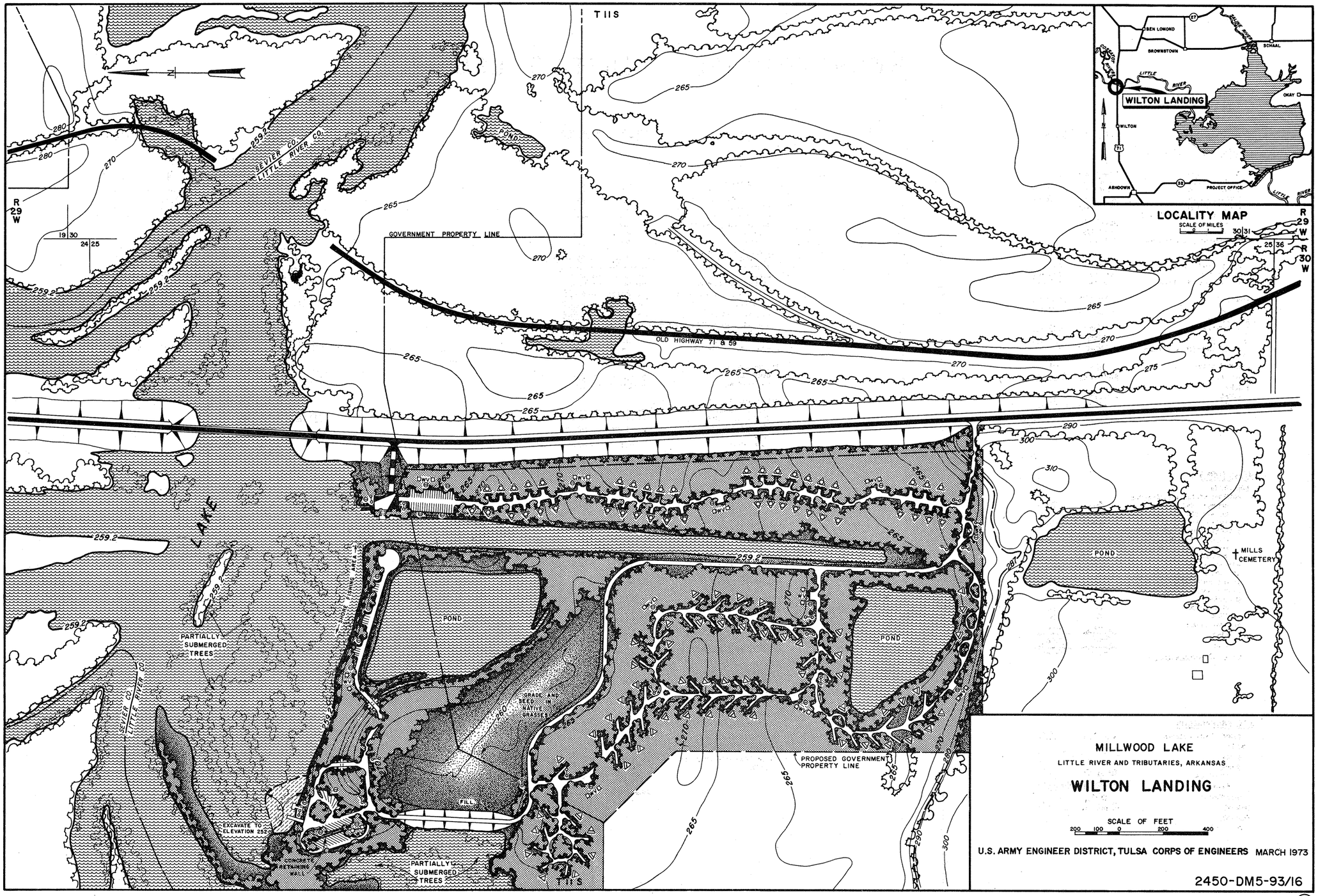
- GATE
- CATTLEGUARD
- BARRICADES
  - LOG
  - BOULDERS
  - GUARD RAIL
  - POSTS
- BUOYS
  - NUN
  - CAN
    - CHANNEL MARKER
    - MESSAGE (DESIGNATED)
- WARNING LIGHT
- TRAFFIC COUNTER

SIGNS

ATHLETIC FACILITIES

- BASEBALL / SOFTBALL FIELD
- GENERAL SPORTS FIELD — SPORTS


LOCALITY MAP
SCALE OF MILES
0 1 2
BEN LOMOND
BROWNSTOWN
SALINE RIVER
TOLLETTE
SCHAAL
LITTLE RIVER
OKAYD
SARATOGA
WHITE CLIFFS
ASHDOWN
PROJECT OFFICE
LITTLE RIVER
T 11 S
T 12 S
R 29 W
LITTLE RIVER COUNTY
ABANDONED RAILROAD FILL
GOVERNMENT PROPERTY LINE
ROCK QUARRY
Proposed water well
Pump
Storage tank
Mooring pole
PARTIALLY SUBMERGED TREES
PARTIALLY SUBMERGED TREES
PARTIALLY SUBMERGED TREES
ABANDONED RAILROAD FILL
410
400
390
380
370
360
350
340
330
320
310
300
290
280
270
260
259.5
35
36
2
11
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
WHITE CLIFFS
UTILITIES
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/15 U



T11S
R 29 W
R 30 W
LOCALITY MAP
SCALE OF MILES
BEN LOMOND
BROWNSTOWN
SCHAAL
LITTLE RIVER
WILTON LANDING
OKAY
WILTON
ASHDOWN
PROJECT OFFICE
GOVERNMENT PROPERTY LINE
OLD HIGHWAY 71 & 59
SEVIER CO.
LITTLE RIVER CO.
POND
LAKE
PARTIALLY SUBMERGED TREES
SHORE FISHING AREA
GRADE AND SEED IN NATIVE GRASSES
FILL
EXCAVATE TO ELEVATION 252
CONCRETE RETAINING WALL
PROPOSED GOVERNMENT PROPERTY LINE
MILLS CEMETERY
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
WILTON LANDING
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/16

RECREATIONAL FACILITIES LEGEND

ACCESS AND CIRCULATION

ROADS
- PAVED, TWO-WAY
- PAVED, ONE-WAY
- GRAVEL, TWO-WAY
- GRAVEL, ONE-WAY
- EXISTING GRAVEL, PROPOSED PAVING
- EXISTING ROAD TO BE REMOVED
  - PAVED
  - GRAVEL
- UNIMPROVED VEHICULAR TRAIL

TRAILS
- PEDESTRIAN (NATURE TRAIL)
- EQUESTRIAN
- MOTORCYCLE OR DUNEBUGGY

BRIDGE

CULVERT

BOATRAMPS
- SINGLE-LANE
- MULTI-LANE
- SINGLE-LANE (TO BE WIDENED)

LOADING DOCKS

BOAT SLIPS

WALKS
- STEPS
- RAMPS

STRUCTURES

SANITATION
- COMFORT STATIONS, WATERBORNE
  - SHOWER-TOILET WITH LAUNDRY — ST/L
  - SHOWER-TOILET — ST
  - TOILET ONLY — WB
- COMFORT STATIONS, CONCRETE VAULT
  - MASONRY (DOUBLE UNIT) — MV
  - MASONRY (SINGLE UNIT) — MV
  - WOOD FRAME — WV
- WASHHOUSE — L
- BATHHOUSE — B
- BATH-CHANGE HOUSE — B/CH
- CHANGE HOUSE — CH
- SHELTERS
  - PICNIC (GROUP) — PS
  - TRAIL — T
- SWIMMING BEACH
  - SAND
  - TURF

(OTHER STRUCTURES NAMED)

SITE PREPARATION

CLEARING AND GRUBBING — CLEARED

TREES
- BLOCK
- SHADE
  - BROADLEAF
  - EVERGREEN
- ORNAMENTAL

SHRUBS

TURFING

UTILITIES

WATER SUPPLY
- WELLS
  - HAND PUMP
  - PRESSURE TANK — P
  - WELL WITH SHELTER — PS
- RAW WATER LINES — RW
- DISTRIBUTION LINES — W
- DISTRIBUTION LINES (BY OTHERS) — W
- FOUNTAIN — F
- HYDRANT — H

SEWAGE AND WATER DISPOSAL
- MUNICIPAL SYSTEM — S
- SEWER LINE — S
- SEPTIC TANK — S
- SEPTIC TANK AND PUMP — S
- SEPTIC TANK AND TILE FIELD — S
- SAND FILTER — S
- OXIDATION LAGOON — S — LAGOON
- SANITARY DUMP STATION (BOATS AND CAMPING TRAILERS)
  - CONCRETE VAULT — SS
  - WATERBORNE — SS(WB)
- WET GARBAGE DISPOSAL — G

TELEPHONE LINES
- OVERHEAD — T
- UNDERGROUND — T

ELECTRICAL SUPPLY
- OVERHEAD LINES — P
- UNDERGROUND LINES — P
- POWERLINES BY OTHERS — P
- ELECTRICAL OUTLETS — E
- FLOODLIGHTS

GAS LINE — G

PARK FURNITURE

- PICNIC TABLE
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CAMPING AND PICNIC SITES

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- PICNIC SITE (TABLE, FIREPLACE, REFUSE CAN, UTILITY TABLE)
- GROUP CAMP (SEE DETAIL SHEET 93/35)

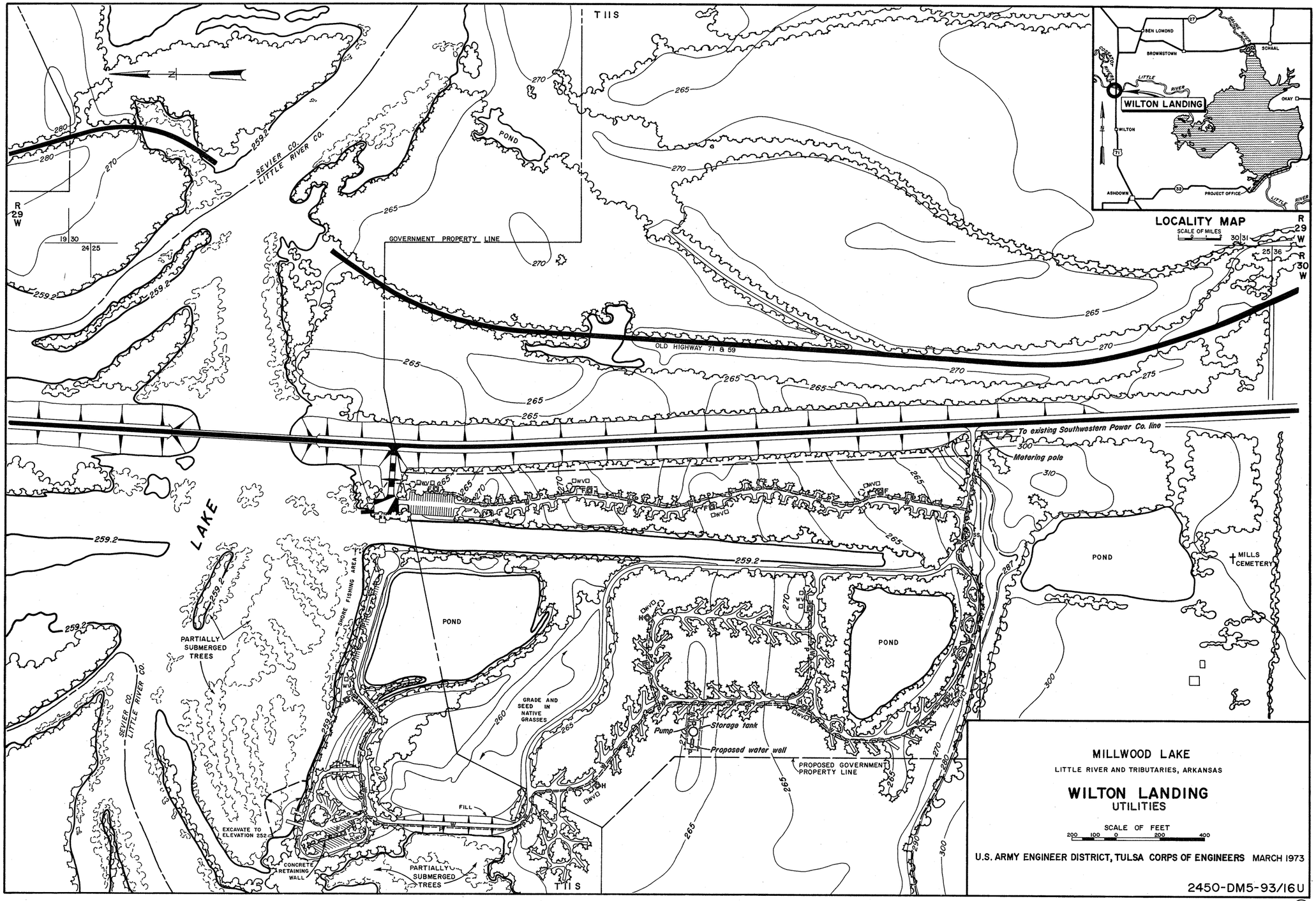
PROTECTION AND CONTROL

- GATE
- CATTLEGUARD
- BARRICADES
  - LOG
  - BOULDERS
  - GUARD RAIL
  - POSTS
- BUOYS
  - NUN
  - CAN
    - CHANNEL MARKER
    - MESSAGE (DESIGNATED)
- WARNING LIGHT
- TRAFFIC COUNTER

SIGNS

ATHLETIC FACILITIES

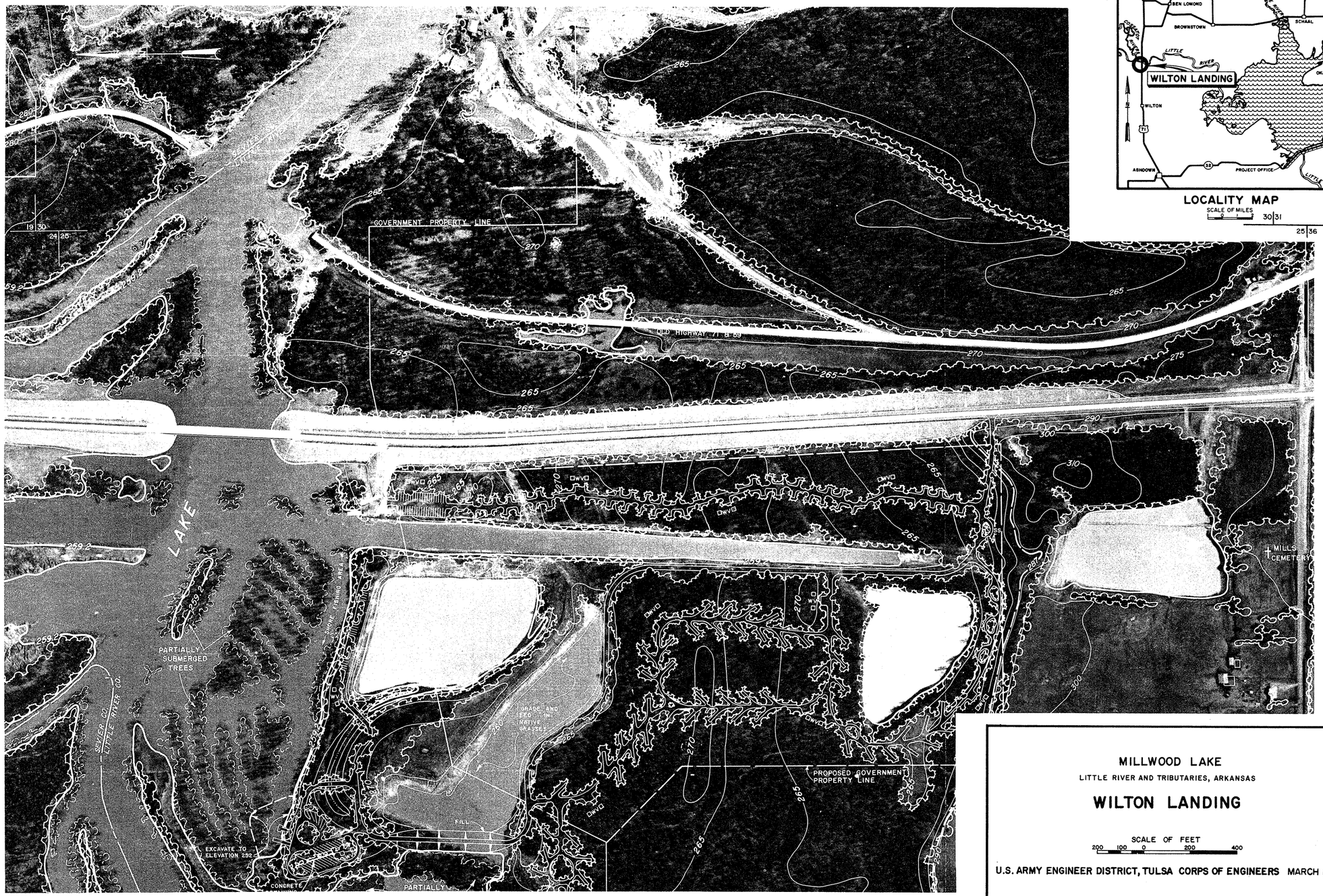
- BASEBALL / SOFTBALL FIELD
- GENERAL SPORTS FIELD — SPORTS


T11S
R 29 W
R 30 W
SEVIER CO.
LITTLE RIVER CO.
GOVERNMENT PROPERTY LINE
OLD HIGHWAY 71 & 59
To existing Southwestern Power Co. line
Metering pole
POND
MILLS CEMETERY
LAKE
PARTIALLY SUBMERGED TREES
SHORE FISHING AREA
GRADE AND SEED IN NATIVE GRASSES
Pump
Storage tank
Proposed water well
PROPOSED GOVERNMENT PROPERTY LINE
FILL
EXCAVATE TO ELEVATION 252
CONCRETE RETAINING WALL
PARTIALLY SUBMERGED TREES
LOCALITY MAP
SCALE OF MILES
BEN LOMOND
BROWNSTOWN
SCHAAL
OKAY
WILTON
ASHDOWN
PROJECT OFFICE
WILTON LANDING
LITTLE RIVER
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS
WILTON LANDING
UTILITIES
SCALE OF FEET
200 100 0 200 400
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973
2450-DM5-93/16U

