

DESIGN MEMORANDUM NO. 15C (REVISION NO. 1) REVISION TO  
MASTER PLAN FOR CORALVILLE RESERVOIR IOWA RIVER, IOWA,  
U.S. ARMY ENGINEER DISTRICT, ROCK ISLAND, CORPS OF  
ENGINEERS, CLOCK TOWER BUILDING, ROCK ISLAND, ILLINOIS,  
31 JANUARY 1964

23 MARCH 1964 REVISIONS:

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PUBLIC USE OF CORALVILLE RESERVOIR RULES AND REGULATIONS  
PAGES 1-8 (SECTION ADDED 23 MARCH 1964) TO END OF APPENDIX B

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RESTROOM PHOTO AT END OF APPENDIX C

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*Per 9. 2nd to be added*

ENGINEER-00 (31 Jan 64-ENGINEER-1)

1st Ed.

SUBJECT: Design Memorandum No. 193 (Revision No. 1) - Revision to Master Plan for Coralville Reservoir, Iowa River, Iowa

U. S. Army Eng Div, North Central, Chicago, Illinois, 26 March 1964

TO: Chief of Engineers, ATTN: ENGINEER-0

1. The revised Master Plan for Coralville Reservoir, Iowa River, Iowa, submitted by the District Engineer, Rock Island, is forwarded herewith, recommending approval, subject only to notations thereon in red pencil and the following comments:

a. Exhibits 1-8 should be keyed by plate number and river mile to Plates 12-17 for ready cross-reference.

b. Plates 5-11 should show the same place names as Plates 12-17 for ready cross-reference.

c. Existing and proposed outgrants under Priorities 1 and 2, as discussed in Section VI of the plan, should be designated by name on Plates 5-17.

d. With reference to Section X and Appendix B, it is considered that the reprint of Title 36 from the Federal Register dated 21 October 1959 need not be included inasmuch as the Rules and Regulations for Public Use of Coralville Reservoir include all pertinent provisions of Title 36.

2. The current revision of the Master Plan for Coralville Reservoir represents a thorough reorganization and expansion of the Master Plan approved 24 July 1961, particularly Sections IV through IX. The provisions of the plan with respect to zoning for all types of use are regarded as a practical response to the some times conflicting demands of the public for use of the project. The Rock Island District has developed the zoning plan through the coordinated efforts of all elements concerned with project development and operation with due consideration to all demands and public needs. The Plan For Development, Section VI, presents a sound plan for the orderly development of areas and facilities as needed, based on analysis of observed public use and practices. The paragraph on Forest Resources and Land Management are technically and practically sound, based on the concept that the forest and land resources of the project are important elements of the scenic, wildlife and recreational values of the project and require objective management in order to obtain maximum benefits. Section IV, Factors Influencing Recreational Development, including the paragraphs on Zone of Influence and Projected Needs, presents a well-considered basis for the Plan For Development. Section IX, Reservoir

COPY FOR: ROCK ISLAND DIST

RODNEY-RE-CO (11 Jan 64-NCHRD-R)

1st Inf

SUBJECT: Design Memorandum No. 150 (Revision No. 1) - Revision to Master Plan for Coralville Reservoir, Iowa River, Iowa

Area Operation and Maintenance, well states the division of responsibilities as assigned in the Rock Island District and indicates the coordination required to implement the Master Plan.

1 Incl

re enc 1 cy wd  
(Appendix E U.S.C.)

Copy furnished:

✓ RIB

FOR THE DIVISION ENGINEERS  
FOR THE DIVISION ENGINEERS

R. G. RHODES  
Colonel, Corps of Engineers  
Deputy Division Engineer

**U. S. ARMY ENGINEER DISTRICT, ROCK ISLAND**  
**CORPS OF ENGINEERS**  
CLOCK TOWER BUILDING  
ROCK ISLAND, ILLINOIS

ADDRESS REPLY TO:  
DISTRICT ENGINEER

REFER TO FILE NO.

NCRED-R

31 January 1964

SUBJECT: Design Memorandum No. 15C (Revision No. 1) - Revision to  
Master Plan for Coralville Reservoir, Iowa River, Iowa

TO: Division Engineer  
U. S. Army Engineer Division, North Central  
Chicago, Illinois

1. Transmitted herewith for review and approval are copies of revision to the Updated Master Plan for Coralville Reservoir, Iowa River, Iowa, in accordance with paragraphs 10 and 2a(1)b of Appendix A of EM 1130-2-302.

2. As tentatively approved in paragraph 2 of 1st indorsement dated 21 January 1964 on letter NCRED-R dated 15 November 1963, subject, "Revision of Master Plan, Coralville Reservoir, Iowa River, Iowa," two copies of the revision are submitted at this time in order to expedite approval.

RICHARD L. HENNESSY  
Colonel, Corps of Engineers  
District Engineer

1 Incl (in dup)  
DM No. 15C,  
Coralville Reservoir

DESIGN MEMORANDUM NO. 15C  
 (REVISION NO. 1)  
 REVISION TO MASTER PLAN  
 FOR  
 CORALVILLE RESERVOIR  
 IOWA RIVER, IOWA

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Revision of the Master Plan  
for  
Coralville Reservoir  
Iowa River, Iowa

SECTION I - INTRODUCTION

1. AUTHORITY

Federal law asserts that land and water areas of reservoir projects under the jurisdiction of the Corps of Engineers shall be administered and managed, to the extent compatible with the operation of the project for its primary purposes, so as to obtain maximum sustained public benefits from the natural and accrued resources. In support of this assertion, EM 1130-2-302 provides that continued studies will be made in order to develop a Master Plan, a sound instrument of constant use, to guide the administration and operation of reservoir projects to assure conservation of scenic, biological, and recreational resources and to assure coordination with interested Federal, State and local agencies. Administrative operational and managerial programs set forth in this document are in accordance with directives of EM 1130-2-302, 1130-2-312, 405-2-835 and 405-1-830.

2. PURPOSE

The Master Plan is intended as a guide for the orderly and coordinated development and management of all land and water areas of the project. This instrument indicates specific recommendations for the protection, development and management of lands proposed for public use, public access, scenic values, wildlife habitat and operational use.

3. SCOPE

Contents of this Master Plan reflect full consideration of all practical uses of project land and water areas including needs for project purposes, public park and recreational use, fish and wildlife management, farming, grazing, soil and forest conservation, pollution control, health and safety of the visiting public and similar activities related to administration of project lands and waters in the public interest. The assistance and cooperation of other Federal, State and local Governmental agencies has been obtained in many phases of planning.

## SECTION II - DESCRIPTION OF PROJECT

### 1. AUTHORITY FOR THE PROJECT

The Coralville Reservoir project was selected by the Secretary of the Army and the Chief of Engineers under authority granted in Section 4 of the Flood Control Act of 28 June 1938 (Flood Control Committee Document No. 1, Seventy-fifth Congress, 1st session).

### 2. PURPOSE

The Coralville Reservoir is designed to store Iowa River flows temporarily during flood periods and to augment low stream flow to maintain a minimum downstream flow of 150 c.f.s. The project will minimize flood damages on the Iowa River from the dam to the mouth of the Cedar River, and will provide a large degree of protection for lands along the Iowa River below the mouth of the Cedar River. The project will effect significant reductions of Mississippi River flows at Keokuk, Iowa, and reduction of flows at Cairo, Illinois. Incidental benefits to conservation and recreation will accrue from the project.

### 3. LOCATION

Coralville Reservoir is located on the Iowa River beginning at mile 83.3 upstream from its confluence with the Mississippi River. The dam is located in Johnson County approximately 9.0 river miles upstream from Iowa City, Iowa, the nearest large population center. The reservoir lies chiefly in Johnson County but extends into Iowa County, with one tributary extending a short distance into Linn County. The location of the project is shown on Plates 1 and 2.

### 4. ACCESSIBILITY

The project area is served by two railroads, the Chicago, Milwaukee, St. Paul and Pacific Railroad to the west and the Rock Island Lines to the east. Highways serving the area are U. S. No. 6, Interstate No. 80, U. S. No. 218 and Iowa No. 261. U. S. Highway No. 218 between Iowa City and Cedar Rapids crosses the Iowa River near the upper end of the conservation pool. Several secondary or county roads lead from these highways into the reservoir area.

### 5. ENGINEERING FEATURES OF THE PROJECT

a. Dam. The dam is a rolled-fill earth embankment with a crest length of approximately 1,400 feet and a maximum height of approximately 100 feet above the stream bed. The crest of the embankment is at elevation 743.0.

b. Outlet works. The outlet works for controlled release of impounded water from the reservoir consist of an approach channel,

intake structure, conduit, stilling basin and an outlet channel. The control structures are located near the east end of the dam. The invert end of the conduit is at elevation 645.0. This elevation corresponds to that of the stream bed.

c. Spillway. The spillway is located adjacent to the west bank and has a length of 500 feet with the crest at elevation 712.0. The spillway discharge channel follows the grade of the natural rock surface to the river 1,200 feet below the toe of the earth dam. The channel is paved with concrete for approximately 300 feet downstream from the control weir. A summary of engineering data is presented in Table 2-1.

## 6. PHYSICAL FEATURES OF THE RESERVOIR

The perimeter of the reservoir throughout most of the conservation pool is characterized by an abrupt rise from the Iowa River flood plain to the upland. Downstream from U. S. Highway 218 both banks are studded with high ridges and points, with slopes that vary from gentle to steep. The irregular shoreline is indented with bays and coves of varying sizes.

a. The surface of the summer season conservation pool is at elevation 680.0 and provides a water area of approximately 4,900 acres. The length of the 680.0 conservation pool is approximately 22 miles. The flood pool, at elevation 712.0, has a surface area of 24,800 acres and a length of 35 miles.

b. To satisfy project needs, 24,111 acres of land have been acquired in fee and flowage easements have been obtained on an additional 9,577 acres. Between the conservation pool level and the flood pool level there are approximately 18,000 acres of land which will be subject to varying degrees of inundation in the operation of the reservoir for flood control.

c. Approximately 1,117 acres of land were acquired at Lake Macbride State Park, of which, approximately 660 acres were flooded permanently by the raising of the park dam to elevation 712.0. The remaining land between the new lake elevation 712.0 and the taking line is an irregular shaped strip varying in width from a few feet to several thousand feet.

TABLE 2-1  
ENGINEERING DATA  
CORALVILLE RESERVOIR AND DAM

<u>Purpose of Project</u>	Flood Control, Low Flow Augmentation, and Incidental Benefits to <u>Recreation and Fish and Wildlife.</u>
 <u>Location of dam</u>	
Stream	Iowa River, Iowa
River mile above mouth	93.3
County	Johnson
Nearest town	Iowa City, Iowa
 <u>Location of reservoir</u>	
River mile above mouth	93.3 - 128.3
Counties	Johnson, Linn and Iowa
 <u>Drainage area</u>	
Upstream from damsite	3,115 square miles
Upstream from mouth	12,637 square miles
 <u>Reservoir</u>	
Elevation of top of flood control pool (spillway crest)	712.0 m. s. l.
Elevation of top of conservation pool 15 February - 15 June	670.0 m. s. l.
Elevation of top of conservation pool 15 June - 15 February	680.0 m. s. l.

TABLE 2-1 (continued)

(For wildlife purposes 25 Sept. - 15 Dec.)	683.0 m.s.l.
Five year flood contour	696.0 m.s.l.
Storage capacity for flood control	475,000 acre-feet
Storage capacity, conserva- tion pool at elevation 670.0	17,000 acre-feet
Storage capacity, conserva- tion pool at elevation 680.0	53,750 acre-feet
Area of flood control pool	24,800 acres
Area, conservation pool at elevation 670.0	1,820 acres
Area, conservation pool at elevation 680.0	4,900 acres
Length (river miles) of flood control pool	35.0 miles
Length (river miles) of conser- vation pool at elevation 670.0	17.4 miles
Length of shoreline of flood control pool including en- larged Lake Macbride	100 miles
Length of shoreline of conser- vation pool at elevation 680.0	68 miles

Dam

Type	Earth embankment
Total length	1,400 feet

TABLE 2-1 (continued)

Top elevation	743.0 m.s.l.
Top width	22 feet
Maximum height	100 feet
<u>Outlet works</u>	
Type	Concrete conduit
Length of conduit	350 feet
Size of conduit (diameter)	23 feet
<u>Control gates</u>	
Number	3
Size of each	8.33 x 20 feet
<u>Spillway</u>	
Type	Concrete overflow section
Total length	500 feet
Crest elevation	742.0 m.s.l.

## 7. PLAN OF OPERATION

The primary purpose for which the project was authorized is flood control. The plan of operation is designed to effect reductions of flood crests on the lower Iowa River and on the Mississippi River below the confluence of the two streams without the use of surcharge storage. The reservoir regulation plan which has been selected is designed to provide the greatest overall downstream flood control benefits and at the same time give maximum consideration possible to recreational interests and water quality control below the dam. Insofar as practicable, discharge rates will be adjusted to assure that the water level in the reservoir does not exceed elevation 712.0. A conservation pool will be maintained at a minimum elevation of 670.0. When natural flow in the Iowa River below the dam is less than 150 cfs, storage in the conservation pool will be released to maintain a minimum flow of 150 cfs. The conservation storage pool will be maintained at elevation 670.0, or as near that elevation as practicable, during the period between 15 February and 15 June when maximum storage for flood control is needed. From 15 June to 25 September, the possibility of floods is more remote and the conservation pool will be held to elevation 680.0. The primary purpose for this additional storage is to provide for the minimum release of 150 cfs during prolonged periods of natural low flow. From 15 September to 15 December the conservation pool will be raised to elevation 683.0 if inflow conditions permit. This phase of regulation is in compliance with requests of the Iowa Conservation Commission and is designed to facilitate waterfowl management on the reservoir. The maintenance of the pool at elevation 683 is accomplished during a period of the year when low inflow is normally expected. From 15 December to 15 February the conservation pool will be maintained at elevation 680.0.

## 8 PROJECT RESOURCES

a. Soil. Generally, the soils above the conservation pool elevation are moderately acid, light grayish brown to brown silt loams. The steep valley slopes, at the lower reaches of the reservoir are stabilized by various species of grasses interspersed with stands of mixed hardwoods. The more gently sloping areas in the upper reaches of project lands are fertile and conducive to agricultural use. Prior to inundation there were two types of bottom land soils. In the lower reaches of the reservoir, moderately fertile, medium to fine sandy soils predominated. In the upper reaches, there were highly fertile but poorly drained, clay loams.

b. Mineral. Mineral resources of project lands consist of limestone, sand, gravel and clay. The geological characteristics of the project area indicate that the existence of coal deposits is unlikely. Drilling operations on private land by private interests indicate that oil may be present in the project area. However,

the existence of this mineral under project lands has not been substantiated.

c. Forests and vegetative cover. Existing forest resources and vegetative conditions of the project can best be described by treating the project in three sections as follows:

(1) Perimeter of the conservation pool below U. S. Highway 218. In the lower reaches of the reservoir between U. S. Highway 218 and the dam, the primary difference in vegetative cover is the degree of dispersion of two basic cover types: The steeper ridges and valley slopes are more or less stabilized with mixed stands of upland hardwoods interspersed with relatively small open areas that are reverting to brush and grasses. The more gently rolling areas are predominantly open with clumps of upland hardwoods in the rougher portions and around old-house sites. The raising of the water in the reservoir has created a pseudo-ecological situation such that the transition is directly from water area to upland hardwood timber types. The predominant tree species are oak, hickory, maple, elm and basswood. Generally, the crown cover of the wooded areas is so complete that little understory has developed except in the border adjacent to the open areas. Understory plants consist primarily of forbs, native deciduous shrubs and reproduction from overstory plants. The smaller open areas on the steeper slopes are reverting to a brush stage of succession. The larger open areas are tightly stabilized with native grasses, cultivated grasses and legumes. Throughout this section of the reservoir the timber resource, generally of a bottom land hardwood type, was removed prior to impoundment of the reservoir. Timber was also cleared from the Lake Macbride area up to elevation 713 as a result of the project.

(2) Project lands above U. S. Highway 218. In the upper reaches of the reservoir the rough topography gives way to broad relatively flat first and second bottoms of the Iowa River flood plain. Before the construction of the project dam, the fringe of bottom land adjacent to the water supported dense stands of bottom land hardwoods such as maple, willow, cottonwood, and river birch. These timber stands have yielded to the frequent and extended periods of inundation necessary in reservoir operation. The present picture is a slow ecological transition from a bottom land hardwood cover type to typical marsh-type vegetative cover. The second bottoms are predominantly open meadow, but reproduction of bottom land hardwoods, especially maple, is rapidly changing this situation in the areas where drainage is poor. Willows, birch, cottonwood, maple and plum line the drainage ditches and streams to the base of the escarpment where they give way to oak, hickory and other species more representative of the upland. The higher ground is open, fallow agricultural land, some reverting to grasses, others to weeds and forbs.

(3) Conservation pool water area. The water area of the conservation pool is mentioned here because of the vast areas covered with a dense growth of smartweed that has developed in the shallow areas throughout the conservation pool. The lush growth of this aquatic plant is desirable from the waterfowl management standpoint. However, it is quite possible that this plant represents only a temporary stage in ecological plant succession. It is considered that the areas affected and density of growth will be dependent upon pool elevations and turbidity of the water.

d. Fish. The Iowa River is a silt-laden stream in which rough fish predominate over the more desirable game species throughout the river proper and in the oxbow lakes and sloughs. Survey reports submitted by the U. S. Fish and Wildlife Service (August 1945) predict a substantial increase in fisheries benefits as a result of the reservoir. The prediction of increased benefits, favorable to game fish, is based on several factors that are now or will be apparent in the near future. Factors that will enhance the sport fishery of the project are: (1) Reduced turbidity, (2) Sustained downstream flows, (3) Increased littoral zone in the reservoir, (4) Abundance of forage fishes, (5) Better access, and (6) Applied fish management. Fishery management practices such as standing crop analysis, are being conducted by the Iowa Conservation Commission, both in the reservoir area and in the Iowa River. Stocking of game fish has been accomplished in the reservoir.

e. Wildlife. Game species of the project area consist of gray and fox squirrels, cottontail rabbits, bobwhite quail, pheasants, deer and waterfowl. Upland game habitat values above the dam have been temporarily reduced as a result of the inundation of many acres of bottom land and the fluctuating water levels on other project land. These losses are now being offset to some extent by applied conservation practices in the management of soils, forests and water areas. The Iowa River, its small tributaries and the surrounding area support a number of furbearers; namely, muskrat, mink, beaver, raccoon, opossum, fox, skunk and weasel. The impoundment of water has resulted in a small net loss of these species through temporary loss of habitat. It is anticipated that this loss will, in time, be more than offset by game management practices effected through cooperative Federal and State programs. Evidence of waterfowl usage during the migration periods indicates that overall benefits to waterfowl as a result of the reservoir have been increased significantly. Planned waterfowl management by the Iowa Conservation Commission on a large segment of land and water in the upper reaches of the reservoir has improved existing habitat and created new habitat. In accordance with recommendations of the U. S. Fish and Wildlife Service and the Iowa Conservation Commission, pool levels are now regulated in fall months to facilitate waterfowl management.

f. Water. That portion of the Iowa River upstream from the dam drains an area of 3,115 square miles and has an average yearly

discharge of approximately 343 acre-feet per square mile. The watershed area for the project is shown on Plate 3. The greatest flows occur during the months of March, April, May and June. In respect to the quality of the water resource, silt load is considered to be the greatest detrimental factor toward resource use. Sedimentation will not seriously impair the effectiveness of the primary purpose of the reservoir at the end of the first fifty-year period. Siltation studies indicate that more than one-half of the original capacity of the reservoir will be available at the end of 500 years.

#### 9. CLIMATIC CONDITIONS

The project area has a moderate climate. The average mean annual temperature is 48 degrees with an extreme range from -37 degrees to 122 degrees F. The average summer temperature is approximately 72 degrees and the average winter temperature is approximately 22 degrees F. Average annual rainfall is 33 inches, with almost half of this amount occurring during the growing season May through August. The season for outdoor recreational activities extends over a six-month period with most of the activity taking place between the first of June and the end of September.

## SECTION III - COLLATERAL RESOURCES

### 1. RECREATIONAL RESOURCES

The proximity to several high population centers, ease of accessibility and the maintenance of a conservation pool make the reservoir conducive to water related recreational activities. The Coralville Reservoir provides a large body of water in an area that, from the recreational standpoint, is water starved. Consequently, the recreational potential is considered to be one of the foremost resources of the project.

### 2. ARCHAEOLOGICAL RESOURCES

A preliminary archaeological reconnaissance of the reservoir was made by a representative of the Smithsonian Institution. The report issued by this Institution dated April 1949, states that the archaeology of the Iowa River is known only through surface finds or artifacts collected by local residents. The survey was limited to an inspection of the damsite and to spot checks of the reservoir area. Nine archaeological sites were located, three of these having been reported previously. Ten other sites were recorded prior to the survey. Seven of the latter could not be found and three could not be reached at the time the survey was made. Of the nine sites located, eight are mound sites and one is an occupation site of an Indian village. During the summer and fall of 1956 an archaeological team of the Smithsonian Institution made excavations in the Coralville Reservoir. A total of ten sites were tested. Most were mounds of the late Middle Woodland Culture. Some open occupation sites were examined. Most of this work was done downstream from the old Mehaffey Bridge site under a rock shelf along the left bank of the Iowa River. The findings of the team indicate two components, a nonceramic level succeeded by a middle-late woodland pottery bearing level. Material removed from the rock shelter is typical of material found in eastern Iowa. No archaeological sites were discovered in the vicinity of the dam.

### 3. AGRICULTURAL RESOURCES

The project is located in a predominantly rural area. The majority of lands acquired in fee to satisfy project needs were being utilized for hog-beef cattle type farming. The chief cultivated crops were corn, sorgos, and soybeans. The steep sloping topography of the conservation pool area does not lend itself to cultivated crops. This area suggests the need for a permanent vegetative cover. In the upper reaches of the project, the fertile soils of the gently sloping upland are better suited for the production of cultivated crops. The **significance of the agricultural resource lies in its correlation to**

the management of vegetative cover for erosion control, forest management, game habitat manipulation and aesthetic purposes.

