24

CAVE RUN RESERVOIR

LICKING RIVER, KENTUCKY

DESIGN MEMORANDUM NO. 5 A

PRELIMINARY MASTER PLAN

LOUISVILLE DISTRICT

CORPS OF ENGINEERS U.S. ARMY

1965

ORDPD-R (12 Jul 68) 3d Ind
SUBJECT: Supplement No. 1, Design Memorandum No. 5A, Preliminary Master, Cave Run Reservoir

DA, Ohio River Division, Corps of Engineers, PO Box 1159, Cincinnati, Ohio 45201 25 November 1968

TO: District Engineer, Louisville, ATTN: ORLED-P

Referred for appropriate action.

FOR THE DIVISION ENGINEER:

DONALD T. WILLIAMS
Chief, Planning Division

ENGCW-PV (12 Jul 68) 2nd Ind
SUBJECT: Supplement No. 1, Design Memorandum No. 5A, Preliminary Master, Cave Run Reservoir

DA, CofEngrs, Washington, D. C. 20315 20 November 1968

TO: Division Engineer, Ohio River Division

Supplement No. 1 to Design Memorandum No. 5A is approved subject to the following:

a. The change in land requirements for Site 4 - Zilpo is acceptable provided access will be available to the ownerships no longer proposed for acquisition or waivers of loss of access are obtained from the owners of the affected land in accordance with sound real estate practices. Unless access is available or necessary waivers are obtained, the affected land should be acquired in accordance with established procedures.

b. The 38 acres of the 60 acres required for access right-of-way are under the jurisdiction of the Forest Service which will administer the public access sites. Accordingly, that agency should make the 38 acres available without the necessity for transfer and subsequent retransfer.

FOR THE CHIEF OF ENGINEERS:

Ferd E. Anderson Jr

FERD E. ANDERSON, JR.
Colonel, Corps of Engineers
Assistant Director of Civil Works
for Central Divisions

1 Incl
wd

ORDPD-R (12 Jul 68) 1st Ind
SUBJECT: Supplement No. 1, Design Memorandum No. 5A, Preliminary Master, Cave Run Reservoir

DA, Ohio River Division, Corps of Engineers, PO Box 1159, Cincinnati, Ohio 45201 5 September 1968

TO: Chief of Engineers, ATTN: ENGCW-OM

The subject revision to the Preliminary Master Plan is recommended for approval.

FOR THE ACTING DIVISION ENGINEER:

1 Incl (6 cys)
4 cys wd

for DONALD T. WILLIAMS
Chief, Planning Division

DEPARTMENT OF THE ARMY
LOUISVILLE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 59
LOUISVILLE, KENTUCKY 40201

ORLED-P

10 July 1968

SUBJECT: Supplement No. 1, Design Memorandum No. 5A, Preliminary Master Plan, Cave Run Reservoir

Division Engineer
Ohio River Division
ATTN: ORDPD-R

1. With reference to the Preliminary Master Plan, Cave Run Reservoir, the purpose of this supplement is to propose a change in recreational land acquisition at Site 4; additional recreational land acquisition at Site 8; new recreational land acquisition in the Leatherwood Creek area; and acquisition of a right-of-way for a road from the existing Forest Service road at Tater Knob to the proposed new boundary of Site 4.

2. The proposed changes and additions to recreational lands cited in this supplement have been jointly determined by Forest Service planners and officials of Daniel Boone National Forest and the Louisville District Engineer Office. As presently planned the Forest Service is to manage the recreational lands of the project, and will be responsible for the detailed planning of the access sites in accord with the Memorandum of Agreement between the Secretaries of Army and Agriculture. The details of this arrangement, as specifically pertaining to the Cave Run Reservoir have been presented in a draft of a Memorandum of Understanding (Inclosure 4). Management plans and detail site plans for recreational development have been and will continue to be fully coordinated between this office and the Forest Service office at Winchester, Kentucky.

3. The need for the proposed changes and additions is presented below by sites:

a. Site 4 - Zilpo. A total of 1,024 acres was originally proposed and approved for acquisition for recreational purposes at this site. It is recommended that the land acquisition be reduced at Site 4 to 336 acres. As shown on Plate 2 the area recommended for acquisition is at the northeast end of the peninsula. The reduction in size of this site is due to a reappraisal of the amount of lands, as presented in the Preliminary Master Plan,

that are suitable for recreational development. The development of other lands proposed for acquisition in this supplement will more adequately suit the needs of the public. Facilities planned for the initial development of this site are 100 campsites, swimming beach, boat landing and loading dock, water system, wash house, toilets and a sewage treatment system. A boat ramp, additional campsites and lodge are planned for future development.

b. Road R/W - Tater Knob to Site 4. An access road is needed to service Site 4. Sixty acres of ridgetop land are proposed for acquisition for the R/W of an access road to be constructed by the Forest Service. Approximately 38 acres are owned by the F.S. with about 22 acres in private ownership. See Plate 1.

c. Murder Branch - Site 8. Additional recreation lands are needed at this site to provide more suitable areas for a boat ramp, marina, picnicking, parking and access road. An area of 47 acres on the west bank of Beaver Creek, across from the original area is proposed for acquisition. The 47 acres are more suitable than the original area for development of the needed facilities, and they will provide less expensive road access and assurance of necessary management control immediately downstream from the Beaver Creek bridge crossing of relocated State Highway 1274. The area originally proposed for acquisition for these purposes should be retained for development of primitive walk-in camping, hiking trails and scenic overlook. See Plate 3.

d. Leatherwood Creek - Site 13. Further studies have found this creek embayment to be a desirable area for recreational use and development. The F.S. plans to improve the existing forest road which will provide access to the area. In order to maintain control of the aesthetic values and to assure further development in this area it is proposed that the two areas, about 108 acres as shown on Plate 1, be acquired for recreational purposes. A boat ramp is planned for initial development along with parking and access road. Picnic facilities, water system and toilets will be added in the future.

4. A preliminary cost estimate of recreational facilities and their development that are planned for the additional lands proposed in this supplement is presented in the following tables. Initial development is estimated to cost $655,000 with future development at $492,000. These costs include contingencies, but are exclusive of engineering and design and supervision and administration. The above costs are proposed to replace that part of the total cost estimated as presented in the Preliminary Master Plan and which part was for the proposed initial and future development at Sites 4 and 8. The part

ORLED-P 10 July 1968

SUBJECT: Supplement No. 1, Design Memorandum No. 5A, Preliminary Master Plan, Cave Run Reservoir

of the cost estimate proposed for Sites 4 and 8 was $93,800 for initial development and $130,800 for future development. These costs also include contingencies but not E&D and S&A. Table 2 shows the prorated cost estimates assigned to the 08 Account, Access Roads.

5. The gross appraisal estimate listed below for each recreational site and the road right-of-way for Site 4 includes all anticipated real estate costs necessary to acquire fee title to the lands.

Site No. & Name		Approved Acquisition (acres)	Proposed Acquisition (acres)	Cost Estimate Approved Acquisition	Cost Estimate Proposed Acquistion
4	Zilpo	1,024	336	$52,600.00	$18,100.00
8	Murder Branch	300	347	23,400.00	26,900.00
13	Leatherwood Creek	0	108	-	15,500.00
--	Tater Knob Rd R/W	0	60	-	6,500.00
	TOTALS	1,324	851	$70,600.00	$67,000.00

6. This supplement with proposal for some modification of land required for recreation has been coordinated with the Real Estate Division in accordance with EM 405-2-835 and with the U. S. Forest Service.

7. It is recommended that this supplement to the Preliminary Master Plan, D. M. No. 5A, be approved for additional basic guidance in land acquisition for recreation purposes and as a basis for detailed Master Plan studies, including the preparation of individual site plans.

FOR THE DISTRICT ENGINEER:

R. H. Hayes

R. H. HAYES
Chief, Engineering Division

4 Incl
Cave Run Res.
1. Plate 1-Sheet 1
2. Plate 2
3. Plate 3
4. Memo of Understanding

TABLE 1 - Supplement No. 1
PMP - DM No. 5A

CAVE RUN RESERVOIR
RECREATION FACILITY DEVELOPMENT - SITES 4, 8 AND 13
PRELIMINARY COST ESTIMATE

Facility	Unit	Unit Cost	Initial - Acct 14 Units	Initial - Acct 14 Cost	Future - 710 Funds Units	Future - 710 Funds Cost	Total Units	Total Cost
Roads 20'/28' *	L. F.	$ 14.00	7,600	$ 69,200	-	-	7,600	$ 69,200
Roads 20'/28' *	L.F.	12.00	1,300	10,100	500	$ 3,900	1,800	14,000
Roads 18'/22'	L.F.	10.00	8,100	81,000	2,300	23,000	10,400	104,000
Roads 12'/14'	L.F.	5.00			12,000	60,000	12,000	60,000
Ramps (Concrete)	12' Lane	7,500	4	30,000	2	15,000	6	45,000
Parking (Paved)	S.Y.	5.00	7,100	35,000	6,100	30,500	13,200	65,500
Water Supply & Distribution	Job	-	2	51,000	2	34,000	4	85,000
Sewage Treatment	Job	-	2	72,000	1	12,000	3	84,000
Comfort Sta. (Water Borne)	Each	16,000	5	80,000	3	48,000	8	128,000
Comfort Sta. (Pre-Fab Vault)	Each	2,000			2	4,000	2	4,000
Wash Bldg. (Camp)	Each	32,000	1	32,000	2	64,000	3	96,000
Picnicking Facilities	Unit	100.00	35	3,500	50	5,000	85	8,500
Beach, Grading	S.Y.	2.00	9,400	18,800	-	-	9,400	18,800
Beach, Sand & Gravel	S.Y.	3.00	8,400	25,200	-	-	8,400	25,200
Camping	Unit	400.00	100	40,000	290	116,000	390	156,000
Boat Loading Dock	Each	1,000.00	2	2,000	1	1,000	3	3,000
Electrical Dist.	Job	-	1	7,800	1	6,500	2	14,300
Site Improvement	Job	-	1	11,000	2	4,000	3	15,000
Signs	Each	100.00	12	1,200	8	800	20	2,000
Marina	Slips		100	By Others	-	-		
Lodge	Job		-	-	1	By Others		
	Sub-Total			$569,800		$427,700		$ 997,500
	Contingencies 15%			85,200		64,300		149,500
	Total Construction Cost			$655,000		$492,000		$1,147,000
	Engineering and Design 10%			65,500		49,000		114,500
	Supervision and Administration 10%			65,500		49,000		114,500
	TOTAL COST			$786,000		$590,000		$1,376,000

* These roads are prorated to Cost Accounts 08 and 14. The share of 08 is considered to be the cost of a service road needed for access to operation and maintenance. Used in this instance was 35% for the 08 Acct and 65%for the 14 Acct.

TABLE 2
PRELIMINARY COST ESTIMATE
COST ACCOUNT 08 - ACCESS TO PROJECT

Item	Unit Cost	Initial	Future	Total
Road 20'/28'	14.00/SY	7600 SY - $37,200	-	7600 SY - $37,200
Road 20'/28'	12.00/SY	1300 SY - 5,500	500 SY-$2,100	1800 SY - 7,600
Sub-Total		$42,700	$2,100	$44,800
15% Contingencies		6,300	300	6,600
Construction Cost		$49,000	$2,400	$51,400
10% Engineering & Design		5,000	250	5,250
10% Supervision & Admin.		5,000	250	5,250
TOTAL COST		$59,000	$2,900	$61,900

MEMORANDUM OF UNDERSTANDING

CHIEF OF ENGINEERS CORPS OF ENGINEERS U. S. ARMY	Between and Pertaining to	CHIEF OF THE FOREST SERVICE DEPARTMENT OF AGRICULTURE

PLANNING, DEVELOPMENT AND MANAGEMENT OF RECREATION,
AND OTHER RELATED LAND MANAGEMENT ACTIVITIES
ASSOCIATED WITH THE CAVE RUN RESERVOIR PROJECT
AND THE DANIEL BOONE NATIONAL FOREST, KENTUCKY

THIS MEMORANDUM OF UNDERSTANDING is entered into pursuant to paragraph 9 of Memorandum of Agreement, dated August 13, 1964, between the Secretaries of the Army and Agriculture relating to this subject for the purpose of establishing and recording agreed-upon policies and principles governing the planning, establishing and the managing of water, land, and recreational resources which will develop from the Cave Run Reservoir project which is being constructed by the Corps of Engineers on the Licking River in Bath, Rowan, Menifee, and Morgan Counties, Kentucky, primarily within the Proclamation Boundary of the Daniel Boone National Forest.