T11S

R 29 W

R 30 W



LOCALITY MAP

SCALE OF MILES 0 1 2

19 | 30 | 24 | 25 | 30 | 31 | 25 | 36

T11S

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

WILTON LANDING

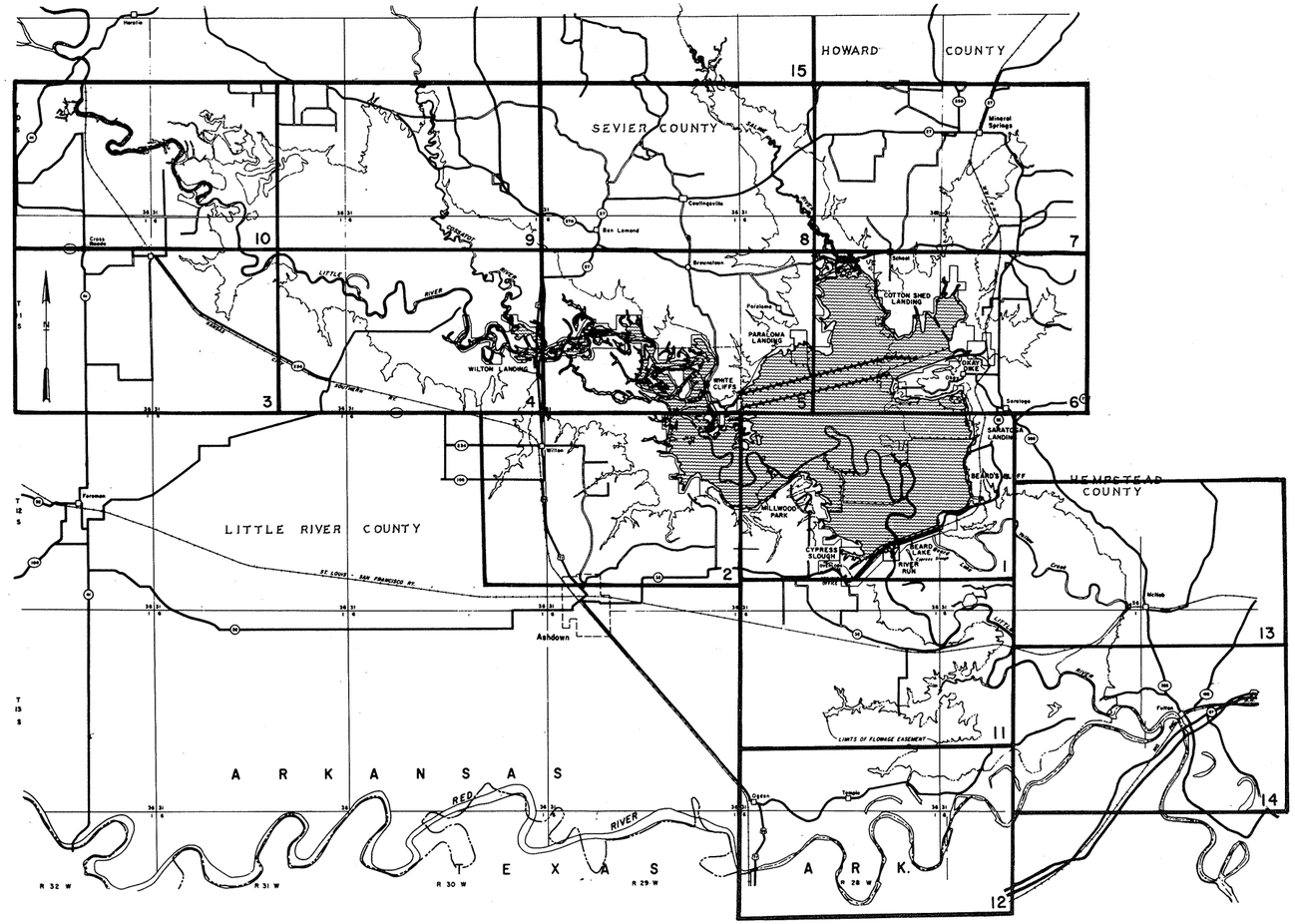
SCALE OF FEET

200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/16A

MILLWOOD LAKE
LAND ALLOCATION



LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- U. S. HIGHWAYS
- STATE HIGHWAYS
- RAILROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- 78 MILES OF SHORELINE AT ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- ACQUISITION GUIDE LINE FOR FLOWAGE EASEMENT DOWNSTREAM ELEV. 260 - 262
- UNCLEARED WATER AREA (SKIING PROHIBITED)
- GOVERNMENT PROPERTY LINE
- COUNTY LINES
- STATE LINES
- (R) BOAT RAMPS - EXISTING
- (R) BOAT RAMPS - PROPOSED
- (C) CONCESSION SITES - EXISTING
- (C) CONCESSION SITES - PROPOSED
- INCORPORATED COMMUNITIES
- PRIVATE DEVELOPMENTS
- GEOLOGICAL SITES
- ARCHEOLOGICAL SITES (NUMBERS REFER TO ARCHEOLOGICAL SITE DESIGNATIONS IN SURVEY, APP. H)
- HISTORICAL SITES
- POWER LINES - OVERHEAD
- POWER LINES - UNDERGROUND
- TELEPHONE LINES
- JOINT POWER & TELEPHONE LINES
- GAS LINES
- OIL LINES
- OPERATIONS: RECREATION - INTENSIVE USE
- OPERATIONS: NATURAL AREA
- OPERATIONS: WILDLIFE MANAGEMENT
- PROJECT OPERATIONS
- RECREATION LANDS (PROPOSED ACQUISITION)

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

ALLOCATION SHEET INDEX

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/17

MATCH TO SHEETS 5 & 6

MATCH TO SHEET 2

MATCH TO SHEET 13

N

LITTLE RIVER COUNTY | HEMPSTEAD COUNTY

SARATOGA LANDING

SALINE RIVER

LITTLE RIVER

LITTLE RIVER

HE-1

BEARD'S BLUFF

HE-2

LR-13 (OLD MARTIN PLACE)

MILLWOOD PARK

OVERLOOK

BORROW AREA

BEARD LAKE

CYPRESS SLOUGH

LITTLE RIVER CO.

CYPRESS SLOUGH

HEMPSTEAD CO.

BEARD LAKE

RIVER RUN

LR-14 (STARK SITE)

LITTLE RIVER

T 12 S

R 28 W

R 27 W

MATCH TO SHEET II

LEGEND

- OPERATIONS: RECREATION - INTENSIVE USE
- RECREATION LANDS (PROPOSED ACQUISITION)
- OPERATIONS. NATURAL AREA
- OPERATIONS: WILDLIFE MANAGEMENT
- PROJECT OPERATIONS
- EASEMENTS
- GEOLOGICAL SITE
- ARCHAEOLOGICAL SITE
- PRIVATE DEVELOPMENT

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2
- ACQUISITION GUIDE LINE FOR FLOWAGE EASEMENT DOWN STREAM ELEV. 260 - 262

SHEET INDEX

		15		
10	9	8	7	
3	4	5	6	
	2	1	13	
		11	14	
		12		

MILLWOOD

UTILIZATION SHEET I

REVISED AUGUST 1987

2450-DM5-93/18

MATCH TO SHEETS 4 & 5

R 30 W R 29 W

KANSAS CITY SOUTHERN

WILTON

HICKS CH.

MT. MORIAH CHURCH

OAK GROVE CH.

ELMORE CH.

NEW HOPE CHURCH

PEYTONVILLE

TO ASHDOWN

KANSAS CITY SOUTHERN

Jacks Isle

MATCH TO SHEET 1

T 12 S

LEGEND

- OPERATIONS: RECREATION - INTENSIVE USE
- OPERATIONS: NATURAL AREA
- OPERATIONS: WILDLIFE MANAGEMENT
- ARCHAEOLOGICAL SITE
- PRIVATE DEVELOPMENT

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2

SHEET INDEX

MILLWOOD
UTILIZATION SHEET 2

2450-DM5-93/19

R 32 W | R 31 W

MATCH TO SHEET 10

LR-10

7.2 KV

WINTHROP

LITTLE RIVER

SEVIER CO.

LITTLE RIVER CO.

LR-8

KANSAS CITY SOUTHERN

MATCH TO SHEET 4

T 11 S

R 32 W | R 31 W

LEGEND

ARCHAEOLOGICAL SITE

LEGEND

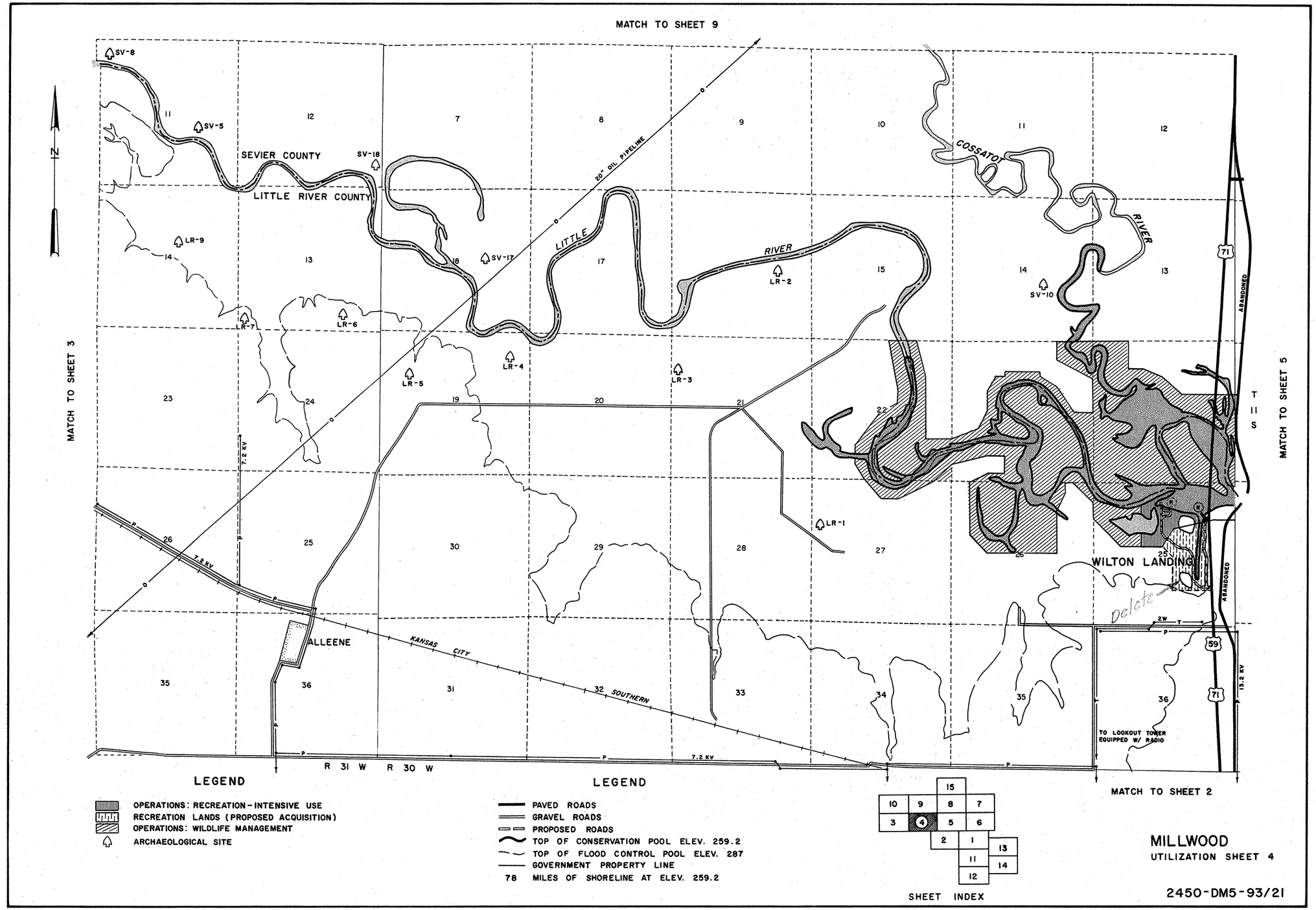
- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2

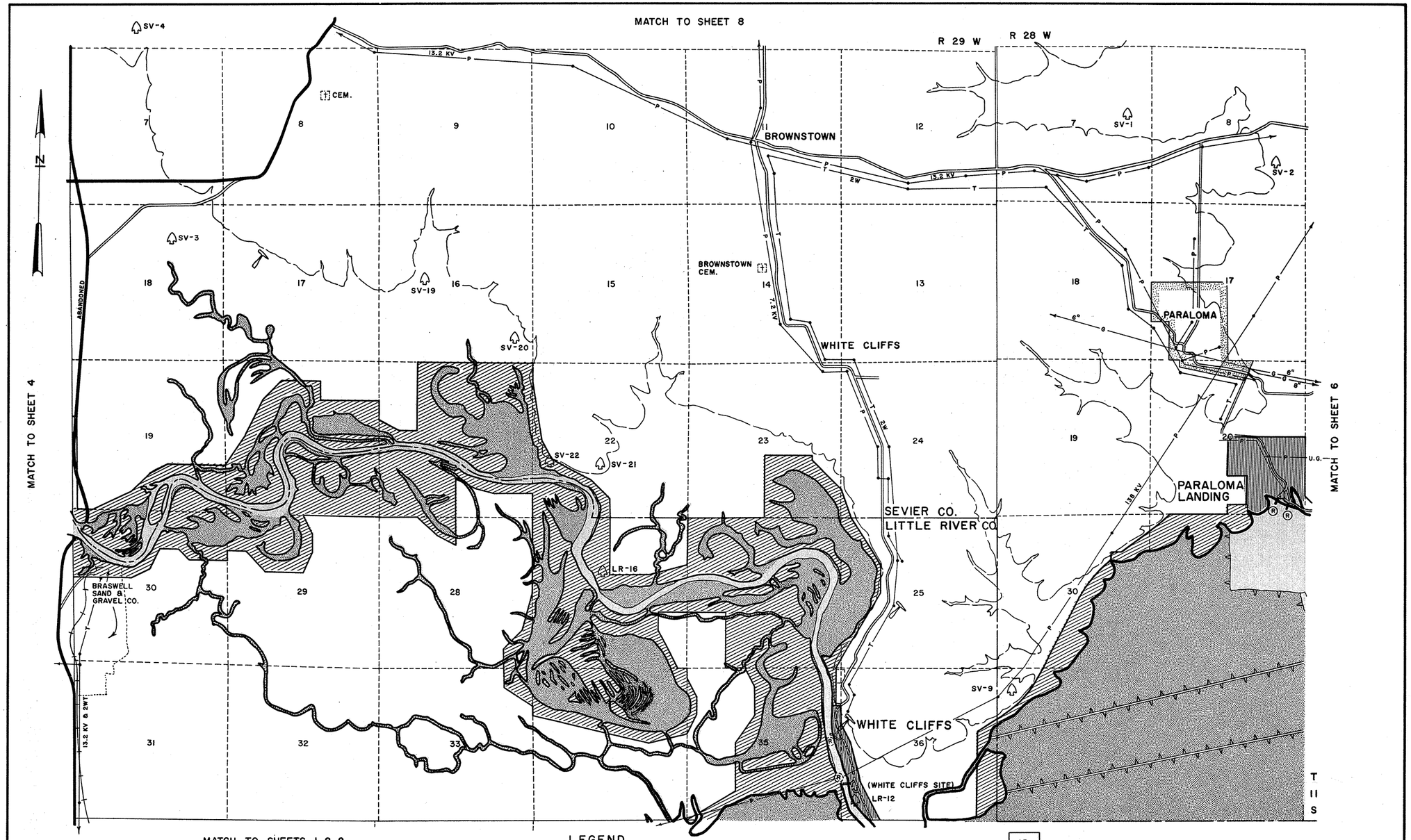
SHEET INDEX

MILLWOOD

UTILIZATION SHEET 3

2450-DM5-93/20


MATCH TO SHEET 9
MATCH TO SHEET 3
MATCH TO SHEET 5
MATCH TO SHEET 2
N
SEVIER COUNTY
LITTLE RIVER COUNTY
LITTLE RIVER
COSSATOT RIVER
20" OIL PIPELINE
SV-8
SV-5
SV-18
SV-17
SV-10
LR-1
LR-2
LR-3
LR-4
LR-5
LR-6
LR-7
LR-9
WILTON LANDING
ALLEENE
KANSAS CITY SOUTHERN
7.2 KV
13.2 KV
ABANDONED
71
59
T 11 S
R 31 W
R 30 W
TO LOOKOUT TOWER EQUIPPED W/ RADIO
Delete
LEGEND
OPERATIONS: RECREATION-INTENSIVE USE
RECREATION LANDS (PROPOSED ACQUISITION)
OPERATIONS: WILDLIFE MANAGEMENT
ARCHAEOLOGICAL SITE
LEGEND
PAVED ROADS
GRAVEL ROADS
PROPOSED ROADS
TOP OF CONSERVATION POOL ELEV. 259.2
TOP OF FLOOD CONTROL POOL ELEV. 287
GOVERNMENT PROPERTY LINE
78 MILES OF SHORELINE AT ELEV. 259.2
SHEET INDEX
MILLWOOD
UTILIZATION SHEET 4
2450-DM5-93/21