#### 4. INDUSTRIAL RESOURCES

Except for those benefits accrued to the industry of agriculture, the project has little, if any, industrial resource. There are no facilities, existing or planned, for hydroelectric power. The minimum stream flow allowable below the dam is too low to satisfy most industrial needs and the fluctuating water level in the reservoir would not be conducive to industrial developments on the perimeter of the project. Further, such developments would not be compatible with the primary purposes of the project. The project does, however, play a role in attracting industry to the Iowa City-Cedar Rapids area. The availability of recreational facilities for employees is a factor in the decision to locate new plants and enterprises. This is particularly significant to an area such as this which is otherwise without a significant recreational resource.

SECTION IV  
FACTORS INFLUENCING RECREATIONAL DEVELOPMENT

1. ZONE OF INFLUENCE CHARACTERISTICS

a. General. The primary 50-mile radius of influence and the secondary 100-mile radius of influence for the project are shown on Plate 2.. Included on this Plate is an adjusted primary zone of influence. The adjusted primary zone of influence is used in this master plan in the analysis of future project needs and is discussed under the section that deals with projected needs.

b. Population estimates and trends. The estimated population within the primary 50-mile zone of influence is shown in Table 4-1. The estimated population for the adjusted primary zone is shown in Table 4-2. Population figures are based on the 1960 census. On the basis of ORRRC projections, it is estimated that by the year 2000 the population increase in Iowa will approximate 63% of the 1960 population. Assuming proportional distribution of this increase, the population of the primary zone may be 734,510 by the year 2000. Accordingly, the population within the adjusted zone may be 1,023,687 by the year 2000.

c. Economic conditions: Urban-Rural. The economy of the primary zone of influence is predominantly agricultural. The smaller towns depend largely upon business from the people in the surrounding agricultural areas. A continuing decline in on-the-farm population is resulting in a loss of business opportunity in many of these rural towns. The urban population is engaged in the variety of industrial and commercial enterprises complemented by, or necessary to satisfy, the needs of an agricultural region. In rural areas, a strong conservative attitude is apparent, while the urban areas reflect a definite progressive trend.

d. Transportation and road network. Conditions of existing primary, secondary and farm-to-market roads within the zone of influence range from fair to good. When completed, U. S. Interstate Highway 80 will bisect the 50-mile zone of influence. The Interstate 80 exit for Iowa City, Iowa, will be approximately six miles from the project. It is anticipated that this high-speed highway will have a significant influence upon visitor-day attendance at Coralville. Rail service within the zone is geared primarily to satisfy agricultural and industrial needs. Rail passenger service is limited. Air passenger service within the primary zone is also limited. All factors considered, it is quite evident that the visitor-day attendance at the Coralville Reservoir will depend upon the use of the private automobile for transportation. It is believed that the comprehensive road net outside the project boundary is adequate to meet the present needs of reservoir visitors. Roads and highways of the project area and primary zone are shown in Plates 1 and 2.

TABLE 4-1

ESTIMATE OF POPULATION WITHIN  
50-MILE RADIUS OF INFLUENCE

<u>County</u>	<u>Percent of County in Primary Zone</u>	<u>Total Population for County 1960 Census</u>	<u>Estimated 1960 Population within Primary Zone</u>
Benton	100	23,422	23,422
Blackhawk	10	122,482	12,248
Buchanan	40	22,293	8,917
Cedar	100	17,791	17,791
Clinton	30	55,060	16,518
Delaware	40	18,483	7,393
Henry	10	18,187	1,818
Iowa	100	16,396	16,396
Jackson	20	20,754	4,150
Jefferson	5	15,818	790
Johnson	100	53,663	53,663
Jones	95	20,693	19,658
Keokuk	60	15,492	9,295
Linn	100	136,899	136,899
Louisa	75	10,290	7,717
Muscatine	100	33,840	33,840
Poweshiek	40	19,300	7,720
Scott	40	119,067	47,626
Tama	25	21,413	5,353
Washington	100	19,406	<u>19,406</u>
Total			450,620

TABLE 4-2

ESTIMATE OF POPULATION WITHIN  
ADJUSTED ZONE OF INFLUENCE

<u>County</u>	<u>Percent of County in Adjusted Zone</u>	<u>Total Population for County 1960 Census</u>	<u>Estimated 1960 Population within Adjusted Primary Zone</u>
Benton	100	23,422	23,422
Blackhawk	20	122,482	24,496
Buchanan	40	22,293	8,917
Cedar	100	17,791	17,791
Clinton	40	55,060	22,024
Delaware	40	18,483	7,393
Dubuque	5	80,048	4,002
Henry	10	18,187	1,818
Iowa	100	16,396	16,396
Jackson	20	20,754	4,150
Jasper	80	35,282	28,225
Jefferson	10	15,818	1,581
Johnson	100	53,663	53,663
Jones	95	20,693	19,658
Keokuk	90	15,492	13,942
Linn	100	136,899	136,899
Louisa	75	10,290	7,717
Mahaska	50	23,602	11,801
Marion	10	25,886	2,588
Marshall	30	37,984	11,395
Muscatine	100	33,840	33,840
Polk	5	266,315	13,315
Poweshiek	100	19,300	19,300
Scott	90	119,067	107,160
Tama	80	21,413	17,130
Washington	100	19,406	<u>19,406</u>
Total			628,029

## 2. EXISTING RECREATIONAL AREAS

Within the fifty-mile radius of influence of the Coralville Reservoir there are five State-developed recreational facilities.

a. Wildcat Den State Park. This 322 acre park is located in Muscatine County between Muscatine and Davenport on Primary Highway 160 off U. S. Highway 61 near Fairport. Picnicking, hiking, nature study and camping can be enjoyed by visitors at this park.

b. Maquoketa Caves. This 111 acre park is located in Jackson County, eight miles northwest of Maquoketa on Primary Highway 130. Large limestone caves and a natural bridge, are among the chief attractions of this park. The caves are known to have been the dwelling place of prehistoric man. The park provides opportunity for picnicking, hiking, nature study and camping.

c. Wapsipinicon. This 232 acre park is located in Jones County at the southern edge of Anamosa, on U. S. Highway 151. High rocky cliffs, open meadow timbered hills, a spring-fed stream, caves, ledges and dens are attractive features of the preserve. Park users can enjoy picnicking, hiking, nature study, fishing and golfing.

d. Lake Darling. This 1,377 acre park is located in Washington County three miles west of Brighton and north of Primary Highway 78. This combination park and wildlife refuge offers the opportunity for picnicking, camping, boating, fishing, hiking and nature study.

e. Lake Macbride. This park lies adjacent to the Coralville Reservoir on the left bank of the Iowa River, about 9.5 miles above the dam. The park originally had a lake of about 138 acres in size, surrounded by a wooded area of about 636 acres. The construction of the Coralville dam made it necessary to raise the height of the existing dam forming the lake to an elevation of 712.0 feet. This resulted in an increase in size of Lake Macbride from 138 acres to about 935 acres and necessitated the acquisition of land area adjacent to the existing park. Approximately 1,200 acres of land were acquired for remedial works, all of which is now licensed to the Iowa Conservation Commission; 660 acres were inundated while the remaining 460 acres are being used for development and expansion of park facilities. The new lake level of 712.0 feet was reached in January of 1960. The original recreational facilities at Lake Macbride State Park consisted of a bathing beach, combination bath house and canteen, boat livery, stone walks and trails and picnic areas. Due to raising the water level approximately 29 feet, existing facilities had to be relocated at higher elevations. A new sewer system was built, as were the canteen, bath houses, bathing beach, boat livery and the park custodian's home and office. The south public entrance to the park has been abandoned and a new entrance has been constructed on the north side of the park. Existing picnic areas on high ground were not affected by the changes. Boat launching facilities for

park users have been provided to both Lake Macbride and to the Coralville Reservoir. Plans have been formulated by the Iowa Conservation Commission for the development and expansion of recreational facilities on lands licensed from the Corps. Possible recreational pursuits at this park include swimming, boating, fishing, hunting, camping, picnicking, hiking and nature study.

### 3. PROJECT OPERATION

The reservoir regulation plan which has been selected is designed to provide the greatest overall downstream flood control benefits and at the same time give maximum consideration possible to recreational interest within the framework for which the reservoir is authorized. Starting on 16 June, when stream flows permit, the outflow is regulated to begin raising the pool to elevation 680.0. Under normal conditions, this elevation will be attained by 1 July. Pool elevation 680 is maintained as nearly as practical, until 25 September. The primary purpose for this additional storage is to provide for the minimum release of 150 c.f.s. during prolonged periods of natural low flow. However, the 680 pool has a collateral benefit in that it provides a larger and deeper water area during the primary outdoor recreation season.

### 4. PHYSICAL AND BIOCHEMICAL PROPERTIES OF THE RESERVOIR WATER

Sufficient data are not available to present a detailed year-round analysis of the properties of the reservoir water. Physical and biochemical properties vary with the season, stream flow, depth of pool and agricultural activities upstream. In general, water quality of the reservoir is considered to be satisfactory for most water-oriented recreational activities. Properties of the reservoir water indicated by one summer season analysis are presented in Table 4-3.

### 5. COOPERATIVE INTERESTS OF OTHER AGENCIES

Contacts have been made with various local Governmental agencies in regard to recreational development in the Coralville Reservoir. State and local Governmental elements have expressed an interest in varying degrees for land to be used for recreational development. Interest in leasing reservoir lands for recreational purposes has also been expressed by scout groups, church organizations, civic groups and private clubs. Action on these requests for land has been deferred until the completion of this Master Plan.

### 6. ESTIMATED ANNUAL ATTENDANCE AND PROJECTED NEEDS

a. General. The current method for estimating annual attendance is based upon a 1 to 1 ratio between visitor-days and population within the primary zone of influence. Attendance studies at other reservoirs indicate that if a reservoir has been in operation for three years and if basic public use facilities have been provided, the attendance will be equal to the number of people residing within the 50-mile radius of influence.

TABLE 4-3

PHYSICAL AND BIOCHEMICAL PROPERTIES OF WATER  
CORALVILLE RESERVOIR

Location	B.O.D. PPM	D.O. PPM	pH	Alkalinity P	SOLIDS				NITROGEN	
					TOTAL		Suspended		OU.	NH <sup>3</sup>
					PPM	PPM	PPM	PPM		
County Road 0 Bridge, Iowa R.	5.7	8.0	8.2	4.0	588	167	142	21	1.2	0.27
Cable Car, Iowa River	2.5	8.6	8.2	-	397	112	14	3	0.76	0.23

Upstream

County Road 0  
Bridge, Iowa R.

4-6

Downstream

Cable Car,  
Iowa River

1. Samples were collected by means of a bucket from the center surface of the river.
2. Water samples taken 26 June 1963.
3. Data recorded in this table are the results of only one water analysis at each of the two stations. Water properties indicated for this study may or may not reflect average summer conditions.

b. Projected attendance. In 1960 the population within the 50-mile radius of influence was approximately 450,620. The annual population increment for Iowa between the year 1960 and the year 2000 is estimated at 1.23% per year. Therefore, to encourage maximum recreational use of project land and water areas, initial recreational facilities should have been provided as indicated in Table 4-4. The numbers of existing facilities are presented in this table for comparison. Attendance studies that support the use of the primary zone of influence in estimating annual attendance indicate that the annual attendance at the project in 1962 should have equaled or exceeded 460,000. The actual visitation for 1962 was approximately 292,000. It is considered that the difference between the estimated and actual visitations may very likely have been due to the fact that facilities were not provided at the times or in the quantities necessary to encourage maximum use. This reasoning is supported by the fact that user pressure has, from the beginning, indicated a need for additional facilities.

c. Types of recreational use. In order to arrive at the most accurate estimate of need, the total annual visitation must be apportioned on the basis of the types of recreational uses expected at the reservoir. Table 4-5 shows the percentages used in this study for arriving at an estimate of current and future needs relative to the different types of recreational use. These data have been calculated from usage studies at Coralville and other reservoirs.

d. Current needs. To offset the time lapse between planning and construction of facilities, current needs have been evaluated on the basis of estimated annual attendance for 1965. The 50-mile radius of influence is used as the base for estimating attendance. Development of recreational facilities will be programmed such that by 1965 the numbers of existing facilities closely approximate the estimates of needs indicated in Table 4-4.

e. Future needs. In the analysis of future needs, an adjusted zone of influence has been considered. The location of the boundary for this adjusted zone of influence is based upon: (1) influence of high-speed highways on driving time involved in reaching the project, (2) population pressures, (3) psychological barriers and extra costs incurred by crossing state lines. The adjusted zone of influence is shown on Plate 2. The current estimate of project needs for the year 1970 and the year 2000 are shown in Table 4-6. In connection with costs of facilities listed for the year 1970 see paragraph 3a of Section VI and Appendix A in which detailed costs are itemized therefor.

## 7. COUNTY ZONING

As of this date there has been no cooperative venture in land zoning by the Corps of Engineers and the counties affected by the project. Upon approval of the zoning contained in this document, those counties having zoning plans will be contacted. Zoning of Federal lands will be explained and efforts will be made to have Corps land zoning approved and adopted by the county zoning boards.

TABLE 4-4

ESTIMATE OF PROJECT NEEDS THROUGH 1965<sup>(1)</sup>  
 BASE: POPULATION WITHIN 50-MILE RADIUS OF INFLUENCE

<u>Type of Facility</u>	<u>Existing Facilities Year 1963</u>	<u>Estimated Facility Needs Based on (2)460,000 Annual Visitors Year 1962</u>	<u>Estimated Facility Needs Based on (2)480,000 Annual Visitors Year 1965</u>
<u>Launching facilities</u>			
Ramp	12 <sup>(3)</sup>	12	12
Parking space (car - trailer)	30	120	120
<u>Day use</u>			
Tables	82	115	120
Fireplaces	32	57	60
Trash receptacles	25	38	40
Water supply	4	6	6
Shelters	none	11 <sup>(4)</sup>	11
Parking space (car)	185	115	120
Sanitary facilities double unit	7	10	10
<u>Camping</u>			
Tent, trailer sites	Facilities listed as	61	64
Tables	"Existing for day use	61	64
Fireplaces	area" also	61	64
Trash receptacles	utilized by the	31	32
Sanitary	campers.	7	7
Water supply		5	5

## NOTES:

- (1) Estimates based on criteria set forth in EM 1130-2-312.
- (2) Population figures derived by projections 1960 population figures using annual increment of 1.23 percent.
- (3) 5 Corps developed ramps.  
3 Commercial developed ramps.  
2 Undeveloped ramps.  
2 State developed ramps.
- (4) Shelter house needs projected in accordance with EM. Total proposed shelter houses, as shown in site layouts, conform with capability of the areas.

TABLE 4-5

TYPES OF RECREATIONAL USE EXPRESSED AS  
PERCENTAGE OF TOTAL VISITATIONS

<u>Type of User</u>	<u>Estimated Percent of Total</u>
Boaters	25
Campers	15
Day use	20
Fishermen	30
Sightseers	10

NOTE: Percentages of recreational use, by type of activity, has been derived from limited use data obtained at Coralville Reservoir and reported usage from other reservoirs.

TABLE 4-6

ESTIMATE OF FUTURE PROJECT NEEDS<sup>(1)</sup>  
 BASE: ADJUSTED ZONE OF INFLUENCE

<u>Type of Facility</u>	(2) Estimated Facility Needs Based on 710,000 Annual Visitors Year 1970	(2) Estimated Facility Needs Based on 1,024,000 Annual Visitors Year 2000
<u>Launching facilities</u>		
Ramp	18	26
Parking space (car - trailer)	180	260
<u>Day use</u>		
Tables	178	256
Fire places	89	128
Trash receptacles	59	85
Water	9	13
Shelters	16	23
Parking space (car)	178	256
Sanitary facilities double unit	13	16
<u>Camping</u>		
Tent, trailer sites	95	138
Tables	95	138
Fire places	95	138
Trash receptacles	48	69
Sanitary	10	12
Water supply	10	12

## NOTES:

- (1) Population figures derived by projecting 1960 population figures using annual increment of 1.23%.
- (2) Estimates based on criteria set forth in EM 1130-2-312.

8. ECONOMIC IMPACT ON AREA

The year 1960 was considered to be the initial year of operation for Coralville Reservoir in respect to recreation and the resulting economic effects of the general area. In order to evaluate such effects, a limited economic survey was conducted in the vicinity of the reservoir. The survey was of a random nature and conducted within a radius of from 5 to 15 miles of the reservoir proper. Spot checks were made with owners and operators of various business establishments that were believed to have been affected either directly or indirectly by recreational activities at the reservoir. In summary, an evaluation of reported economic benefits that could be attributed to the reservoir in 1960 is given in the following monetary values:

	<u>Sales</u>	<u>Land and/or Improvements</u>
(a) Estimated increase in annual sales (gross)	\$ 89,000	
(b) Estimated improvements (commercial)		\$ 40,000
(c) Increased land values (area specifically developed or proposed - includes roads and utilities)		285,000
1. Improvements (cabins or permanent dwelling)		250,000
(d) Commercial concessions on Government leased lands		
1. Improvements (all types)		150,000
2. Sales (initial year 1960)	<u>87,000</u>	<u>          </u>
Total	\$176,000	\$725,000

The survey cited herein and dated 1960 is on file in RID office. No additional economic surveys have been prepared.

## SECTION V - LAND USE PLAN

### 1. GENERAL

The preceding sections of this plan have provided an evaluation of existing resources and factors directly or indirectly affecting the basic resource. This section outlines a plan, both extensive in scope and specific in detail, to obtain orderly development of the resources, achieve maximum utilization of project lands and prevent despoilment. While the basic concept of a Master Plan allows for flexibility, the degree of flexibility in regard to use must be decreased as the demand for land use increases.

### 2. ZONING OF PROJECT LAND

The ultimate objective of the development and management program of the project is to provide the best use, or combination of uses, of water and related land resources to meet all foreseeable short and long term needs. Project lands have been zoned, therefore, according to uses considered most compatible with current and anticipated needs, physiographic features, aesthetic values and adjacent land use. During the first six years of project operation, a pattern of public use has developed which indicates what future public use needs will be. On the basis of this developing pattern of public use it is considered that the fee lands of the project, although adequate for operational purposes, are severely limited. It has been determined, therefore, that only uses which merit high priority can be accommodated at the present time.

### 3. ZONING CLASSIFICATIONS

In accordance with existing regulations land zoned for Priority 1 shall be used for public purposes, administered by the Corps of Engineers or other Federal, State or local Governmental agencies for development of public parks, recreational areas, and commercial concessions. Adequate lands to meet the future public needs will be reserved for such purposes before any private recreational use will be considered. Lands allocated for fish and wildlife are considered within the framework of Priority 1 use. While a Priority 1 zoning classification provides a broad framework in determining both land use and user, the following subclassifications of specific use are considered essential to provide orderly development. Specific use classifications are given herein to provide guidance to all elements of management when confronted with increasing public use

demands. Land zoned for Priority 1 use and subclassifications therein is shown on Plates 5 through 11. All lands below the guide taking line for fee (five year frequency elevation 696) and lands above this elevation considered to be essential for project operation, recreation or wildlife either immediately or in the future have been zoned for Priority 1 use.

## PRIORITY 1

### Subclassifications

(1) Public recreational - (undeveloped). Areas under this zoning symbol are of primary value for wildlife or have certain intrinsic values, for the recreating public. Such areas may be utilized by the general recreating public for any type of recreational activity provided that such activities are compatible with the basic concepts of this type of area. Maintenance of the natural effect will be enhanced by limiting development to the construction of foot trails. As recreational pressures increase, certain lands under this subclassification may be changed to allow development.

(2) Public recreational - (developed). Areas under this zoning symbol are of primary value for the recreating public requiring a wide range of facilities necessary to enjoy outdoor recreation opportunities. Development of such lands and facilities may be by the Corps of Engineers, or other Federal, State or local Governmental agencies. Such areas shall be available for use by all segments of the recreating public along with all developed facilities provided such use is compatible with the designed use of any existing facilities. The scope of facilities developed may range from a simple gravel access ramp to full park development, subject only to the degree of need and approval by the Corps if such facilities are developed by others.

(3) Public recreational - (commercial). Areas under this zoning symbol are where the existence of a commercial recreation concession will provide services or facilities required by the recreating public. The scope of a concessionaire's operation shall be determined by the Real Estate Division in coordination with Operations and Engineering Divisions relative to existing and anticipated needs.

## PRIORITY 2

It is considered that Priority 2 use on specific areas will provide maximum utilization and serve a particular recreational demand. The selection of such areas has been based upon the overall needs of Priority 1 use, accessibility, compatibility with higher priorities of use and suitability of the area. Users of lands zoned for Priority 2 use will be non-profit organizations or agencies rendering a public recreation-educational service of a charitable or character-building

nature on a non-exclusive basis. Since the user will generally require more than basic facilities to accomplish these objectives, such facilities or developments may be subject to semi-public control by the developer. Relating the existing demand for Priority 2 type use to available land zoned for Priority 2 use, it becomes apparent that selection of the user will be of the utmost importance. To assure administrative control, the following administrative procedures will be applied.

(1) The sites reserved for Priority 2 use will be allocated to eligible organizations within the purview of paragraph 4a(2) of EM 405-2-835 in accordance with applicable rules and regulations as implemented by paragraph 22 of EM 405-1-830. Leases will be granted as long as sites are available, only to organizations which by their very nature, consist of a sizeable membership and encompass a large geographical area and are financially capable to develop the leased premises. Example: leases to a Boy Scout Council as compared to a Scout Troop.

(2) One area made available for Priority 2 use will be selected and classified as a multiple use area for Priority 2 type organizations. This is considered necessary in order to serve the numerous Priority 2 organizations who by their very nature are local and relatively small, limited in funds, and consequently not likely to utilize a leased area to the fullest degree possible. Also it is believed undesirable to split a selected Priority 2 site into small units to accommodate such small local groups and allow each to build facilities that would result in a congested appearance of the overall site. In order to provide recreational facilities and opportunities to eligible smaller Priority 2 organizations, the following procedure will be followed.

(a) The Corps will develop and maintain minimum basic facilities on one site selected for Priority 2 use. Field level management and administration will be by the Reservoir Manager.