ARTICLE I. The Corps of Engineers will:

a. Subject to availability of funds, acquire all privately-owned lands and land rights needed for the Cave Run Reservoir project in accordance with the joint policies of the Departments of the Interior and of the Army relating to the acquisition of land for water resource projects published in the Federal Register, dated February 22, 1962, Vol. 27, Page 1734, and implemented by Engineer Regulation 405-2-150, dated March 9, 1962.

b. Recommend that all land and land rights acquired by the Corps under Article Ia, within the Proclamation Boundary of the Daniel Boone National Forest, except those within the limits of the areas hereinafter defined under Article IIb, be transferred to the Department of Agriculture for the Development, management, and administration by the Forest Service of the Cave Run Reservoir project provisions for public recreation and for fish and wildlife, in conjunction with the management and administration of related Forest Service programs for the Daniel Boone National Forest. The Corps reserves, however, the right to use all of these lands which are necessary to the construction, operation and maintenance of the Cave Run Reservoir project for its intended purposes, other than recreation and fish and wildlife, as presently authorized, or as may be authorized in the future; including, but not limited to, the right to perform timber clearing, flooding of the area, to construct and maintain transmission lines, utilities, access roads, and to make improvements in the aid of navigation. The exercise of the rights reserved by the Corps will be coordinated with Forest Service plans and programs.

c. Remove debris during construction and for six months after initial impoundment. Stabilize and revegetate lands disturbed by construction of maintenance activities of the Corps.

d. Provide for levels of service and/or access to National Forest land at least equivalent to those existing prior to the project construction, to the extent that there will be a justifiable continuing need for such services and/or access after completion of the reservoir project.

e. Establish and permanently mark exterior boundary lines on private lands acquired by the Corps which will be transferred to the Forest Service, to the extent that such exterior boundaries will abut private lands after completion of the land transfers contemplated herein.

f. Construct, operate and maintain facilities for accommodation of visitors to the dam, and any other project-related water and land management activity that may be agreed upon.

g. Mark reservoir clearing lines on-the-ground prior to initiation of Forest Service timber salvage operations.

h. Notify the Forest Service in writing of special land uses on National Forest land, which must be relocated; and facilities located on private land, which may need to be relocated on National Forest land.

ARTICLE II. The Forest Service will:

a. Take necessary action to secure extension of the Proclamation Boundary of the Daniel Boone National Forest to include proposed Corps recreation sites 9 and 10, and all project lands west of site 10.

b. Recommend transfer to the Secretary of the Army, full custody and control of all presently-owned Forest Service lands and land rights, the limits of which shall be defined by the Corps in a manner calculated to provide for the construction, operation and maintenance of the dam, spillway, utilities, and associated access roads necessary for the construction and administration of these facilities, and for the public use areas located in, and adjacent to, the dam. The Forest Service reserves the right of access and use necessary to provide for required other uses of National Forest lands, including the sale of timber therefrom prior to clearing activities of the Corps and access for National Forest purposes, the exercise of said rights is to be coordinated with the District Engineer.

c. Grant to the Secretary of the Army for the use of the Corps, rights to enter upon all other Forest Service lands lying within the Cave Run Reservoir project area, together with rights of ingress and egress for the purpose of constructing, operating and maintaining said project for its intended purposes, other than recreation and fish and wildlife as presently authorized, or as may be authorized in the future, including, but not

limited to, the right to clear timber, the performance of initial construction work relating to the project, and to flood the area as may be necessary for the operation of the project, all of which shall be coordinated with the Forest Supervisor.

d. Assume, subject to the availability of funds, the financial responsibilities for development of all public use areas and facilities in accordance with plans which shall be prepared on a coordinated basis by the Forest Service and the Corps, except those outlined in Article If. Forest Service funds cannot be expended for development of such public use areas and facilities on lands acquired by the Corps until such lands have been transferred to the Forest Service.

e. Initiate and prepare, on a coordinated basis with the Corps, comprehensive plans for the development and realization of the full recreation and associated water and land management potentials of the reservoir. These plans will constitute a joint Master Plan of the Forest Service and the Corps of Engineers for public recreation use of the reservoir project.

f. Accept responsibilities for care and protective custody of all newly-acquired lands as they are made available by interchange by the Corps and for the conduct of all reservoir management activities, except those activities which will be performed by the Corps as outlined in Article Ic above, including, but not limited to custody and control of all public use facilities established along the shore of the reservoir, shoreline maintenance, and any other project-related water and land management activities as may be agreed upon.

g. Assume the responsibility for the establishment of water-related, commercial facilities programmed under the jointly-approved plan, provided, however, that all plans, specifications and contract or lease documents pertaining thereto shall be coordinated with the Corps.

h. Accept the responsibility for debris removal following the period provided for in Article Ic, and for aquatic weed and vector control.

ARTICLE III. The relocation of public roads and other public service facilities, such as power, telephone, water and gas lines resulting from the construction of the Cave Run Reservoir project may involve Forest Service lands outside the normal project boundaries. It is agreed that, if such should occur, that appropriate rights to relocate will be granted by the Forest Service without cost to the owners of said affected roads and public service facilities for the purpose of constructing, operating and maintaining said relocated facilities.

ARTICLE IV. The Corps and the Forest Service will jointly prepare rules and regulations governing the use of the reservoir and use and occupancy for peripheral project land by the general public. The Forest Service will issue any permits or easements on project lands under Forest Service jurisdiction after concurrence by the Forest Supervisor and the

District Engineer in the need for, and acceptability of, such outgrants in each individual case.

ARTICLE V. The Forest Service and the Corps will collaborate in formulating fire prevention and control plans and programs for the project.

ARTICLE VI. Pursuant to the authority contained in the Act of July 26, 1956 (16 U.S.C. 505 a-B), the Forest Service and the Corps will prepare and have executed appropriate land interchange orders to accomplish an exchange of lands and land rights in order to fulfill the terms and conditions set forth in Article I and II above. The Corps will furnish the Forest Service copies of individual tract descriptions for Corps-acquired lands which lie in areas to be developed for recreation use by the Forest Service. Individual tract descriptions for other Corps-acquired lands will be furnished to the Forest Service by the Corps at times mutually agreeable to the Forest Supervisor and the District Engineer. The Forest Service will provide the Corps with descriptions of National Forest lands to be transferred to the Department of the Army as requested.

ARTICLE VII. Action under this Memorandum will be initiated at the level of the District Engineer, Corps of Engineers, U. S. Army Engineer District, Louisville, Kentucky, for and on behalf of the Department of the Army and by the Forest Supervisor, Daniel Boone National Forest, Winchester, Kentucky, for, and on behalf of, the Forest Service and the Department of Agriculture.

ARTICLE VIII. Pending the consummation of the interchange agreements contemplated herein, and for purposes in accord with the provisions of this Memorandum, the Corps of Engineers has the permission of the Secretary of Agriculture to enter upon Daniel Boone National Forest land; and the Forest Service has the permission of the Secretary of the Army to enter upon Corps-acquired project lands, provided that all entries will be coordinated with the District Engineer or the Forest Supervisor.

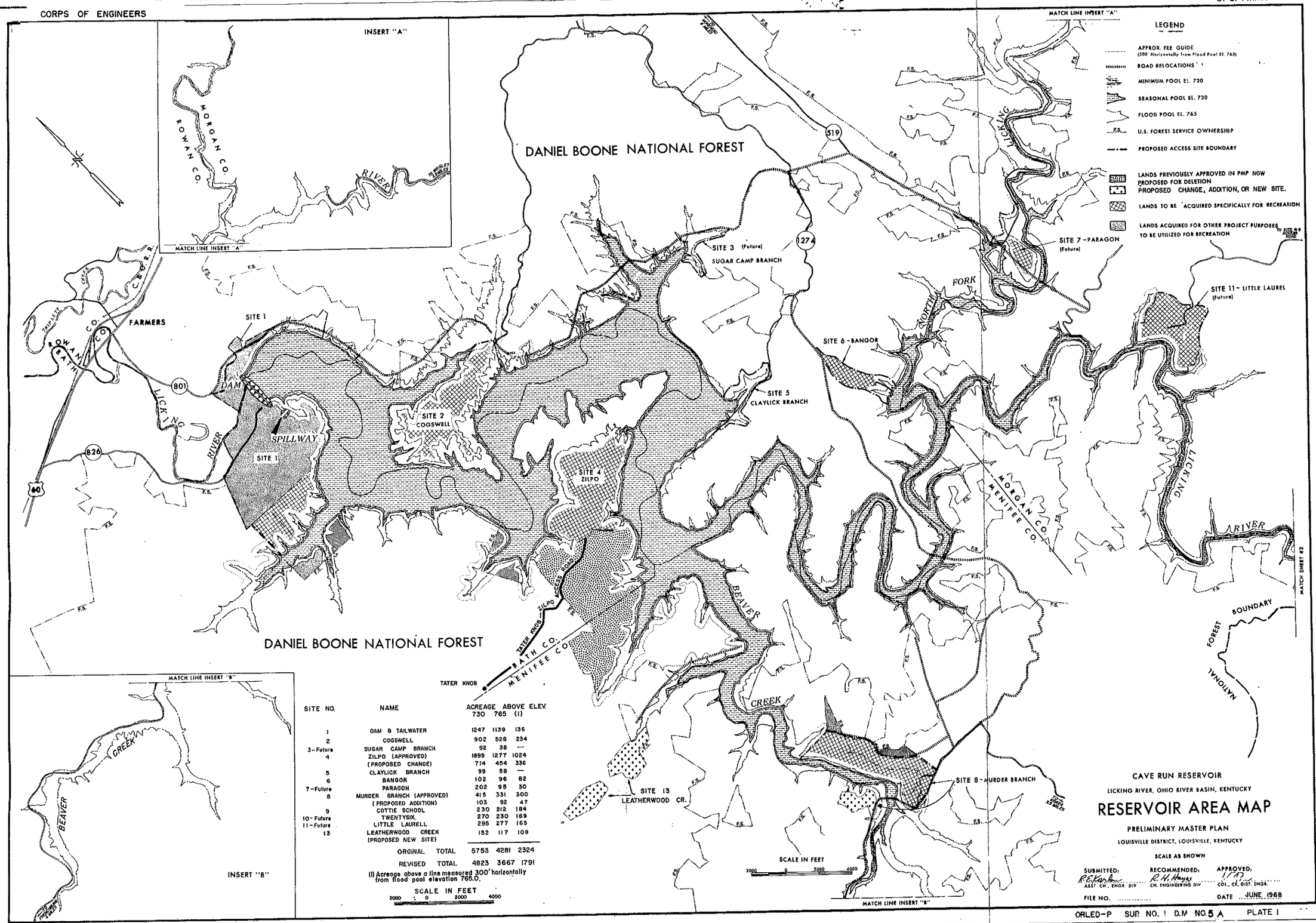
ARTICLE IX. It is the desire of the parties hereto that the Daniel Boone National Forest and the Cave Run Reservoir project be maintained and operated so as to complement each other with respect to realization of the full potential of each. It is apparent that ancillary operating agreements will be needed in this connection. It is, therefore, agreed that the District Engineer and the Forest Supervisor will, from time to time, discuss the various phases of the management programs and will, when appropriate, insofar as they are capable of doing so under the authorities of their offices, incorporate the mutual understanding, responsibilities and obligations in written operating agreements.

ARTICLE X. On a basis of cooperation or assistance, as provided for in the Act of March 4, 1915 (38 Stat. 1084) as amended (31 U.S.C. 686, The Economy Act), and by written agreement between the District Engineer and the Forest Supervisor, the Forest Service may perform on a reimbursable basis all or portions of the work for which the Corps is responsible as set forth in Article Id.