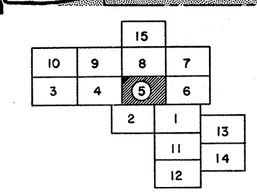


LEGEND

- OPERATIONS: RECREATION - INTENSIVE USE
- OPERATIONS: WILDLIFE MANAGEMENT
- ARCHAEOLOGICAL SITE
- GEOLOGICAL SITE

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2

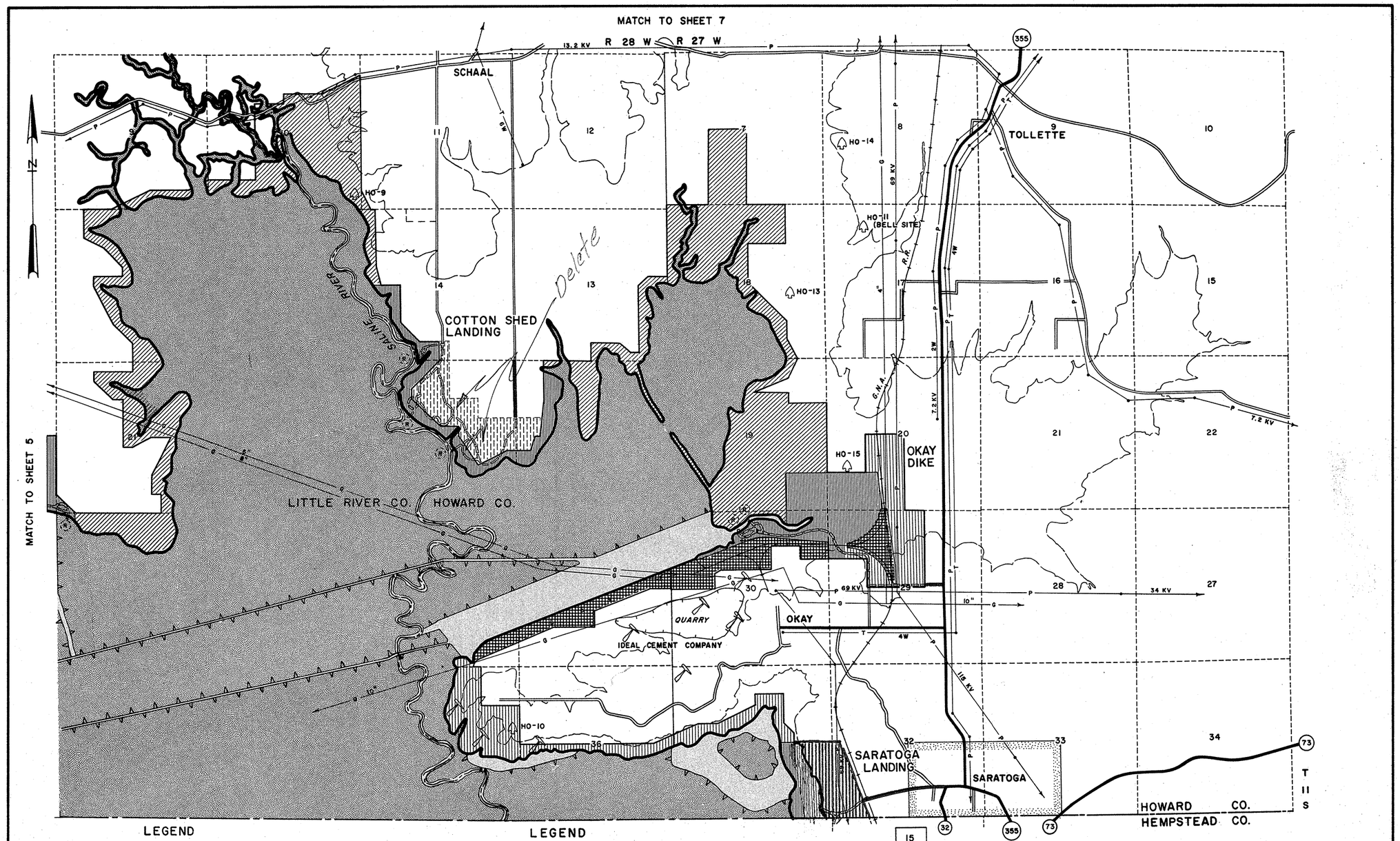


SHEET INDEX

MILLWOOD

UTILIZATION SHEET 5

2450-DM5-93/22



LEGEND

- OPERATIONS: RECREATION-INTENSIVE USE
- RECREATION LANDS (PROPOSED ACQUISITION)
- OPERATIONS: NATURAL AREA
- PROJECT OPERATION
- OPERATIONS: WILDLIFE MANAGEMENT
- EASEMENTS
- GEOLOGICAL SITE
- ARCHAEOLOGICAL SITE
- HISTORICAL SITE
- PRIVATE DEVELOPMENT

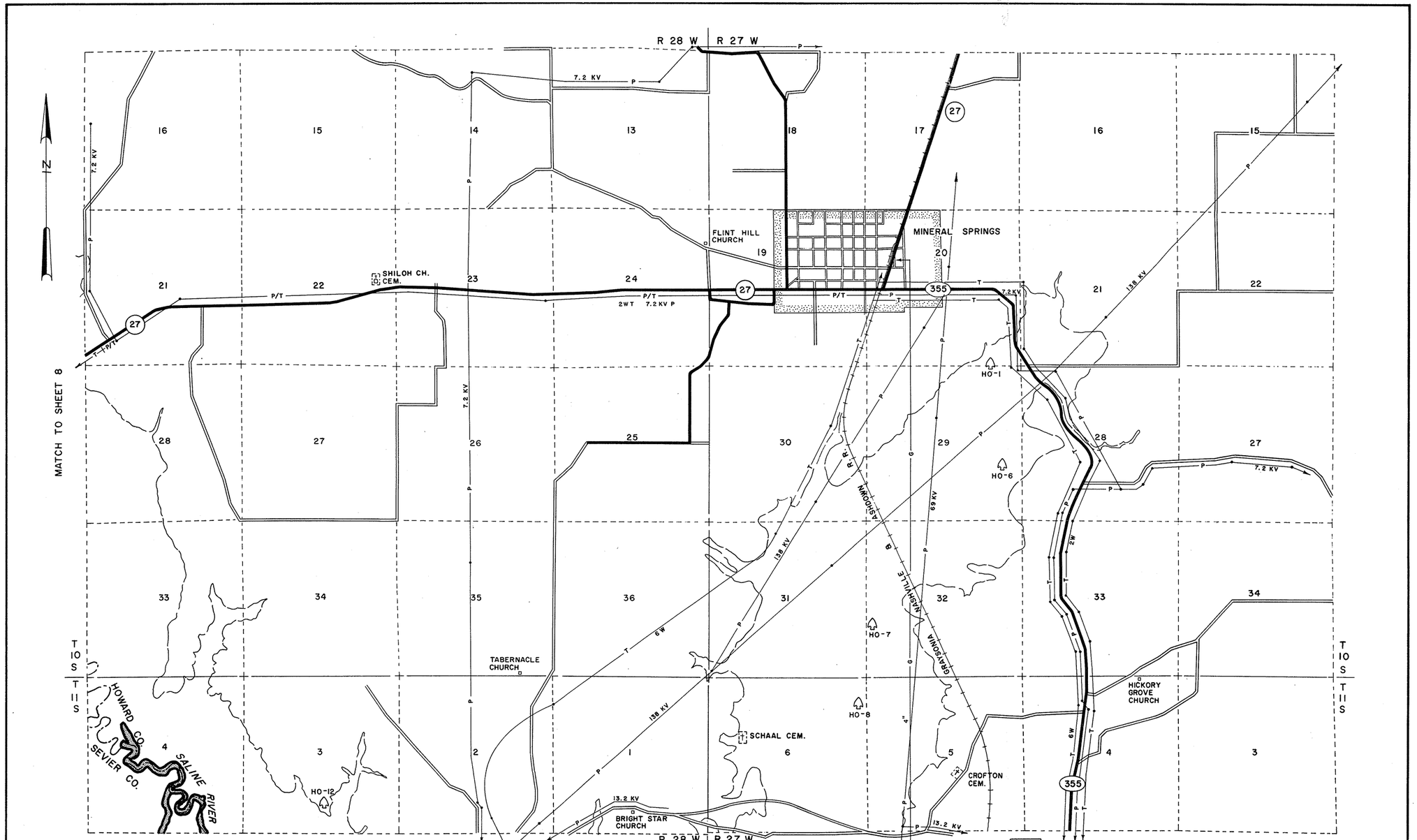
LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2

SHEET INDEX

		15	
10	9	8	7
3	4	5	6
	2	1	13
		11	14
		12	

MILLWOOD
UTILIZATION SHEET 6
REVISED AUGUST 1987
2450-DM5-93/23

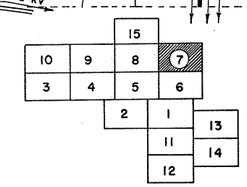


LEGEND

ARCHAEOLOGICAL SITE

LEGEND

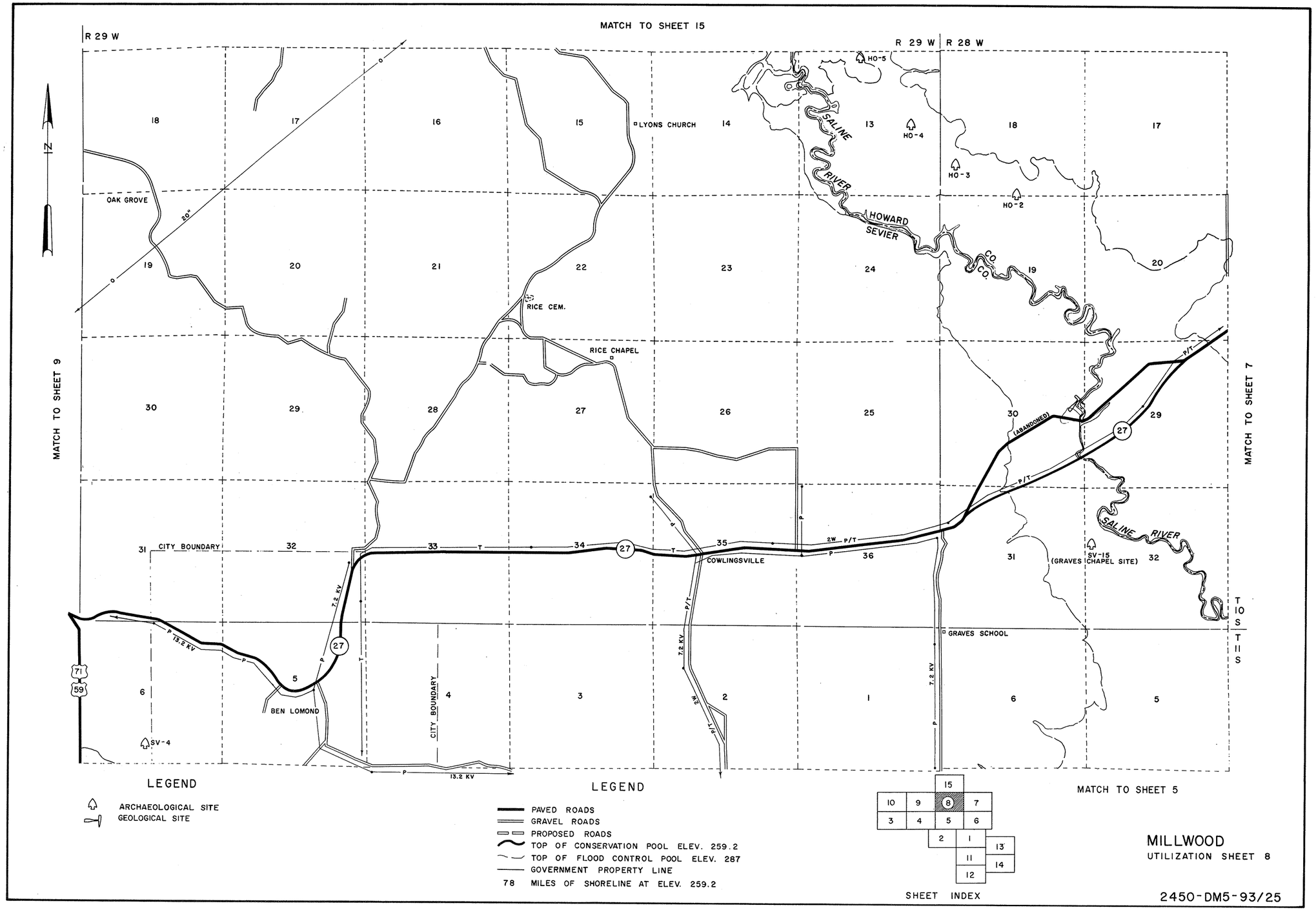
PAVED ROADS
GRAVEL ROADS
PROPOSED ROADS
TOP OF CONSERVATION POOL ELEV. 259.2
TOP OF FLOOD CONTROL POOL ELEV. 287
GOVERNMENT PROPERTY LINE
78 MILES OF SHORELINE AT ELEV. 259.2

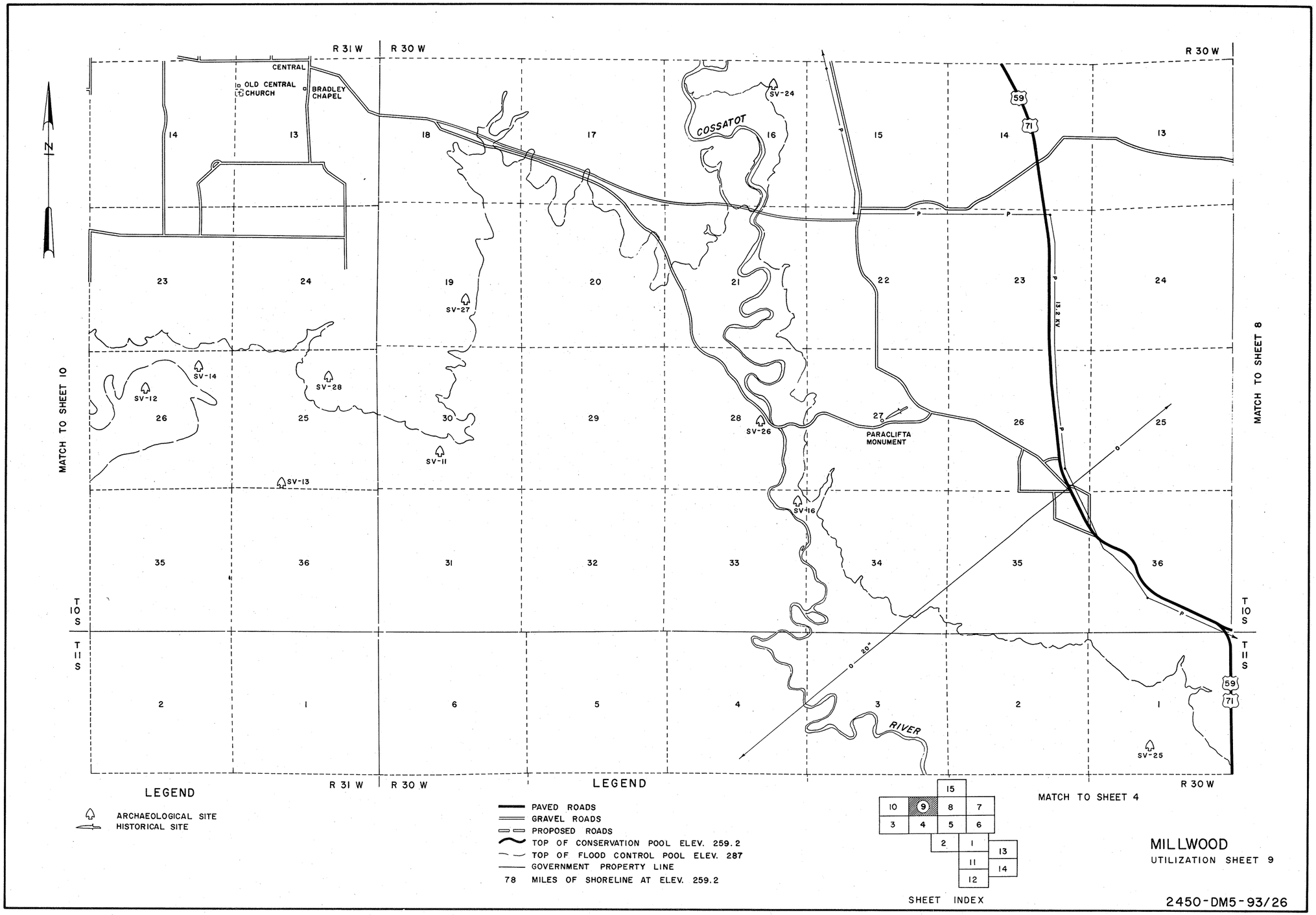


SHEET INDEX

MILLWOOD
UTILIZATION SHEET 7

2450-DM5-93/24


MATCH TO SHEET 15
R 29 W
R 29 W
R 28 W
MATCH TO SHEET 9
MATCH TO SHEET 7
MATCH TO SHEET 5
T 10 S
T 11 S
N
OAK GROVE
LYONS CHURCH
RICE CEM.
RICE CHAPEL
CITY BOUNDARY
COWLINGSVILLE
GRAVES SCHOOL
BEN LOMOND
SALINE RIVER
HOWARD
SEVIER
CO.
CO.
HO-5
HO-4
HO-3
HO-2
SV-15
(GRAVES CHAPEL SITE)
SV-4
(ABANDONED)
P/T
2W
7.2 KV
13.2 KV
20"
27
71
59
LEGEND
ARCHAEOLOGICAL SITE
GEOLOGICAL SITE
LEGEND
PAVED ROADS
GRAVEL ROADS
PROPOSED ROADS
TOP OF CONSERVATION POOL ELEV. 259.2
TOP OF FLOOD CONTROL POOL ELEV. 287
GOVERNMENT PROPERTY LINE
78 MILES OF SHORELINE AT ELEV. 259.2
SHEET INDEX
MILLWOOD
UTILIZATION SHEET 8
2450-DM5-93/25