(b) Use of the area will be for a period not to exceed two weeks and will be reserved on a first-come, first served basis. The availability of such facility will be announced and applications must be submitted within a definite time limit.

(c) The determination of eligibility and the granting of requests of organizations in the form of a letter of permission will be functions of the Real Estate Division.

(d) The area and facilities thereon will be available for general public use when not being utilized by Priority 2 users.

In accordance with existing regulations, only lands above elevation 696 can be considered for Priority 2 use. Shown on Plates 5 and 6 are lands zoned for this priority of use.

## SECTION VI - PLAN FOR DEVELOPMENT

### 1. GENERAL

It is the purpose of this section to present and explain detailed directives for the orderly and coordinated development and management for all land and water areas of the project. The ultimate objective of all management programs here outlined is accomplishment of the maximum public benefit prescribed for Government-owned lands.

### 2. COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

Land development programs for project lands are now and will continue to be realized through the activities of several agencies. This situation is the result of cooperative efforts on the part of all agencies concerned.

#### a. Recreation.

(1) National Park Service. In the early stages of recreational planning for the Coralville Reservoir, the National Park Service made a recreational reconnaissance survey of the area surrounding the conservation pool. Recommendations in this survey were considered in the location of initial recreational developments. Since the recreation potential of the project was comparatively small, and of only local significance, the National Park Service was not interested in assuming the responsibility for its development.

(2) State of Iowa. Close coordination has been maintained with the Division of Parks, Iowa Conservation Commission during the pre- and post-impoundment period of reservoir development. In general, the State expressed a desire to concentrate their recreational development efforts on Lake Macbride State Park in order to best serve overall recreational needs. However, during 1963 the Division of Parks and Fishery Management Section embarked upon a recreational development program which will provide access into the reservoir proper from the State park.

(3) Local interest. Close coordination has been maintained with Johnson County and local municipalities to encourage recreational development. To date, one area of 40 acres has been outgranted to the Town of North Liberty and 5.6 acres is being considered for an outgrant to Johnson County. The extent and type of recreational development on the aforementioned tracts is explained in paragraph 3c(1)&(2) of Section VI. Coordination will be continued in order to effect full resource development and meet the needs of the recreating public. A license to the City of Iowa City, for an area of about 150 acres, was recently relinquished by the grantee.

b. Fish and wildlife. An area of 3,595 acres lying westerly of the Cedar Rapids and Iowa City Railroad and U. S. Highway 218 and generally below elevation 690 has been outgranted to the Iowa Conservation Commission for wildlife conservation and management. A general plan and cooperative agreement has been prepared and signed by the Secretary of the Army, Secretary of Interior and the Director of the Iowa Conservation Commission. Under this plan the Iowa Conservation Commission has accepted responsibility for the administration and management of the area for fish and wildlife purposes. Since the general plan and cooperative agreement does not consider development of recreational facilities a license covering the area has been issued to the State to allow additional development for recreation. The license is for a period of 25 years. The area in question is named the Hawkeye Wildlife Area and is shown on Plates 8 & 9. Copies of the development and management plans are on file in the Rock Island District Office. An outgrant to the State for a small 6.1 acre tract has been terminated upon request of the State since it is no longer considered necessary for administration of the area.

### 3. RECREATIONAL RESOURCE. SITE DEVELOPMENT

A detailed analysis of population trends, anticipated visitations and project needs has been covered in Section IV. Although projections of annual visitations for year 2000 have been given, it is considered that with the limited amount of land and water area within the project, annual visitations will stabilize at about 700,000. Projection of population trends and known usage indicate that this level of visitation will be reached about 1970. Therefore, the sites now partly developed, proposed for development or expansion and the degree of development are based upon projected needs for the year 1970.

a. Corps of Engineers. The general design of the areas, existing facilities and proposed expansion considered necessary to meet recreational demands to 1970 are shown in Exhibits as referred to in the following paragraphs which describe said facilities. In connection with the construction of Coralville Reservoir, \$106,000 was expended for construction of recreational facilities. Subsequent additional Federal expenditures, received 15 February 1962 under appropriation 96X3132, Operation and Maintenance, General Code 210, for access roads and facilities amounted to \$64,300. The total Federal cost of the facilities described below, including the costs referred to above, is estimated at \$428,781. The detailed estimate of costs of the facilities is given in Appendix A. The locations of all Corps developed, existing or proposed recreational areas or sites are shown on Plates 12-17.

(1) Tailwater public use area. The most prominent facility at this site is a road providing access to the tailwater area and a boat launching ramp which provides access to the waters below the dam.

The ramp is located at the lower end of the spillway discharge channel where it enters the Iowa River. Public access to the ramp and adjoining recreation area is via the service road from the west access road to the toe of the concrete spillway, then down the east side of the spillway channel on a paved road. In addition to the ramp, 1 double unit comfort station and a 10-car graveled parking lot have been provided at this site. Future developments will consist of landscaping, primarily with shade trees, a small shelter house, 1 comfort station, six picnic tables, three fireplaces, a registration desk and refuse containers as required. A parking area for 20 cars and 15 car-boat trailers will be developed in the future along with about 1000 feet of circulation road. Standard informative and directional signs will be erected. The existing ramp and turn-around will be improved. The existing and planned developments are shown on Exhibit 1.

(2) East Overlook public use area. This area lies at the east end of the dam immediately south of the Turkey Creek embayment. There is at this location a high ridge some 60 feet above maximum pool level which commands a good view of the reservoir and surrounding territory. The Reservoir Administration building occupies the southern portion of this site. Existing facilities consist of a paved access road, a 30-car parking area and refuse containers. Water and sanitary facilities are available for public use in the administration building. As shown on Exhibit 1, future developments will include a combination observation platform and shelter house, registration desk, landscaping as required, and necessary informative signs. This development along with existing facilities at the administration building will accommodate the local and transit sightseer.

(3) Turkey Creek Heights public use area. This area lies to the south of the east access road and adjacent to the east abutment of the dam. The topography of the area is steeply rolling, with fairly wide ridge tops. Vegetative cover over the area varies from small grass-covered openings to well developed second growth oak-hickory stands. The topography, vegetative cover and general location make the area highly desirable for recreational development. Day use facilities have been provided in the northern part of the area. Existing facilities now serving the area include temporary access roads, 7 picnic tables, 5 refuse containers, and 1 temporary double unit pit toilet. As shown in Exhibit 1, this area will be expanded and improved by the addition of a 15-car parking area, 13 tables, 10 fireplaces, 1 potable water well with pump, 14 refuse containers and necessary informative and directional signs. In addition, the temporary toilet will be replaced with a permanent type structure. Additional day use facilities are proposed in the area adjacent to the tailwaters. Proposed developments are a boat launching ramp, 15 car-boat trailer parking spaces, 20 car parking spaces, 4 tables and refuse containers. A camping area will be developed in the southern portion of the recreational area. Ten tent-trailer camp sites consisting of one parking spur, a table, fire ring and refuse container per site will be

developed. Two double unit pit toilets and a water supply will be provided to serve the camping area. Total proposed roadway for day use and camping area access will be about 1,800 feet. Since this area is located downstream from the dam, primary utilization of the area is expected to be from the day user and camper not directly oriented to such activities as swimming or boating. The camper-fisherman should be the prime user of this area because of the location of the site in relation to the tailwaters.

(4) West Overlook and day-use area. This high area adjacent to the west abutment of the dam provides an excellent opportunity for viewing the control structure, earthen fill section, and spillway section. As a part of initial construction, 2 crushed-rock parking lots, one for 25 cars and one for 35 cars were constructed. In conjunction with these overlook parking areas, 6 park-type benches have been provided. West of the access road into this area 13 picnic tables, 2 fireplaces, and 1 double unit pit toilet have been provided to serve the visiting public. The area is currently being used for both day use and camping as a temporary expedient. As shown in Exhibit 1, future developments are designed to serve the day user and sightseer by the addition of an observation platform and shelter house, 3 tables, 6 fireplaces, a water supply and informative and directional signs as needed. The temporary comfort station will be replaced with a permanent-type structure. A 20-car parking area and 300 feet of new access roadway will be required to serve future development. The area will have primary utility for serving the sightseer with related day-use activities.

(5) West Overlook boat launching area. This area lies to the north of the West Overlook and day use area and encompasses a prominent point of land suitable for boat launching. As a part of initial recreational development, during the final construction stages of the project, a gravel boat launching ramp, 55 parking spaces, a concrete block double unit pit toilet, a water system, 11 tables, 4 fireplaces, and 8 refuse containers were installed. Additional improvements to the area have been the development of a nature trail, and construction of a loading-unloading dock at the ramp. As shown in Exhibit 2, future developments will consist of landscaping to improve the aesthetic value of the area, the construction of a double concrete ramp, installation of 10 additional tables, 4 additional fireplaces, 6 refuse containers, and 2 shelter houses along with necessary informative and directional signs. The area will have primary utility for the boater and related day-use activity.

(6) Linder Point public use area. This area is located on the right bank of the reservoir approximately one stream mile from the dam. The eastern boundary joins the West Overlook boat launching area. The western boundary joins the Squire Point public use area. The eastern portion of the area may be reached from the west access road. Temporary roads provide access to the central and

westerly section. The terrain is rugged throughout most of the area. Approximately 60 percent of the area is wooded. From May 1961 to the spring of 1963, this area was under outgrant to Iowa City, Iowa. Because of lack of interest exhibited in development of the area, the outgrant was relinquished during 1963. Development to date has been limited to the improvement of old existing woods roads and the development of a nature trail extending through the area. Existing and proposed features of this area are shown in Exhibit 2. The northeast quarter of the area will be developed to encourage use by the sight-seer and picnicker. A shelter house, double unit toilet, parking for 30 cars, 11 picnic tables, 5 fireplaces and refuse containers are proposed for this portion of the area. This development will be accessible by foot bridge from the west overlook area. The southeast portion of the area will be developed to accommodate the tent and tent-trailer camper. Facilities proposed include 8 tent-trailer camp sites with a parking spur, table, fireplace and refuse container at each site. In addition, a car-utility trailer parking lot and 10 elevated tent sites each with a table, fireplace and refuse container are proposed to accommodate tent campers. Three double unit pit toilets and potable water well will be provided in conjunction with the 18 camp sites. The pseudo-wilderness effect created by continuous stand of timber in the western portion of the area will be utilized to provide a wilderness-type camping area. Proposed developments consist of an access road, parking lot, 2 pit type toilets and refuse containers.

(7) Squire Point public use area. The area lies west of and adjacent to Linder Point. The terrain rises sharply from the edge of the conservation pool to narrow ridge tops. Part of the area is open as a result of past farming operations but most of the area is covered with relatively dense stands of upland hardwoods. Prior to the spring of 1963, the area was considered a part of Linder Point and was under outgrant to the City of Iowa City. The outgrant was relinquished during the spring of 1963. Development to date has consisted of construction of access roads into and through the area. Cooperative plantings of conifers by the Iowa Conservation Commission in some of the open portions of the area have enhanced future recreational development. The topography of the area will allow for unique development to serve several segments of the recreating public. As shown in Exhibit 2, facilities to be provided will be a loading-unloading dock to serve the camper-boater, 9 tent-trailer camp sites and 4 trailer-only camp sites, and 2 double unit pit toilets and a water system to serve the camper. Each tent-trailer camp site will include a parking spur, raised tent site, table, fireplace and refuse container. Each trailer-only camp site will include a parking spur, table, fireplace and refuse container. In conjunction with camping and boating, day-use facilities will consist of a 20-car parking area, 12 tables, 6 fireplaces, a water supply, 1 double unit toilet, and refuse containers. In addition, 6 tables, 3 fireplaces,

and refuse containers will be installed to serve the boat-in area. One shelter house will be provided for all types of users along with directional and informative signs. Approximately 1,800 feet of circulation road and maintenance trail will be needed in the future. The area is designed to serve the camper, boater-camper or boater day-user.

(8) Sugar Bottom public use area. This area offers abundant room for expansion and diversification as to type of recreational activity. The terrain is gently rolling with a vegetative cover of widely scattered groups of upland hardwoods, deciduous shrubs, weeds and grass. The site is located approximately 3.5 miles from the dam and .5 mile south of County Road "Y". Existing developments consist of a graveled access road into the area, a single graveled boat launching ramp, 23 picnic tables, 7 fireplaces, 4 refuse containers, 2 water systems, and 1 double unit pit toilet. An extensive shade tree planting program by the Corps and a comparative planting program by the Iowa Conservation Commission has enhanced the development of the area. As shown in Exhibits 3 and 4, expansion and improvement of the area will consist of improvement and marking of an existing bridle-nature trail throughout the northern section of the area with 3 tables at the terminus of the trail to serve the user. A specialized camping area with a 20-car parking area, 12 raised tent sites, 6 tables, refuse containers, two council fire rings and one double unit pit toilet will be provided for group type camping, i.e., transit scout troops, clubs, etc. A 20 car-boat trailer parking area with turn-around and a double-concrete ramp and loading/unloading dock will be provided for the boater and fisherman. A 30-car parking area, shelter house, 9 tables, 2 fireplaces and refuse containers will be provided for the day-user in conjunction with existing day-use facilities. A general-type camping area of 31 tent-trailer sites will be provided, with parking spur, table, fireplace and refuse container at each site. Since the area features a natural sand beach, two temporary change shelters have been provided to accommodate the bather. These structures will be improved to be compatible with the standards of other facilities. A total of about 2,500 feet of circulation road and maintenance trail will be required to serve proposed facilities. The area is designed to serve all segments of the recreating public.

(9) Sandy Beach public use area. The area is located on the left bank of the reservoir just west of the confluence of Sand Creek with the reservoir. The site is about 3 miles east of U. S. Highway 218. The area was formerly a farmstead, and existing tree and shrub plantings enhance the development potential. Although camping is permitted the existing facilities are primarily for the day user. The terrain is gently rolling to flat with a vegetative cover of native grasses interspersed with small groups of upland hardwoods and deciduous shrubs. Development, to date has consisted of construction of circulation roads within the area, a graveled launching ramp, 1 double unit pit toilet, water supply, 22 picnic tables, 7 fireplaces,

refuse containers and signs. As shown on Exhibit 5, expansion and improvement of the area will consist of rearranging existing facilities to accommodate both the camper and day user. One day-use area will be developed in the vicinity of the boat launching ramp and natural sandy beach. Proposed day-use facilities will consist of 20 car and 10 car-trailer parking spaces, a shelter house, 2 change houses, 6 additional fireplaces and refuse containers as required. A turn-around will be provided at the launching area and the ramp will be improved. Camping facilities will be located west of the roadway into the boat launching ramp. Camping facilities will consist of 17 tent-trailer camp sites and necessary landscaping to prevent over use of the area. To the west of this area additional day-use facilities are proposed consisting of a shelter house, 30 car parking spaces, double unit toilet, water supply, 20 tables, 10 fireplaces, refuse containers and signs as needed. Approximately 1,500 feet of new access roadway and maintenance trails will be required to serve the proposed facilities. This site is designed to accommodate the day-user, camper, boater and fisherman.

(10) Mid River Park day-use area. This area is located on the right bank of the reservoir along a high narrow wooded ridge overlooking the reservoir. The area is bordered on the west by U. S. Highway 218 and lies adjacent to the Killian commercial concession site. Existing facilities at this site were provided during the final construction phase of the project. These facilities consist of a 30-car parking area, 4 tables, 5 fireplaces, 1 double unit pit toilet, a water system, refuse containers, an area sign and circulation road. Although the area has been used to accommodate campers, it is designed for and should be restricted to day-use. While the general location and size of the area precludes expansion, improvement of existing facilities will consist of 20 interior parking spaces, 15 tables, 4 fireplaces, a shelter house, refuse containers and screen plantings as required. Existing facilities and improvements are shown on Exhibit 6.

(11) Curtis Bridge launching site. This development is located on the right bank approximately 1/4 mile downstream from the relocated U. S. Highway 218 bridge. Access is via old Highway 218. The site was developed during the final stages of project construction and existing facilities consist of access road improvement, a 40-foot wide graveled boat launching ramp and a parking area to accommodate 20 cars or 10 car-boat trailers. Improvements to the area, as shown on Exhibit 7, will include a double concrete launching ramp, 5 tables, 2 fireplaces, 1 double unit toilet, refuse containers, and signs as required. About 300 feet of maintenance trail will be required to serve the proposed facilities. Expansion of the parking area is proposed to provide car-boat trailers as the need requires. The site was designed for and has primary utility for the fisherman and the boater.

(12) Boat-in spots. There are 12 such spots located throughout the reservoir. Most of these spots are accessible only by water and are designed on a temporary basis to meet a specific need of the recreational boater. Facilities at such spots will consist of a picnic table, a fire ring and a refuse container. Development of these areas will depend primarily upon the availability of manpower and equipment during a given year to establish and maintain these facilities. A typical example of such site is shown on Exhibit 8.

(13) To meet projected needs by 1970, four areas have been selected for progressive development over the life of the project. The development of two of these areas will be dependent upon acquiring access right-of-way through private land. The development of one area will be dependent upon reconstruction of the Mehaffey Bridge, and development of the fourth area will be dependent upon public needs. Exhibits showing site layout will be submitted for inclusion into this plan prior to development of the areas. Although current planning is directed toward Corps' development of the aforementioned area, it is conceivable that development may be accomplished through coordination with other agencies.

b. State of Iowa

(1) Iowa Conservation Commission. Through coordination with the Iowa Conservation Commission personnel, it has been determined that the commission desires to concentrate their recreational development efforts at Lake Macbride State Park. In respect to overall recreational planning such direction of effort is considered desirable since development at Lake Macbride will complement reservoir development. In addition to lands formerly owned by the State, approximately 1,120 acres of land acquired by the Corps for project purposes have been outgranted to the State. The Iowa Conservation Commission has developed general plans for expansion of existing facilities. These plans are on file in the District Office.

(2) State University of Iowa. Three separate areas have been outgranted to the State University of Iowa for recreation-educational use covering about 620 acres. Two of the areas will receive little or no development, serving only for field work or as outdoor laboratories in connection with the Departments of Botany, Engineering and Geology, Geography and Zoology. The third area, about 362 acres in size, is scheduled to receive a considerable degree of development. To date, facilities consisting of an access road, electric power, sanitary facilities and a water system have been provided. Through cooperation with the Iowa Conservation Commission a limited degree of landscaping and tree planting has been accomplished. Future plans for this latter mentioned area are on file in the District Office. The location of these areas is shown on Plates 5 & 6.

c. Others.

(1) Town of North Liberty. A 40-acre tract has been out-granted to North Liberty for the purpose of recreational development. Facilities developed thus far consist of a shelter house, 8 picnic tables, 2 fireplaces, 2 refuse containers and 2 single pit toilets. An access road has been developed into the area.

(2) Johnson County. A 5.6-acre tract is being considered for development by Johnson County in cooperation with the Iowa City Coast Guard Auxiliary. An outgrant is currently being processed for this tract. Upon final approval and development, this area will provide a launching ramp, day-use facilities and parking spaces for cars and trailers. Proposed plans are on file in the District Office.

4. COMMERCIAL RECREATIONAL DEVELOPMENTS

a. General. Public demand for boating and fishing opportunities on the Coralville Reservoir has encouraged the leasing of land for commercial recreational developments. The objective in granting these concession leases is to obtain needed recreational services not otherwise supplied. In accordance with EM 405-1-830, commercial concessions are categorized into one of two groups depending upon the extent of development. Any proposed concession with an estimated ultimate capital investment for development of \$25,000 or more is a major concession. One with an estimated ultimate capital investment for development less than \$25,000 is a minor concession. The minimum developments required under existing leases are boat and motor rental, bait and equipment supply, marine gas and oil supply, water, sanitary facilities, boat moorage, electricity and telephone. Two areas considered suitable for additional concession developments have been selected as shown on Plates 5 and 6. Existing commercial developments are described below.

b. Coral Marina. This commercial development is located on the south shore of Turkey Creek embayment on part of Real Estate Tract No. A-8. Facilities and services provided include a boat launching ramp, docks for privately owned boats, sale of gasoline and oil, boat and motor rental, sale of refreshments, fishing tackle and fish bait, sanitary facilities, potable water and telephone. This concession is open throughout the year.

c. Coralville Docks. This development is located on the right bank of the reservoir on Real Estate Tracts Nos. E-417 (part) and E-418 (part). The site is 0.5 mile east of the old Moseman bridge site and is directly across the reservoir from the Sandy Beach public use area. Facilities and service provided include docks for privately owned boats, sale of gasoline and oil, boat and motor rental, sale of refreshments, fishing tackle, fish bait and other supplies, potable water, sanitary facilities, telephone, boat launching ramp, camp sites and picnic facilities.

d. Killian's Sport Center. This development is located on the right bank of the reservoir adjacent to U. S. Highway 218 one mile southeast of the U. S. Highway 218 reservoir bridge. Facilities and services provided include a boat launching ramp, docks, maintenance and repair of privately-owned boats, boat and motor rental, sale of gasoline and oil, sale of boats, motors, fishing tackle, bait, food refreshments and other supplies, sanitary facilities, telephone and boat storage. This development is in operation throughout the year.

## 5. FISH AND WILDLIFE RESOURCES

a. Corps of Engineers. Fish and wildlife management on project lands will be realized through many of the basic management practices incorporated in the overall plan for development. Practices that will have either a direct or indirect influence upon wildlife include plantings for erosion control, reforestation, screen plantings, windbreaks and species manipulation. These practices represent management procedures considered under forest management, recreational development and protection and promotion of scenic values. The provision of wildlife travel lanes, food and cover is a desirable by-product of these developments. In addition to these incidental benefits, specific developments, such as wildlife food plots and maintenance of open areas will be promoted through cooperating Federal and State agencies and through special agricultural lease procedures. Annual conferences will be held with agencies participating in land development related to maintenance and promotion of the wildlife resource. At these conferences, management records will be updated with regard to completed projects, new job plans or program changes. The status of land development activities related to wildlife will be furnished to higher echelon by letter report. Indirect waterfowl management downstream from Highway 218 is being effected by the administration of waterfowl hunting blinds. This and other management procedures will be reviewed annually for compliance with State and Federal regulations.

b. State of Iowa. The Corps of Engineers recognizes the custodial responsibility of the State, acting through the Iowa Conservation Commission, for the development and management of the fish and wildlife resource within the project. A tract of land known as the Hawkeye Wildlife Area has been outgranted to the Iowa Conservation Commission. They have prepared and submitted a plan of development and management for the area. Management will be primarily for waterfowl based on a refuge-public hunting area concept within the framework prescribed by State-wide regulations. Approximately 55 percent of the total area has been established as a waterfowl sanctuary.