IN WITNESS WHEREOF, we have hereunto subscribed our names for and on behalf of our respective Departments this _____ day of _____, 19 ____.

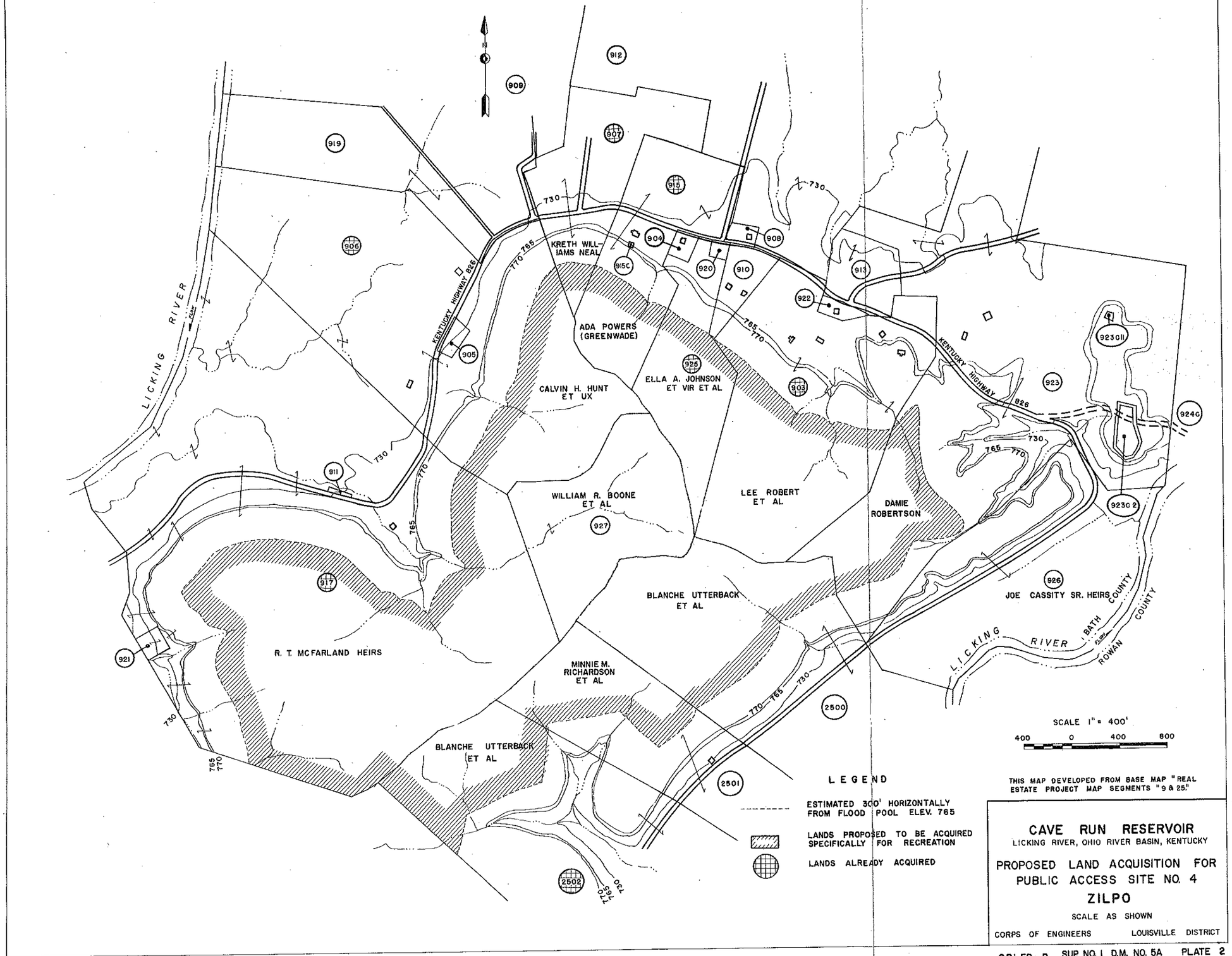
_____
CHIEF OF ENGINEERS
Corps of Engineers
United States Army

_____
CHIEF OF THE FOREST SERVICE
Department of Agriculture



SITE NO.	NAME	ACREAGE ABOVE ELEV. 730	765	(1)
1	DAM & TAILWATER	1247	1139	136
2	COGSWELL	902	528	234
3-Future	SUGAR CAMP BRANCH	92	38	—
4	ZILPO (APPROVED)	1899	1277	1024
	(PROPOSED CHANGE)	714	454	336
5	CLAYLICK BRANCH	99	58	—
6	BANGOR	102	96	82
7-Future	PARAGON	202	95	50
8	MURDER BRANCH (APPROVED)	415	331	300
	(PROPOSED ADDITION)	103	92	47
9	COTTIE SCHOOL	230	212	184
10-Future	TWENTYSIX	270	230	169
11-Future	LITTLE LAURELL	295	277	165
13	LEATHERWOOD CREEK (PROPOSED NEW SITE)	152	117	108
	ORGINAL TOTAL	5753	4281	2324
	REVISED TOTAL	4823	3667	1791

(1) Acreage above a line measured 300' horizontally from flood pool elevation 765.0.



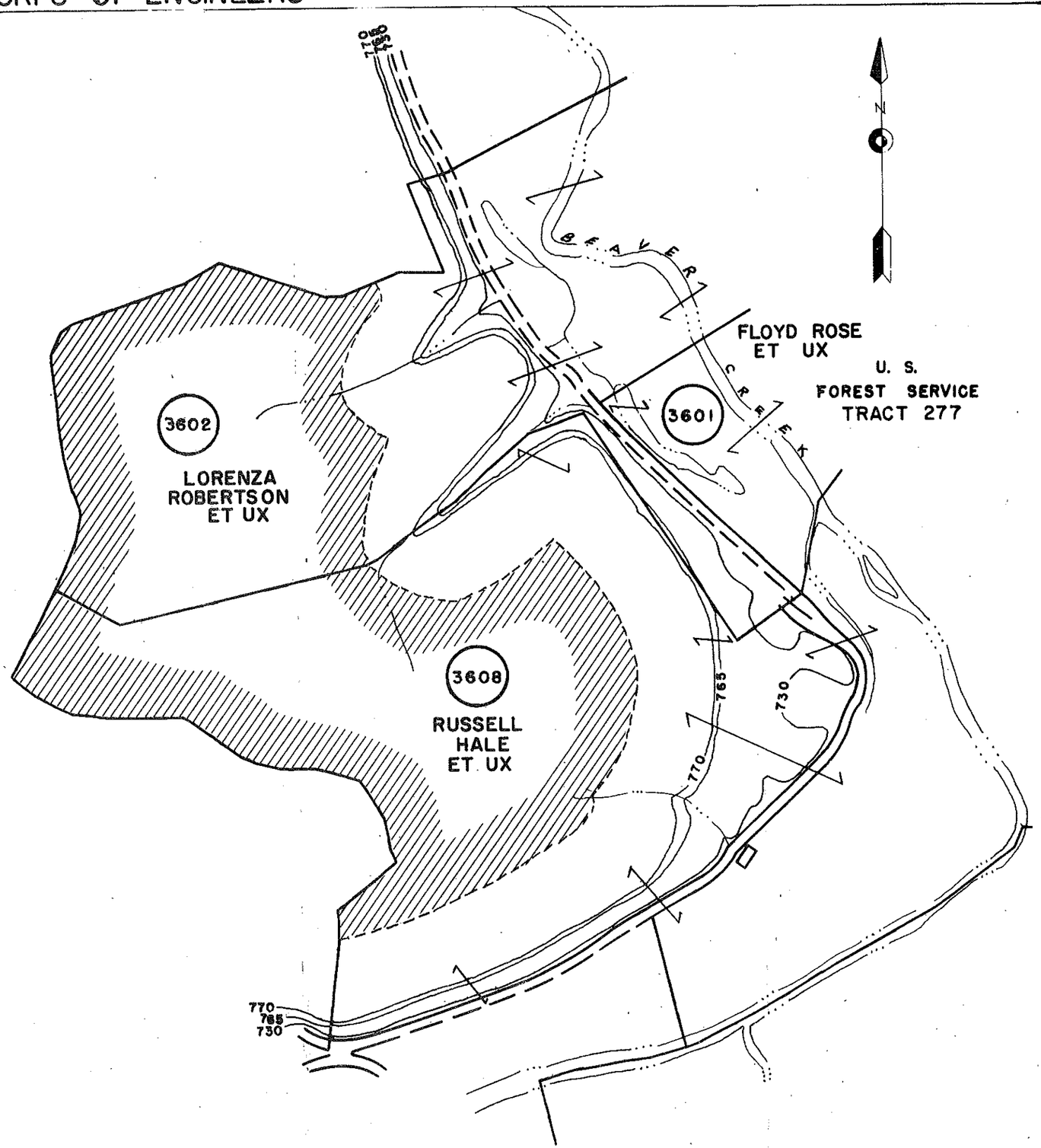
CAVE RUN RESERVOIR
LICKING RIVER, OHIO RIVER BASIN, KENTUCKY

PROPOSED LAND ACQUISITION FOR PUBLIC ACCESS SITE NO. 4
ZILPO

SCALE AS SHOWN

CORPS OF ENGINEERS LOUISVILLE DISTRICT

CORPS OF ENGINEERS U.S. ARMY



LEGEND

ESTIMATED 300' HORIZONTALLY FROM FLOOD POOL ELEV. 765

LANDS PROPOSED TO BE ACQUIRED SPECIFICALLY FOR RECREATION

SCALE 1" = 400'

400 0 400 800

THIS MAP DEVELOPED FROM BASE MAP "REAL ESTATE PROJECT MAP SEGMENT "36."

CAVE RUN RESERVOIR

LICKING RIVER, OHIO RIVER BASIN, KENTUCKY

PROPOSED LAND ACQUISITION FOR PUBLIC ACCESS SITE NO. 8 MURDER BRANCH

SCALE AS SHOWN

CORPS OF ENGINEERS LOUISVILLE DISTRICT

ORLED-P SUP. NO. 1 D.M. NO. 5A PLATE 3

ORDED-PR (26 Mar 65) 3rd Ind
SUBJECT: Preliminary Master Plan, Design Memorandum No. 5A, Cave Run Reservoir, Kentucky

U.S. Army Engineer Division, Ohio River, Cincinnati, Ohio 31 August 1965

TO: District Engineer, ATTN: ORLED-P, U.S. Army Engineer District, Louisville

1. Determination of which sites, if any, will be developed and operated by the U.S. Forest Service, should be made promptly in order to permit the Service to initiate necessary budgetary requests.

2. The conditions of acceptance of project commitments required of the U.S. Forest Service as set forth in paragraph 8 of the Memorandum of Agreement between the Secretary of Army and Agriculture should be thoroughly discussed with the Service. These conditions are those reflecting commitments of project modification as contained in the GDM and Supplement No. 1, thereto, and the letter reports of such modification required by multiple letter ENGCW-PM, 15 January 1965, subject: "Policy for Including Recreation As a Project Purpose in Previously Authorized Projects."

FOR THE DIVISION ENGINEER:

E. E. ABBOTT
Chief, Engineering Division

Copy furnished:
OCE, ATTN: ENGCW-OM

ENGCW-OM (25 Mar 65) FC 2nd Ind
SUBJECT: Preliminary Master Plan, Design Memorandum No. 5A, Cave Run Reservoir, Kentucky

HQ, DA, OCofEngrs, Washington, D. C. 20315 25 August 1965

TO: Division Engineer, U. S. Army Engineer Division, Ohio River, Cincinnati, Ohio

The Preliminary Master Plan is approved subject to the comments of the Division Engineer in the preceding 1st Indorsement and the following:

a. Proposal to finance recreational development in areas proposed to be turned over to the Forest Service is not approved. Such financing action is not in accordance with the Memorandum of Agreement between the Secretaries of the Army and Agriculture dated 13 August 1964.

b. With reference to paragraph 5, 1st Indorsement, the acquisition of land will be confined to land necessary for project purposes and in accordance with standard land acquisition policy for similar projects (EM-405-2-150). Exceptions to the land acquisition policy are not approved except by specific approval by OCE upon well supported recommendations of District and Division Engineers. Acquisition of interior lands outside approved project taking lines to block out Forest Service ownership cannot be approved.

c. Additional information received from ORD by telephone relative to the areas colored in green on Plate 1, Sheet 1 of the subject Design Memorandum indicate that the said areas may be acquired for project purposes within present policy on the basis of sound real estate practice.