R 31 W
R 30 W
R 30 W
CENTRAL
OLD CENTRAL CHURCH
BRADLEY CHAPEL
COSSATOT
RIVER
PARACLIFTA MONUMENT
13.2 KV
20"
59
71
SV-24
SV-27
SV-14
SV-12
SV-28
SV-11
SV-13
SV-26
SV-16
SV-25
MATCH TO SHEET 10
MATCH TO SHEET 8
MATCH TO SHEET 4
T 10 S
T 11 S
N
LEGEND
ARCHAEOLOGICAL SITE
HISTORICAL SITE
LEGEND
PAVED ROADS
GRAVEL ROADS
PROPOSED ROADS
TOP OF CONSERVATION POOL ELEV. 259.2
TOP OF FLOOD CONTROL POOL ELEV. 287
GOVERNMENT PROPERTY LINE
78 MILES OF SHORELINE AT ELEV. 259.2
SHEET INDEX
MILLWOOD
UTILIZATION SHEET 9
2450-DM5-93/26

R 32 W | R 31 W

N

LITTLE RIVER

BEAKS SLOUGH

SEVIER CO.

LITTLE RIVER CO.

KANSAS CITY SOUTHERN

LITTLE RIVER

WINTHROP

41

LR-11

LR-10

SV-6

SV-7

MATCH TO SHEET 9

T 10 S | T 11 S

MATCH TO SHEET 3

LEGEND

ARCHAEOLOGICAL SITE

LEGEND

PAVED ROADS
GRAVEL ROADS
PROPOSED ROADS
TOP OF CONSERVATION POOL ELEV. 259.2
TOP OF FLOOD CONTROL POOL ELEV. 287
GOVERNMENT PROPERTY LINE
78 MILES OF SHORELINE AT ELEV. 259.2

SHEET INDEX

MILLWOOD
UTILIZATION SHEET 10

2450-DM5-93/27

MATCH TO SHEET I

R 28 W

R 28 W | R 27 W

N

T 12 S / T 13 S

FOMBY SCHOOL

HOPEWELL CHURCH

HEMPSTEAD CO.

LITTLE RIVER

RED LAKE

CYPRESS BAYOU

BEE BAYOU

BEE BASIN

SHEPHERD BLUFF

LONG

COLE

T & P RY.

ST. LOUIS - SAN FRANCISCO RY.

RED BLUFF

SPRING HILL CEM.

MOORE CAMP

ORTON

HUDSON CREEK

GREEN CREEK

PLEASANT GROVE CEM.

BOIS D' ARC BAYOU

MATCH TO SHEETS 13 & 14

R 28 W

LEGEND

OPERATIONS: RECREATION - INTENSIVE USE
PROJECT OPERATIONS
OPERATIONS: NATURAL AREA

LEGEND

PAVED ROADS
GRAVEL ROADS
PROPOSED ROADS
TOP OF CONSERVATION POOL ELEV. 259.2
TOP OF FLOOD CONTROL POOL ELEV. 287
GOVERNMENT PROPERTY LINE
78 MILES OF SHORELINE AT ELEV. 259.2
ACQUISITION GUIDE LINE FOR FLOWAGE EASEMENT DOWN STREAM ELEV. 260 - 262

SHEET INDEX

MILLWOOD

UTILIZATION SHEET II

2450-DM5-93/28

MATCH TO SHEET II

R 28 W R 27 W

N

WASHINGTON SCHOOL

BOIS D' ARC BAYOU

OGDEN

MILL

TEMPLE

BEAR LAKE

CLEAR LAKE (DRY)

ROSENWALD SCHOOL

T 13 S

T 14 S

FIRST LAKE

LEVEE

LITTLE RIVER CO.

RIVER

MILLER CO.

RED

MUDDY LAKE

OUT-OFF LAKE

R 29 W R 28 W

59

71

PLEASANT LAKE

BRANCH

LITTLE RIVER CO.

RED RIVER

LEVEE

WINHAM LAKE

SOUTHERN KANSAS CITY RY.

TEXAS - BOWIE CO.

ARK. - MILLER CO.

ST. JOHN'S CHURCH

DITCH

HOMAN

LONE STAR CHURCH

PAUP CEM.

67

M. P. R. R.

108

MATCH TO SHEET 14

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2
- ACQUISITION GUIDE LINE FOR FLOWAGE EASEMENT DOWN STREAM ELEV. 260 - 262

SHEET INDEX

MILLWOOD

UTILIZATION SHEET 12

2450-DM5-93/29

R 27 W | R 26 W

N

MATCH TO SHEETS 1 & 11

T 12 S

T 13 S

16 15 14 13 18 17 18 19

21 22 23 24 19 20 21 22

28 27 26 25 30 29 28 27

33 34 35 36 31 32 33 34

4 3 2 1 6 5 4 3

355

BRIDGE

CREEK

CHURCH HILL CHURCH

HEMPSTEAD CO. HUNTING CLUB

YELLOW

CREEK

WHITEHOUSE CEM.

TURKEY CREEK

BEE BAYOU LEVEE

YELLOW CREEK

GRAVEL HILL CHURCH

DOUGLAS SCHOOL

Mc NAB

ST. LOUIS - SAN FRANCISCO RY.

MT. PLEASANT CHURCH

355

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2
- ACQUISITION GUIDE LINE FOR FLOWAGE EASEMENT DOWN STREAM ELEV. 260 - 262

SHEET INDEX

		15		
10	9	8	7	
3	4	5	6	
	2	1	13	
		11	14	
		12		

MILLWOOD

UTILIZATION SHEET 13

2450-DM5-93/30

MATCH TO SHEET 13

R 27 W | R 26 W

MATCH TO SHEETS 11 & 12

N

S.L.S.F. R.R.

DAVE

LITTLE RIVER

YELLOW CREEK

HEMPSTEAD CO.

LITTLE RIVER CO.

LITTLE RIVER

355

195

30

67

OLD ALLENS FERRY

LAKE VAUGHN

FULTON CEM.

FULTON

HORSESHOE LAKE

HEMPSTEAD CO.

RIVER

RED HILL CEM.

MILLER CO.

RED

LITTLE RIVER CO.

MILLER CO.

BRUSH LAKE

GAGING STATION

MUD LAKE

CRYSTAL LAKE

LEVEE

CUT-OFF

LEVEE

ADAMS CUT-OFF

LAKE

LAKE

RED RIVER

LEVEE

LEVEE

MISSOURI PACIFIC R. R.

RED RIVER

LEVEE

OLD RIVER LAKE

RED LAKE

TOBE LAKE

LEVEE

SCOTT LAKE

LEVEE

T 13 S

T 14 S

R 27 W | R 26 W

LEGEND

- PAVED ROADS
- GRAVEL ROADS
- PROPOSED ROADS
- TOP OF CONSERVATION POOL ELEV. 259.2
- TOP OF FLOOD CONTROL POOL ELEV. 287
- GOVERNMENT PROPERTY LINE
- 78 MILES OF SHORELINE AT ELEV. 259.2
- ACQUISITION GUIDE LINE FOR FLOWAGE EASEMENT DOWN STREAM ELEV. 260 - 262

SHEET INDEX

MILLWOOD

UTILIZATION SHEET 14

2450-DM5-93/31

N

SEVIER CO.

HOWARD CO.

R 29 W

R 28 W

T 9 S

T 10 S

6 5 4 3 2 1 6 5

7 8 9 10 11 12 7 8

GRAVITY POINT CHURCH

MILFORD

SALINE RIVER

HICKORY GROVE CEM.

MATCH TO SHEET 8

LEGEND

PAVED ROADS

GRAVEL ROADS

PROPOSED ROADS

TOP OF CONSERVATION POOL ELEV. 259.2

TOP OF FLOOD CONTROL POOL ELEV. 287

GOVERNMENT PROPERTY LINE

78 MILES OF SHORELINE AT ELEV. 259.2

SHEET INDEX

15

10 9 8 7

3 4 5 6

2 1 13

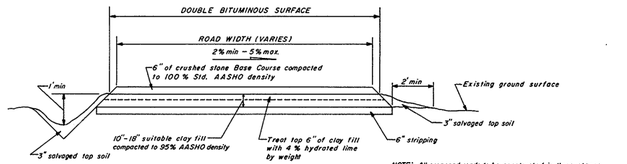
11 14

12

MILLWOOD

UTILIZATION SHEET 15

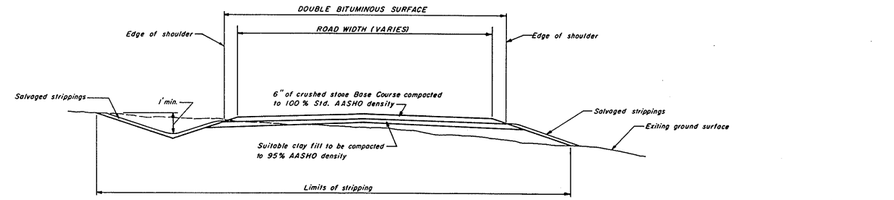
2450-DM5-93/32



NOTE: All proposed roads to be constructed in three stages, one year apart:

1. Grade and place 3" of 6" gravel base course in initial construction
2. Repair distressed areas and treat top 6" of fill with lime
3. Repair any distressed areas and add top 3" of gravel shape & double bit.

TYPICAL ONE-WAY ROAD SECTION

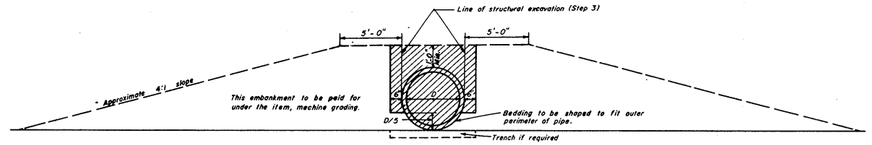


NOTE:

1. Where the existing transverse ground slope is less than 3%, the finished road surface will have a center crown with transverse slopes of 5% (±2%), except one-way roads will be 5% (±2%) from upper side to lower side

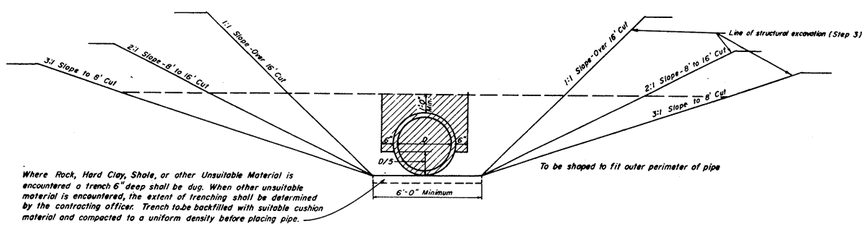
   Where the existing transverse ground slope is more than 3%, the finished road surface will have a transverse slope parallel to the ground slope except not more than 5% (+2% tolerance).
2. See notes for one-way road for construction procedure.

TYPICAL TWO-WAY ROAD SECTION



DETAIL OF BEDDING OF PIPE CULVERT IN FILL

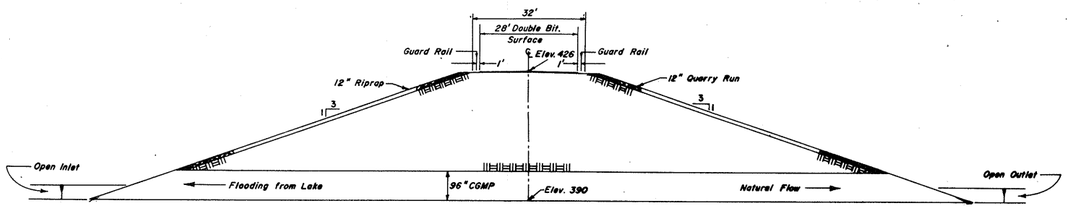
USE STEPS 2, 3, & 4 AND DETAILS AS BELOW



PIPE CULVERT IN CUTS

OPERATIONS

Step 1 Excavate to lines of structural excavation.
Step 2 Fill and compact shaded area with acceptable material.
Step 3 Excavate the hachured area to properly fit and bed the pipe.
Step 4 Backfill and compact with mechanical tampers to 1'-0" above the top of pipe.



ROAD FILL SECTION

MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

TYPICAL ROAD SECTIONS

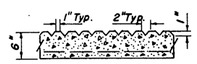
TYPICAL CULVERT SECTIONS

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/33

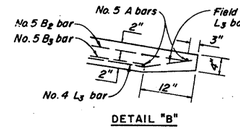
OPTIONAL SURFACE TREATMENT

The ramp may be finished with a vibrated "Jitterbug" leaving a dense, rough surface having grooves approximately 1/2" deep, and 1/2" wide and 2" apart, or approved equal. Grooves may be formed either as parallel corrugations running at a 10° angle to the ramp width or as diamond shaped patterns running perpendicular to the ramp slope.

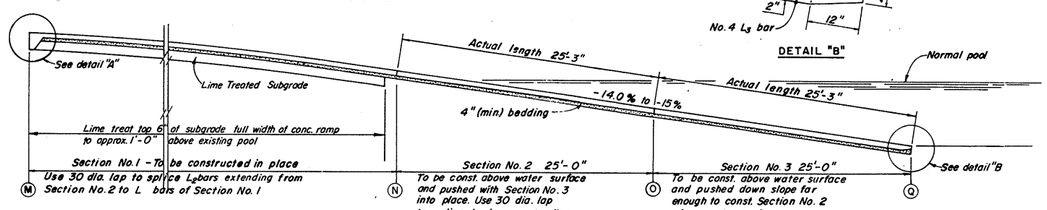


SECTION B-B
NO SCALE

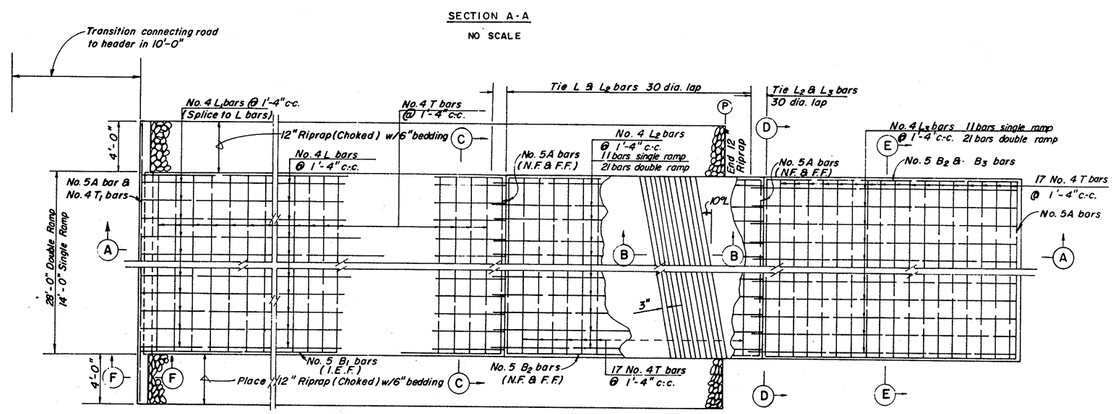
NOTE: Screed surface of concrete boat ramps and form corrugations as shown in Section B-B (See Optional Surface Treatment Note This Sheet.)