Development, to date, of physical features to perpetuate the wildlife resource have consisted of boundary line postings, boundary line clearings, mowing of areas to control woody plant growth and development of access facilities. Future management and development will consist of water stabilization in shallow ponds, improvement of the existing channel for water control and access, improvement of aquatic or semi-aquatic vegetation and habitat manipulation for various species of wildlife. The extent of development during any given year will depend upon personnel and funds available. A completion date for total development has not been determined. The management and development plan for the Hawkeye Wildlife Area is on file in the District Office.

## 6. FOREST RESOURCES

The importance of the forest resource at Coralville Reservoir is realized primarily through its contribution to the scenic, wildlife, and recreational values of the project. Consequently, actual or anticipated land use is the primary indicator as to whether timber production, wildlife or scenic value should be the prime objective of forest management for a given area of project land. Beyond this, forest management must proceed from a knowledge of soil capability, current inventory and possible future land use. On Plates 12 through 17 all existing timber stands have been plotted and given a broad classification as to type and density of stand. In conjunction with land use zoning, reported in Section V and shown on other plates, each wooded area has been assigned a primary management objective. Also shown, as an integral part of this overall forest development plan, are existing and proposed strip, block, or inter plantings designed to meet the primary management objectives throughout the project. The following basic forestry management practices and administrative procedures are given to guide the project manager in implementing this plan. A detailed evaluation of the existing timber stands is given in appendix D.

a. Forest management for recreation. In existing timber stands, with an assigned recreational management objective, forest management will consist primarily of timber stand improvement. Where such stands are within the limits of areas zoned Priority 1 (recreation undeveloped) timber stand improvement work will consist of removal of specific timber hazards or sanitary cutting to preserve the resource. Timber stand improvement work in areas zoned Priority 1 (developed) will be more extensive allowing for removal of diseased, insect infested, or undesirable trees. Tree planting, as a management tool, will be accomplished throughout stands assigned a recreational objective regardless of the subclassification of land zoning. Such plantings may be made in various geometric patterns and consist of various species to create specific landscape effects. Harvest will not be considered except where high quality timber products are being removed through timber stand improvement operations. Fire protection will consist of

presuppression activities such as brush and debris removal along roadways and removal of excess forest litter in areas of intensive recreational use. Details of timber stand improvement work will be developed by coordination with Federal and State forestry personnel and in accordance with overall-plan use of the timber stand. Timber stand improvement harvest, and fire protection work will be accomplished with programmed maintenance funds. Tree plantings for landscaping effects will be accomplished with recreational development funds.

b. Forest management for wildlife. In existing timber stands, with an assigned wildlife management objective, forest management techniques will be specifically designed to benefit certain species of wildlife. In general, these techniques will consist primarily of tree or shrub plantings as required in conjunction with protection from fire and grazing. Detailed management techniques for specific timber stands will be coordinated with Iowa Conservation personnel annually. Harvest will be strictly limited to merchantable timber removed while implementing forest-wildlife management practices. Multi-purpose plantings will be accomplished with programmed maintenance funds. Plantings with a primary objective of wildlife management will be accomplished by the Iowa Conservation Commission or other interested agencies.

c. Forest management for timber production or fiber. For that portion of the reservoir downstream from Highway 218, the quality and quantity of existing timber is limited to the extent that management for wood products is not considered practical. However, some of the project lands upstream from Highway 218 and in the embayment areas have a potential for specific types of timber management. In existing timber stands throughout the reservoir with an assigned timber management objective, the basic silvicultural concept of sustained yield will be followed. Timber stand improvement practices, such as weeding, thinning and sanitary cuttings will be in accordance with detailed recommendations set forth by qualified forestry personnel. Work will be accomplished with programmed maintenance funds. Reforestation in existing stands will be accomplished primarily through natural reproduction except where a higher quality wood product is desired. In such stands, interplantings of desirable tree species will be made to improve timber quality. On certain large tracts where no timber now exists, where site conditions are favorable, and management for timber is considered to be the best land use, plantings of high quality deciduous or coniferous trees will be made. It is considered that such plantings will be accomplished by programmed maintenance funds. As mentioned previously, the basic concept of a sustained yield will apply to existing and proposed timber stands with selective cutting the primary method of harvest. Future harvest may involve clear cutting or seed tree cuts to accomplish particular aspects of timber management. Harvest of wood products will be accomplished through competitive bids and administered by the Real Estate Division. Except for possible use in seed bed preparation, fire has no place in the management for quality hardwoods or coniferous species.

Presuppression and suppression activities for protection from fire, as outlined in paragraph d(1)&(2) of this section, will be supplied to all existing and proposed timber stands. Grazing of any type of live-stock will be expressly forbidden in areas designated as having a timber management objective.

d. Fire protection plan. The Coralville Reservoir does not lie within any of the organized state fire protection areas administered by the Iowa Conservation Commission. The Iowa Conservation Commission does, however, make provision within its budgetary appropriations to cover the cost of emergency use of extra labor and equipment for fire suppression on Coralville Reservoir lands outgranted to the state for wildlife management purposes. Also, the Forestry Division of the Iowa Conservation Commission provides fire protection for Lake McBride State Park. Reservoir lands fall within the boundaries of five organized municipal fire fighting organizations which may be called upon by the Corps to assist in an emergency. However, fire protection for Coralville Reservoir lands will be assured by a program administered through permanent employees of the reservoir labor force as indicated below.

(1) Presuppression. The presuppression phase of this plan will consist of extensive public relations during periods of high fire dangers, the establishment of fire lanes at strategic locations, training of crews and inspection and maintenance of equipment. The presuppression activity will be a coordinated effort by the Reservoir Manager (Operations), Safety Officer and Technical Liaison Officer.

(2) Suppression. The fire suppression phase of this plan will consist of an organizational structure with a supervisor, chief dispatcher, crew fireman and a stand-by labor crew. Certain permanent employees will be assigned specific positions and duties during periods of fire hazard. Available power units will be equipped with specialized attachments, such as fire plows, pumps, etc., and made highly mobile by transportation on truck or freight trailer. A supply of back-pack pumps will be located at each end of the reservoir. A supply of fire rakes, beaters and other required hand tools will be located at four strategic locations throughout the reservoir area. Such equipment will be stored in well-marked weatherproof tool cabinets and used for fire fighting only. All vehicles assigned to fire suppression activity will be equipped with axes, shovels and small chemical extinguishers. A small portable pump with hose will be adapted for transportation by boat to fight shoreline fires in inaccessible areas.

e. Maintenance clearing. Timber clearing of the reservoir basin to an elevation of 681 was accomplished during the construction of the reservoir. This elevation is one foot above the established conservation pool. Clearing was only accomplished in the basin downstream from Highway 218 to the dam. During the spring-summer of 1960 the pool elevation was held at an elevation of 690 in order to test

the effects of various discharge rates. As a result of inundation of existing timber between elevation 680 and 690 during the growing season, there now exists a fringe of dead timber along much of the reservoir shoreline. While this dead timber creates unsightly conditions and presents certain problems of public safety it is not considered economically feasible to embark upon a total clean-up operation. During the past three years natural processes have removed a considerable amount of the dead timber. Additional dead timber will be removed under timber stand improvement practices as outlined in the previous paragraphs. Where specific safety hazards prevail dead timber will be removed under routine reservoir maintenance.

## 7. LAND MANAGEMENT

a. General. All lands acquired in fee are to be managed to provide the optimum benefits for the recreational and wildlife resources in the reservoir area. Lands suited for agricultural use may be leased for agricultural purposes until such time when the land is needed for a higher priority of use. During this interim period, users of agricultural land will be required to follow conservation practices in order to conserve and/or protect the natural resources.

b. Erosion control. The Corps of Engineers in cooperation with the Soil Conservation Service, U. S. Forest Service and the Iowa Conservation Commission selected sites which were severely eroded or subject to erosion, for planting of trees. Tree plantings were initiated on these sites by the Corps during the first years of reservoir operation as a result of the aforementioned cooperation. Also during these early years the U. S. Forest Service established experimental tree planting and the Iowa Conservation Commission made tree and shrub planting for wildlife and erosion control purposes. In the forest management plan presented herein, erosion control has been considered as a major multiple-use purpose along with recreation, wildlife and timber. Yearly surveys will be conducted by qualified Corps personnel and in cooperation with S.C.S. to determine if modifications to the overall land management plans are required to meet specific erosion control problems.

c. Agricultural and grazing leases. For maximum utilization of available land resources all project lands are incorporated in the land use zoning plan. A tract of land zoned for a specific priority of use does not necessarily prevent agricultural leasing on an interim basis. Agricultural and grazing leases shall be used as a tool to effect better management of project resources. Controlled agricultural use of project lands provides a practical means for controlling undesirable growth, maintaining and improving wildlife habitat, and improving scenic values for recreation. It is anticipated that some agricultural leasing will continue indefinitely and in some cases, be manipulated to benefit wildlife habitat. However, as the demand

for higher priorities of use increases, most agricultural leases will be terminated. This procedure will be thoroughly coordinated between Engineering, Real Estate and Operations Divisions.

d. Agricultural and grazing lease administration. Outgranting of lands for agricultural and grazing purposes is the responsibility of the Real Estate Division. Agricultural lands are outgranted either by (1) commitment leases to former owners and/or tenants or (2) leases awarded as a result of the competitive bid procedure, hereafter referred to as advertised leases. Under terms of a commitment lease, the growing of price supported crops is permitted. Regulations set forth in the contract must be followed and the growing of price-supported crops is held to a minimum. Unlike lands leased by commitment, advertised leased tracts do not permit any price-supported crops to be grown. Where feasible, tracts to be advertised for leasing are combined into economical farming units and ordinarily are leased for a period of five years. In order to accomplish goals set forth by the Master Plan for land use development, all agricultural and grazing leases must be closely regulated. The Corps in cooperation with the Soil Conservation Service stipulates land management practices to be followed by the lessee. Repeated violations of basic land use regulations will be considered grounds for revocation of the lease. Detailed land use plans for each lease include a plat of the rental unit, schedule of yearly crop rotation and a statement of land use regulations. Regulations, which are attached to each lease, specify the amount, kind and method of application where necessary, of seed, fertilizer, limestone, and other conservation practices, grazing limitations, fencing requirements, or other special requirements. None of the lessees are permitted to receive payments from the local A.S.C. Service for limestone, fertilizer, etc., since such practices, when required in the lease, are considered in the rental value. Also, lessees of advertised tracts are not permitted to enter into any diverted acreage agreements. By limiting the number of animal units grazed, limiting the grazing season, or by land use regulations prohibiting overgrazing, grazing will be controlled in all agricultural and/or grazing leases. Such control will prevent damage to stands of grass and maintain a protective cover over areas subject to erosion. Lessees will cooperate in the improvements for fish and wildlife and in the furtherance thereof, and the leased premises will be subject to free public use for hunting and fishing in accordance with applicable Federal, State and local laws. The regulations pertaining to the leasing of lands for agricultural or grazing purposes are under Title 10, U. S. Code, Section 2667 and as implemented by the Office, Chief of Engineers.

## 8. PUBLIC HEALTH AND SAFETY

a. Malaria control. The U. S. Public Health Service reported on malaria control in the reservoir area. Their findings indicated that the incidence of malaria was very low in Johnson County.

These findings were further substantiated by investigations during the summer of 1959 by the District Biologist. A preimpoundment mosquito survey was made of the Coralville Reservoir and surrounding area. Anopheles mosquitos were found, but not in sufficient numbers to indicate a definite health menace. The U.S.P.H.S. recommended several mosquito control measures, such as water fluctuation, reduction of aquatic growth, clearing of dead timber, removal of flottage and the use of larvicides. Several of the recommended measures are now, or will be, practiced in the future. From the results of a post-impoundment mosquito study conducted in 1959, it is believed that mosquito population in the project area is not above normal. Mosquito species collected and identified were of the nuisance type and are known to have a very limited flight range. Recreational development has been limited to the lower portion of the reservoir where conditions will be less favorable for mosquito breeding. Annual entomological surveys of the reservoir area will be made to monitor the mosquito population in regard to species composition relative abundance.

b. Potential health problems from sources of pollution appear to be negligible since the nearest industry is approximately seven miles from the conservation pool and no privately-owned lands border the pool. However, qualified Corps personnel in cooperation with the Iowa Public Health Service will monitor the water quality to assure that health problems do not develop.

c. Safety aspects of vehicular operation will be formulated by the District Engineer through the Safety Office and implemented by reservoir personnel. Adequate directional and informative signs will be erected, especially in areas of concentrated public use, to aid in safe utilization of the reservoir by the public.

d. Safety of boating and other water-oriented activities will be assured by Iowa Conservation Commission boating laws coordinated with Corps regulations. Specific boating hazards will be marked or removed by reservoir personnel with programmed maintenance funds.

e. Tree stumps, resulting from preimpoundment reservoir clearing operations between the dam and Highway 218 present boating hazards. The degree of hazard created by these stumps depends upon the relative pool elevation. Currently there are no plans to effect removal of these stumps.

## SECTION VII

### SHORELINE ZONING

#### 1. GENERAL

Since the onset of operation, it has been evident that the reservoir would receive heavy demand from water-oriented recreation. This section is included to serve as a guide in the development of procedures to control and assure orderly use of the shores of the Government lands of the reservoir. This shoreline zoning plan was previously submitted as Supplement No. 1, dated 26 February 1963 to the Updated Master Plan for Coralville Reservoir. The plan has been modified to generally conform with OCE comments contained in ENGCW-OM, 2nd Indorsement, dated 11 April 1963 on above referenced 28 February 1963 letter.

#### 2. PURPOSE

Shoreline zoning has been developed to serve as a guide to assure control and orderly use of the shoreline. Eight classifications of shoreline use have been selected to cover both actual and anticipated use of the shoreline. The classifications, while delineating the specific use of the shoreline, do not necessarily reflect the four priorities which determine land use. However, as shown on Plates 5, 6 and 8, use for which the shoreline is zoned does generally conform with the priority of use assigned to the adjacent land. It is considered that specific zoning of the shoreline is necessary to assure its administrative control and to protect the aesthetic value of the shoreline. The reservoir pool is subject to considerable fluctuation; however, shoreline zoning is applicable at all pool levels.

#### 3. CLASSIFICATION OF SHORELINE ZONING

The following descriptions are given for each classification of zoning.

a. Natural shoreline. Segments of shoreline under this classification shall remain completely in their natural state. Disturbances to the natural landscape of soils, land farms, vegetation and wildlife should be prohibited. Temporary landing or mooring by boaters desiring to utilize the shoreline or adjacent land area shall be permitted.

b. Boat-in spots. In order to meet a specific demand by the public, certain segments of shoreline have been zoned for boat-in spots. The segments are generally small scenic areas with a short lineal shoreline accessible only by boat. Current and anticipated demand for such spots along with topographic limitations dictates the possible development of some 12 such spots. It is proposed that shoreline

zoning along these spots permit limited clearing of native vegetation and installation of limited facilities. Mooring of pleasure boats will be limited to the user of the site; facilities to be installed shall not include any type of docking structure.

c. General public use. Segments of shoreline zoned under this classification are those segments where developed boat ramps exist, where unimproved ramps exist or where boat ramps will be needed in the future. The construction of associated facilities such as loading and or unloading docks, hoists, etc., will be permitted along these segments of shoreline. Only temporary mooring or docking of private boats will be permitted. In development of this type shoreline every attempt should be made to minimize changes in existing physiographic features.

d. Outgrants for Priorities 1 and 2 uses. Segments of shoreline zoned under this classification are segments that have or will be outgranted to State, or local subdivisions thereof or organizations qualifying as Priority 2. Although no lands below the 5-year frequency will be leased for Priority 2 use, this does not preclude that access from the shoreline to a Priority 2 lease above the 5-year contour will be restricted. Shoreline usage, under this classification may vary in degree of use from natural undisturbed shoreline to a fully developed shoreline with ramps, docks, etc. The type of usage will be determined by the proposed usage of the licensing agency but subject to approval by the Corps of Engineers. In all cases these segments will be open to public access unless specially designated otherwise.

e. Commercial concession sites. The physical usage of these segments of the shoreline will be determined by the Real Estate Division in coordination with the Operations and Engineering Divisions.

f. Group or community boating facilities. Segments of shoreline are zoned under this classification to meet specific demands of adjacent land owners. While the use of such segments is recreational in nature, the type of use and user can be considered as Priority 3 or 4. If such segments are assigned to either a Priority 3 or 4 type user, other facilities such as access roads, parking and launching ramps provided by the user will be made available to the public. However, the group to which this segment has been assigned by permit will be allowed to construct docks and assign such space to individuals. An easement for construction of access roadways or other facilities over the adjacent land area will be required. The appraised value of such assignment will be based on the average rental of boats, slips at concession sites less the annual interest and amortized cost of the slip. This rental is estimated to be between \$25 and \$30 per slip. No individual docks will be permitted under Priority 4.

g. Houseboat mooring. This classification of zoning has been designated to provide control of shoreline usage over a particular

type of water craft. Along segments of shoreline zoned for this use, individuals and/or groups will be permitted to moor or dock any type of vessel equipped with sleeping quarters. Such vessels may include houseboats, pontoon boats, large cuisers, etc. The period of docking or mooring will be limited to a period of seven days, and each unit will be required to have an approved permit issued by the Reservoir Manager. The shoreline zoned for this use shall remain free and open to public access. No permanent landward facilities shall be permitted except sanitary facilities and trash disposal units.

h. Restricted shoreline. Shoreline under this classification will be restricted to limited public use in the interest of security and safety. Modification of the restrictions along such shoreline will be made by the District Engineer or his authorized representative.

## SECTION VIII

### WATER ZONING

#### 1. GENERAL

To assure adequate utilization of the water resource and minimize conflicting use, it is considered desirable to establish water zoning. Since the concept of water zoning is relatively new, with questions of methods and means of accomplishment, its application has not been implemented at Coralville Reservoir at this time to any measurable degree. However, with increasing recreational usage, with a projected visitation rate in excess of 700,000 by 1970, it becomes obvious that water zoning will be required in the near future. This section is being inserted into the framework of this Master Plan to allow for future water zoning plans and yet not disrupt the continuity of the overall Master Plan.

#### 2. PROPOSED WATER ZONING

In a sense, a degree of water zoning has been instigated under reservoir rules and regulations given in Section X. It is tentatively considered that, while rules and regulations may control the specific activity, the grouping of compatible activities in designated segments of the reservoir could be accomplished. Studies along these lines will be continued during the next few years until a sound water zoning plan can be formulated. At such time, this section will be revised and submitted for approval.

## SECTION IX - RESERVOIR AREA OPERATION AND MAINTENANCE

### 1. GENERAL ADMINISTRATIVE RESPONSIBILITIES

Delegation of responsibilities between Engineering, Operations, and Real Estate Divisions for recreation, conservation and land utilization is in accordance with the provisions of EM 1130-2-302 and 405-2-835 both dated 28 April 1959, and RID Circular, Real Estate No. 1 dated 4 August 1960. In brief, the responsibilities of the respective divisions will be as follows:

#### a. Engineering Division.

(1) Recreation Section for all pre and post authorization reports, including Master Plan and General Plan.

(2) Liaison with various conservation agencies regarding project resources as related to land and water utilization, except as related to planning for agricultural and grazing lands.

(3) Coordination and liaison with interested parties relative to the utilization of Priority 1 land.

(4) Preparation and review of all recreational site layouts and development plans to include access roads and trails for recreational use.

(5) Establishment of construction standards including those to be required of cooperating agencies and review and approval of development plan submitted by other agencies.

(6) Cooperative arrangements as are necessary to carry out archeological and historical investigations of project lands.

(7) Review and approve plans for structures or facilities that may be related to pollution control.

(8) Provide recommendations for interim use and preservation of project resources.

#### b. Operations Division.

(1) Development, administration and maintenance of recreation facilities as shown in the approved Master Plan.

(2) Management and administration of all project areas on an interim basis prior to construction of facilities or prior to the execution of outgrants or resource development as proposed in the approved Master Plan.

(3) Operational control of functions such as fire protection, debris removal, erosion control, shoreline maintenance and mosquito control on all project lands.

(4) Administration of rules and regulations governing use of the project by the public.

(5) Maintenance of reports and statistics of public use activities on land and waters of the project.

(6) Maintenance of appropriate liaison necessary for adequate security and safety measures.

(7) Administration of the program for use and management of water areas and land areas relating to Priority 1 and fish and wildlife as proposed in the approved Master Plan, except for administration of outgrants.

c. Real Estate Division.

(1) Prepare land use plan for lands available for Priority 2, 3, and 4, and excess to Priority 1 needs.

(2) Prepare plan for management of forest resources as supplement to Master Plan.

(3) Manage all forest areas not required for Priority 1 use (exclusive of police and fire protection).

(4) Make studies for interim use of project lands for agricultural, grazing, and forest management.

(5) Issue all interim use outgrants.

(6) Negotiate all outgrants, to include preliminary discussion with potential grantees.

(7) Administer all outgrants (except functions numbered 4, 10, 13, 24, and 26 of the Linear Responsibility Chart).

(8) Administer the program for lands not required for operations or Priority 1 (except fire fighting, mosquito control, and other operational requirements).

(9) Conduct compliance inspections and enforce terms of lease and license.

(10) Solicit technical assistance from agricultural agencies of Federal, State, and local governments for cooperative planning for management of agricultural and grazing lands.

(11) Issue permits, leases, or licenses for access by adjoining landowners where consistent with approved development plans.

(12) Issue and administer permits required for Priority 2 multiple use type areas.

(13) Perform utilization inspections of all civil works lands (except operational structures).