FOR THE CHIEF OF ENGINEERS:

Mark S. Gurnee

MARK S. GURNEE
Chief, Operations Division
Civil Works

1 Incl
wd

ORDED-PR (26 Mar 65) 1st Ind
SUBJECT: Preliminary Master Plan, Design Memorandum No. 5A, Cave Run Reservoir, Kentucky

U.S. Army Engineer Division, Ohio River, Cincinnati, Ohio 25 May 1965

TO: Chief of Engineers, ATTN: ENGCW-OM

1. Approval of the subject design memorandum, subject to the following comments, is recommended.

2. Eleven public access areas have been selected by Louisville District for initial and ultimate recreational development for Cave Run Reservoir. Four sites, 3, 7, 10 and 11 are recommended for retention and will be developed in the future when the demand arises. The real estate for the eleven sites consisting of 2,324 acres to be acquired specifically for recreation is estimated to cost $228,800.

3. Page 6, Site I, Dam Site: Fencing of the tailwater area should be re-examined with a view to substituting reasonable safety features in the way of walkways, rails, screens, and warning signs. It should be noted that a portion of the substantial fishery benefits claimed for this project in formulation and cost allocation are contemplated to result from fishing in the tailwater area. Consequently, a reasonable investment of funds to make the resource harvestable is indicated.

4. Page 7, Site 7, Table I, Appendix A: The Louisville District and the Forest Service share the view that Site 7 (Paragon) has a high potential for development and visitation. Accordingly, it is recommended in this Indorsement that the site be re-considered for initial development instead of future development as contained in this DM. It is also proposed here, that the estimate for recreation facilities in the amount of $2,206,000 contained in GDM Supplement No. I, approved by ENGCW-EZ, 15 February 1965, be retained. The difference of $191,000 compared with the estimate of $2,015,000 in the present DM would be applied to the construction of certain major items, such as roads to provide some control of expected initial heavy visitation.

5. Real Estate Acquisition: While it is expected that good real estate practices will require taking of the many small interior private holdings otherwise isolated and surrounded by Federal lands, it is believed that the potential of this project warrants special effort to acquire these lands. Certain specific lands have been designated in green on Plate I, Sheet I, as desirable for acquisition. Included is the land shown in green at Site I, lying between the relocated highway and the reservoir. Also considered, are lands shown in green on the south side of the reservoir in Bath County, and two small acreages associated with Site 8. Elsewhere, but not specifically designated, a liberal acquisition, should be practiced in order to eliminate as much of the small interior private holdings as possible. It is considered that such taking as proposed here is essential

ORDED-PR (26 Mar 65) 1st Ind 25 May 1965
SUBJECT: Preliminary Master Plan, Design Memorandum No. 5A, Cave Run Reservoir, Kentucky

to the realization of the potential of the project and to protect the public investment against encroachment, exploitation and uncontrollable destructive use. Special attention should be given to acquisition in connection with the relocated highway extending from Site I, to Site 3.

FOR THE DIVISION ENGINEER:

1 Incl: (trip)
nc (3 cys wd)

E. E. ABBOTT
Chief, Engineering Division

U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
830 West Broadway
Louisville, Kentucky 40201

ORLED-P

26 March 1965

SUBJECT: Preliminary Master Plan, Design Memorandum No. 5A, Cave Run Reservoir, Kentucky

TO: Division Engineer
U. S. Army Engineer Division, Ohio River
ATTN: ORDED

1. Inclosed are six copies of subject memorandum for review.

2. This design memorandum has been coordinated with the Real Estate Division in accordance with EM 405-2-835.

3. Access site selection has been coordinated with the Forest Supervisor, Cumberland National Forest as per Memorandum of Understanding of August 1964 between the Secretaries of the Army and Agriculture, and pertinent correspondence relating to this coordination is included as Appendix D. It should also be noted that a copy of this report, stamped "Preliminary" is being concurrently forwarded to the Forest Supervisor at his request.

4. It is recommended that the plans as outlined in the attached memorandum be approved as a basis for determining real estate requirements for public access and recreational use.

FOR THE DISTRICT ENGINEER:

1 Incl (sex)
DM No. 5A

R. H. HAYES
Chief, Engineering Division

DESIGN MEMORANDUM NO. 5A
PRELIMINARY MASTER PLAN, CAVE RUN RESERVOIR
LICKING RIVER, KENTUCKY

Prepared by

U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY 40201

March 1965

CAVE RUN RESERVOIR
LICKING RIVER
KENTUCKY

DESIGN MEMORANDUM NO. 5A
PRELIMINARY MASTER PLAN

Previously Issued Design Memoranda

No.	
1.	Reservoir and Spillway Capacities, Flood Control, Water Quality Control, Season Regulations, and Hydroelectric Power
2.	General Design Memorandum
3.	Dam and Spillway
4.	Outlet Works
6.	Concrete Aggregate and Riprap Sources
7.	Real Estate Requirement for Construction Area

U. S. Army Engineer District, Louisville
Corps of Engineers
Louisville, Kentucky 40201

March 1965

CAVE RUN RESERVOIR
LICKING RIVER
KENTUCKY

DESIGN MEMORANDUM NO. 5A
PRELIMINARY MASTER PLAN

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DESIGN MEMORANDUM NO. 5A
SECTION 1

DESCRIPTION OF THE PROJECT

1-01. AUTHORIZATION.

The proposed Cave Run Reservoir Project is a unit included in the system of reservoirs for the reduction of Ohio River Floods below Pittsburgh, Pennsylvania. Authorization for the construction of this reservoir is provided by the Flood Control Act approved 28 June 1938, Public Law No. 761, 75th Congress.

1-02. PROJECT LOCATION.

The dam site is located in Northeast Kentucky on the Licking River, 173.6 miles above its junction with the Ohio River, and approximately four miles upstream from Farmers, Kentucky. The reservoir is confined within the borders of Bath, Rowan, Menifee, and Morgan Counties, with the upper limits of the seasonal pool (elevation 730) extending approximately 30 miles upstream. At flood pool elevation (elevation 765) the reservoir extends approximately 64 miles above the dam site.

1-03. SUMMARIZED PROJECT DATA.

Reservoir	Elevation (Ft. m.s.l.)	Area Acres	Area Acre-Ft.	Storage Inches Runoff
Minimum Pool	720	6,790	147,300	3.34
Water Quality Pool	724	7,390	175,600	3.99
Seasonal Pool	730	8,270	222,600	5.05
Flood Pool	765	14,870	614,100	13.94

Dam

a. Embankment

Type	Earth and Rock Fill
Top elevation, feet m.s.l.	788
Maximum height, feet ±	136
Length, feet ±	2,665
Crown, width, feet	30

b. Spillway

Type	Open cut through ridge near left abutment
Crest elevation, feet m.s.l.	765
Bottom width of cut, feet	280

c. Outlet Works

Type conduit	Circular
Diameter, feet	15
Control gates, number, size, feet	3 service and 1 emergency, 4.5 H x 15.0 V
Inlet Invert Elev. feet m.s.l.	656

SECTION II

FACTORS INFLUENCING RECREATIONAL DEVELOPMENT

2-01. GENERAL.

Topographically, the reservoir area is characterized by mountains and knobs with very narrow ridge tops, and steep slopes. The lower region near the dam has a wide flood plain with slopes averaging approximately 40% in gradient. In contrast, the upper extremeties of the area have narrow flood plains and the slope gradients average 65 to 75%. Due to the steep topography, lands suitable for public use are severely limited, and major development will therefore be limited to a small number of sites. Plate 2, sheets 1 and 2 show the topographical features of this area. Cave Run Reservoir will be a unique recreational area because of its rugged character, primitive aspects, and the partial control of developments not compatible with public use due to the substantial Forest Service ownership of the surrounding lands.

2-02. ACCESS.

Interstate and primary roads leading to the vicinity of the proposed reservoir are good. The Dam site is only two miles south of U. S. 60; and U.S. 460 is located south of the upper reaches of the reservoir. The Mountain Parkway offers four-lane access 20 miles south of the reservoir area and the completion of Interstate 64 will enable fast and facile access to within 10 miles of the reservoir. The relocations of Kentucky Highways Nos. 1274, 801, 519 and 985 necessitated by the project will provide access roads to or near all of the proposed sites.

2-03. POPULATION.

Cave Run Reservoir is located within four counties, all of which are rural in character and have no major cities. The 1960 population of these four counties was:

Bath	9114
Menifee	4276
Morgan	11056
Rowan	12808
Total	37254

The approximate 1960 population within a 50-mile radius of this project was 423,000 and within a 100-mile radius, 1,620,000. The network of good access roads will provide the means for large metropolitan areas 50 to 100 miles from the reservoir site to obtain recreational benefits from the area.

2-04. RELATED RECREATIONAL AREAS.

The Cumberland National Forest encompasses most of the reservoir area. Within the Forest, a 7,500 acre Primitive Weapons Hunting Area was recently established which will adjoin the pool near the dam. Other recreation areas within a fifty-mile radius of this project are as follows;

Area	Location	Outstanding Features	Activities
Blue Licks State Park	10 mi. south of Mt. Olivet	Historical Museum	Picnicking, camping, swimming
*Boonesboro State Park	Boonesboro	-	Camping, swimming, picnicking
Broke Leg Falls Roadside	11 mi. east of Frenchburg	Scenic falls	Picnicking
Buckhorn Reservoir and Buckhorn State Park	Buckhorn	24-room lodge	Cabins, boating, swimming, picnicking, camping
Carter Caves State Park	8 mi. north of Olive Hill	Scenic Cave 24 rm. lodge	Boating, fishing, picnicking, camping, cabins, golf, horseback riding
Falmouth Lake State Park	5 mi. east of Falmouth	--	Boating, fishing, swimming, camping, picnicking
Greenbo State Park	13 mi. south of Greenup	--	Boating, fishing, swimming, camping, picnicking
Jennie Wiley State Park	5 mi. east of Prestonburg	30 rm lodge	Boating, fishing, golf, cabins, camping, picnicking, swimming
Natural Bridge State Park	2 mi. south of Slade	Natural rock arch, 24-rm. Lodge	Boating, swimming, Camping, picnicking, cabins, horseback riding

*Under development by the Commonwealth of Kentucky Department of Parks

SECTION III

PLAN FOR RECREATIONAL DEVELOPMENT

3-01. GENERAL.

The dam closure, tentatively scheduled for July 1969, will create a recreational pool of 8,270 acres at elevation 730 feet m.s.l. At this pool level the main channel will extend upstream 33 miles, and the tributaries of North Fork and Beaver Creek extend approximately 5 miles from the main channel. The major portion of the reservoir lies within the Cumberland National Forest (See Plates 1 and 2). Under the terms of the August 1964 Memorandum of Agreement between the Secretarys of the Army and Agriculture, it appears probable that jurisdiction of essentially all project land not needed for operation purposes will be transferred to the Forest Service. Discussion with the Forest Supervisor, Cumberland National Forest, indicates that the Forest Service contemplates supplementing the Corps' acquisition with acquisition under the "Land and Water Conservation Fund Act of 1965." Regardless of the eventual disposition of management responsibilities it is proposed that the minimum basic facilities to support such activities as fishing, hunting, picnicking, and camping be constructed with project funds. Eleven access sites, varying from 0 to 1024 acres above normal guide taking line are proposed to meet public requirements.

3-02. ATTENDANCE.

A preliminary estimate by the Bureau of Outdoor Recreation (a summary of that report is inclosed as Appendix C) places the expected initial visitation at 400,000 with an ultimate visitation of 980,000. These figures appear somewhat low, considering a 100-mile population figure of over 1-1/2 million, and the existing and potential road network. Nevertheless, proposed facilities are based on the BOR estimate.