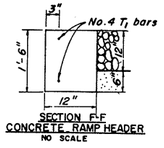
DETAIL "B"



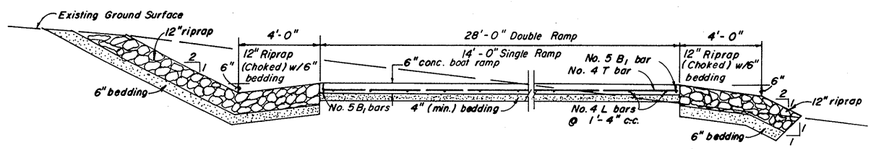
SECTION A-A
NO SCALE



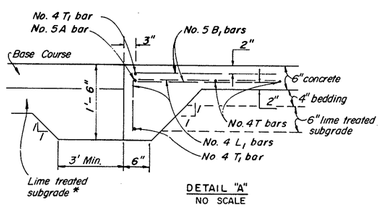
PLAN
NO SCALE



SECTION F-F
CONCRETE RAMP HEADER
NO SCALE

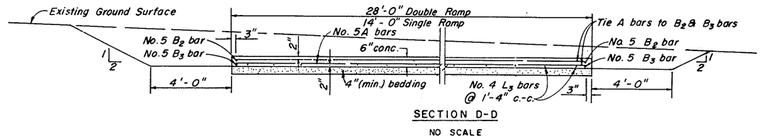


SECTION C-C
NO SCALE

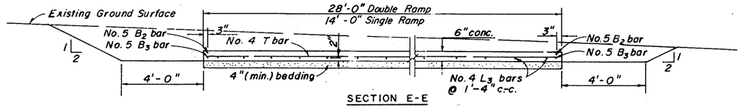


DETAIL "A"
NO SCALE

* To be used only where connecting road to ramp has lime treated subgrade.



SECTION D-D
NO SCALE

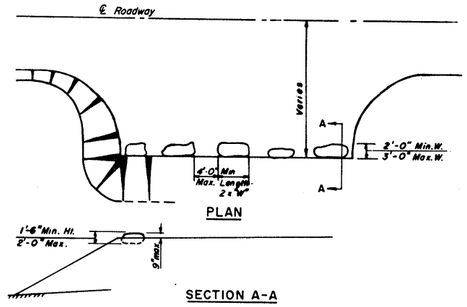


SECTION E-E
NO SCALE

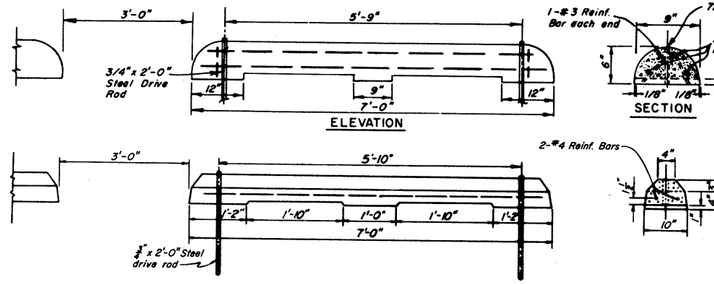
BOAT RAMP DETAILS

NOTES:

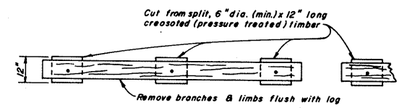
1. *Wheel stops shall be placed at the back side of parking areas as shown on the plan and profile sheets and detail sheets of Parking Areas and Boat Ramps.*
2. *Contractor may furnish any one of wheel stops shown. Once selection is made, that type of wheel stop shall be used throughout.*
3. *Place drive rods for concrete wheel stops 1'-0" from edge of parking lot shoulder.*

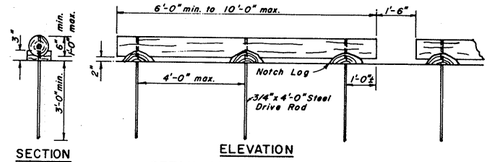


DETAILS OF ROCK WHEEL STOPS
NO SCALE

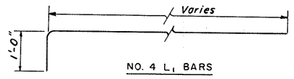


DETAIL OF PRECAST CONCRETE WHEEL STOPS
NO SCALE

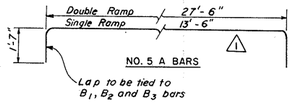




DETAIL OF LOG WHEEL STOPS
NO SCALE



NO. 4 L_1 BARS



NO. 5 A BARS

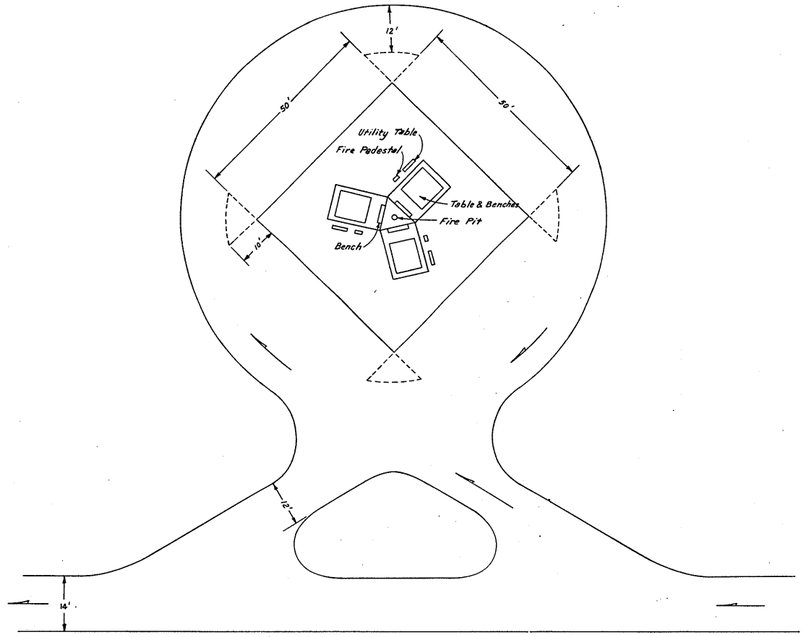
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

BOAT RAMP

LOG WHEEL STOPS, CONCRETE WHEEL STOPS, ROCK WHEEL STOPS & OTHER DETAIL

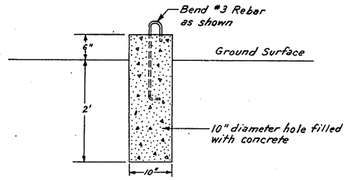
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/34



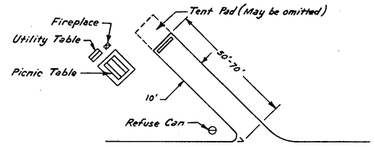
GROUP CAMPSITE

No Scale



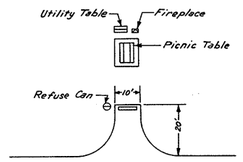
MOORING RING

SCALE 1"=1'



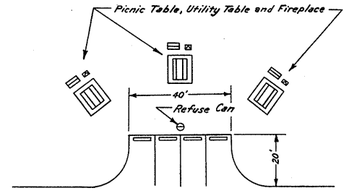
SINGLE TRAILER CAMPSITE

NO SCALE



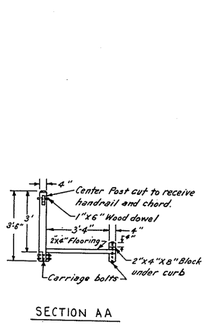
PICNIC SITE - SINGLE PARKING

NO SCALE

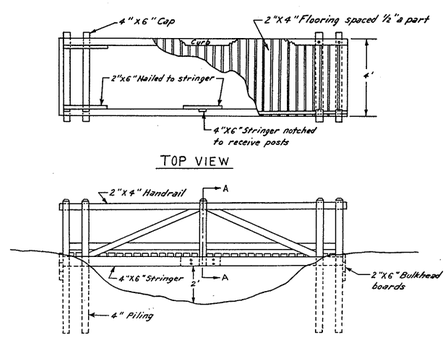


PICNIC SITE - MULTIPLE PARKING

NO SCALE

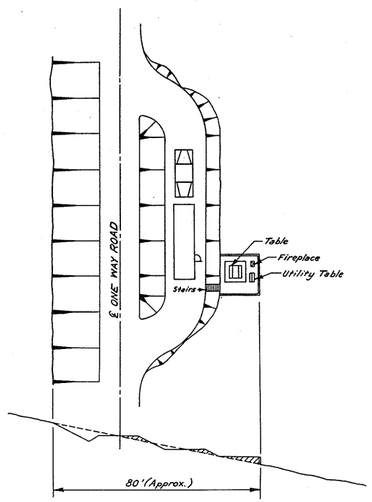


SECTION AA



FOOT BRIDGE

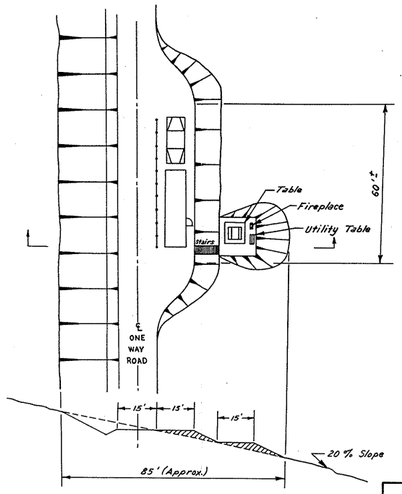
No Scale



PARALLEL PULLOFFS FOR CAMPSITES

ALTERNATIVE 2

SCALE: 1"=20'



PARALLEL PULLOFFS FOR CAMPSITES

ALTERNATIVE 1

SCALE: 1"=20'

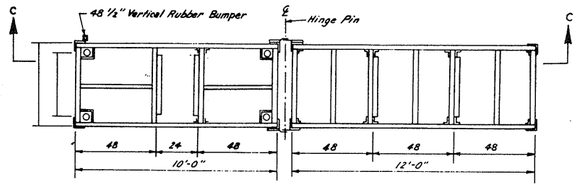
MILLWOOD LAKE

LITTLE RIVER AND TRIBUTARIES, ARKANSAS

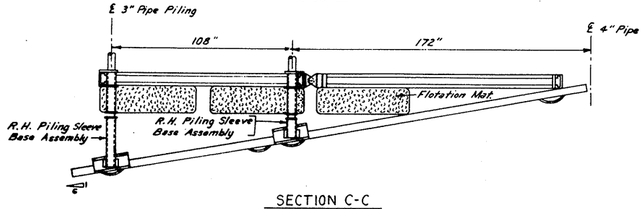
CAMP SITE
PICNIC SITE
FOOT BRIDGE
MOORING RING

U. S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS MARCH 1973

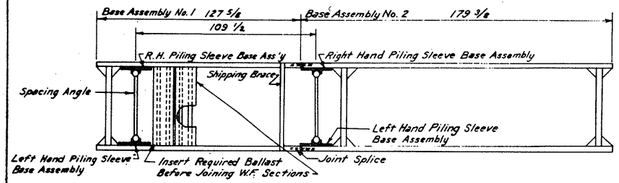
2450-DM5-93/35



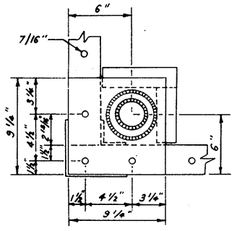
PLAN VIEW
NO SCALE



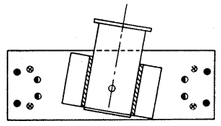
SECTION C-C
NO SCALE



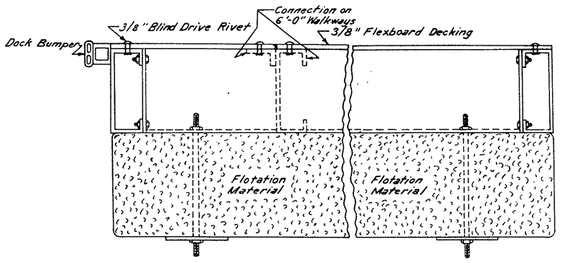
PLAN VIEW - BASE ASSEMBLY
NO SCALE



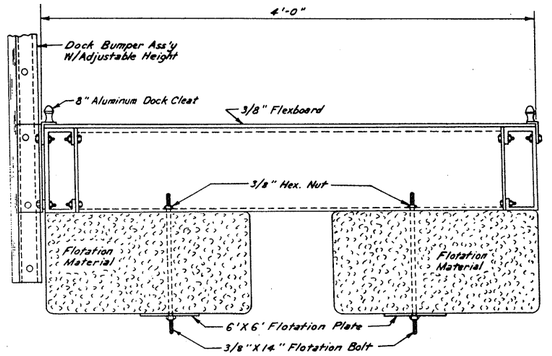
TOP VIEW
PILING SLEEVE ASSEMBLY
NO SCALE



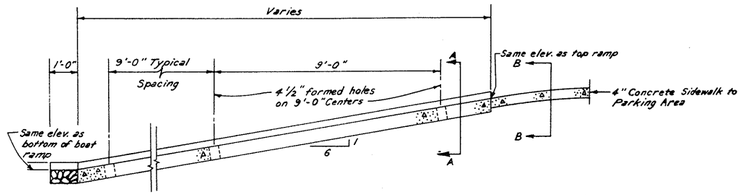
FRONT VIEW
R.H. PILING SLEEVE BASE ASSEMBLY
NO SCALE
Pitch Schedule
◐ 1 to 5
● 1 to 6
⊗ 1 to 7



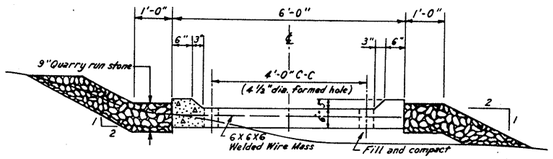
CENTER WALKWAY
NO SCALE



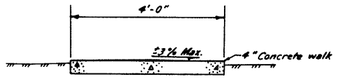
WELL WALKWAY
NO SCALE



TYPICAL PROFILE OF CONCRETE BASE
SCALE 1/2" = 1'-0"



SECTION A-A
SCALE 3/4" = 1'-0"



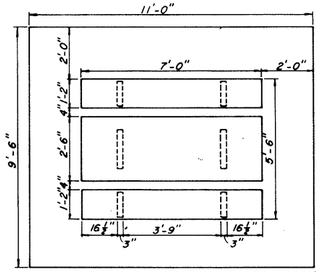
SECTION B-B
SCALE 3/4" = 1'-0"

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

LOADING DOCK
PLAN, ELEVATION, AND SECTIONS

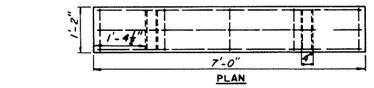
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/36

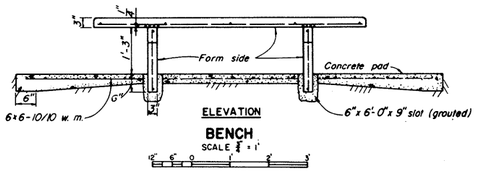


PLAN

SCALE ½" = 1'



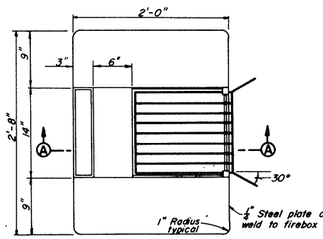
PLAN



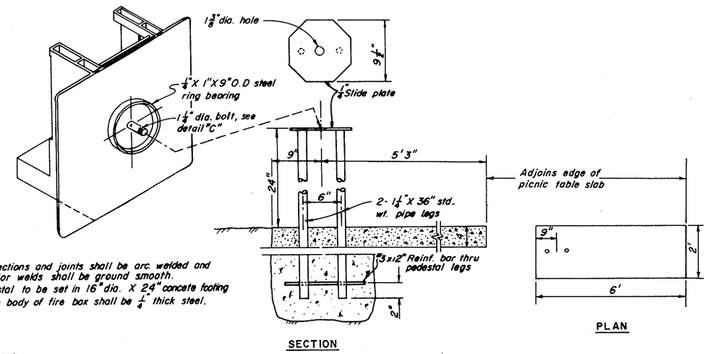
ELEVATION

BENCH

SCALE ½" = 1'



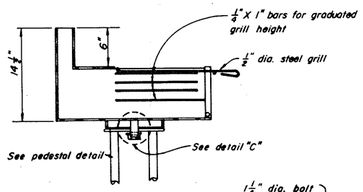
PLAN



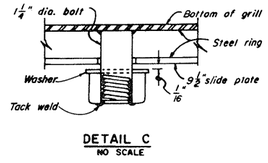
NOTES:

1. All sections and joints shall be arc welded and exterior welds shall be ground smooth.
2. Pedestal to be set in 16" dia. X 24" concete footing
3. Entire body of fire box shall be ¼" thick steel.