## 2. POLICY PERTAINING TO PUBLIC USE

In general, the public will have access to the land and water areas of the reservoirs; however, visitors will be restricted from certain areas which in the opinion of the District Engineer should not be open to the general public for security and/or safety reasons. Areas excluded from public use are:

a. Vehicular access to the service road over the dam.

b. Office section, shop and service area around the Administration Building.

c. Water area immediately upstream from the sluice intakes and water area 300 feet below outlet structures.

d. (Other areas as designated by the District Engineer.)

## 3. STAFF ORGANIZATION

In order to implement the proposed and existing development programs set forth in this plan, it is considered that the following staff, organized as shown, will be required. This proposed staff includes the existing staff structure and is predicated on a workload developing from an estimated 700,000 annual visitations by year 1970. High quality maintenance of roads, public use facilities, and other services by Corps personnel are required to sustain the Corps of Engineers reputation for public service. Staff requirements and estimate of cost of maintenance operations required to implement guidance furnished by EM 1130-2-303, "Project Operation Maintenance Guide," are stated in the following paragraphs.

ORGANIZATION CHARTS FOR OPERATION & MAINTENANCE

Chart I

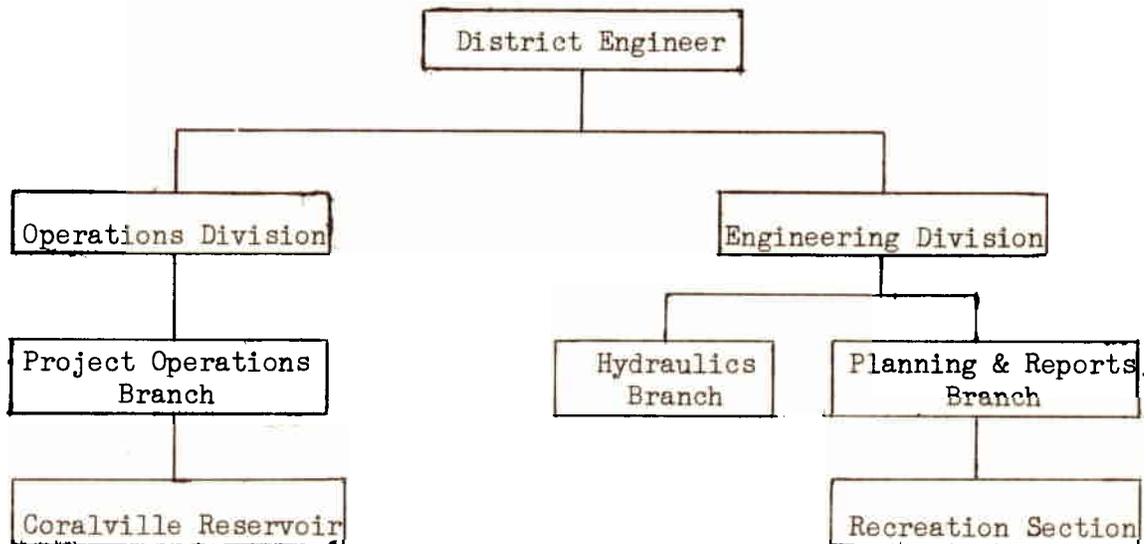


Chart II

Coralville Reservoir	
Reservoir Manager	GS-11
1 Maintenance Lead Foreman	WS-05
1 Electronics Maintenance Technician	GS-7
1 Forester	GS-5
1 Clerk	GS-3
1 Engineer Equipment Operator	WB-10
1 Tractor Operator	WB-7
1 Truck Driver	WB-7
4 Tractor Operators	WB-6
6 Temporary Laborers	W-2

#### 4. OPERATION AND MAINTENANCE COST ESTIMATE

a. The following list of presently employed project personnel indicates the estimated amount of salaries applicable to public use and project operations facilities.

			<u>Public Use</u>	<u>Project Operation</u>
1 Reservoir Manager	GS-11 @ 9,250		5,550	3,700
1 Maintenance Lead Foreman	WS-05 6,930		4,150	2,780
1 Electronics Maintenance Technician	GS-7 6,180		-	6,180
1 Equipment Operator	WB-10 5,700		5,000	700
1 Tractor Operator	WB-7 5,400		5,160	240
1 Truck Driver	WB-7 5,400		5,160	240
1 Forester	GS-5 4,690		4,690	-
1 Tractor Operator	WB-6 4,460		4,460	-
1 Clerk	GS-3 4,090		2,860	1,230
2 Temporary Laborers	W-2 @ 2.03/hr.		<u>4,200</u>	<u>-</u>
			41,230	15,070

b. Necessary equipment, tools and supplies required for the operation of the reservoir were purchased from project construction funds. The average annual cost of replacement out of Operation and Maintenance funds is estimated at \$8,000. This includes such items as trucks, tractors, mowers, traffic counters, hand tools, seed, refuse containers, picnic tables, etc.

c. It is contemplated that existing roads and parking areas will be maintained with the reservoir maintenance force. Surfacing material will be acquired by contract with local suppliers. Nature trails, foot paths, etc., will be maintained by the reservoir force using soil sterilants, resurfacing material, and raking as required. Existing launching ramps will require little maintenance except annual grading and resurfacing. Any wave erosion effect will be corrected by required remedial work. It is estimated that \$8,000 annually will cover the cost of maintaining the foregoing items. It is estimated that after construction of proposed roads, trails, and parking areas, the average annual maintenance cost will be \$20,000.

d. The annual maintenance of grounds, approximately 600 acres in recreation areas is estimated at \$5,000. This maintenance will include such items as landscape plantings, mowing, fertilization, reseeding, spraying, etc.

e. There are 9 pit-type comfort stations existing in the public use area throughout the reservoir. It is estimated that annual maintenance on these units will be \$1,800. There are 18 additional units planned for future development to meet public needs giving an estimated annual maintenance cost for this item of \$6,000 by 1970. Future annual maintenance of 15 proposed shelter houses and/or observation platforms at 10 different locations will require an estimated \$1,000.

f. Day-use facilities, tables, fireplaces, refuse containers, etc., now existing require about \$5,000 for annual maintenance. Proposed future development of such facilities will require a total annual maintenance of about \$12,000.

g. Annual maintenance of existing water supplies at public use areas is estimated to be \$1,000. Considering proposed water supplies to meet future public needs, the annual maintenance cost on this item is estimated to be \$3,000.

h. For the information of the visiting public, signs will be erected at strategic locations throughout the reservoir area. Signs will vary in size and be both informative and directional in nature. Average annual maintenance on both existing and proposed signs is estimated to be \$1,000.

i. Annual maintenance on equipment required to obtain recreational usage data is estimated to be \$1,000.

j. The total annual cost of maintenance of the project by year 1970 is estimated at \$57,000 for recreational usage and \$155,000 for other operational functions giving a grand total of \$212,000. These figures include District Office overhead and all other costs.

## SECTION X

### RULES AND REGULATIONS

#### 1. GENERAL

The main regulations governing public use are covered by the Code of Federal Regulations, Title 36, Parks, Forests and Memorials, Chapter III - Corps of Engineers, Department of the Army, Part 311 - Public Use of Certain Reservoir Areas. Basic reservoir regulations, with needed supplements, have been developed from Title 36 and have been coordinated with the Iowa Conservation Commission and the U. S. Fish and Wildlife Service. Regulations or required supplements thereto, pertaining to boating or other water activities at the reservoir have also been coordinated with the Iowa Conservation Commission. In addition to the regulations cited above, "Special Regulations" have been developed to meet specific needs at Coralville Reservoir and are included in the following paragraph. A summary of Title 36, Chapter III, Part 311, the State of Iowa Boating Laws and the Rules and Regulations governing public use, Coralville Reservoir, Iowa River, Iowa are given in Appendix B.

#### 2. SPECIAL REGULATIONS

a. Motor-driven or wheeled vehicles shall be prohibited in undeveloped areas zoned and reserved for Priority 1 use.

b. The use of water skis, aqua planes, parasails and/or similar devices towed by power-driven watercraft is not permitted in that portion of the reservoir upstream from the area known as the Curtis Bridge Launching site. Operation of such devices shall also be restricted from the use of water within a 300-foot distance of the shoreline, or in embayments.

c. Houseboats, cabin cruisers, and similar craft used for human habitation shall only be moored at specific sites designated by the District Engineer.

d. Horseback riding or corralling of horses shall be prohibited except on designated riding trails and in specific locations respectively.

e. The operation of watercraft in the tailwaters of the dam is prohibited except for maintenance or research purposes.

## SECTION XI - CONCLUSIONS

### 1. CONCLUSIONS

While a Master Plan is a document of continuous use by all elements of the organization, the utility of the document will be dependent upon understanding by the user. Unlike rigid construction plans, the Master Plan must by necessity have a degree of flexibility to allow for changing conditions. The Master Plan presented herein is a result of coordinated effort of Federal, State and local Governmental agencies. The planning set forth in this plan also reflects the needs and desires of interested groups and the recreating public visiting the reservoir. The allocation of the project resources for various uses is consistent with the needs of people in the primary zone of influence, the environmental characteristics of the reservoir basin, and the objective of protecting the natural resource of the reservoir area in the public interest. The public use facilities, both existing and proposed for development, are considered adequate in quality and quantity to meet the heavy public use expected by 1970. In addition, land zoning, forest management, and proposed plantings have been planned to meet anticipated public recreational needs by year 2000. In all respects this plan gives primary consideration to the project resources.

SECTION XII - REVIEW OF MASTER PLAN

1. REAL ESTATE DIVISION

In accordance with paragraphs 5a and 7b of EM 405-2-835, coordination has been effected between the Engineering Division and Real Estate Division in the preparation of this Master Plan. The Master Plan was submitted for review and the Real Estate Division concurs that the Master Plan was prepared in accordance with sound real estate acquisition, management and utilization practices.



C. E. KELLEY, ATTORNEY  
Chief, Real Estate Division

2. OPERATIONS DIVISION

Sections of this Master Plan that have a direct or indirect bearing upon the operation and maintenance of the reservoir have been coordinated with the Operations Division.



R. E. CLEVENSTINE  
Chief, Operations Division

DESIGN MEMORANDUM NO. 15C  
(REVISION NO. 1)  
REVISION TO MASTER PLAN  
FOR  
CORALVILLE RESERVOIR  
IOWA RIVER, IOWA

APPENDIX A

EXPENDITURES AND COST ESTIMATES

U. S. Army Engineer District, Rock Island  
Corps of Engineers  
Clock Tower Building  
Rock Island, Illinois

## APPENDIX A

### EXPENDITURES AND COST ESTIMATES

This appendix is incorporated to provide a detailed analysis of cost for both existing and proposed recreational facilities. For each individual development site, facility costs have been itemized and are presented in three steps, as follows:

- (1) Total cost of existing facilities as of 1 January 1964
- (2) Total estimated cost of proposed additions and expansions
- (3) Sum total of existing and proposed facilities

The general locations of the several recreational areas are indicated on plates 12 through 17. Site layout plans for both existing and proposed features are shown in exhibits 1 through 8. A narrative description of development sites is presented in Section VI, paragraph 3, subparagraphs a(1) through a(11).

SUMMARY OF EXPENDITURES AND COST ESTIMATES

<u>Name of area</u>	<u>Existing facilities</u>	<u>Proposed facilities</u>
Tailwater Public Use Area	\$ 15,582	\$ 16,957
East Overlook	14,240	3,080
Turkey Creek Heights	20,600	36,223
West Overlook and Day Use Area	11,354	9,698
West Overlook Boat Launching Area	18,854	7,320
Linder Point Public Use Area	10,473	34,196
Squire Point Public Use Area	8,335	27,031
Sugar Bottom Public Use Area	37,057	56,529
Sandy Beach Public Use Area	10,543	28,560
Mid-River Park	17,142	9,213
Curtis Bridge Launching Site	6,120	4,436
Boat-in spot	<u>          </u>	<u>1,740</u>
Subtotal	\$ 170,300	\$ 234,983
Contingencies	<u>          </u>	<u>23,498</u>
Total	\$ 170,300	\$ 258,481
Total, Actual and Proposed Expenditures	\$ 428,781	

*Revised 23 March 1964*

EXPENDITURES AND COST ESTIMATES

TAILWATER PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Access road, paved	1,200	l.f.	\$ 6.50	\$ 7,800
Access road, gravel	1,300	l.f.	3.25	4,225
Parking area	230	s.y.	5	1,150
<u>Boat launching ramp, gravel</u>	1	ea.	2000.00	2,000
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	<u>407</u>
Total, Existing Facilities				\$ 15,582

EXPENDITURES AND COST ESTIMATES

TAILWATER PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Maintenance trail	350	l.f.	\$ 1.70	\$ 597
Circulation road, gravel	1,000	l.f.	3.41	3,410
Parking area, gravel	1,135	s.y.	5.00	5,675
<u>Day use facilities</u>				
Shelter house	1	ea.	2000.00	2,000
Picnic tables	6	ea.	75.00	450
Fireplaces	3	ea.	55.00	165
Refuse containers	12	ea.	15.00	180
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	2,000
Seed mulch and fertilizer	6	acre	60.00	360
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	1600.00	1,600
<u>Signs</u>				
Identification	1	ea.	300.00	300
Informative	As required			200
Registration desk	1	ea.	20.00	20
Subtotal				\$ 16,957
Contingencies				1,696
Total, Proposed Facilities				\$ 18,653
Sum total of Existing and Proposed Facilities				\$ 34,235

EXPENDITURES AND COST ESTIMATES

EAST OVERLOOK

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Maintenance trail	1,600	l.f.	\$ 1.63	\$ 2,600
Access road, gravel	520	l.f.	3.25	1,670
Access road, paved	1,000	l.f.	6.50	6,500
Parking area	690	s.y.	5.00	3,450
<u>Day use facilities</u>				
Trash containers	2	ea.	10	<u>20</u>
Total, Existing Facilities				\$ 14,240

EXPENDITURES AND COST ESTIMATES

EAST OVERLOOK

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Day use facilities</u>				
Observation platform	1	ea.	\$2000.00	\$ 2,000
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	500
Seed, mulch and fertilizer	1	acre	60.00	60
<u>Signs</u>				
Identification	1	ea.	300.00	300
Informative			As required	200
Registration desk	1	ea.	20.00	<u>20</u>
Subtotal				\$ 3,080
Contingencies				<u>308</u>
Total, Proposed Facilities				<u>\$ 3,388</u>
Sum total of Existing and Proposed Facilities				\$ 17,628

EXPENDITURES AND COST ESTIMATES

TURKEY CREEK HEIGHTS

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	6,000	l.f.	\$ 3.25	\$ 19,500
<u>Day use facilities</u>				
Picnic tables	7	ea.	49.00	343
Refuse containers	5	ea.	10.00	50
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	407
<u>Signs</u>				
Identification	1	ea.	300.00	<u>300</u>
Total, Existing Facilities				\$ 20,600

EXPENDITURES AND COST ESTIMATES

TURKEY CREEK HEIGHTS

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	1,800	l.f.	\$ 3.41	\$ 6,138
Parking area, gravel	2,885	s.y.	5.00	14,425
<u>Boat launching ramp, gravel</u>	1	ea.	2000.00	2,000
<u>Day use facilities</u>				
Picnic tables	17	ea.	75.00	1,275
Fireplaces	10	ea.	55.00	550
Refuse containers	14	ea.	15.00	210
<u>Camping facilities</u>				
Tables	10	ea.	75.00	750
Fireplaces	10	ea.	55.00	550
Refuse containers	11	ea.	15.00	165
Raised tent sites	10	ea.	20.00	200
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	3	ea.	1600.00	4,800
Well, potable water, with pump	2	ea.	1500.00	3,000
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	700
Seed, mulch and fertilizer	20	acre	60.00	1,200
<u>Signs</u>				
Informative	As required			200
Registration desk	3	ea.	20.00	60
Subtotal				\$ 36,223
Contingencies				3,622
Total, Proposed Facilities				\$ 39,845
Sum total of Existing and Proposed Facilities				\$ 60,445

EXPENDITURES AND COST ESTIMATES

WEST OVERLOOK AND DAY USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Access road, gravel	1,250	l.f.	\$ 3.25	\$ 4,062
Parking area, gravel	1,150	s.y.	5.00	5,750
<u>Day use facilities</u>				
Picnic tables	13	ea.	49.00	637
Fireplaces	2	ea.	44.00	88
Trash containers	11	ea.	10.00	110
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	407
<u>Signs</u>				
Identification	1	ea.	300.00	<u>300</u>
Total, Existing Facilities				\$ 11,354

EXPENDITURES AND COST ESTIMATES

WEST OVERLOOK AND DAY USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	300	l.f.	\$ 3.41	\$ 1,023
Parking area, gravel	460	s.y.	5.00	2,300
<u>Day use facilities</u>				
Picnic tables	3	ea.	75.00	225
Fireplaces	6	ea.	55.00	330
Observation platform	1	ea.	2000.00	2,000
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	1600.00	1,600
Well, potable water, with pump	1	ea.	1500.00	1,500
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	300
Seed, mulch and fertilizer	3	acre	60.00	180
<u>Signs</u>				
Informative	As required			200
Registration desk	2	ea.	20.00	40
Subtotal				\$ 9,698
Contingencies				970
Total, Proposed Facilities				<u>\$ 10,668</u>
Sum total of Existing and Proposed Facilities				\$ 22,022

EXPENDITURES AND COST ESTIMATES

WEST OVERLOOK BOAT LAUNCHING AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Access road, gravel	650	l.f.	\$ 3.25	\$ 2,112
Parking area, gravel	2,165	s.y.	5.00	10,825
<u>Boat launching ramp, gravel</u>	1	ea.	3500.00	3,500
<u>Loading and unloading dock</u>	1	ea.	500.00	500
<u>Day use facilities</u>				
Picnic tables	11	ea.	49.00	539
Fireplaces	4	ea.	44.00	176
Trash containers	8	ea.	10.00	80
Nature trail	300	l.f.	0.05	15
Foot bridge	1	ea.	200.00	200
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	407
Well, potable water, with pump	1	ea.	500.00	500
Total, Existing Facilities				\$ 18,854

EXPENDITURES AND COST ESTIMATES

WEST OVERLOOK BOAT LAUNCHING AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Day use facilities</u>				
Picnic tables	10	ea.	\$ 75.00	\$ 750
Fireplaces	4	ea.	55.00	220
Trash containers	6	ea.	15.00	90
Shelter house	2	ea.	2000.00	4,000
<u>Signs</u>				
Identification	1	ea.	300.00	300
Informative	As required			200
Registration desk	1	ea.	20.00	20
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	500
Seed, mulch and fertilizer	4	acre	60.00	240
<u>Boat launching ramp</u>				
(Concrete for improvement of existing ramp)	1	ea.	1000.00	<u>1,000</u>
Subtotal				\$ 7,320
Contingencies				<u>732</u>
Total, Proposed Facilities				<u>\$ 8,052</u>
Sum total of Existing and Proposed Facilities				\$ 26,906

EXPENDITURES AND COST ESTIMATES

LINDER POINT PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Access road, gravel	3,100	l.f.	\$ 3.25	\$ 10,075
<u>Day use facilities</u>				
Picnic tables	2	ea.	49.00	98
Nature trail	6,000	l.f.	0.05	<u>300</u>
Total, Existing Facilities				\$ 10,473

EXPENDITURES AND COST ESTIMATES

LINDER POINT PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	600	l.f.	\$ 1.70	\$ 1,023
Access road, gravel	1,800	l.f.	3.41	6,138
Parking area, gravel	1,575	s.y.	5.00	7,875
<u>Day use facilities</u>				
Shelter house	1	ea.	2000.00	2,000
Picnic tables	11	ea.	75.00	825
Fireplaces	5	ea.	55.00	275
Trash containers	8	ea.	15.00	120
Foot bridges	2	ea.	200.00	400
<u>Camping facilities</u>				
Tables	18	ea.	75.00	1,350
Fireplaces	18	ea.	55.00	990
Trash containers	20	ea.	15.00	300
Raised tent sites	18	ea.	20.00	360
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	6	ea.	1600.00	9,600
Well, potable water, with pump	1	ea.	1500.00	1,500
<u>Signs</u>				
Identification	1	ea.	300.00	300
Informative	As required			200
Registration desk	2	ea.	20.00	40
<u>Landscaping</u>				
Trees and shrubs	1	job	sum	300
Seed, mulch and fertilizer	10	acre	60.00	600
Subtotal				\$ 34,196
Contingencies				3,419
Total, Proposed Facilities				\$ 37,615
Sum total of Existing and Proposed Facilities				\$ 48,088

EXPENDITURES AND COST ESTIMATES

SQUIRE POINT PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Access road, gravel	2,500	l.f.	\$ 3.25	\$ 8,125
<u>Day use facilities</u>				
Nature trail	4,200	l.f.	0.05	<u>210</u>
Total, Existing Facilities				\$ 8,335

EXPENDITURES AND COST ESTIMATES

SQUIRE POINT PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	600	l.f.	\$ 3.41	\$ 2,046
Parking area, gravel	1,691	s.y.	5.00	8,455
<u>Day use facilities</u>				
Shelter house	1	ea.	2000.00	2,000
Picnic tables	18	ea.	75.00	1,350
Fireplaces	9	ea.	55.00	495
Trash containers	12	ea.	15.00	180
Foot bridge	1	ea.	200.00	200
<u>Camping facilities</u>				
Tables	13	ea.	75.00	975
Fireplaces	13	ea.	55.00	715
Trash cans	13	ea.	15.00	195
Raised tent sites	9	ea.	20.00	180
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	3	ea.	1600.00	4,800
Well, potable water, with pump	2	ea.	1500.00	3,000
<u>Signs</u>				
Identification	2	ea.	300.00	600
Informative	As required			200
Registration desk	2	ea.	20.00	40
<u>Loading and unloading dock</u>	1	ea.	500.00	500
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	500
Seed, mulch and fertilizer	10	acre	60.00	600
Subtotal				\$ 27,031
Contingencies				2,703
Total, Proposed Facilities				\$ 29,734
Sum total of Existing and Proposed Facilities				\$ 38,069