3-03. LAND AND WATER ADMINISTRATION.

User fees will be consistant with the provisions of the "Land and Water Conservation Act of 1965."

Shoreline fee-title project lands connecting the various recreation areas will be designated in the land use plan as to their capabilities for supplementary priority-one use and possible lower priority uses. The land use plan will be included as part of the Master Plan. In general, these shoreline tracts will not be needed immediately as public use areas, but will be held in reserve as primitive areas; scenic buffer areas; and future recreation access points.

3-04. AREAS SELECTED.

Eleven areas have been selected for public access based on topographic and cover features, ease of access to the water, existing and

potential transportation routes, and the anticipated public needs as evidenced by the visitation estimate. A total of approximately 2,324 acres above the fee guide taking line, in addition to those lands required for other project purposes are included in the eleven sites. The total of all lands above the guide taking line and within the proposed site boundaries is approximately 3,106 acres. In general the number and size of the sites is in conformance with criteria set out in EM 405-2-150 and should adequately serve the present and anticipated future public need. The sites selected and the acreages proposed herein have been informally presented to the Forest Service, the Kentucky Department of Parks and the Kentucky Department of Fish and Wildlife Resources for review. Each agency indicated general tentative concurrence of the acquisition as presented herein. In addition a letter request was subsequently received from the Department of Fish and Wildlife Resources requesting that project land in the upper reaches of the reservoir (Morgan and Magoffin Counties) be acquired in fee rather than flowage to permit use by that office for wildlife management. Approximate acreage figures are as follows:

SITE ACREAGE FIGURES

	Acreage above seasonal pool (elev. 730)	Average above flood pool (elev.765)	Acreage above guide taking line to be acquired specifically for recreation
Site 1	1,247	1,139	136
2	902	528	234
(future)3	92	38	-
4	1,899	1,277	1,024
5	99	58	-
6	102	96	82
(future)7	202	95	30
8	415	331	300
9	230	212	184
(future)10	270	230	169
(future)11	295	277	165
	5,753	4,281	2,324

Site 1 - Dam (Plate 1, Sheet 1). This major site is divided into two areas by the Dam and the Licking River. The total acreage above seasonal pool for this site is 1,247. The larger area on the left bank would be suitable for intensive future development by others. Facilities which could be provided under such an intensive development program would include a lodge, marina and other related activities as described in paragraph 3-05 "Development of Public Access Sites." The smaller area on the right bank will be used as the location for a visitor overlook. Much of the aesthetic quality of the area of the left bank will be impaired by borrowing operations, and an extensive tree planting, seeding program will be required to restore the area for future development (Cost Account 04-Appendix A-Table 2).

Facilities planned initially for the pool-adjoining portions of this site include a 48-foot launching ramp, a floating boat loading platform, parking areas, a central water system, water-borne toilets, picnic and camping units, picnic shelter, and a visitor overlook on the right bank near the dam (Cost Account 19). In the tailwater area, facilities proposed include vault toilets, picnic facilities and safety fencing and walkways. Access to this site will be from KY 801 and across the dam by KY 826. The tailwater area will be fenced to the lower reaches of dangerous waters.

Site 2 - Cogswell (Plate 1-Sheet 1). This unique peninsular area of 902 acres above seasonal pool offers the greatest initial recreation potential of all the proposed Cave Run public use areas, and is proposed to be developed as a major site on the reservoir. Facilities proposed for this area include a 96-foot launching ramp (or two 48-foot ramps - dependent on detailed studies), floating boat loading platforms, picnic units and shelter, drive-in and primitive camping, water and sanitary systems, drinking fountains, water-borne and vault toilets, a camp-bath and wash house, beach grading, parking, and a circulatory road system. In the event management is not delegated to a governmental agency, a portion of this site is proposed for development as a "major concession" area which is discussed in more detail in 3-05, "Development of Public Access Sites." Access to this site will be from the relocated KY 801.

Site 3 - Sugar Camp Branch - Future (Plate 1 - Sheet 1). This site of 92 acres above seasonal pool is proposed to be held in reserve until a definite public need is shown for development. Access to this site will be from relocated KY 801.

Site 4 - Zilpo (Plate 1 - Sheet 1). Access to this area of 1,899 acres above seasonal pool will be limited almost exclusively to boaters, consistent with the primitive aspects of the adjoining Forest Service lands. It is conceivable that future recreational demands may justify construction of an access road into the area. Facilities proposed for initial construction at this site include improvements for primitive camping and vault toilets.

Site 5 - Claylick Branch (Plate 1 - Sheet 1). Facilities proposed for this site of 99 acres above seasonal pool include a 24-foot launching ramp, a parking area, and vault toilets. Development of this area will be limited because of the steep topography. Access to this site is from relocated KY 1274 along old KY 1274.

Site 6 - Bangor (Plate 1 - Sheet 1). This site of 102 acres above seasonal pool is bordered by the proposed relocation of KY 1274. Improvement will be required of the existing road which will serve as access into the area. This site is at the upstream limit of launching into the minimum pool. Facilities proposed for initial construction include a 24-foot launching ramp, boat loading platform, picnic and camp units, and a vault toilet.

responsibilities for public access uses upon completion of the project. The Forest Service has informally requested and they anticipate that negotiations will result in agreements substantially in accord with the purview of the Memorandum of Understanding of August 1964 between the Secretaries of the Army and Agriculture. Therefore, it is anticipated that a substantial portion of the project lands and public access sites will be operated and managed by the U. S. Forest Service. The District Engineer and the Forest Supervisor are agreed that regardless of ultimate managerial responsibilities, that the Kentucky Department of Parks may extensively develop one or more of the sites under a lease agreement if the State so desires. In the event that the State does not desire to lease a site or sites, commercial concessionaires would be sought to provide such facilities as lodges, motels, marinas, boat sales, etc. The Kentucky Department of Parks has expressed an interest in leasing one or more of the public access sites but has not yet determined whether they have the financial capability at this time. The Kentucky Department of Fish and Wildlife Resources has expressed an interest in licensing lands in the upstream reservoir reaches for wildlife management purposes.

The lands proposed herein to be acquired for public access purposes have been selected irrespective of the management agency and premised on the estimated project occasioned visitation. The facilities described herein for initial development are proposed to be constructed with project funds. The facilities described herein for future development are proposed to be constructed in large part by the management agency (U. S. Forest Service and State Agencies) with consideration given to the use of Code 710 funds as may be required by urgent public needs. However, in the absence of formal agreements at this time, all future development is listed under Code 710. The details of the above mentioned considerations are expected to be formalized in development of the Master Use Plan to be prepared jointly by the District Engineer and the Forest Supervisor.

3-06. REAL ESTATE COSTS.

An estimate of the costs of lands required for public access based on examination of recent sales in this area is shown below:

Site No.	Acreage above Fee Guide Taking Line To be acquired specifically for recreation	Total
1	136	17,400
2	234	30,000
3	0	0
4	1,024	52,600
5	0	0
6	82	9,000
7	30	3,500
8	300	23,400
9	184	32,200
10	169	32,300
11	165	29,000
	2,324	$228,800

3-07. PRELIMINARY COST ESTIMATES.

A preliminary cost estimate of recreational facilities required at Cave Run Reservoir, including contingencies, but exclusive of engineering and design, and supervision and administration is as follows:

	Account 04	Account 14	Account 19	Code 710	Total
Initial	$200,500	$2,015,000	$96,600	-	$2,312,000
Future	-	-	6,900	2,218,500	2,225,400

The cost estimate presented under Account No. 04 includes tree planting, seeding and other restorative measures at Site 1, The Dam, after borrowing operations are complete. The cost estimate presented under Account No. 14 agrees with the current PB-3 cost estimate of $2,015,000, approved September 1964. The facilities proposed under Account No. 19 include a visitor overlook shelter with flush toilet facilities, parking, and site improvement on the right bank of the dam site.

SECTION IV

MANAGEMENT AND OPERATION

4-01. GENERAL.

Present indications are that jurisdiction of most project land within the boundaries of the Cumberland National Forest will be transferred to the U. S. Forest Service in accord with the Memorandum of Understanding of August 1964. Other than the operation area at the dam, possible exceptions are one or two public use areas which may be developed by the Kentucky Department of Parks. The lands in the upper reaches of the reservoir outside of the Forest Service purchase area are expected to be licensed to the Kentucky Department of Fish and Wildlife Resources for wildlife management purposes.

4-02. OPERATION AND MAINTENANCE.

Although the operation and maintenance of the major portion of the access sites at Cave Run Reservoir is expected to be handled by others, it is considered necessary to show an alternate plan for management by the Corps of Engineers in the event that tentative plans are not consummated. A preliminary estimate for operation and maintenance of the recreational lands and facilities by the Corps of Engineers is as follows:

No. of Employees	Designation	Time Allotted for Various Positions	Amount	Total
	OPERATION			
	Personnel:			
1	Area Reservoir Manager GS-11 $9,240. P.A.	1/2*	$4,620	
1	Reservoir Manager GS-9 $7,710 P.A.	full time	$7,710	
1	Reservoir Ranger GS-7 $6,450 P.A.	full time	$6,450	
1	Maintenance Man WB-12 @ $3.37/hr.	full time	$7,000	
1	Maintenance Man WB-10 @$3.17/hr.	full time	$6,600	
1	Maintenance Man WB-7 @$2.80/hr.	full time	$5,910	
6	Laborers W-03C @$2.40/hr.	9 months	$22,460	
	Total for Personnel			$60,750
	Adjustment for cost rate, including Retirement & Insurance 27%		$16,400	
	TOTAL OPERATION COST			$77,150
	MAINTENANCE			
	Supplies and materials, plant equipment charges, Travel and miscellaneous expense		$7,000	
	General maintenance and replacement		$53,000	
	TOTAL MAINTENANCE COST			$60,000
	TOTAL OPERATION AND MAINTENANCE COST			$137,150
	Overhead, 8%		$12,350	
	TOTAL ANNUAL COST FOR OPERATION AND MAINTENANCE			$149,500

* 1/2 time at Buckhorn Reservoir

SECTION V

CONCLUSION AND RECOMMENDATION

5-01. CONCLUSION.

The selection of land sites for public access as recommended in this report was made after considerable study and coordination with Real Estate Division in accorcance with EM-405-2-835. With the 1962 joint Army-Interior land acquisition policy as a general guide, it is considered that the additional lands proposed herein for acquisition beyond the guide taking line will provide adequately for public recreational needs. The estimated total acreage to be acquired above the guide taking line is 2,324. It is recognized that the ownership of each affected tract is not shown in this memorandum since ownerships are not presently available. However, it is considered that the precise boundaries and ownerships of the sites presented herein will be fixed in subsequent detailed Real Estate Division Design Memoranda. It is further considered that the sites presented herein will provide a firm basis for preparation of the Real Estate Divisions Design Memorandums.

5-02. RECOMMENDATION.

It is recommended that this Preliminary Master Plan be approved as a basic guide for land acquisition for recreation purposes and as a basis for detailed Master Plan studies, including the preparation of individual site plans. Authority is requested to acquire the additional lands above the guide taking line necessary to implement the proposed plan with adjustments as may be necessary and/or desirable due to finalization of project plans or for other reasons.