PEDESTAL DETAIL



SECTION A-A

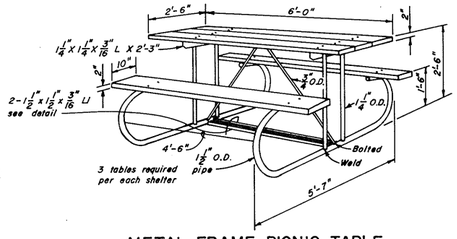


DETAIL C

NO SCALE

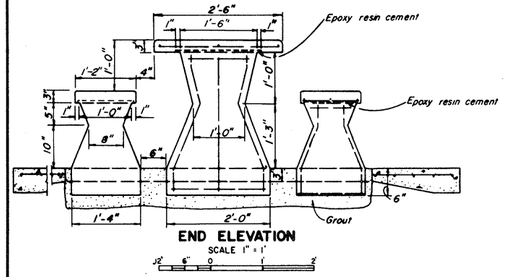
FIREPLACE

SCALE: 1½" = 1'



METAL FRAME PICNIC TABLE

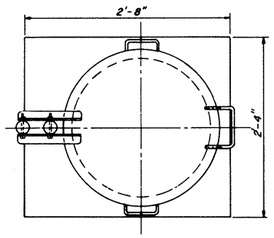
NO SCALE



END ELEVATION

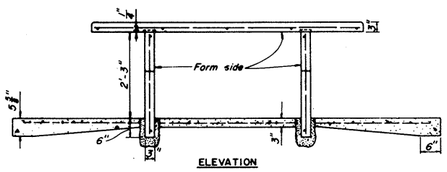
SCALE 1" = 1'

PLAN



PLAN

SECTION B-B



ELEVATION

TABLE

SCALE ½" = 1'



TYPICAL SECTION

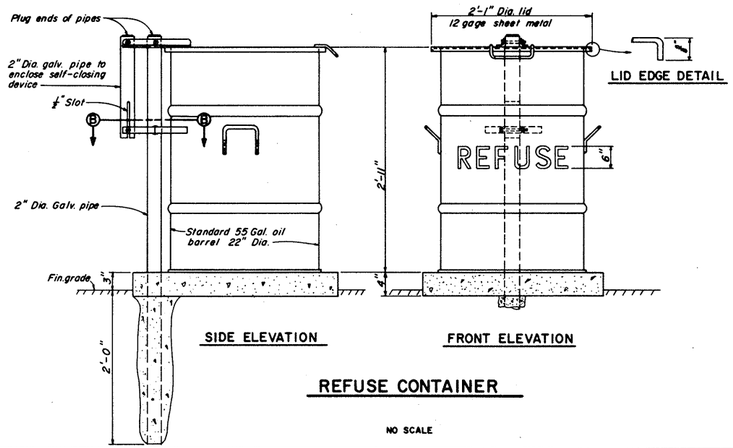
WHEN GROUND SLOPE IS 2.5% OR LESS



TYPICAL SECTION

WHEN GROUND SLOPE IS MORE THAN 2.5%

PICNIC TABLE



SIDE ELEVATION

FRONT ELEVATION

REFUSE CONTAINER

NO SCALE

For location and number of tables, refuge containers, and fireplaces, SEE PLAN SHEETS.

NOTES:

1. Color for Oil barrel and lid shall be number 14062.
2. Color for "Refuse" lettering on refuse container shall be 17875.
3. Table and benches reinforced with #3 bars.

MILLWOOD LAKE

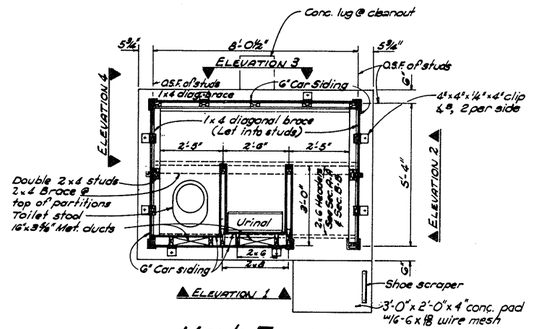
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PICNIC FACILITIES

TABLE, FIREPLACE AND REFUSE CONTAINER

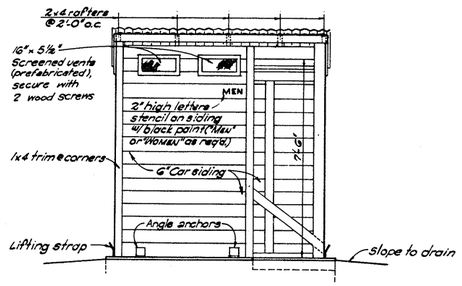
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/37



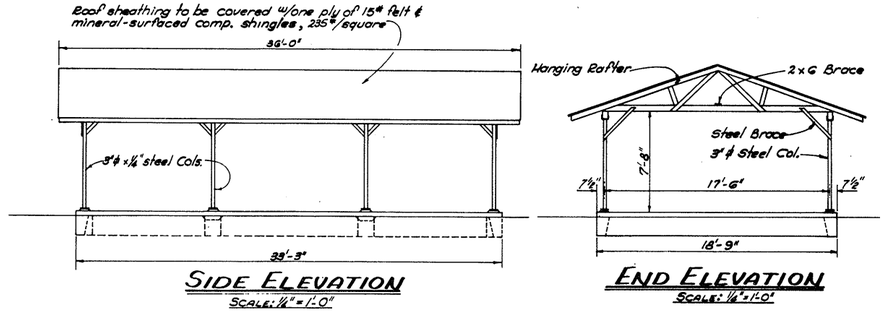
MEN'S TOILET FLOOR PLAN

Scale: ½" = 1'-0"



ELEVATION 1

Scale: ½" = 1'-0"

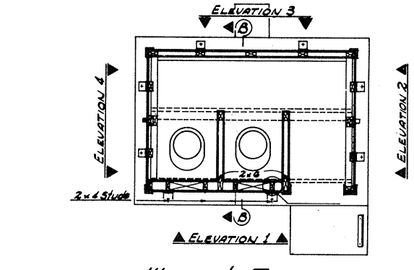


SIDE ELEVATION

Scale: ¼" = 1'-0"

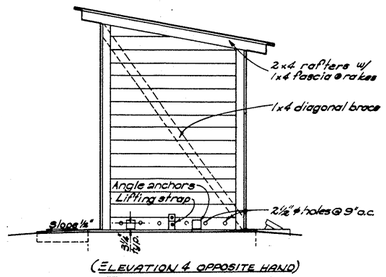
END ELEVATION

Scale: ¼" = 1'-0"



WOMEN'S TOILET FLOOR PLAN

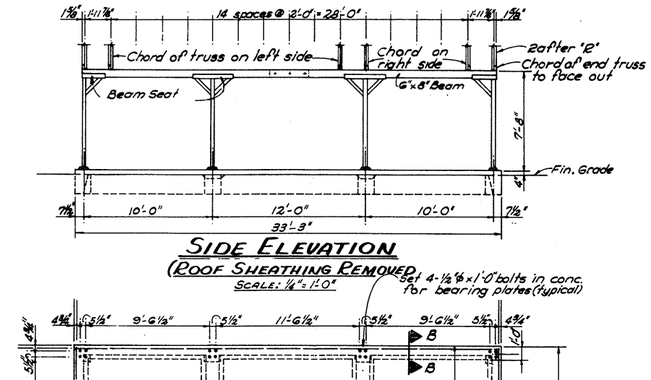
Scale: ⅜" = 1'-0"



(ELEVATION 4 OPPOSITE HAND)

ELEVATION 2

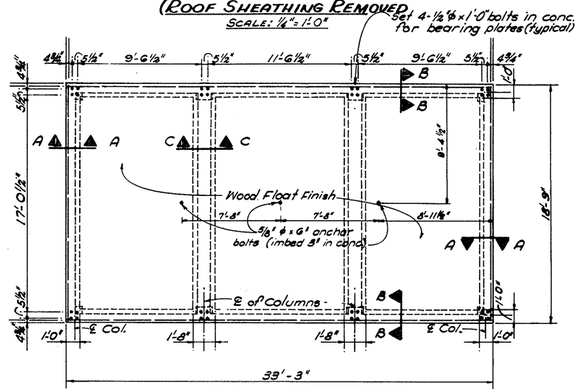
Scale: 1½" = 1'-0"



SIDE ELEVATION

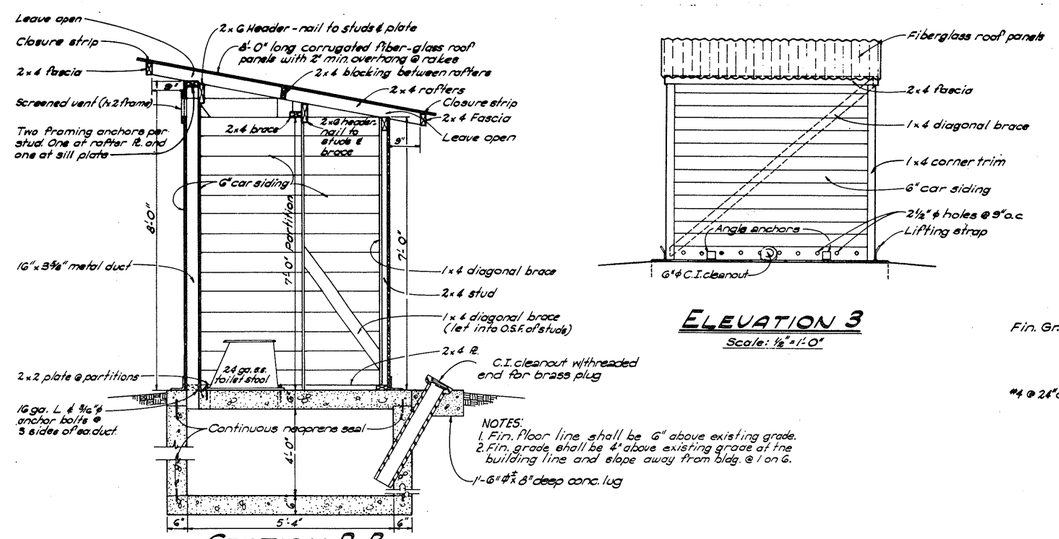
(ROOF SHEATHING REMOVED)

Scale: ¼" = 1'-0"



SLAB PLAN

Scale: ¼" = 1'-0"



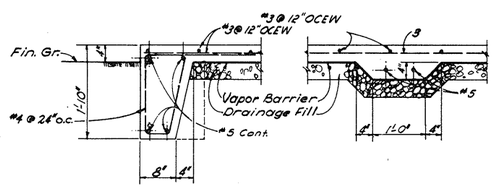
SECTION B-B

Scale: ¾" = 1'-0"

NOTES:
1. Fin. floor line shall be 6" above existing grade.
2. Fin. grade shall be 4" above existing grade at the building line and slope away from bldg. @ 1 on 6.

ELEVATION 3

Scale: ½" = 1'-0"



SECTION A-A
SECTION B-B

Scale: 1" = 1'-0"

SECTION C-C

Scale: 1" = 1'-0"

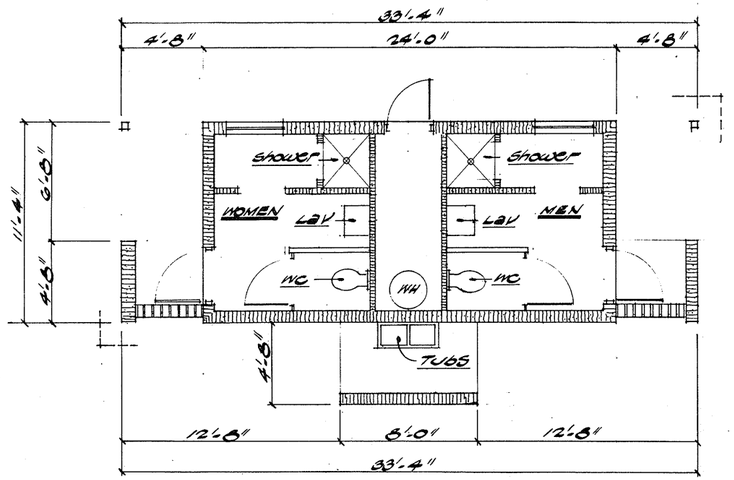
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

PICNIC SHELTER AND WOOD VAULT TOILET

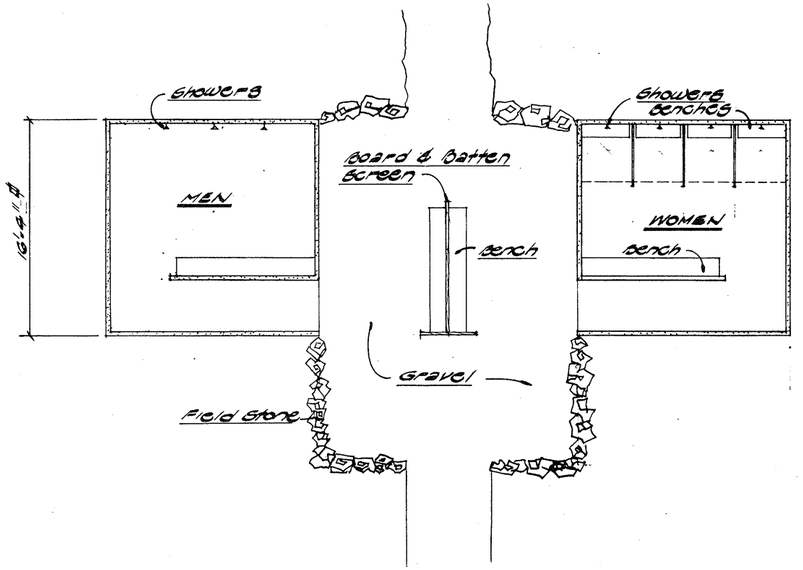
FLOOR PLANS, ELEVATIONS AND DETAILS

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

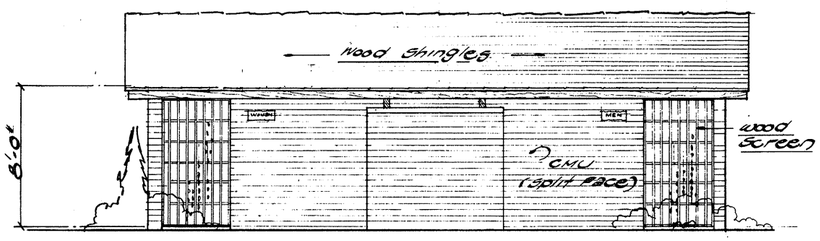
2450-DM5-93/38



PLAN



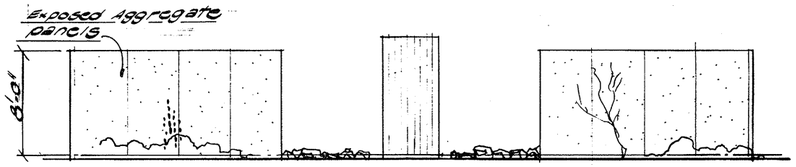
PLAN



FRONT ELEV

SHOWER & TOILET

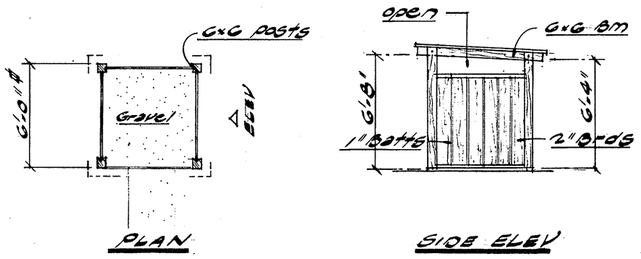
1/4"=1'-0"



FRONT ELEV

CHANGE HOUSE

3/16"=1'-0"



PLAN

SIDE ELEV

TRAIL SHELTER

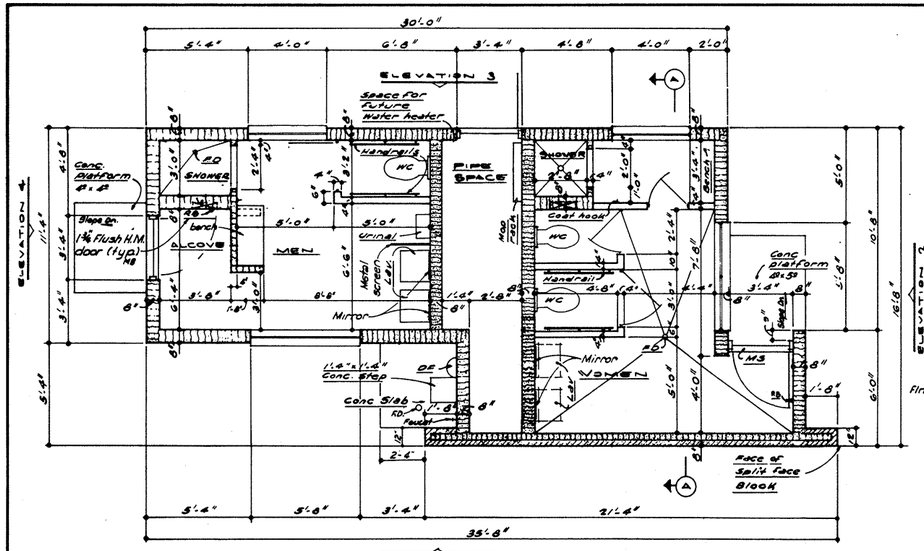
1/4"=1'-0"

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

SHOWER AND TOILET BUILDING NO. 2
TRAIL SHELTER & CHANGE HOUSE

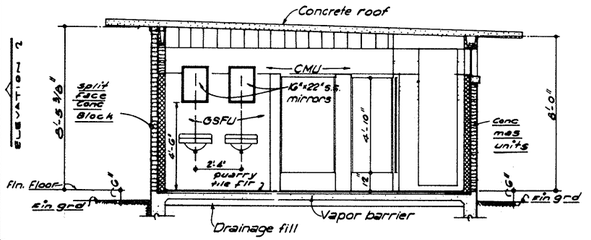
U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/39



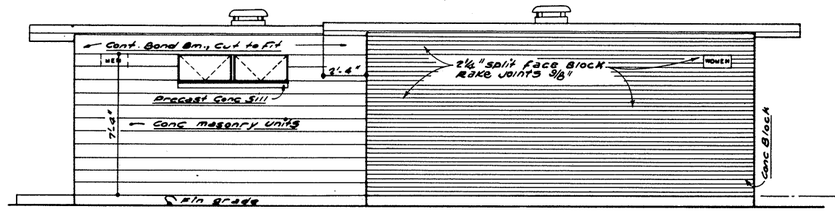
FLOOR PLAN

Scale: 3/8"=1'-0"

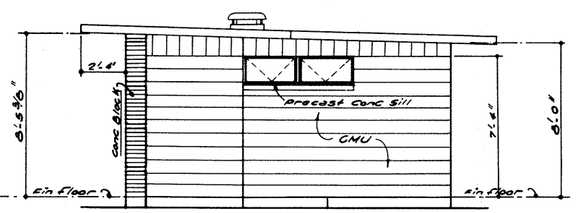


SECTION A-A

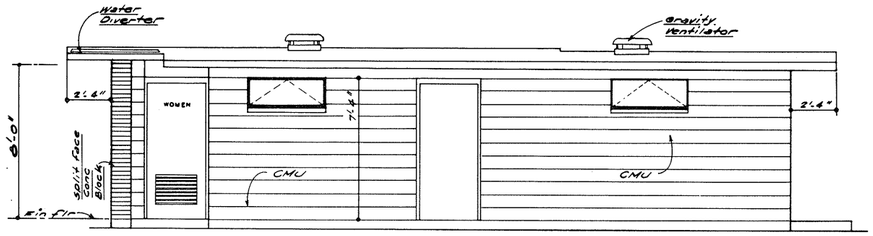
NOTES:
1. Floors shall be quarry tile except in pipe space.
2. Base shall be coved GSFU except in pipe space.
3. Wainscot shall be GSFU except in pipe space.
4. Floor slab shall be 5" thick except in pipe space where it shall be 6½" thick.
5. Footings shall be 18" min. below finish grade.