EXPENDITURES AND COST ESTIMATES

SUGAR BOTTOM PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Access road, gravel	9,900	l.f.	\$ 3.25	\$ 32,175
<u>Boat launching ramp, gravel</u>	1	ea.	2000.00	2,000
<u>Day use facilities</u>				
Picnic tables	23	ea.	49.00	1,127
Fireplaces	7	ea.	44.00	308
Trash containers	4	ea.	10.00	40
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	407
Well, potable water, with pump	2	ea.	500.00	1,000
Total, Existing Facilities				\$ 37,057

EXPENDITURES AND COST ESTIMATES

SUGAR BOTTOM PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Maintenance trail	250	l.f.	\$ 1.70	\$ 597
Circulation road, gravel	2,200	l.f.	3.41	7,502
Parking area, gravel	4,532	s.y.	5.00	22,660
<u>Day use facilities</u>				
Shelter house	1	ea.	2000.00	2,000
Picnic tables	12	ea.	75.00	900
Fireplaces	2	ea.	55.00	110
Trash containers	13	ea.	15.00	195
Change house	2	ea.	1000.00	2,000
<u>Camping facilities</u>				
Tables	37	ea.	75.00	2,775
Fireplaces	33	ea.	55.00	1,815
Trash containers	45	ea.	15.00	675
Raised tent sites	12	ea.	20.00	240
<u>Sanitary facilities</u>				
Toilets, double unit, pit type	3	ea.	1600.00	4,800
Well, potable water, with pump	1	ea.	1500.00	1,500
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	5,000
Seed, mulch and fertilizer	50	acre	60.00	3,000
<u>Loading and unloading dock</u>				
	1	ea.	500.00	500
<u>Signs</u>				
Informative	As required			200
Registration desk	3	ea.	20.00	60
Subtotal				\$ 56,529
Contingencies				5,653
Total, Proposed Facilities				\$ 62,182
Sum total of Existing and Proposed Facilities				\$ 99,239

EXPENDITURES AND COST ESTIMATES

SANDY BEACH PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	1,800	l.f.	\$ 3.25	\$ 5,850
<u>Boat launching ramp</u>	1	ea.	2000.00	2,000
<u>Day use facilities</u>				
Picnic tables	22	ea.	49.00	1,078
Fireplaces	7	ea.	44.00	308
Trash containers	10	ea.	10.00	100
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	407
Well, potable water, with pump	1	ea.	500.00	500
<u>Signs</u>				
Identification	1	ea.	300.00	<u>300</u>
Total, Existing Facilities				\$ 10,543

EXPENDITURES AND COST ESTIMATES

SANDY BEACH PUBLIC USE AREA

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	1,000	l.f.	\$ 3.41	\$ 3,410
Parking area, gravel	1,715	s.y.	5.00	8,575
<u>Day use facilities</u>				
Shelter house	2	ea.	2000.00	4,000
Picnic tables	27	ea.	75.00	2,025
Fireplaces	15	ea.	55.00	825
Trash containers	22	ea.	15.00	330
Nature trail	500	l.f.	0.05	25
Change house	2	ea.	1000.00	2,000
<u>Camping facilities</u>				
Fireplaces	10	ea.	55.00	550
Trash containers	8	ea.	15.00	120
Raise tent sites	17	ea.	20.00	340
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	1600.00	1,600
Well, potable water, with pump	1	ea.	1500.00	1,500
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	2,000
Seed, mulch and fertilizer	10	acre	60.00	600
<u>Signs</u>				
Informative	2	ea.	300.00	600
Registration desk	3	ea.	20.00	60
Subtotal				\$ 28,560
Contingencies				2,856
Total, Proposed Facilities				<u>\$ 31,416</u>
Sum total of Existing and Proposed Facilities				\$ 41,959

EXPENDITURES AND COST ESTIMATES

MID RIVER PARK

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	3,358	l.f.	\$ 3.25	\$ 10,913
Parking, gravel	920	s.y.	5.00	4,600
<u>Day use facilities</u>				
Picnic tables	4	ea.	49.00	196
Fireplaces	5	ea.	44.00	176
Trash containers	5	ea.	10.00	50
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	407.00	407
Well, potable water, with pump	1	ea.	500.00	500
<u>Signs</u>				
Identification	1	ea.	300.00	<u>300</u>
Total, Existing Facilities				\$ 17,142

EXPENDITURES AND COST ESTIMATES

MID RIVER PARK

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Circulation road, gravel	800	l.f.	\$ 3.41	\$ 2,728
Parking area, gravel	460	s.y.	5.00	2,300
<u>Day use facilities</u>				
Shelter house	1	ea.	2000.00	2,000
Picnic tables	15	ea.	75.00	1,125
Fireplaces	4	ea.	55.00	220
Trash containers	8	ea.	15.00	120
<u>Landscaping</u>				
Trees or shrubs	1	job	sum	200
Seed, mulch and fertilizer	5	acre	60.00	300
<u>Signs</u>				
Informative	As required			200
Registration desk	1	ea.	20.00	<u>20</u>
Subtotal				\$ 9,213
Contingencies				<u>921</u>
Total, Proposed Facilities				\$ <u>10,134</u>
Sum total of Existing and Proposed Facilities				\$ 27,276

EXPENDITURES AND COST ESTIMATES

CURTIS BRIDGE LAUNCHING SITE

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
<u>Roads and parking</u>				
Parking area, gravel	460	s.y.	\$ 5.00	\$ 2,300
<u>Boat launching ramp, gravel</u>	1	ea.	3500.00	3,500
<u>Day use facilities</u>				
Trash containers	2	ea.	10.00	20
<u>Signs</u>				
Identification	1	ea.	300.00	<u>300</u>
Total, Existing Facilities				\$ 6,120

EXPENDITURES AND COST ESTIMATES

CURTIS BRIDGE LAUNCHING SITE

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Roads and parking</u>				
Maintenance trails, gravel	300	l.f.	\$ 1.70	\$ 511
<u>Boat launching ramp</u>				
Material to construct a 24-foot concrete ramp	1	ea.	1000.00	1,000
<u>Day use facilities</u>				
Picnic tables	5	ea.	75.00	375
Fireplaces	2	ea.	55.00	110
Trash containers	4	ea.	15.00	60
<u>Sanitary facilities</u>				
Toilet, double unit, pit type	1	ea.	1600.00	1,600
<u>Loading and unloading dock</u>				
	1	ea.	500.00	500
<u>Landscaping</u>				
Seed, mulch and fertilizer	1	acre	60.00	60
<u>Signs</u>				
Informative	As required			200
Registration desk	1	ea.	20.00	20
Subtotal				\$ 4,436
Contingencies				444
Total, Proposed Facilities				\$ 4,880
Sum total of Existing and Proposed Facilities				\$ 11,000

EXPENDITURES AND COST ESTIMATES

TYPICAL BOAT-IN SPOT

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>EXISTING FACILITIES</u>				
None				

EXPENDITURES AND COST ESTIMATES

TYPICAL BOAT-IN SPOT

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total estimated cost</u>
<u>PROPOSED FACILITIES</u>				
<u>Day use facilities</u>				
Table	1	ea.	\$ 75.00	\$ 75
Fireplace	1	ea.	55.00	55
Trash container	1	ea.	15.00	<u>15</u>
Total, Proposed Facilities				\$ <u>145</u>
Sum total of Existing and Proposed Facilities				\$ 145

Twelve sites have been selected for the development of boat-in spots along the shore of the reservoir. Using \$145 as the average cost for a typical boat-in spot, the total installation cost of these facilities is estimated at:

	<u>Quantity</u>	<u>Unit</u>	<u>Unit price</u>	<u>Total cost</u>
Contingencies	12	ea.	\$145.00	\$ 1,740
				<u>174</u>
Total, Proposed Facilities				\$ <u>1,914</u>
Sum total of Existing and Proposed Facilities				\$ 1,914

DESIGN MEMORANDUM NO. 15C  
(REVISION NO. 1)  
REVISION TO MASTER PLAN  
FOR  
CORALVILLE RESERVOIR  
IOWA RIVER, IOWA

APPENDIX B

RULES AND REGULATIONS

U. S. Army Engineer District, Rock Island  
Corps of Engineers  
Clock Tower Building  
Rock Island, Illinois

APPENDIX B  
RULES AND REGULATIONS

1. GENERAL

Inclosed under this appendix are copies of State and Federal regulations controlling recreational activity at Coralville Reservoir. These regulations, "Special Regulation" and zoning classifications are all considered necessary to provide maximum utilization of the project resources and prevent despoilment. Currently coordination is being effected with the Iowa Conservation Commission in regard to boating, hunting and fishing regulations in order to secure better enforcement.

## Title 36—PARKS, FORESTS, AND MEMORIALS

### Chapter III—Corps of Engineers, Department of the Army

#### PART 311—PUBLIC USE OF CERTAIN RESERVOIR AREAS

##### Republication of Part

Part 311 of Title 36 is republished in its entirety. The provisions with respect to areas covered contained in § 311.1, and the provisions with respect to hunting in § 311.6(b) have been rearranged alphabetically by States. No substantive change is made by this republication.

##### Sec.

- 311.1 Areas covered.
- 311.2 Boats, commercial.
- 311.3 Boats and other vessels, private.
- 311.4 Mooring, care and sanitation of boats and floating facilities.
- 311.5 Swimming and bathing.
- 311.6 Hunting and fishing.
- 311.7 Camping.
- 311.8 Picnicking.
- 311.9 Access to water areas.
- 311.10 Destruction of public property.
- 311.11 Firearms and explosives.
- 311.12 Gasoline and oil storage.
- 311.13 Sanitation.
- 311.14 Advertisements.
- 311.15 Unauthorized solicitations and business activities.
- 311.16 Commercial operations.
- 311.17 Dogs.
- 311.18 Recreational activity programs.
- 311.19 Abandonment of personal property.

AUTHORITY: §§ 311.1 to 311.19 issued under sec. 4, 58 Stat. 889, as amended; 16 U. S. C. 460d.

##### § 311.1 Areas covered.

The regulations contained in this part shall be applicable to:

##### Arkansas

- Blakely Mountain Reservoir Area (Lake Ouachita), Ouachita River.
- Blue Mountain Reservoir Area, Petit Jean River.
- Bull Shoals Reservoir Area, White River.
- Narrows Reservoir Area, Little Missouri River.
- Nimrod Reservoir Area, Fourche La Pave River.
- Norfolk Reservoir Area, North Fork River.
- Table Rock Reservoir Area, White River.

##### California

- Harry L. Englebright Reservoir Area, Yuba River.
- Isabella Reservoir Area, Kern River.
- North Fork Reservoir Area, North Fork American River.
- Pine Flat Reservoir Area, Kings River.

##### Colorado

- Cherry Creek Reservoir Area, Cherry Creek.
- John Martin Reservoir Area, including Lake Hasty, Arkansas River.

##### Georgia

- Allatoona Reservoir Area, Etowah River.
- Buiford Reservoir Area (Lake Sidney Lanier), Chattahoochee River.
- Clark Hill Reservoir Area, Savannah River.

##### Idaho

- Lucky Peak Reservoir Area, Boise River.

##### Iowa

- Coralville Reservoir Area, Iowa River.

##### Kansas

- Fall River Reservoir Area, Fall River.
- Hulah Reservoir Area, Caney River.
- Kanopolis Reservoir Area, Smoky Hill River.
- Toronto Reservoir Area, Verdigris River.

##### Kentucky

- Dale Hollow Reservoir Area, Obey River.
- Dewey Reservoir Area, Johns Creek.
- Wolf Creek Reservoir Area, Cumberland River.

##### Maryland

- Youghiogheny River Reservoir Area, Youghiogheny River.

##### Mississippi

- Arkabutla Reservoir Area, Coldwater River.
- Enid Reservoir Area, Yocona River.
- Grenada Reservoir Area, Yalobusha and Skuna Rivers.
- Sardis Reservoir Area, Little Tallahatchie River.

##### Missouri

- Bull Shoals Reservoir Area, White River.
- Clearwater Reservoir Area, Black River.
- Norfolk Reservoir Area, North Fork River.
- Table Rock Reservoir Area, White River.
- Wappapello Reservoir Area, St. Francis River.

##### Montana

- Fort Peck Reservoir Area, Missouri River.

##### Nebraska

- Gavins Point Reservoir Area (Lewis and Clark Lake), Missouri River.
- Harlan County Reservoir Area, Republican River.

##### North Carolina

- John H. Kerr Reservoir Area, Roanoke River.

##### North Dakota

- Baldhill Dam and Lake Ashtabula, Sheyenne River.
- Garrison Reservoir Area, Missouri River.
- Homme Reservoir Area, Park River.

##### Ohio

- Berlin Reservoir Area, Mahoning River.
- Dillon Reservoir Area, Licking River.

##### Oklahoma

- Canton Reservoir Area, North Canadian River.
- Fort Gibson Reservoir Area, Grand (Neosho) River.
- Fort Supply Reservoir Area, Wolf Creek.
- Heyburn Reservoir Area, Polecat Creek.
- Hulah Reservoir Area, Caney River.
- Lake Texoma and the Denison Reservoir Area, Red River.
- Tenkiller Ferry Reservoir Area, Illinois River.
- Wister Reservoir Area, Poteau River.

##### Oregon

- Cottage Grove Reservoir Area, Coast Fork of Willamette River.
- Dexter Reservoir Area, Middle Fork Willamette River.
- Dorena Reservoir Area, Row River.
- Fern Ridge Reservoir Area, Long Tom River.
- Lookout Point Reservoir Area, Middle Fork Willamette River.

##### Pennsylvania

- Conemaugh River Reservoir Area, Conemaugh River.
- Crooked Creek Reservoir Area, Crooked Creek.
- Loyalhanna Reservoir Area, Loyalhanna Creek.
- Mahoning Creek Reservoir Area, Mahoning Creek.
- Tionesta Reservoir Area, Tionesta Creek.
- Youghiogheny River Reservoir Area, Youghiogheny River.

##### South Carolina

- Clark Hill Reservoir Area, Savannah River.

##### South Dakota

- Fort Randall Reservoir Area, Missouri River.
- Gavins Point Reservoir Area (Lewis and Clark Lake), Missouri River.

##### Tennessee

- Center Hill Reservoir Area, Caney Fork River.
- Dale Hollow Reservoir Area, Obey River.

##### Texas

- Belton Reservoir Area, Leon River.
- Benbrook Reservoir Area, Clear Fork of the Trinity River.
- Dam B Reservoir Area, Neches River.
- Ferrells Bridge Reservoir Area, Cypress Creek.
- Garza-Little Elm (Lewisville) Reservoir Area, Elm Fork, Trinity River.
- Grapevine Reservoir Area, Denton Creek.
- Hords Creek Reservoir Area, Hords Creek.
- Lake Texoma and the Denison Reservoir Area, Red River.
- Lavon Reservoir Area, East Fork Trinity River.
- San Angelo Reservoir Area, North Concho River.
- Texarkana Reservoir Area, Sulphur River.
- Whitney Reservoir Area, Brazos River.

##### Virginia

- Bluestone Reservoir Area, New River.
- John H. Kerr Reservoir Area, Roanoke River.
- Philpott Reservoir Area, Smith River.

##### West Virginia

- Bluestone Reservoir Area, New River.

##### § 311.2 Boats, commercial.

No boat, barge or other vessel shall be placed upon or operated upon any water of the reservoir for a fee or profit, either as a direct charge to a second party or as an incident to other services provided to the second party, except as specifically authorized by lease, license, or concession contract with the Department of the Army.

### § 311.3 Boats and other vessels, private.

(a) The operation of boats, houseboats, cabin cruisers and other vessels on the reservoir for fishing and recreational use is permitted except in prohibited areas designated by the District Engineer in charge of the reservoir area and subject to the regulations contained in this part.

(b) A permit shall be obtained from the District Engineer or his authorized representative for placing and operating a boat or other vessel on the reservoir for any one period longer than three days. No charge will be made for this permit. The permit shall be kept aboard the vessel at all times that the vessel is in operation on the reservoir. The District Engineer in charge of the area or his authorized representative shall have authority to revoke the permit and to require removal of the vessel upon failure of the permittee to comply with the terms and conditions of the permit or with the regulations in this part.

(c) Unsafe boats or other vessels will not be permitted on the reservoir. The District Engineer may require the applicant for a permit to furnish the construction plans and other information pertaining to the construction and equipment of the boat or other vessel prior to issuing a permit for its operation on the reservoir. All boats permitted on the reservoir shall be equipped for safe operation and operated in a safe manner in accordance with instructions issued by the District Engineer. These instructions may provide that the operation of speed boats and water skiing activities shall be confined to areas of water designated by the District Engineer for such activities.

(d) Boathouses, houseboats, cabin cruisers and other vessels may be placed and operated on the reservoirs, except that such facility shall not be utilized for human habitation at a fixed or permanent mooring point and if equipped with toilets and galleys shall not be placed on reservoirs with small permanent pools. Such vessels may be barred from other reservoirs by the District Engineer with the concurrence of the Chief of Engineers in those reservoirs in which the waters thereof are used for domestic water supply when the District Engineer determines that such use is contrary to the public health and safety.

### § 311.4 Mooring, care and sanitation of boats and floating facilities.

(a) All boats or other vessels when not in actual use must be either removed from the reservoir, securely moored at authorized docks or boathouses where supervision by the owner or his representative is provided on a 24-hour-day basis, or placed in the care of a marina concessionaire, State or local managing agency or other party authorized to care for floating equipment on a 24-hour-day basis.

(b) All boats, barges and other vessels or floating facilities will be moored only in locations designated by the District Engineer or his designated representa-

tive. All floating or stationary mooring facilities will be constructed in accordance with plans and a permit approved by the District Engineer or his designated representative. He shall have authority to revoke such permit and require removal of the facility for failure of the permittee to comply with the terms and conditions of the permit or with the regulations in this part.

(c) The discharge of sewage, garbage or other pollutant in the waters of the reservoir from any boat, barge or other vessel on the reservoir is prohibited except in accordance with regulations of the State and local health agencies permitting such discharge when underway in deep waters other than embayments. All such pollutants shall be deposited ashore at places designated for such deposit and disposal.

### § 311.5 Swimming and bathing.

Swimming and bathing are permitted except in prohibited areas designated by the District Engineer.

### § 311.6 Hunting and fishing.

(a) Hunting and fishing are permitted in accordance with all applicable Federal, State and local laws for the protection of fish and game except in prohibited areas including the following:

(1) Public access, park and recreation areas in which all hunting is prohibited.

(2) Prohibited areas designated by the District Engineer in which hunting or fishing or both are prohibited.

(3) Prohibited areas designated by Federal or State managing agencies under applicable laws administered by such agencies.

(b) Hunting is restricted to the use of bow and arrow or shotgun loaded with shot in any reservoir area listed in § 311.1 except in managed game areas where the special hunting regulations of the managing agency with the prior approval of the District Engineer will apply, and except for the following reservoir areas on which hunting of deer with rifles is also permitted when not contrary to State or local laws or regulations.

#### Arkansas

Bull Shoals Reservoir Area, White River.  
Table Rock Reservoir Area, White River.

#### California

Harry L. Englebright Reservoir Area, Yuba River.  
North Fork Reservoir Area, North Fork American River.  
Pine Flat Reservoir Area, Kings River.

#### Missouri

Bull Shoals Reservoir Area, White River.  
Clearwater Reservoir Area, Black River.  
Table Rock Reservoir Area, White River.  
Wappapello Reservoir Area, St. Francis River.

#### Montana

Fort Peck Reservoir Area, Missouri River.

#### Nebraska

Gavins Point Reservoir Area (Lewis and Clark Lake), Missouri River.

#### North Dakota

Garrison Reservoir Area, Missouri River.

#### Pennsylvania

Conemaugh River Reservoir Area, Conemaugh River.  
Crooked Creek Reservoir Area, Crooked Creek.  
Loyalhanna Reservoir Area, Loyalhanna Creek.  
Mahoning Creek Reservoir Area, Mahoning Creek.  
Tionesta Reservoir Area, Tionesta Creek.  
Youghiogheny River Reservoir Area, Youghiogheny River.

#### South Dakota

Fort Randall Reservoir Area, Missouri River.  
Gavins Point Reservoir Area (Lewis and Clark Lake), Missouri River.

(c) A permit shall be obtained from the District Engineer or his authorized representative to construct a duck blind on the water in any reservoir area listed in § 311.1 except for the Wappapello Reservoir Area, St. Francis River, Missouri, on which duck blinds may be permitted or prohibited in accordance with regulations of the Missouri Conservation Commission relative to duck hunting.

### § 311.7 Camping.

(a) Camping is permitted only at areas designated by the District Engineer in charge of the reservoir area or his authorized representative.

(b) Approval of the District Engineer, or his authorized representative, is required to camp in the reservoir area for any one period of two weeks or longer.

(c) Camping equipment shall not be abandoned or left unattended for 48 hours or more.

(d) The installation of any permanent facility at any public camp ground is permitted only on written authorization of the District Engineer or his authorized representative.

(e) Campers shall keep their camp grounds clean and dispose of combustibles and refuse in accordance with instructions posted by the District Engineer at each camp ground.

(f) Due diligence shall be exercised in building and putting out camp fires to prevent damages to trees and vegetation and to prevent forest and grass fires.

(g) Camps must be completely razed and the sites cleaned before the departure of the campers.

### § 311.8 Picnicking.

(a) Picnicking is permitted, except in prohibited areas designated by the District Engineer or his authorized representative, in any reservoir area listed in § 311.1 except for the following reservoir areas in which picnicking is prohibited in all areas not specifically designated by the District Engineer for picnicking:

(1) Fort Peck Reservoir Area, Missouri River, Montana.

### § 311.9 Access to water areas.

(a) Pedestrian access is permitted along the shores of the reservoir except in areas designated by the District Engineer or his authorized representative.

(b) Automobile access is permitted only over open public and reservoir roads.

(c) Access for the general public to launch boats is permitted only at the

public launching sites designated by the District Engineer.

**§ 311.10 Destruction of public property.**

The destruction, injury, defacement, or removal of public property or of vegetation, rock, or minerals, except as authorized, is prohibited.

**§ 311.11 Firearms and explosives.**

Loaded rifles, loaded shotguns, loaded pistols and explosives of any kind are prohibited in the area, except when in the possession of a law enforcement officer or Government employee on official duty, when shotguns or rifles are being used for hunting during the hunting season as permitted under § 311.6 and when specifically authorized by the District Engineer.