TABLE 1 - APPENDIX A
CAVE RUN RESERVOIR
PRELIMINARY COST ESTIMATE - ACCOUNT 14 AND CODE 710

FACILITY	UNIT	UNIT COST	INITIAL-ACCOUNT 14 UNITS	INITIAL-ACCOUNT 14 COST	FUTURE-CODE 710 UNITS	FUTURE-CODE 710 COST	TOTAL (Acct. 14 & Code 710) TOTAL UNITS	TOTAL (Acct. 14 & Code 710) TOTAL COST
Ramp (12' units)	Ea.	$6,000	22	$132,000	9	54,000	31	186,000
Boat Loading Platform	S.F.	5.00	2,200	11,000	900	4,500	3,100	15,500
18' Circulation Road	L.F.	12.00	40,000	480,000	25,000	300,000	65,000	780,000
12' One-Way Circulation Road	L.F.	8.00	10,000	80,000	15,000	120,000	25,000	200,000
Parking	S.Y.	4.00	70,500	282,000	75,000	300,000	145,500	582,000
Water Supply & Storage	Ea.	25,000	2	50,000	6	150,000	8	200,000
Water Distribution	L.F.	3.00	8,000	24,000	24,000	72,000	32,000	96,000
Drinking Fountains	Ea.	500	12	6,000	24	12,000	36	18,000
Sewage Disposal	Ea.	15,000	3	45,000	7	105,000	10	150,000
Toilets (Flush)	Ea.	16,000	7	112,000	11	176,000	18	288,000
Toilets (Vault)	Ea.	6,000	15	90,000	16	96,000	31	186,000
Electrical Distribution	L.F.	3.00	8,000	24,000	16,000	48,000	24,000	72,000
Picnic Facilities	Unit	285	250	71,250	300	85,500	550	156,750
Picnic Shelter	Ea.	10,000	4	40,000	3	30,000	7	70,000
Camping Facilities - Drive-in	Unit	385	300	115,500	350	134,750	650	250,250
Camping Facilities - Walk-in	Unit	150	120	18,000	150	22,500	270	40,500
Bath - Wash House (Camp)	Ea.	25,000	2	50,000	6	150,000	8	200,000
Beach Grading	S.Y.	2.00	5,000	10,000	5,000	10,000	10,000	20,000
Clearing, Grubbing - Seeding (Other than Site 1)	Acre	600	50	30,000	20	12,000	70	42,000
Tree Planting (other than site 1)	L.S.	-	L.S.	25,000	L.S.	10,000	L.S.	35,000
Site Improvement (Grading, Drainage, Walks, Steps, Walls, Etc.)	L.S.	-	L.S.	25,000	L.S.	15,000	L.S.	40,000
Trails	L.F.	1.00	10,000	10,000	8,500	8,500	18,500	18,500
Overlooks	Ea.	1,400	8	11,200	6	8,400	14	19,600
Signs	Ea.	100	100	10,000	50	5,000	150	15,000
				$1,751,950		$1,929,150		$3,681,100
Contingencies (15%)				263,050		289,350		552,400
TOTAL				$2,015,000		$2,218,500		$4,233,500
E&D(7%)				141,000		155,500		296,500
S&A (7%)				141,000		155,500		296,500
				$2,297,000		$2,529,500		$4,826,500

APPENDIX A

TABLE 2 - APPENDIX A
CAVE RUN RESERVOIR
PRELIMINARY COST ESTIMATE
ACCOUNT NO. 04
(RENOVATION OF BORROW AREAS AT SITE 1 - DAM)

Description of Work	Unit	Unit Cost	Total Units	Total Cost
Seeding	Acre	$400	250	$100,000
Grading	L.S.	-	L.S.	25,000
Tree Planting	L.S.	-	L.S.	50,000
				$175,000
			Contingencies (15%)	25,500
				$200,500
			E & D (7%)	14,000
			S & A (7%)	14,000
				$228,500

TABLE 3 - APPENDIX A
CAVE RUN RESERVOIR
PRELIMINARY COST ESTIMATE
ACCOUNT NO. 19

Facility	Unit	Unit Cost	Initial Total Units	Initial Cost	Future Total Units	Future Cost	Total Total Units	Total Total Cost
Overlook Bldg. (Toilets, Deck, Sewage Disposal, etc.)	Ea.	$40,000	1	$40,000	-		1	$40,000
Parking	S.Y.	4.00	1,500	6,000	1,500	$6,000	3,000	12,000
Road (20' with 2' shoulders)	L.F.	15.00	1,000	15,000	-		1,000	15,000
Water	L.F.	3.00	3,000	9,000	-		3,000	9,000
Electrical (Underground)	L.F.	3.00	3,000	9,000	-		3,000	9,000
Tree Plant. & Site Imp.	L.S.	5,000	L.S.	5,000	-		L.S.	5,000
				$84,000		$6,000		$90,000
	Contingencies (15%)			12,600		900		13,500
				$96,600		$6,900		$103,500
	E&D (7%)			6,700		550		7,250
	S&A (7%)			6,700		550		7,250
				$110,000		$8,000		$118,000

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Peachtree-Seventh Building
Atlanta 23, Georgia

October 3, 1963

CE-O-1 (Cave Run Reservoir)

District Engineer
U. S. Army, Corps of Engineers
Louisville, Kentucky

Dear Sir:

This report on the authorized Cave Run Reservoir in Kentucky has been prepared under the authority of, and is submitted in accordance with, provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). Our December 1, 1961, interim letter report on the Licking River Basin concerned Falmouth and Cave Run Reservoirs and provided preliminary appraisement of incidental project-occasioned fishery benefits and listed conservation measures that would be considered during future studies. Based on current project data, we have conducted a study of the Cave Run Reservoir alone, in cooperation with the Kentucky Department of Fish and Wildlife Resources. This report is for your consideration in post-authorization studies and inclusion in General Design Memorandum.

DESCRIPTION OF PROJECT

The Corps of Engineers developed a general plan for flood control, hydroelectric power, and allied purposes on the Licking River which was outlined in a report completed in 1932 (House Document 86, 73d Congress, 1st Session). The Cave Run Reservoir discussed in that report was subsequently included as a unit of the comprehensive plan for flood control and other purposes in the Ohio River Basin authorized by the Congress in the Flood Control Acts of 1936 and 1938.

Preconstruction planning is proceeding on project characteristics and up-to-date economic justification for incorporation of those project purposes which will be most compatible with the long-range needs of the Licking and Ohio River Basins. Your recent feasibility study indicates the project to be justified for the authorized primary purpose of flood control and authorized incidental purposes of recreation and conservation, utilizing an economic project life of 100 years.

APPENDIX B

The Bureau's evaluations and conclusions are based on the following project features as currently developed.

Project location - the damsite will be about 3 miles upstream from U. S. Highway 60 at river mile 173.6 joining Bath and Rowan Counties. The reservoir will extend upstream into Menifee and Morgan Counties.

Drainage area controlled (square miles) ---------- 826

Dam

Type construction ----------	earth fill
Top elevation 1/ ----------	786
Height above streambed (feet) ----------	136

Spillway

Type - open cut about 1-1/2 miles southeast of left abutment of dam

Crest elevation ----------	762
Length (feet) ----------	500

Outlet Works

Operating Tower:

Service gates ----------	three 4.5 feet x 15.0 feet
Bypass(es) for low-flow regulation ----	details not determined

Conduit:

Diameter (feet) ----------	15
Invert elevation ----------	652

Outlet Features:

Conduit ----------	details not determined
Stilling basin ----------	details not determined
Tailwater ----------	details not determined

1/ All elevations refer to feet above mean sea level.

Reservoir

Pool	Elevation	Area (acres)	Storage (acre-feet)	Licking River (miles inundated)
Minimum	700	3,460	87,000	27.3
Low flow	717	6,340	127,570	37.2
Seasonal	730	8,270	222,580	45.0
Flood	762	14,010	570,760	64.8

Rule Curve

Period	Pool Elevation
1 Dec. - 31 Mar.	717
1 Apr. - 31 Apr.	increasing to 730
1 May - 31 Aug.	730
1 Sept.- 1 Dec.	decreasing to 717

Minimum Flow Objectives

Station	Period	Pool Elevation	Objective
Catawba gage 1/	1 Jan. - 31 Dec.	above 700	250 c.f.s.
Damsite	1 Apr. - 30 Nov.	above 717	200 c.f.s.
Damsite	1 Apr. - 30 Nov.	below 717	150 c.f.s.
Damsite	1 Dec. - 31 Mar.	above 700	150 c.f.s.

FISH AND WILDLIFE RESOURCES

Without the Project

Stream habitat and fishery resources of moderate to high value to be project flooded include 65 miles of main stem and about 90 miles of important tributaries. Below the damsite significant project effects were evaluated downstream to Slate Creek, a distance of about 28 river miles. Stream habitat values for smallmouth bass, rock bass, and muskellunge are considered high in the main stem and in Beaver and North Fork Creeks. Other commonly distributed game species include largemouth bass, spotted bass, and crappies. Important rough fish species include catfish, freshwater drum, carp, and suckers. Water quality and aquatic habitat conditions are generally favorable except when the streams are turbid as a result of watershed erosion during spring and summer storms.

1/ Located 2.3 miles north of Falmouth at river mile 46.5.

Utilization of the river and tributary fishery by bank and boat fishermen is moderate to seasonally high. The Licking River main stem, unrestrained by barriers, is a popular float fishing stream when conditions are favorable. Turbid water and extreme high or low flows impose limitations on this type of fishing. Considering the recreational potential of the Cumberland National Forest and the existing area fishery opportunity, and also based on present use and trends, it is estimated that the above dam fishery would provide an average of 3,000 man-days,1/ valued at $5,000;2/ the below-dam fishery, 500 man-days, valued at $800. Commercial fishing is currently prohibited in the project area.

The 14,010-acre area subject to project flooding is comprised of large clean pasture units interspersed with small blocks of hardwood timber and fields of corn and tobacco. The surrounding steeper slopes support mixed pine-hardwood stands of mature timber. Habitat conditions within the area are considered low to moderate for rabbits, squirrels, quail, doves, grouse, raccoon, turkey, and deer. Loose-running dogs, associated with the numerous farm dwellings located within the area, restrict deer usage to a considerable degree. Based on present utilization and trends, it is estimated that the project area would provide an annual average of about 1,600 man-days of sport hunting, valued at $3,600. It is estimated that the commercial fur bearer harvests would amount to about $200 annually over a 100-year period.

The surrounding wooded area, a portion of the Cumberland National Forest Purchase Unit, contains some of Kentucky's better forest game habitat. Deer, released in the area in 1956 by the Kentucky Department of Fish and Wildlife Resources, have become established. Growth of the established deer herds made it possible to have open hunting seasons in Menifee and Bath Counties in 1961, and Morgan and Rowan Counties in 1962. Turkey, stocked during the years 1960 through 1962, are showing promise of establishment with the possibility of open seasons as early as 1968.

A 7,500-acre Primitive Weapons Public Hunting Area was recently established in the Cumberland National Forest. This area is bounded on the south by Forest Service Road 129 in Menifee County and extends north into Bath County to a point within the proposed reservoir area. Management of the area is accomplished under cooperative agreement with the Kentucky Department of Fish and Wildlife Resources for the primary use of longbow, crossbow, and muzzle-loading firearm enthusiasts. Special seasons have been established for the taking of deer, grouse, and squirrels by primitive weapon methods.

1/ Estimates of man-day use for sport fish and game are average annual, utilizing the economic project life of 100 years.

2/ Monetary expressions of non-commercial use of fish and wildlife resources are based on the "Interim Schedule of Values for Recreational Aspects of Fish and Wildlife", adopted by the Inter-Agency Committee on Water Resources of October 19, 1960.

With the Project

The plan of development provides for flood control, downstream low-flow regulation, recreation, and fish and wildlife benefits. Completion of the present plan of development would result in losses as well as gains to the fish and wildlife resources of the project area.

Above the dam, inundation would result in loss of 3,000 man-days of stream-type fishing. Collective losses to the fishery would result from (1) inundation of stream-type habitat; (2) elimination of float fishing opportunity; and (3) reduction of other stream fishery values because of upstream migrations of undesirable lake-type fishes. Conversely, it is expected that the project reservoir would create large and diverse public use benefits. Your proposed reservoir rule curve provides (1) a minimum pool of 3,460 acres at elevation 700; (2) a low-flow pool of 6,340 acres at elevation 717 for downstream low-flow augmentation; and (3) a seasonal pool of 8,270 acres at elevation 730 during May through August. We understand the low-flow pool has been provided on the basis of downstream benefits furnished in a preliminary report by the Public Health Service.

Approximately 423,000 people (1960 census) reside within a 50-mile radius of the proposed Cave Run Dam and Reservoir. The project's proximity to high population centers and improved highways, including Interstate Highway 64 presently under construction with a planned interchange within a few miles of the reservoir, should result in the area having a very high public attraction potential.