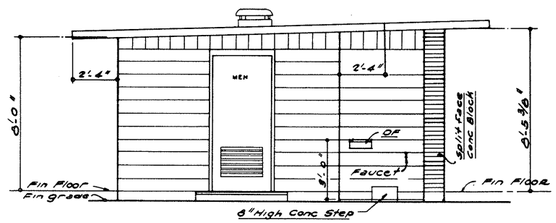
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

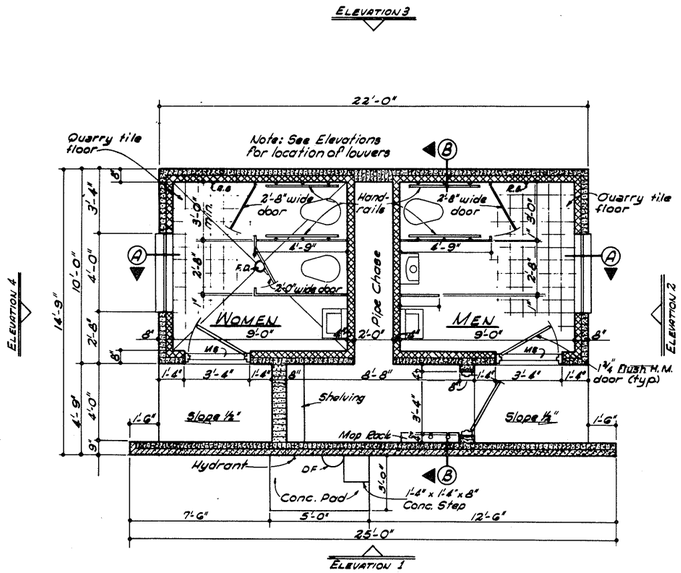
SCALE: ½ INCH = 1 FOOT

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

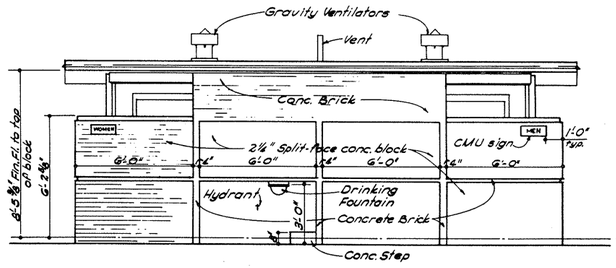
SHOWER AND TOILET BUILDING NO. 1
PLAN, ELEVATIONS, SECTION AND DETAIL

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

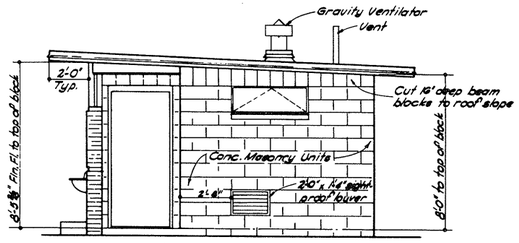
2450-DM5-93/40



FLOOR PLAN

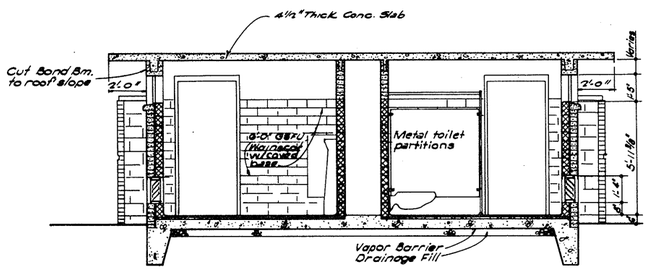


ELEVATION 1

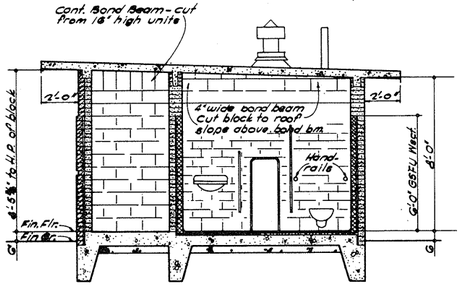


ELEVATION 2

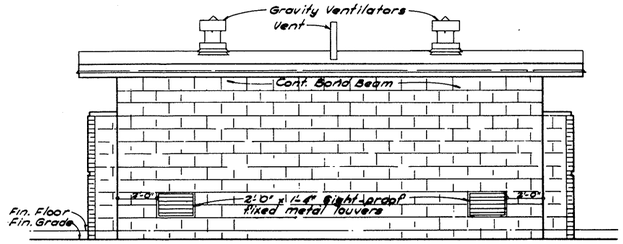
Elevation 4 similar except opposite hand & CMU in lieu of Door



SECTION A-A



SECTION B-B



ELEVATION 3

LEGEND

- Conc. Brick or Split-face Block
- Concrete Masonry Units
- Glazed Structural Facing Units
- Concrete
- Wood
- Blocking (Wood)
- Rigid Insulation

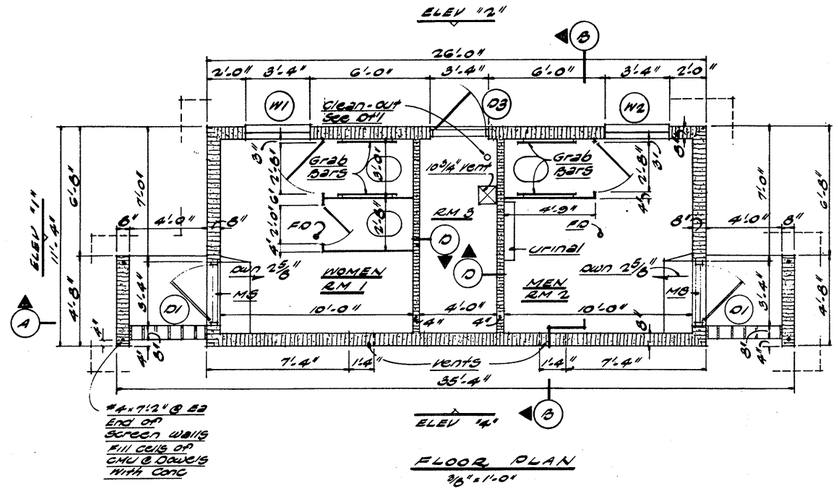
Notes
1. Scale of all drawings this sheet: 3/8" = 1'-0"
2. See Site Plan for orientation and F.F. & F.G. elevations.
3. Slabs shall be 6" thick on 4" drainage fill.
4. Footings shall be 18" min. below finish grade.

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

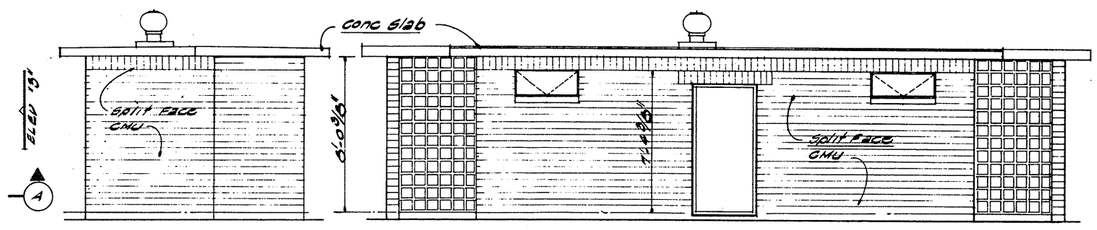
WATERBORNE TOILET BUILDING
FLOOR PLAN, ELEVATIONS AND SECTIONS

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/41

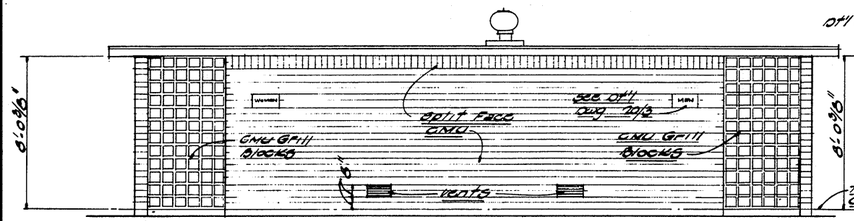


FLOOR PLAN
3/8" = 1'-0"

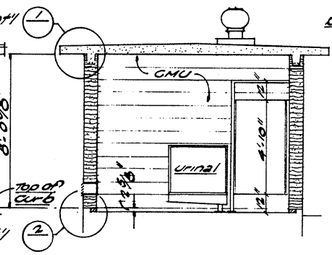


ELEV "1"
Elev "3" Opposite Hand
3/8" = 1'-0"

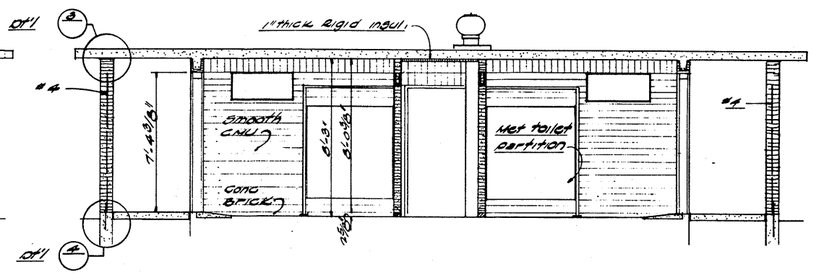
ELEV "2"
3/8" = 1'-0"



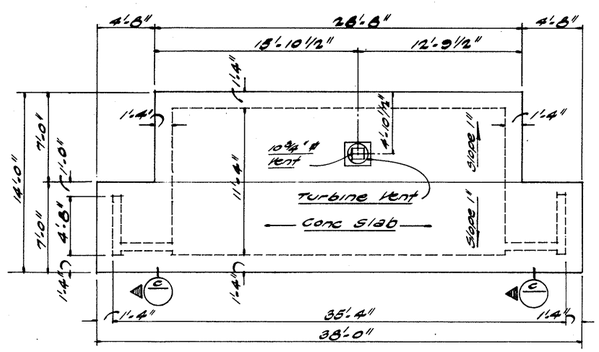
ELEV "4"
3/8" = 1'-0"



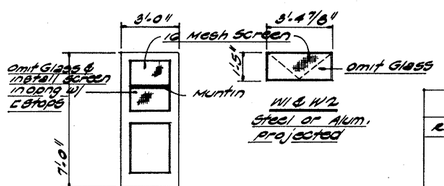
SECTION B-B
3/8" = 1'-0"



SECTION A-A
3/8" = 1'-0"

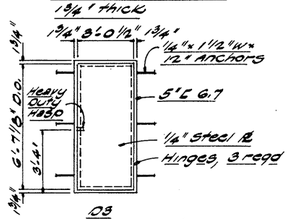


ROOF PLAN
1/4" = 1'-0"



W1 & W2
Steel or Alum. Projected

D1 & D2
Stile & Rail Steel Door
1 3/4" thick



D3
Welded Construction

FINISH SCHEDULE												
Rm No	Flr	Base		Walls		Clg	COLORS					
							Flr	Base	Walls		Clg.	Remarks
	Concrete	Conc Brick		CMU		Concrete						
1	•	•		•		•	Note 4	35622	35622		37778	
2	•	•		•		•	Note 4	35622	35622		37778	
3	•	•		•		•	unpainted					

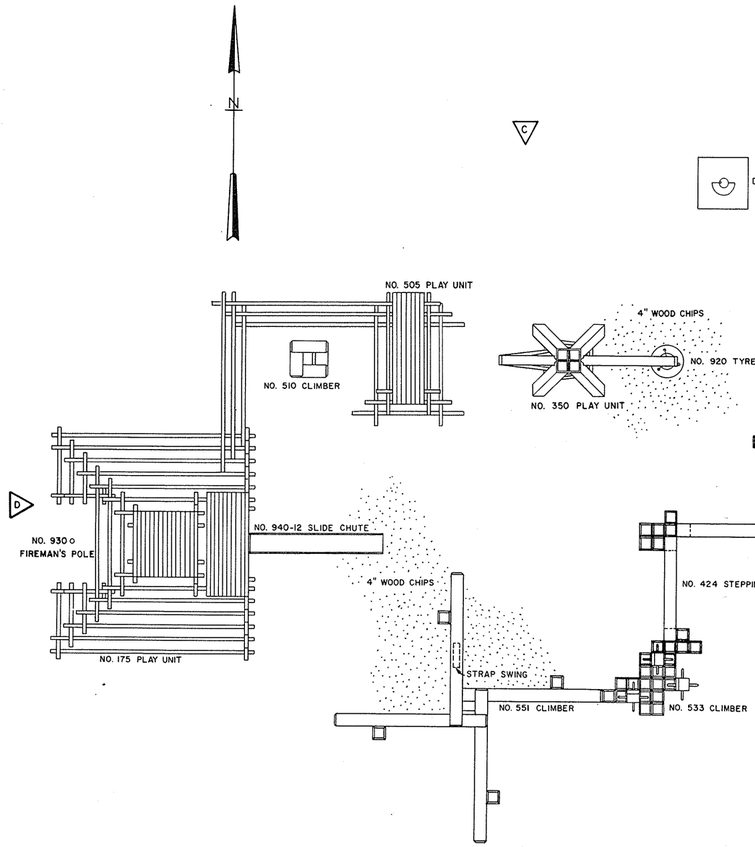
1. Color numbers shown are selected from Fed Std. No 595 and pertain to color only
2. Color for exterior CMU and ferrous metals such as Doors, windows and Vents to be color No 30450
3. See Specs for Paint types
4. Floors to have steel trowel abrasive aggregate finish
5. Partitions between Rms 3&1, 3&2 & CMU Grill Blocks to be Built after Roof is in place
6. Grill Blocks shall Not painted, Paint Roof Edge & Soffit 30450
7. Toilet Partitions to be Light Blue
8. Grab Bars to be Stainless Steel Series 110 By "Accessory Spec., Inc", or approved equal

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

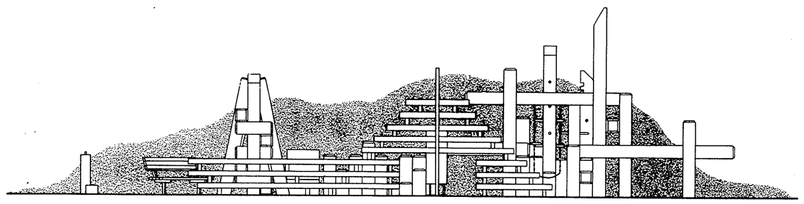
MASONRY VAULT TOILET
FLOOR PLAN, ROOF PLAN, ELEVATIONS AND SECTIONS

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

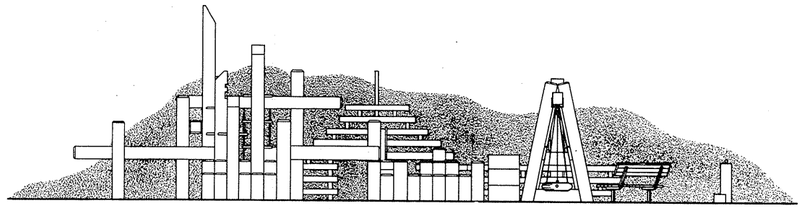
2450-DM5-93/42



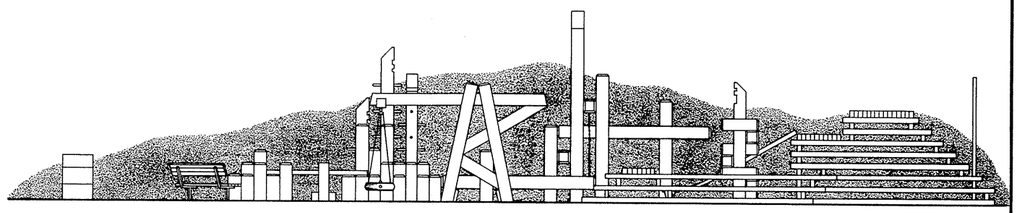
PLAN
SCALE: 1" = 4'-0"