**§ 311.12 Gasoline and oil storage.**

Gasoline and other inflammable or combustible liquids shall not be stored in, upon, or about the reservoir or shores thereof without the written permission of the District Engineer or his authorized representative.

**§ 311.13 Sanitation.**

Refuse, garbage, rubbish or waste of any kind shall not be thrown on or along roads, picnicking or camping areas, in the reservoir waters or on any of the lands around the reservoir, but shall be burned or buried, or disposed of at designated points or places designed for the sanitary disposal thereof.

**§ 311.14 Advertisements.**

Private notices and advertisements shall not be posted, distributed, or displayed in the reservoir area except such

as the District Engineer or his authorized representative may deem necessary for the convenience and guidance of the public using the area for recreational purposes.

**§ 311.15 Unauthorized solicitations and business activities.**

No person, firm, or corporation, or their representatives shall engage in or solicit any business on the reservoir area without permission in writing from the District Engineer or in accordance with terms of a lease, license, or concession contract with the Department of the Army.

**§ 311.16 Commercial operations.**

All commercial operations or activities on the waters of the reservoir or on the lands under the control of the Department of the Army around the reservoir shall be in accordance with lease, license, or other agreements with the Department of the Army.

**§ 311.17 Dogs.**

(a) Dogs are not permitted in any of the following reservoir areas unless on a leash, in a pen, or under complete control of the owner or manager.

(1) Fort Peck Reservoir Area, Missouri River, Montana.

**§ 311.18 Recreational activity programs.**

(a) Special events such as water carnivals, boat regattas, music festivals, dramatic presentations, or other special recreational programs of interest to the general public are permitted in areas designated by the District Engineer or his authorized representative.

(b) A permit shall be obtained from

the District Engineer or his authorized representative by the governmental or legally responsible private agency proposing to hold a special recreation program as indicated in this section. No charge will be made for this permit.

(c) The District Engineer in charge of the area shall have authority to revoke any permit granted under this section and to require the removal of any equipment upon failure of the permittee to comply with the terms and conditions of the permit or with the regulations in this part.

**§ 311.19 Abandonment of personal property.**

Abandonment of personal property on the land or waters of the reservoir area is prohibited. Personal property shall not be left unattended upon the lands and waters of the reservoir area except in accordance with the regulations prescribed in this part or under permits issued therefor. The Government assumes no responsibility for personal property and if such property is abandoned or left unattended in other than places designated in a permit issued therefor or under a regulation for a period in excess of 48 hours it will be impounded, and if not reclaimed by the owners thereof within ninety days will be sold, destroyed, converted to Government use, or otherwise disposed of as determined by the District Engineer or his designated representative.

R. V. LEE,  
Major General, U.S. Army,  
The Adjutant General.

[F.R. Doc. 59-8822, Filed; Oct. 20, 1959;  
8:45 a.m.]

ADMINISTRATIVE ORDER #307  
of the  
IOWA STATE CONSERVATION COMMISSION

The State Conservation Commission established the following regulations as provided in Chapter 87, Acts of the 59th General Assembly of Iowa.

**Regulation No. 1 - - CONTENT OF APPLICATION FOR NUMBER.**

The following information shall be furnished, required and stated in the application for number:

1. Number and address of the owner.
2. Date of birth.
3. Citizenship.
4. State of principle use.
5. Present number (if any).
6. Hull material (wood, steel, aluminum, plastic, other).
7. Type of propulsion (outboard, inboard, other).
8. Type of fuel (gas, diesel, other).
9. Length and width of boat.
10. Make, and year built (if known).
11. Statement as to use.
12. Signature.
13. Make of motor, serial number of motor.
14. Maximum number of persons intended on board.

**Regulation No. 2 - - INFORMATION ON CERTIFICATE.**

The certificate of number shall show the following:

1. Name and address of boat owner.
2. Number issued.
3. Expiration date.
4. Make or model or type of boat.
5. Hull material (wood, steel, aluminum, plastic, other).
6. Length of vessel.
7. Propulsion (inboard, outboard, other).
8. Maximum capacity rating (number of persons).

**Regulation No. 3 - - DISPLAY OF NUMBER ON VESSEL, AS TO SIZE, BLOCK TYPE AND CONTRASTING COLOR.**

1. The identification number awarded to any vessel under the Iowa numbering system shall be displayed thereon by being:
  - (a) painted on, or attached to, each side of the bow (i.e., the forward half) of the vessel; read from left to right; and in such position as to provide maximum visibility;
  - (b) in block characters of good proportion not less than 3 inches in height;

- (c) of a color which will contrast with the color of the background (i.e., dark numbers on a light background, or light numbers on a dark background) and so maintained as to be clearly visible and legible.
- 2. No other number shall be carried on the bow of the vessel.
- 3. Purchase and attachment of these letters and numbers is the responsibility of the boat owner.

**Regulation No. 4 - - REPORTING OF BOATING ACCIDENTS.**

- (a) A written report is required when an accident occurs on board, or involving any vessel in addition to those stipulated in the law.
  - 1. The disappearance of any person from on board under circumstances which suggest any possibility of their death or injury.
- (b) These reports shall be filed in triplicate with the State Conservation Commission in writing and shall include the following information:
  - 1. The numbers and/or names of the vessels involved.
  - 2. The locality where the accident occurred.
  - 3. The date and time where the accident occurred.
  - 4. The weather and lake or river conditions at time of accident.
  - 5. The name, address, age, and boating experience of the operator of the reporting vessel.
  - 6. The names and addresses of the operators of the other vessel involved.
  - 7. The names and addresses of the owners of vessels or other property involved.
  - 8. The names and addresses of any person or persons involved or killed.
  - 9. The nature and extent of injury to any person or persons.
  - 10. A description of damage to any property (including vessels) and estimated cost of repairs.
  - 11. A description of the accident (including opinions as to the causes).
  - 12. The length, propulsion, horsepower, fuel and construction of the reporting vessel.
  - 13. Names and addresses of known witnesses.

**Regulation No. 5 - - NUMBERING PATTERN TO BE USED.**

- (a) The identification numbers awarded under the Iowa system shall consist of three parts. The first part shall consist of the letters "IA" indicating this state. The second part shall consist of not more than four (4) arabic numerals. The third part shall consist of not more than two (2) letters.
- (b) The parts shall be separated by a hyphen or an equivalent space.  
As examples:

IA-2500-C

IA-9875-EA

IA 7560 ZZ

(c) Since the letters "I", "O", and "Q" may be mistaken for arabic numerals, they shall not be used in the suffix.

**Regulation No. 6 - - AFT LIGHT FOR SAILBOATS LESS THAN 26 FEET IN LENGTH.**

Vessels of Class I & II propelled by sail alone between sunset and sunrise shall exhibit in addition to combine lantern a white light in aft part of boat which shows (360°) all around the horizon.

**Regulation No. 7 - - BUOYANT SAFETY EQUIPMENT.**

Life preservers, life belts, ring buoys, or similar devices shall be Coast Guard approved.

**Regulation No. 8 - - FIRE EXTINGUISHERS.**

Fire extinguishers shall be a Coast Guard approved type as identified in the Coast Guard publication equipment list (CG-190) by manufacturers model, number and size, or type bearing the labeling "marine type" by the Underwriter's Laboratories, Inc., which are Coast Guard approved as per Federal Register 5 Nov. 1960.

**Regulation No. 9 - - NUMBER DESIGNATING PASSENGER CAPACITY.**

The passenger capacity of boats as assigned by the Commission shall be painted or attached to the starboard side (the right side while in boat and facing the bow) of boat within 9 inches of transom in 3 inches or larger block numbers in a color contrasting to the boat color so that the numbers ride above the water line when boat is fully loaded.

**Regulation No.10 - - LIGHTS NEEDED FOR NIGHT USE OF VESSELS WHILE NOT UNDERWAY.**

Any vessel on the waters of the State under the jurisdiction of the State Conservation Commission, while in use or occupied, shall exhibit a white or amber light which shows all around the horizon between the hours from sunset and sunrise except those boats requiring special lights for operation while underway.

**Regulation No.11 - - SPEED AND DISTANCE REGULATIONS.**

**A. All waters under the jurisdiction of the State Conservation Commission.**

1. No motorboat shall be operated at speeds greater than 5 miles per hour when within 250 feet of another craft traveling at 5 miles per hour or less.
2. Motorboats shall maintain a minimum passing or meeting distance of 50 feet when both boats are traveling at speeds greater than 5 miles per hour.

**B. Natural Lakes.**

1. No motorboat shall be operated at a speed exceeding 5 miles per hour unless vision is unobstructed at 300 feet ahead.
2. No motorboat shall operate within 300 feet of the shore of any lake at a speed greater than 10 miles per hour.

This order shall be effective after filing in the office of the Secretary of the State and published in the Des Moines Register, Des Moines, Iowa.

This order is authorized by action of the State Conservation Commission this 6th day of December, 1961.

Glen G. Powers, Director  
Iowa State Conservation Commission

PUBLIC USE  
OF  
CORALVILLE RESERVOIR

RULES AND REGULATIONS

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The Secretary of the Army having determined that the use of the Coralville Reservoir Area, Iowa River, Iowa, by the general public for boating, swimming, bathing, fishing and other recreational purposes will not be contrary to the public interest and will not be inconsistent with the operation and maintenance of the reservoir for its primary purposes, hereby prescribes rules and regulations for its public use, pursuant to the provisions of Section 209 of the Flood Control Act of 1954 as follows:

AUTHORITY: Sec. 4, 58 Stat. 889, as amended:  
16 U.S.C. 460d.

SOURCE: 36 CFR 311

1. Boats, Commercial: No boat, barge or other vessel shall be placed upon or operated upon any water of the reservoir for a fee or profit, either as a direct charge to a second party or as an incident to other services provided to the second party, except as specifically authorized by lease, license, or concession contract with the Department of the Army.

2. Boats and other vessels, private:

- a. The operation of boats, houseboats, cabin cruisers and other vessels on the reservoir for fishing and recreational use is permitted except in prohibited areas designated by the District Engineer in charge of the reservoir area and subject to the regulations contained in this part.

- b. A permit shall be obtained from the District Engineer or his authorized representative for placing and operating a boat or other vessel on the reservoir for any one period longer than three days. No charge will be made for this permit. The permit shall be kept aboard the vessel at all times that the vessel is in operation on the reservoir. The District Engineer in charge of the area or his authorized representative shall have authority to revoke the permit and to require removal of the vessel upon failure of the permittee to comply with the terms and conditions of the permit or with the regulations in this part.
- c. Unsafe boats or other vessels will not be permitted on the reservoir. The District Engineer may require the applicant for a permit to furnish the construction plans and other information pertaining to the construction and equipment of the boat or other vessel prior to issuing a permit for its operation on the reservoir. All boats permitted on the reservoir shall be equipped for safe operation and operated in a safe manner in accordance with instructions issued by the District Engineer. These instructions may provide that the operation of speed boats and water skiing activities shall be confined to areas of water designated by the District Engineer for such activities.
- d. Boathouses, houseboats, cabin cruisers and other vessels may be placed and operated on the reservoirs, except that such facility shall not be utilized for human habitation at a fixed or permanent mooring point and if equipped with toilets and galleys shall not be placed on reservoirs with small permanent pools. Such vessels may be barred from other reservoirs by the District Engineer with the concurrence of the Chief of Engineers in those reservoirs in which the waters thereof are used for domestic water supply when the District Engineer determines that such use is contrary to the public health and safety.

3. Mooring, care and sanitation of boats and floating facilities:

- a. All boats or other vessels when not in actual use must be either removed from the reservoir, securely moored at authorized docks or boat-houses where supervision by the owner or his representative is provided on a 24-hour-day basis, or placed in the care of a marina concessionaire, State or local managing agency or other party authorized to care for floating equipment on a 24-hour-day basis.
- b. All boats, barges and other vessels or floating facilities will be moored only in locations designated by the District Engineer or his designated representative. All floating or stationary mooring facilities will be constructed in accordance with plans and a permit approved by the District Engineer or his designated representative. He shall have authority to revoke such permit and require removal of the facility for failure of the permittee to comply with the terms and conditions of the permit or with the regulations in this part.
- c. The discharge of sewage, garbage or other pollutant in the waters of the reservoir from any boat, barge or other vessel on the reservoir is prohibited except in accordance with regulations of the State and local health agencies permitting such discharge when underway in deep waters other than embayments. All such pollutants shall be deposited ashore at places designated for such deposit and disposal.

4. Swimming and Bathing: Swimming and bathing are permitted except in prohibited areas designated by the District Engineer.

5. Hunting and Fishing:

- a. Hunting and fishing are permitted in accordance with all applicable Federal, State and local laws for the protection of fish and game, except in prohibited areas designated by the District Engineer.
- b. Hunting shall be with shotgun only.
- c. A permit shall be obtained from the District Engineer or his authorized representative to construct a duck blind.

6. Camping:

- a. Camping is permitted only at areas designated by the District Engineer in charge of the reservoir area or his authorized representative.
- b. Approval of the District Engineer, or his authorized representative, is required to camp in the reservoir area for any one period of two weeks or longer.
- c. Camping equipment shall not be abandoned or left unattended for 48 hours or more.
- d. The installation of any permanent facility at any public camp ground is permitted only on written authorization of the District Engineer or his authorized representative.
- e. Campers shall keep their camp grounds clean and dispose of combustibles and refuse in accordance with instructions posted by the District Engineer at each camp ground.
- f. Due diligence shall be exercised in building and putting out camp fires to prevent damages to trees and vegetation and to prevent forest and grass fires.
- g. Camps must be completely razed and the sites cleaned before the departure of the campers.

7. Picnicking: Picnicking is permitted except in prohibited areas designated by the District Engineer or his authorized representative.

8. Access to Water Areas:

- a. Pedestrian access is permitted along the shores of the reservoir except in areas designated by the District Engineer or his authorized representative.
- b. Automobile access is permitted only over open public and reservoir roads.
- c. Access for the general public to launch boats is permitted only at the public launching sites designated by the District Engineer.

9. Destruction of Public Property: The destruction, injury, defacement, or removal of public property or of vegetation, rock, or minerals, except as authorized, is prohibited.

10. Firearms and Explosives: Loaded rifles, loaded shotguns, loaded pistols and explosives of any kind are prohibited in the area, except when in the possession of a law enforcement officer or Government employee on official duty, when shotguns are being used for hunting during the hunting season as permitted under 5, herein, and when specifically authorized by the District Engineer.

11. Gasoline and Oil Storage: Gasoline and other inflammable or combustible liquids shall not be stored in, upon, or about the reservoir or shores thereof without the written permission of the District Engineer or his authorized representative.

12. Sanitation: Refuse, garbage, rubbish or waste of any kind shall not be thrown on or along roads, picnicking or camping areas, in the reservoir waters or on any of the lands around the reservoir, but shall be burned or buried, or disposed of at designated points or places designed for the sanitary disposal thereof.

13. Advertisements: Private notices and advertisements shall not be posted, distributed, or displayed in the reservoir area except such as the District Engineer or his authorized representative may deem necessary for the convenience and guidance of the public using the area for recreational purposes.

14. Unauthorized Solicitations and Business Activities: No person, firm, or corporation, or their representatives shall engage in or solicit any business on the reservoir area without permission in writing from the District Engineer or in accordance with terms of a lease, license, or concession contract with the Department of the Army.

15. Commercial Operations: All commercial operations or activities on the waters of the reservoir or on the lands under the control of the Department of the Army around the reservoir shall be in accordance with lease, license, or other agreements with the Department of the Army.

GENERAL NOTE:

Provisions of foregoing regulations will be supplemented by directives of the District Engineer as considered necessary.

16. Recreational Activity Programs:

- a. Special events such as water carnivals, boat regattas, music festivals, dramatic presentations, or other special recreational programs of interest to the general public are permitted in areas designated by the District Engineer or his authorized representative.
- b. A permit shall be obtained from the District Engineer or his authorized representative by the governmental or legally responsible private agency proposing to hold a special recreation program as indicated in this section. No charge will be made for this permit.
- c. The District Engineer in charge of the area shall have authority to revoke any permit granted under this section and to require the removal of any equipment upon failure of the permittee to comply with the terms and conditions of the permit or with the regulations in this part.

17. Abandonment of personal property: Abandonment of personal property on the land or waters of the reservoir area is prohibited. Personal property shall not be left unattended upon the lands and waters of the reservoir area except in accordance with the regulations prescribed in this part or under permits issued therefor. The Government assumes no responsibility for personal property and if such property is abandoned or left unattended in other than places designated in a permit issued therefor or under a regulation for a period in excess of 48 hours it will be impounded, and if not reclaimed by the owners thereof within ninety days will be sold, destroyed, converted to Government use, or otherwise disposed of as determined by the District Engineer or his designated representative.

Supplement: Oct. 20, 1959

SUPPLEMENT NO. 1

1962

Seaplane Operation

1. Reference is made to Rules and Regulations Governing Public Use of Coralville Reservoir Area, Iowa River, Iowa, and more specifically to Section 2 thereof, entitled, Boats and Other Vessels, Private.

2. The operation of privately-owned seaplanes from Coralville Reservoir for non-commercial purposes is allowed by holders of appropriate permit, issued by the District Engineer or his authorized representative, who is empowered to administer the project "for the greatest benefit to the general public." However, intensive boating use in the relatively small area of the conservation pool makes it mandatory that operation in a careless, reckless, or negligent manner shall be cause for revocation of permit. When on the Reservoir, a seaplane will be classed as a vessel and regulated accordingly.

RICHARD L. HENNESSY  
Colonel, Corps of Engineers  
District Engineer

Supplement: 21 Sept. 1962

DESIGN MEMORANDUM NO. 15C  
(REVISION NO. 1)  
REVISION TO MASTER PLAN  
FOR  
CORALVILLE RESERVOIR  
IOWA RIVER, IOWA

APPENDIX C

STANDARD PLANS FOR BASIC FACILITIES

U. S. Army Engineer District, Rock Island  
Corps of Engineers  
Clock Tower Building  
Rock Island, Illinois

## APPENDIX C

### STANDARD PLANS FOR BASIC FACILITIES

#### 1. GENERAL

The basic recreational facilities constructed by the Corps at the project are built and designed to meet standards as set forth in EM 1130-2-312 and "The Corps of Engineers, Civil Works, Standard Plans, Recreational Facilities" publication. The natural resources of the area, topographic limitations, the rural location of the project, the interests of the users, and the economy of the materials used in construction have been considered in the design and construction of the facilities. Due to specific area requirements, economy of construction and maintenance, and unique user needs, the design of certain facilities has deviated somewhat from the "Standard Plans". Such deviations in facility plans are explained herein.

#### 2. PICNIC TABLES

Picnic tables are similar in design to "Standard Plans" drawing number PT-2. Tables are constructed in the District shop by Corps personnel.

#### 3. BOAT LAUNCHING RAMPS

The concrete slab ramp, "Standard Plans" drawing number BR-1 specifications will be used in the construction of boat ramps. Temporary graveled ramps are sometimes provided initially to meet public demands. All temporary ramps are scheduled for improvement as funds permit.

#### 4. LOADING AND UNLOADING DOCKS

At certain boat launching ramps a loading and unloading dock will be provided. These are areas where there is high use of the ramp and water levels are generally deep at the launching site. The docks are necessary from the standpoint of safety and convenience. They will permit boaters to leave and enter the boat after it has been launched. Easy transfer of equipment in and out of the boats at the dock will relieve congestion at the ramp thereby allowing greater use of the ramp. No standard plan for docks has been published by the Corps. A floating dock similar to the one published in "Park Practice Design", N.P.S., (Index No. R-4902) has been adopted for use at Coralville. A diagram of the dock plans is included.

#### 5. CHANGE SHELTER

Change shelters will generally conform with the criteria as established in "Standard Plans" drawing number XD-2. Construction will be done as economically as possible and shelters will be constructed to blend with the natural scenic features of the area.

## 6. OBSERVATION PLATFORMS AND SHELTER HOUSES

Shelters will be designed to conform with specifications shown in "Standard Plans", drawings number PS-1 and PS-2. If economically feasible, a premanufactured aluminum picnic shelter may be substituted.

## 7. HAND PUMP AND WELLS

"Standard Plans" drawing number WP-1 establishes the criteria for installation of a hand pump and well. All wells are drilled and the water is periodically tested to assure conformance with the State of Iowa drinking water standards. A Red Jacket hand force stand pump manufactured by Red Jacket Manufacturing Company is installed at all the wells.

## 8. FIREPLACES

Existing and proposed fireplaces at the project are manufactured by Kay Enterprises, Jamesville, Iowa. The "Picnickers Delight Pedestal Park Fireplace" consists of a firebox, a grill, and two metal support rods.

## 9. FIRE RINGS

Incidences of unauthorized construction of fires on the ground for the purpose of "council-type fires" recreation indicates the need of fire rings at some of the public use areas. The ring will confine the fire and keep fires in predesignated, non-fire hazard areas. No fire ring plans are shown in "Standard Plans". Basic design will be similar to fire ring designed by the Forest Service and published in "Park Practice Design", N.P.S., (Index No. R-4175). An illustration and specifications follow.

## 10. REFUSE CONTAINERS

At the present time, modified oil drums are being furnished for disposal of refuse at the public use areas. Consideration is being given to replacing these with manufactured garbage cans. Cost of the garbage cans is less, they are easier to handle, resulting in less abuse while being emptied. A mount for refuse cans, as shown in "Park Practice Design", N.P.S., (Index No. B-3450), with a concrete base and a post for anchoring will be used. The concrete base will be increased to allow three or four 20 gallon trash cans to be anchored to one stake. This will give a greater capacity than one oil drum. An illustration of the mount is inclosed herewith.

## 11. COMFORT STATIONS

Ease of construction, economy and superior maintenance has resulted in adoption of an aluminum rest station manufactured by Alcoa Aluminum at all pit-type toilet facilities. Pit construction consists of a

concrete block lined pit covered with a concrete slab. The aluminum superstructure measures 6-1/2 feet by 5-1/2 feet and is 7-3/8 feet tall. The structure is aluminum throughout except a section of translucent fiber glass for interior lighting. A free-standing fence is provided for privacy. Double units are provided at each location. The stool is metal with a baked enamel seat and is manufactured by REHCO Corporation. A metal trough-type urinal is provided where required. An illustration of the aluminum-type comfort station follows.