In this connection, project-created incidental reservoir sport fishery benefits are expected to be of significant magnitude. Assuming full implementation of the Fish and Wildlife Plan outlined herein for managing the reservoir fishery and based on the proposed rule curve and the hydrographs of flow routings for 1938-1961 furnished with your letter of May 7, 1963, we believe the reservoir would provide 165,000 man-days of fishing annually, valued at $207,000. In response to your request for an evaluation of the minimum pool (elevation 700) and the low-flow pool (elevation 717), we have assigned the following values, assuming the availability of these pools during the entire fishing season (April through September). At the same time, it must be pointed out that these values are hypothetical rather than actual since the rule curve indicates the seasonal pool (elevation 730) will be maintained during most of the fishing season. Such values could be expected in reservoirs of the sizes indicated and having the characteristics of Cave Run.

Pool	Angler Man-Days	Value
Minimum	69,000	$ 86,000
Low flow	127,000	158,000

However, in providing the above benefits there would be an uncompensated loss of 3,000 man-days of stream fishing within the reservoir area.

Cave Run Reservoir may be opened to commercial fishing, but based on commercial fishery utilization in existing and similar flood control reservoirs, average annual harvests and value would be insignificant.

Below the dam, reservoir outflows for low-flow augmentation would be discharged through a mid-level bypass; flood storage would be discharged through the bottom-level service gates. The bypass for minimum outflows would probably be located a few feet below minimum pool level and consequently about 35 feet below the seasonal pool surface.

Reservoir discharges through the planned openings would be too cold for successful propagation and growth of indigenous fish species. This condition would result in loss of 28 miles or more of warm-water stream habitat and 500 man-days of bank and boat fishing opportunity. The expected warmer outflows in later summer and limited choice of reservoir discharge levels would greatly restrict the success of a replacement trout fishery. These conditions would result in an unmanageable situation in which more than 28 miles of the Licking River would be lost as a high value stream fishery. These same conditions would also adversely affect the fishery of the Falmouth Reservoir, authorized for construction downstream on the Licking River.

During the first two or three summers of project life, decaying vegetation in the reservoir would create a zone of stagnant water extremely low in dissolved oxygen and very high in undesirable gases. Excessive or untimely downstream discharges from this stagnant water zone would result in critical or lethal conditions for the tailwater fishery. Through the remainder of the project life, normal stratification of the reservoir can be expected to result in zones similarly low in dissolved oxygen and of low temperature. Discharge of water of this quality would likewise be critical for the tailwater fishery.

During periods when water quality factors do not impose limitations, a concentration of fish would occur in the stilling basin and immediate tailwater. However, since current plans do not permit fisherman access to these areas, no incidental tailwater fishery benefits are assigned to the present project plan.

Game habitat losses resulting from permanent inundation would total 6,340 acres, and intermittent flooding would affect an additional 7,670 acres. Wildlife habitat which is lying above the flood pool would be unchanged except for effects of road relocation and public access and use development. This project-induced human activity along the shoreline would restrict usage of this portion of the area for such species as turkey and deer. The shift of resident farm families and their dogs from the project area would improve overall conditions for forest game species within this portion of the Cumberland National Forest.

Correspondence with members of your staff indicates land acquisition for this project will be in accordance with the Joint Land Acquisition Policy and sound real estate practices. Administration of project-acquired lands and the involved wildlife resources has not been definitely determined. Based on present use and trends, it is estimated that hunter utilization will be reduced by about 1,200 man-days of sport hunting. Commercial fur harvest values are not expected to change appreciably during project life.

PLAN FOR FISH AND WILDLIFE CONSERVATION

In order to provide for maximum development and utilization of fish and wildlife resources in project preconstruction plans, it is the opinion of the Bureau and the Kentucky Department of Fish and Wildlife Resources that the following measures should be included in project plans.

1. Reservoir Clearing. After a detailed study of the area, the Kentucky Department of Fish and Wildlife Resources may wish to modify the clearing plan if it appears that specific flooded timber areas would benefit the reservoir fishery, or if specific flush-cleared areas would facilitate fishery management.

2. Initial Impoundment. To favor establishment of a more valuable sport fishery, it is proposed that the schedule for construction provide for initial impoundment between October 1 and March 1. This schedule would favor propagation of sport fish species and would forestall a population dominated by rough fish. Experience has shown that reservoirs impounded between October 1 and March 1 develop a better sport fishery. Those that are impounded in the remainder of the year have a tendency to be unbalanced in favor of rough fish and forage fish.

3. Public Access. We assume that you would provide adequate public-use facilities, including access for fishermen and hunters as provided for in Section 4 of the Flood Control Act of 1944 (Public Law 534, 78th Congress), as amended. Therefore, we have not made an analysis of access sites and public-use facilities in the reservoir area.

   However, we would like to emphasize that the stilling basin and tailwater would provide an excellent sport fishery if suitable outflows are provided, and should therefore be given full consideration in providing public access needs. From the standpoint of safety, it is considered unnecessary to prohibit bank fishing in the stilling basin and immediate tailwater if adequate safeguards are provided. The Outdoor Recreation Resources Review Commission's Study Report No. 7

points out the importance of sport fishing in tailrace waters below dams. For your consideration in planning for public use in the Cave Run tailwater, we have provided general features of a plan on plate 1. For safety reasons, boat fishermen should be excluded from the stilling basin and immediate tailwater. Parking facilities for bank fishermen would require initial space for about 50 cars with provision for moderate expansion.

To facilitate utilization of the lower tailwater fishery, a boat launching ramp would be desirable for use of boat fishermen. Parking facilities for boat fishermen would require initial space for about 20 car-trailers with provision for future expansion. The Bureau and the Kentucky Department of Fish and Wildlife Resources would be pleased to assist in detail planning for access needs.

4. Recreational Zoning. The proximity of Cave Run Reservoir to large and expanding human population areas would create conflicting uses by water recreationists. To provide for expected large and diverse public recreational use, a recreational zoning plan and definite enforcement of this plan would be essential. High speed boating and water skiing are the principal forms of recreation that usually come in conflict with bank and boat fishing. These problems can be satisfactorily resolved by zoning the reservoir in respect to area, time of day, speed limits, or some combination of these factors. In order to determine the most practical zoning plan, it is proposed that this plan be formulated by coordination with the Kentucky Department of Fish and Wildlife Resources, Kentucky Division of Boating, the Bureau, and other interested agencies.

5. Rule Curve. To facilitate realization of the reservoir fishery benefits and other public use values, it is proposed that the rule curve be modified so that the presently planned seasonal pool may be extended through the months of April and September. The larger pool surface, during April and September, would provide for maximum sustained fishery benefits and other general recreational values during these two important months of the fishing season.

6. Water-Level Fluctuation for Fishery Management. Benefit to the sport fishery would result from a stable pool level during specific spawning periods. During the annual fish spawning season, desirable species can be favored by providing steady water levels. The reverse technique can be applied to hamper and control certain undesirable species by reducing water level and exposing their eggs to air. One of the most valuable

fishery management techniques in controlling population dynamics is a periodic extreme reduction in water level, which concentrates fish to facilitate fishery management. Experience on similar reservoirs indicates this technique may be needed at least once every 5 to 10 years. Schedules of annual reservoir stabilization and periodic drawdown should be coordinated with the Kentucky Department of Fish and Wildlife Resources before and during project operation.

7. Downstream Flows. Water quality, comparable to existing conditions, would be required to prevent the loss of the downstream fishery, especially the first 28 miles. In order to provide adequate flexibility for control of water temperature and chemical quality, it is proposed that the design of the outlet works include multilevel bypass intakes to permit the taking of water from the reservoir at three different upper levels. Based on the proposed project design and operation, it is our opinion that three upper level intake ports should be installed and located at invert elevations 718, 706, and 688. Each respective bypass level should have a capacity to meet minimum flow objectives under operating conditions.

   The multilevel bypasses and service gates would permit the selection of discharges from four distinct reservoir levels or a choice of combined mixtures. To facilitate the selection of suitable downstream flows, it would be desirable to have facilities for continuous monitoring of water temperature in the tailwater and at the four levels in the reservoir corresponding to the invert elevations of openings in the operating tower. The temperature monitoring facility in the tailwater should be located close to, and not more than one-half mile from, the stilling basin. This provision for water quality control should also have additional benefits to other downstream water resource users. The Kentucky Department of Fish and Wildlife Resources would make the necessary analysis of the water temperature data on which to base a schedule of variable-level discharge for the management of the downstream fishery.

8. Project Lands. It is our understanding that lands for the project would be procured in accordance with the Joint Land Acquisition Policy and sound real estate practices. If lands not needed for primary project purposes within the Cumberland National Forest Purchase Unit are made available for the development and management of wildlife resources through cooperative agreement between the U. S. Forest Service and the Kentucky Department of Fish and Wildlife Resources, it will partially compensate for losses caused by inundation of wildlife habitat.

SPECIFIC FISH AND WILDLIFE BENEFITS

Extension of the project-planned seasonal pool (elevation 730) during the months of April and September would facilitate realization of the reservoir fishery and general recreational benefits through increased reservoir surface area during important periods of the recreation and fishing seasons. If extension of the seasonal pool would not reduce flood control benefits or infringe on the low-flow objectives, there would be no specific costs assignable to this feature.

To prevent loss of the downstream fishery, multilevel intakes and water temperature monitoring would be necessary for needed flexibility in controlling thermal and chemical composition of reservoir discharges. With suitable outflows provided by multilevel intakes, a significant concentration of fish would result in the stilling basin and immediate tailwater because of Cave Run Dam and its operation. With suitable access to accommodate the needs of bank fishermen, it is expected that a desirable sport fishery will develop. We have assigned an annual use of 30,000 man-days, valued at $37,000, to the tailwater fish concentration, contingent upon access and suitable outflows. With suitable quality outflows provided, the minimum flow objective, as planned by the Corps, would be of sufficient volume to maintain the existing downstream fishery and project-occasioned tailwater fishery benefits.

Reservoir clearing, initial impoundment, public access, recreational zoning, and water-level management would provide means for sustaining public use benefits assigned, and should be included at project cost.

RECOMMENDATIONS

On the basis of the foregoing, the Bureau therefore recommends that:

1. The reservoir timber clearing plan provide for retention of any specific standing timber areas or for any flush clearing that may be designated by the Kentucky Department of Fish and Wildlife Resources;

2. Construction schedules provide for initial impoundment between October 1 and March 1;

3. Provision be made in the public access plans for (a) bank fisherman access to both banks of the immediate tailwater and stilling basin below Cave Run Dam, and (b) boat-launching facilities for lower tailwater use;

4. Consideration be given to the development of a reservoir zoning plan in connection with overall planning for the reservoir through cooperative efforts of the Corps of Engineers, the Bureau of Sport Fisheries and Wildlife, the Kentucky Department of Fish and Wildlife Resources, the Kentucky Division of Boating, and other interested agencies;

5. The rule curve be modified to extend the seasonal pool through the months of April and September;

6. Project operations provide for regulated water levels during specified fish spawning periods and periodic extreme drawdown, in accordance with post impoundment recommendations to be provided by the Kentucky Department of Fish and Wildlife Resources;

7. The design of the outlet works include multilevel intakes at invert elevations 718, 706, and 688, with each respective bypass level having a capacity to meet minimum flow objectives and instruments for continuous monitoring of water temperature at the four levels in the reservoir corresponding to the invert elevations of openings in the operating tower and in the tailwater;

8. Acquired lands suitable for wildlife management purposes be made available for such use in accord with arrangements mutually agreeable to Corps of Engineers, Bureau of Sport Fisheries and Wildlife, U. S. Forest Service, and the Kentucky Department of Fish and Wildlife Resources in accord with an appropriate General Plan.

The Bureau's study and recommendations are based on project plans as currently developed. As your planning progresses, it is requested that engineering data be supplied this Bureau and that coordination and assistance be sought as needed in planning specific project features.

This report has been reviewed by the Kentucky Department of Fish and Wildlife Resources and their comments are attached.

The cooperation extended by your staff has been greatly appreciated.