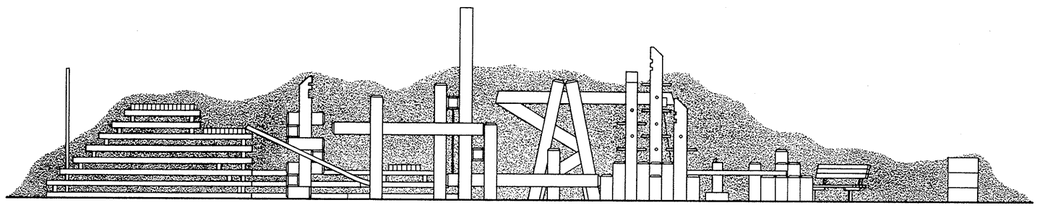
ELEVATION D
SCALE: 1" = 4'-0"



ELEVATION B
SCALE: 1" = 4'-0"



ELEVATION C
SCALE 1" = 4'-0"



ELEVATION A
SCALE: 1" = 4'-0"

NOTE:

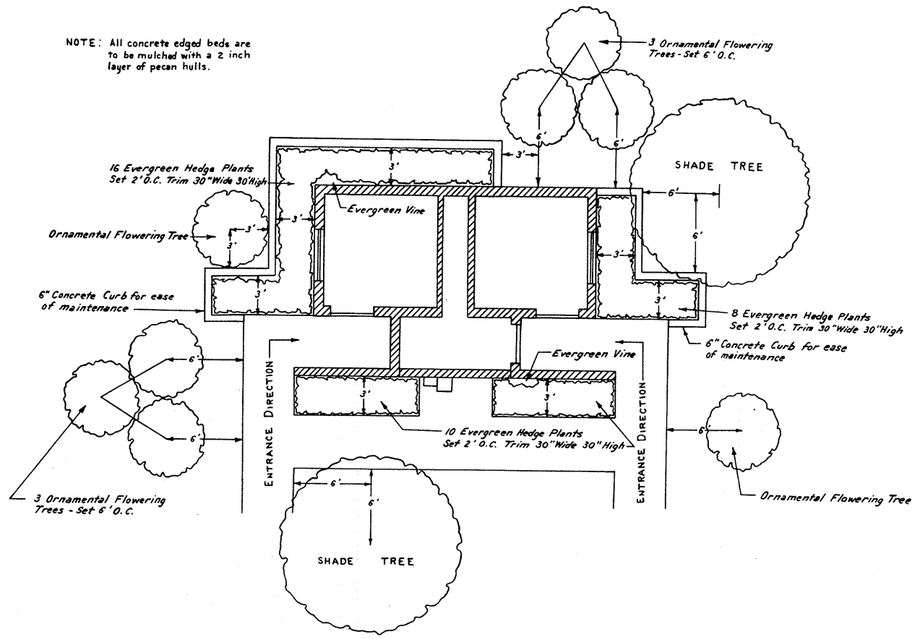
1. All play apparatuses shown shall be manufactured by the TimberForm Division, Niedermeyer-Martin Co., Portland, Oregon, 97212, or approved equal.
2. Refer to TimberForm catalog #3, Play Units catalog, Stepping Columns Catalog, and Temporary Catalog Supplement for model numbers shown on plan.

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

TYPICAL PLAYGROUND

U.S. ARMY ENGINEER DISTRICT, TULSA, CORPS OF ENGINEERS MARCH 1973

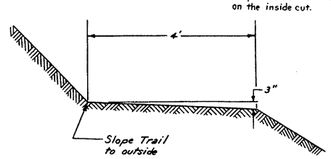
2450-DM5-93/43



STANDARD PLANTING PLAN

COMFORT STATION - DOUBLE - WATER BORNE TOILETS

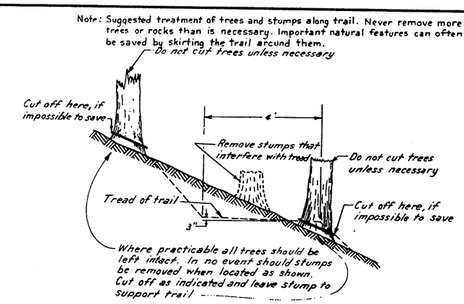
SCALE 1/4" = 1'



NOTE: Trails should be sloped to the outside to permit run-off. Do not gutter trails on the inside cut.

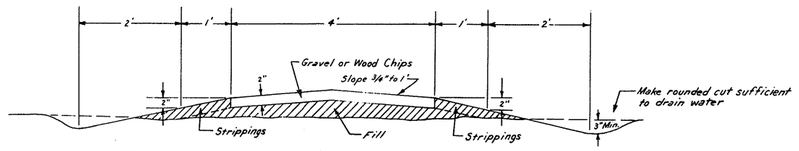
OUTSIDE SLOPE TRAIL

No Scale



ON HILLSIDE TRAIL

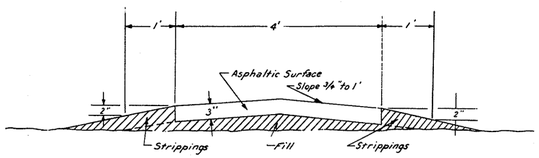
No Scale



NOTE: This section should be used only if the trail can't be relocated in a practical new location.

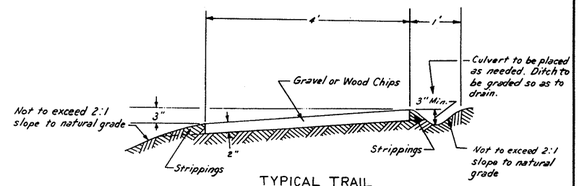
FLAT BOGGY GROUND TRAIL

No Scale



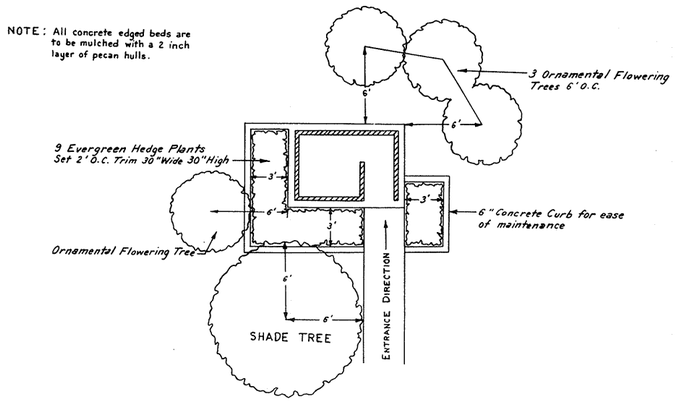
WHEELCHAIR TRAIL

No Scale



TYPICAL TRAIL

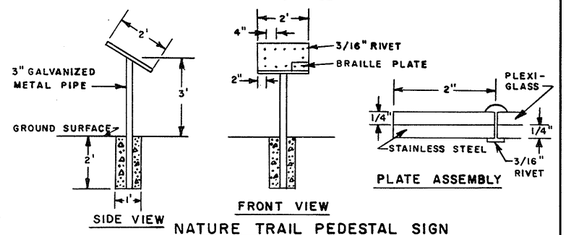
No Scale



STANDARD PLANTING PLAN

COMFORT STATION - SINGLE UNIT - VAULT TYPE TOILETS

SCALE 1/4" = 1'



NATURE TRAIL PEDESTAL SIGN IN BRAILLE FOR BLIND

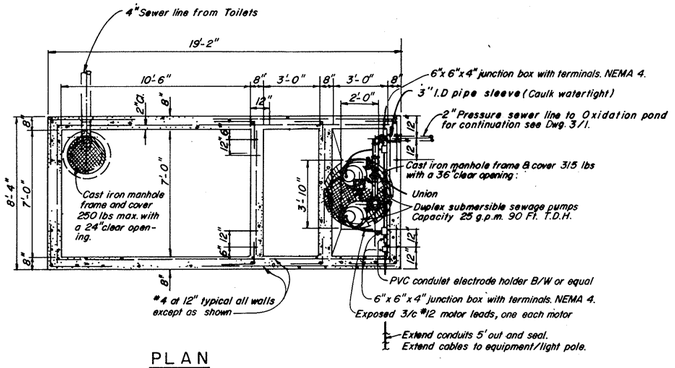
NO SCALE

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

STANDARD PLANTING PLANS FOR COMFORT STATIONS - WHEELCHAIR TRAIL - TRAILS

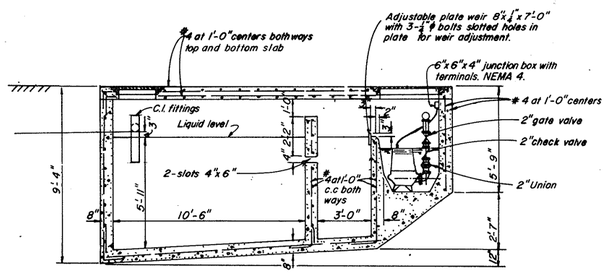
U.S. ARMY ENG. DIST., TULSA, CORPS OF ENGINEERS, MARCH 1973

2450-DM5-93/44



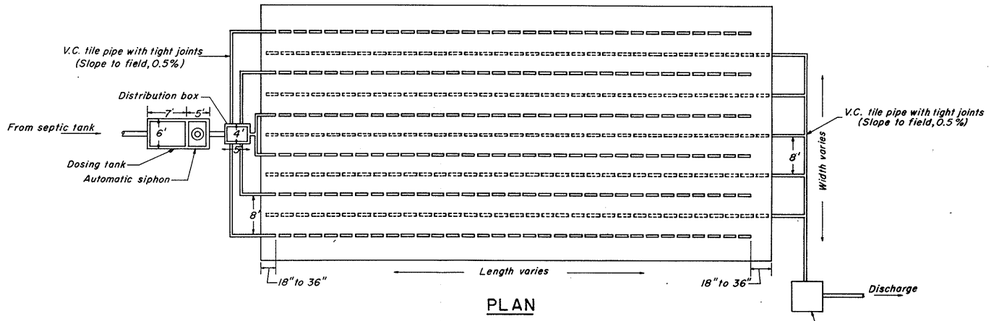
PLAN

NOTE: *Delete submersible sewage pumps from gravity-flow septic tank systems.*

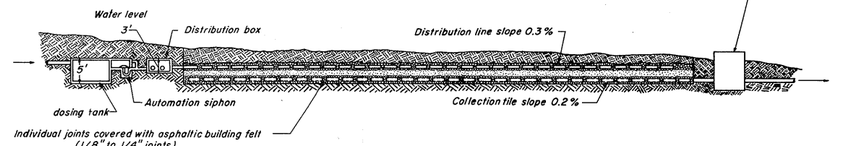


SECTION THRU TANK

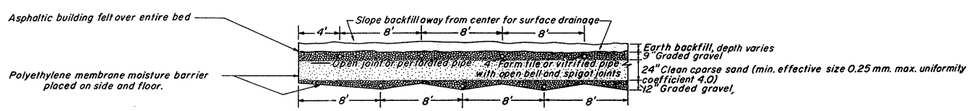
SEPTIC TANK DETAILS
NO SCALE



PLAN

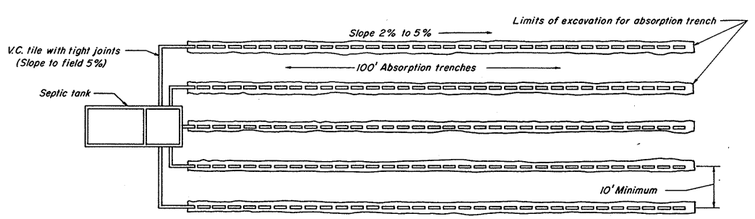


PROFILE

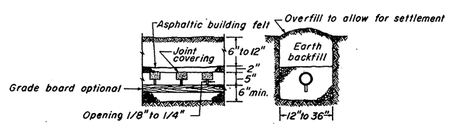


PART SECTION OF FILTER BED

SUBSURFACE SAND FILTER DETAILS
NO SCALE



PLAN



PART OF PROFILE SECTION

ABSORPTION TRENCH

TILE FIELD DETAILS
NO SCALE

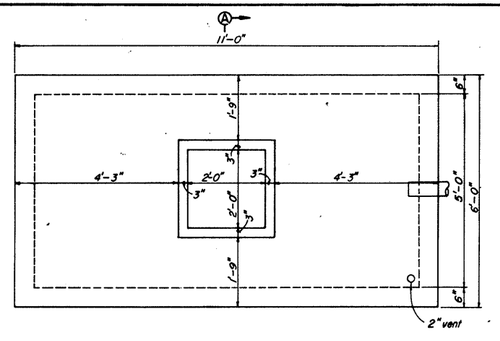
MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

WASTE WATER DISPOSAL SYSTEMS

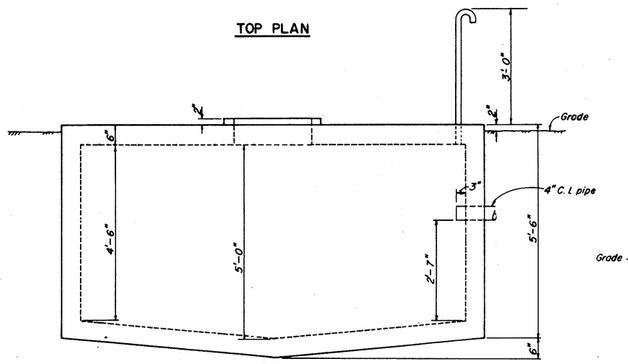
SCALE, OF FEET
200 100 0 200 400

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS, MARCH 1973

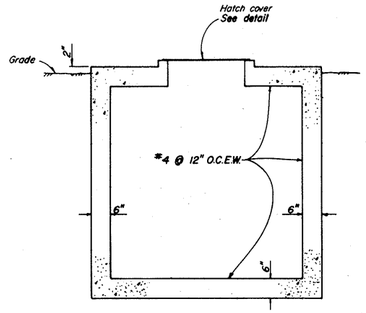
2450-DM5-93/45



TOP PLAN



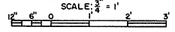
SIDE ELEVATION

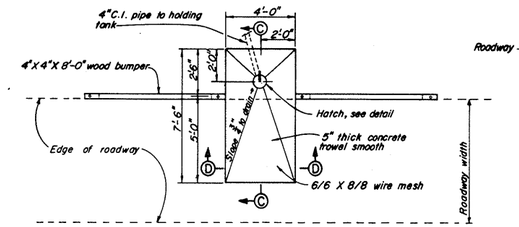


SECTION A-A

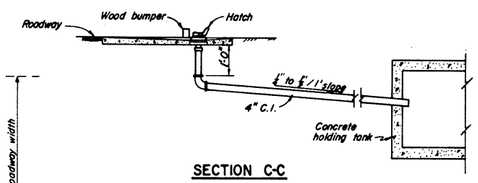
SEWAGE HOLDING TANK

SCALE: 3/4" = 1'

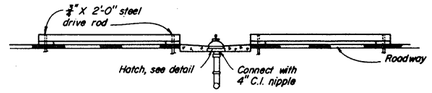




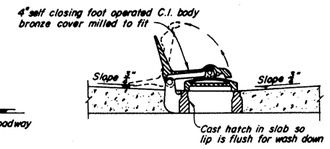
PLAN



SECTION C-C



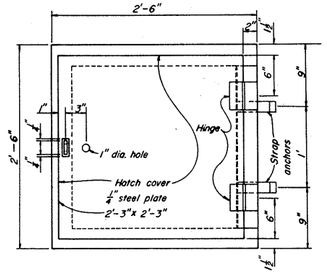
SECTION D-D



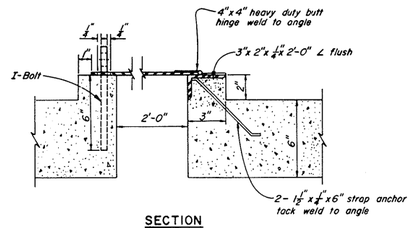
HATCH DETAIL

SANITARY STATION

NO SCALE



PLAN



SECTION

HOLDING TANK HATCH COVER

NO SCALE

NOTES:

1. All concrete shall have a min. compressive strength of 3000 psi @ 28 days.
2. All reinforcing shall be bent in accordance with ACI Manual of Standard Practice For Detailing Reinforced Concrete Structures (latest edition)
3. The clear distance between surfaces of concrete and steel reinforcement shall be 2".

MILLWOOD LAKE
LITTLE RIVER AND TRIBUTARIES, ARKANSAS

TRAILER SANITARY STATION
PLANS, ELEVATIONS, SECTIONS & DETAILS

U.S. ARMY ENGINEER DISTRICT, TULSA CORPS OF ENGINEERS MARCH 1973

2450-DM5-93/46