Sincerely yours,

/s/ John D. Findlay
John D. Findlay
Acting Regional Director

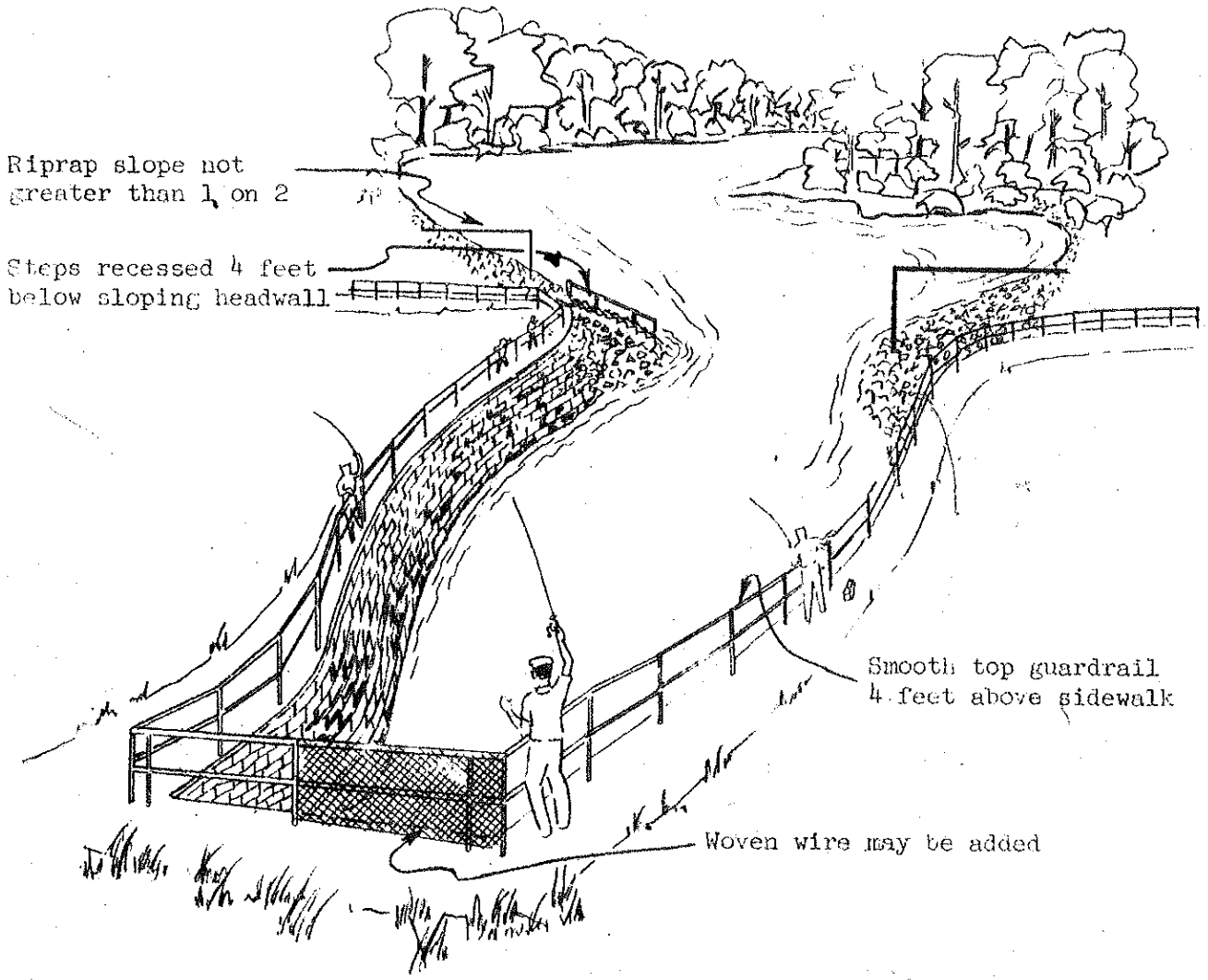
Attachment

PLATE 1

STILLING BASIN AND TAILWATER

GENERAL DESIGN FOR BANK FISHERMAN ACCESS

VIEW FROM TOP OF DAM LOOKING DOWNSTREAM



Adapted from a U. S. Army Corps of Engineers photograph on page 36 of Outdoor Recreation Resources Review Commission's Study Report No. 7, entitled "Fishing in the Tailrace of Kanopolis Reservoir, Kansas."

COPY

Commonwealth of Kentucky
DEPARTMENT OF FISH & WILDLIFE RESOURCES
Minor Clark, Commissioner

September 17, 1963

Mr. W. L. Towns
Acting Regional Director
Bureau of Sport Fisheries & Wildlife
Peachtree-Seventh Building
Atlanta 23, Georgia

Dear Mr. Towns:

I have reviewed your proposed report on the Cave Run Reservoir project.

We concur with this report and are in agreement relative to the outlined plan for fish and wildlife conservation on this Reservoir.

Sincerely yours,

/s/ Minor Clark
Minor Clark
Commissioner

APPENDIX C

SUMMARY LISTING OF FINDINGS AND RECOMMENDATIONS OF B.O.R. FOR CAVE RUN RESERVOIR AS EXTRACTED FROM PRELIMINARY EVALUATION REPORT ON RECREATION POTENTIAL, SUBMITTED 16 APRIL 1964:

1. The 1960 population within a 50-mile zone of influence around Cave Run Reservoir was 736,200 including the S.M.S.A. of Lexington and Huntington-Ashland, and would be expected to increase to 805,000 and 983,000 by the years 1970 and 2000, respectively.

2. The existing recreation areas within the zone of influence are not capable of meeting the potential gross demand for recreation within the zone, which was estimated at 2,400,000 and 7,100,000 for the years 1970 and 2000, respectively.

3. Annual visitation was estimated at 400,000 initially with an ultimate increment of 580,000 for a total of 980,000 ultimate visitation.

4. Initial facility costs were estimated at $1,314,000 including planning, overhead and contingencies. The ultimate increment was estimated at $2,218,000 for a total of $3,532,000. Annual charges were estimated at $156,000 initially with a future increment of 243,000, totalling $399,000; annual benefits were estimated at $480,000 initially, with a future increment of $990,000, totalling 1,470,000. By comparison, our Design Memorandum 2, Supplement 1, August 1964 shows respective estimates of annual benefits of$400,000, $381,000 and $781,000.

5. Recommendations were that plans be coordinated with the Forest Service, the State of Kentucky, and other interested agencies, to determine the proper administering agency for recreation development; that borrow operations on the left bank of the proposed reservoir at the dam be limited so as to retain as much of this major development area as possible in its natural state; that the total minimum acreage above flood pool to be acquired for recreational development is estimated at 3,800 acres; and that the several embayment and tributary arms extending from the main body of the 8,200 acre seasonal pool be zoned for maximum boat speeds in accordance with appropriate regulations.

COPY

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Cumberland National Forest

Address Reply to
Forest Supervisor
and Refer to
2740

Winchester, Kentucky

September 15, 1964

District Engineer
U. S. Army Engineer District,
Louisville
Corps of Engineers
P. O. Box 59
Louisville, Kentucky 40201

Attention: R. H. Hayes, Chief, Engineering Div.

Dear Sir:

Reference is made to your letter of June 18, 1964 (file ORLED-P) in which the Forest Service was asked to comment on certain sites as depicted on your attached Preliminary Reservoir Area Maps for the Cave Run Reservoir.

On Thursday, July 30, 1964, Dave French, Landscape Architect with the U. S. Army Corps of Engineers of Louisville, Kentucky, met with Gayle Cox, Recreation Planner, and Verne Orndorff, Landscape Architect, Cumberland National Forest. This meeting was set up for the purpose of viewing the various proposed sites to determine quality and possible use.

Sites, number 1 through 7, were visited and discussed as to their relative merit and respective uses. Sites 3 and 5 are relatively small in area and flat land is almost non-existent. Site Number 4 is quite large; but access would be difficult and it could best be utilized as a remote area campground with access only by boat. The better sites are Numbers 1, 2, 6, 7 on the Reservoir Area Map. The proposed uses for these vary substantially due to the character, size, location, topography and the accessibility of each.

Sites Numbers 6 and 7 have good remote area camping potential in areas that already have good access roads to them. They would have several other interesting features and, even though necessarily small, should prove quite popular.

Site Number 2 has good potential for diversified uses, such as, waterfront activities, forest camping, play fields, picnicking, etc. It possesses excellent access to the water from large, near-level to rolling fields and good connections to U.S. Route 60. In it there are many nearly flat or open rolling fields, with good sloping terrain to the

APPENDIX D

proposed lakeshores. Nearly any type of recreation use could be fitted somewhere into this site.

Site Number 1 has the best forest camping potential of the entire Reservoir Area. It could be comprised of several small camping groups or considered as one large, loose-knit camping complex. It has possible access from the dam or from Salt Lick by way of a road over the ridge. This site can be extended further up Caney Creek than shown on the Reservoir Area Map.

Sites 8, 9 and 10 were visited September 11, 1964, by Messrs. Cox and Orndorff. Site Number 8 is an excellent site for beaches, ramps for launching boats, play fields, and picnic areas, with good access to the south, an excellent overlook possibility with good views of the Lake from above.

Sites 1 through 8 are within the Cumberland National Forest boundaries and represent the majority of good available sites.

Sites 9 and 10 are outside the Cumberland National Forest's exterior boundary, but we agree that they should be acquired to provide proper protection and development for recreation use and to enhance the value of the entire Lake as a recreational entity.

Site Number 9 has excellent access from the east to West Liberty, and has ideal potential for boat launching and beach developments. On the hill to the north there exists a beautiful overlook site that can be easily developed and would overlook a large expanse of Lake and to which road connections are now nearly complete. This site also has about 20 acres of potential wooded campground and many open fields for other uses.

Site Number 10 has excellent camping potential on about 40 acres of beautiful forest land which lie adjacent to 20 acres of excellent play fields that are cleared and are currently being pastured. There is good reservoir access from the southeast; and there are 10 acres of potential picnic site near a possible boat-launching ramp where plenty of parking space would be available.

These two sites are divided from the water by cliffs and steep hills. The potential campgrounds in each are above cliffs and, while the cliffs may be traversable - only 60 feet or so high - they are definite barriers to easy flow to and from the Lake. The Lake will not be very wide at either site as they are both quite near the upper end of the Reservoir. They both lie in fairly good upland farming country.

In summary, we believe that you should acquire the ten public use sites as shown on the Preliminary Reservoir Area Maps, Plates 1 and 2. We believe that you should also attempt to acquire additional lands to block in public ownership between your normal acquisition line and

National Forest ownership; as a minimum on the northeast side of the Reservoir and the private tracts along and at the mouth of Leatherwood Creek, all of which have high recreational values.

If you will send us two additional prints of your Preliminary Reservoir Area Map, Plates 1 and 2, we will mark thereon our specific recommendations for additional acquisition and, after approval by our Regional Office, send them to you.

As you develop more specific plans for the various public use sites, we would appreciate the opportunity to consult with you as planning progresses.

Sincerely yours,

ROBERT F. COLLINS
Forest Supervisor

COPY

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Cumberland National Forest

Address Reply to
FOREST SUPERVISOR
and Refer to
2740

Winchester, Kentucky

November 20, 1964

District Engineer
U. S. Army Engineer District,
Louisville
Corps of Engineers
830 West Broadway
Louisville, Kentucky

Attention: Mr. Leegan

Dear Sir:

Reference is made to your telephone call of November 17, 1964, concerning the Cave Run Reservoir.

Enclosed is one copy of a map showing the lands which we feel are desirable for acquisition.

Although we are not sure of just which lands can be justified for reservoir purposes, we feel that the lands shown should be acquired by the United States, either by the Corps of Engineers or the Forest Service or perhaps cooperatively.

This is, of course, a preliminary recommendation subject to review and change as final plans are made.

Sincerely yours,

ROBERT F. COLLINS
Forest Supervisor

NOTE: Inclosure referred to in body of letter shows additional lands suggested for acquisition by the U.S., generally including all lands between the Cave Run Reservoir project lands and the Cumberland National Forest ownerships.

(Notation by Louisville District, Corps of Engineers.)