## 12. SIGNS

General directional and informative signs to guide the public within the public use areas will follow the specifications of the sign shown in "Standard Plans", drawing number IS-2, sign number 16. The entrance sign designating the public use area is shown and described on the accompanying sheet.

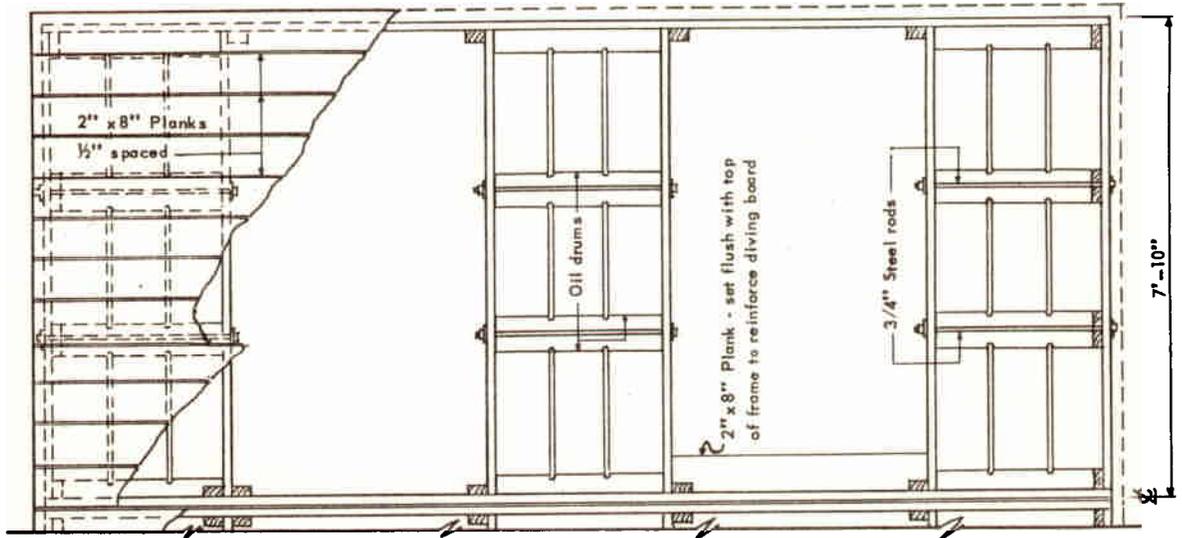
## 13. FOOT BRIDGES

To provide convenience and safety for the users of the nature trails it is proposed to install foot bridges at specific locations. Since a standard plan has not been established for this recreational facility, the design as given in "Park Practice Design", N.P.S., (Index No. B-3129) is proposed for this facility. The design is included herewith.

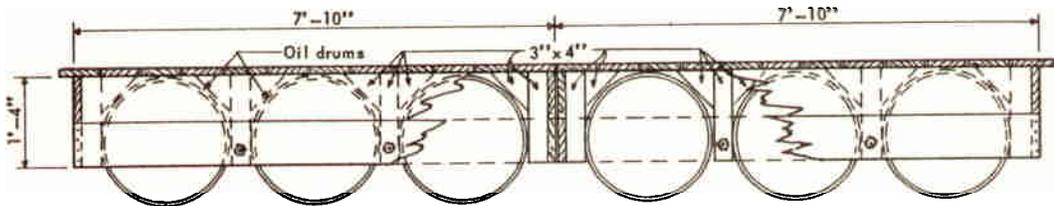
A float design from New Hampshire which appears to be of simple but substantial construction. All wood parts should be pressure treated for long life, and all hardware should be coated.

While oil drums are employed here for flotation, Styrofoam 'planks' might be substituted.

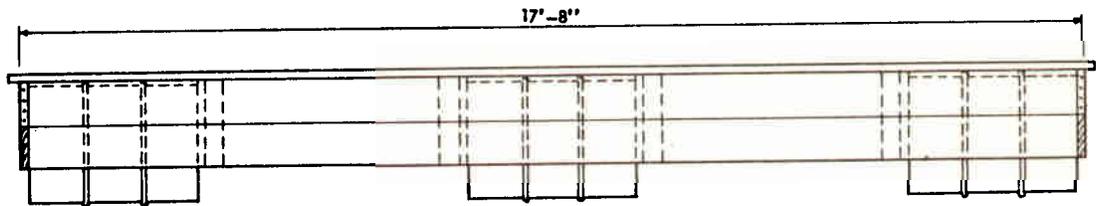
This plan relates to Boat Landing Dock, DESIGN index No. R-4855.



HALF PLAN



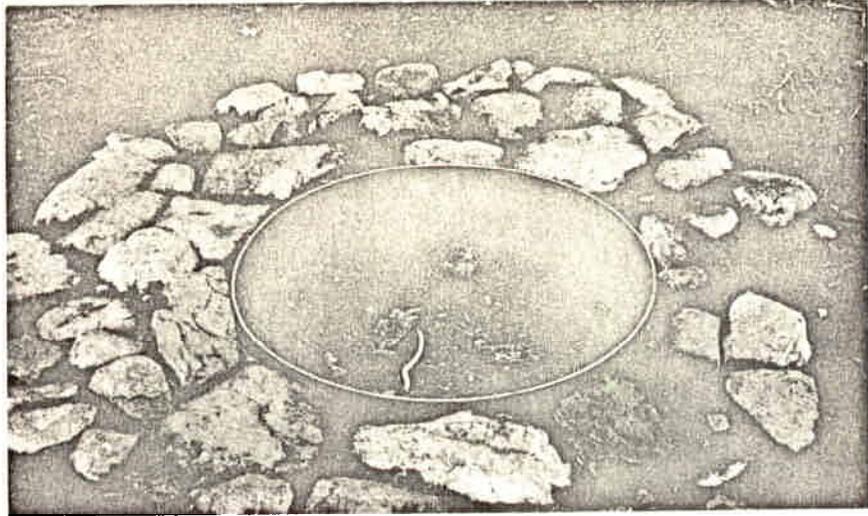
END VIEW



SIDE VIEW

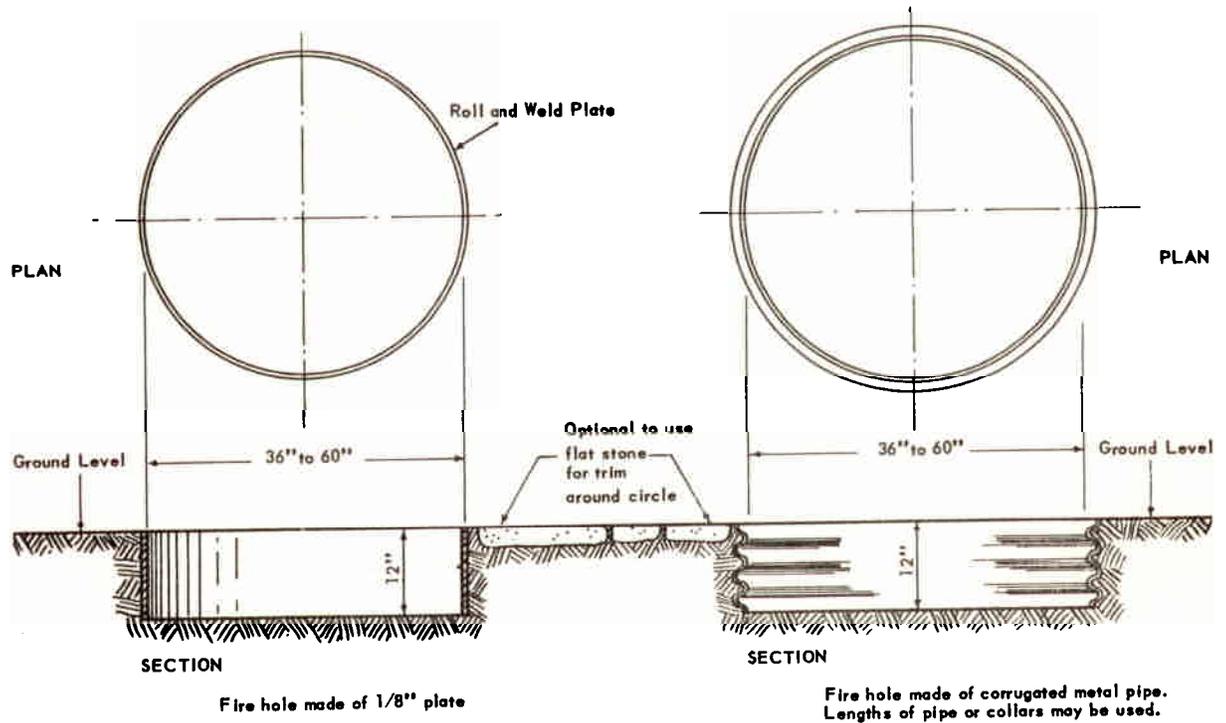
0' 5' 10'

The National Conference on State Parks in cooperation with The National Park Service		FLOAT, DOCK	
date	March 1962	plate	242 H
index	R-4902	control	C-0369-R
Contributed by STATE OF NEW HAMPSHIRE			

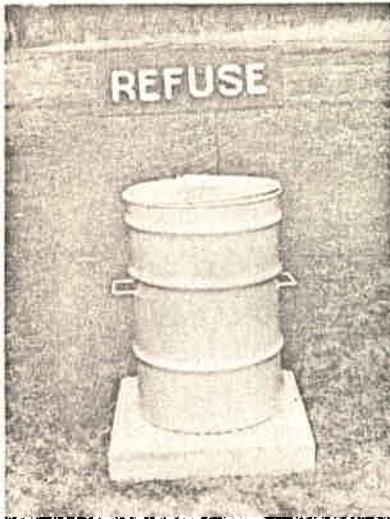


This inexpensive and thoroughly practical fire ring has found favor in many parks and recreation areas since it not only limits the size of the camper or picnicker's fire, but permits an orderly and proportioned spacing for better control of private campfire activity. The plan is offered through the courtesy of the U. S. Forest Service.

Two styles are shown; one made of steel plate, the other from corrugated metal culvert. For safety reasons the upper edge should be positioned at or below surface level. Flat stones placed around the outside would help to insure this. The bottom should be gravel with a drain tile wherever possible to carry away rain water which could be held by impervious soils.



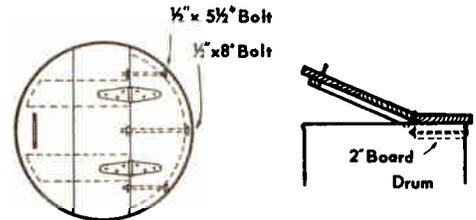
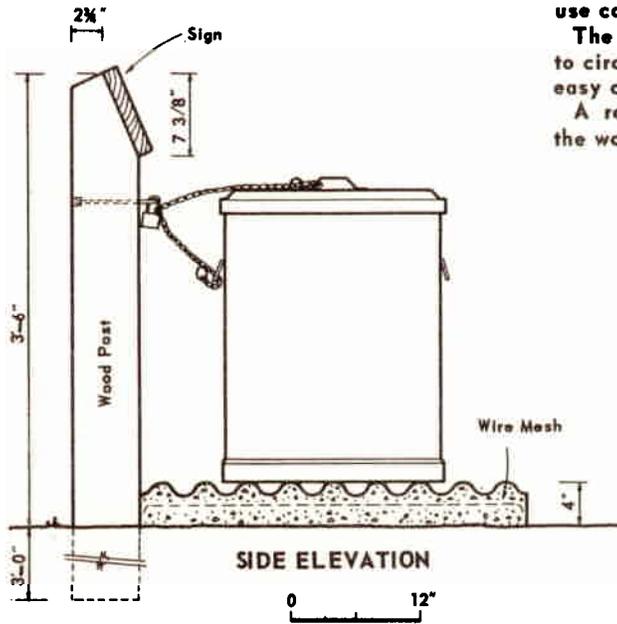
The National Conference on State Parks		FIRE RING	
in cooperation with The National Park Service			
date	March 1963	plate	299 B
index	R-4175	control	F-0655-R
		Contributed by FOREST SERVICE U.S. Department of Agriculture	



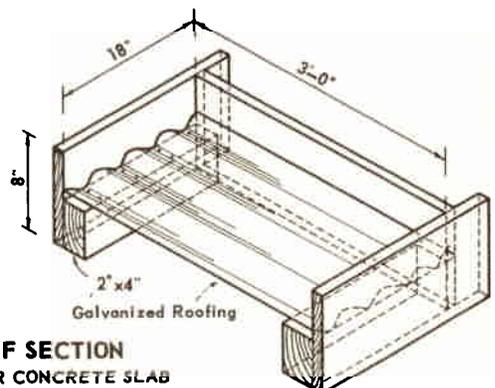
A sturdy and sanitary method of mounting garbage and refuse containers in the out-of-doors.

The corrugated surface of the cast concrete base allows air to circulate under containers, preventing rust. Design affords easy cleaning and disinfecting.

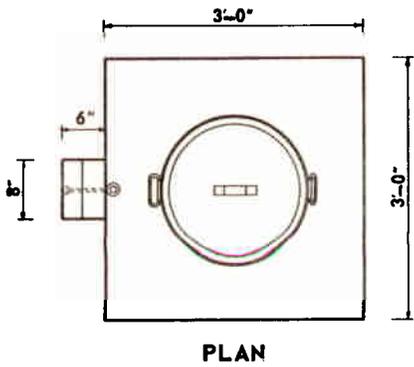
A reinforced, cast concrete post might be substituted for the wood post.



ALTERNATE TOP

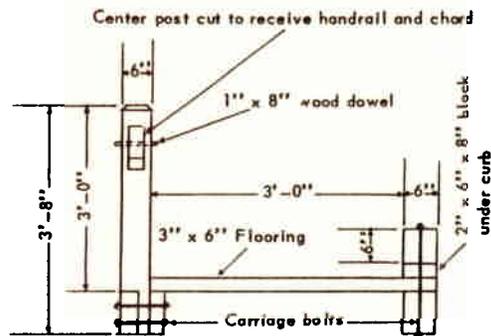
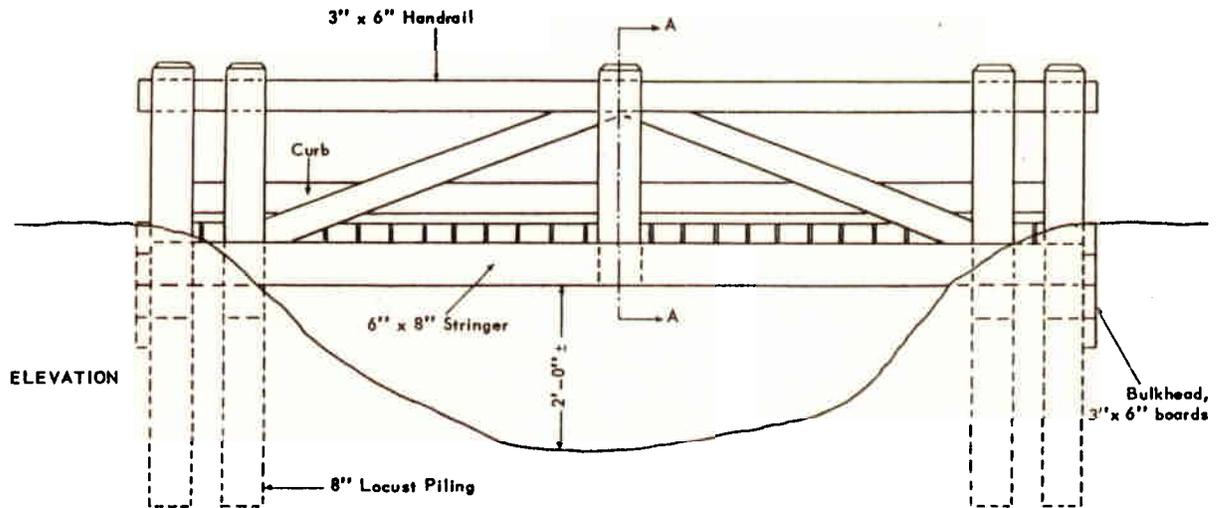
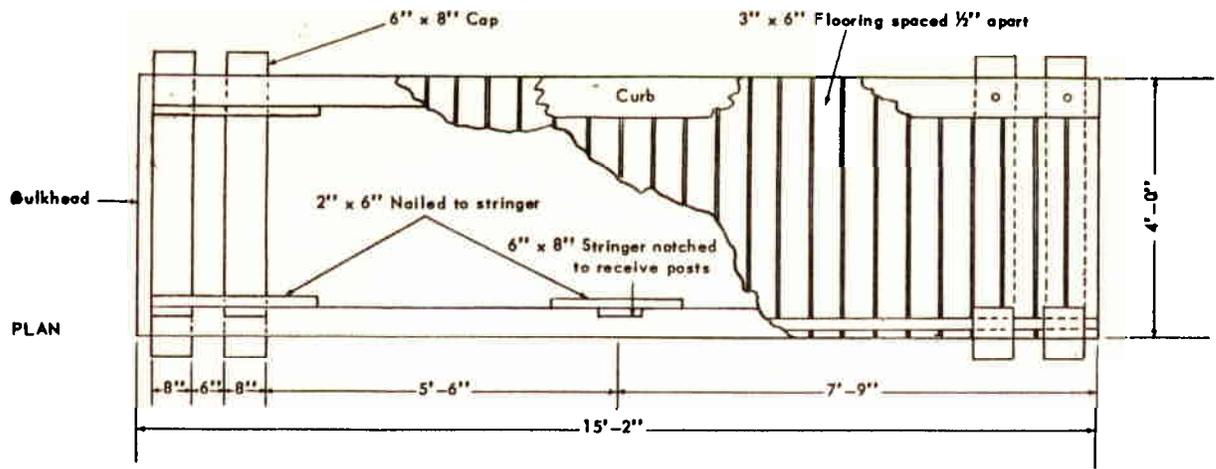


HALF SECTION  
FORM FOR CONCRETE SLAB



The National Conference on State Parks In cooperation with The National Park Service		MOUNT FOR REFUSE CAN
date July 1957	plate 23	Contributed by OHIO Department of Natural Resources
index B-3450	control C-0053-8	



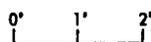


A sturdy, yet relatively inexpensive foot bridge on a trail leading to a public assembly area at Vicksburg National Military Park, Mississippi.

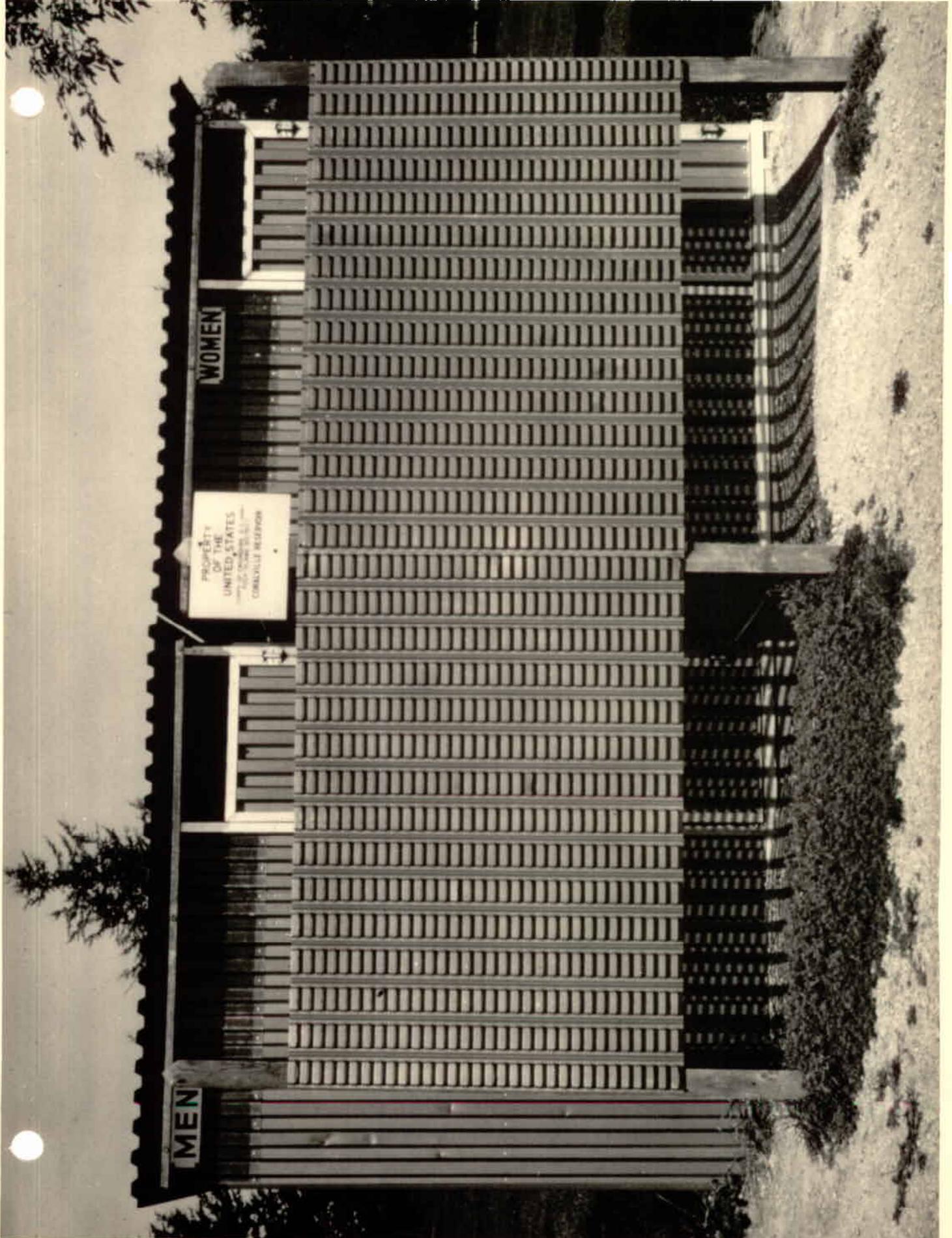
The paired locust piles are capped by 6 by 8-inch stringers; bulkhead boards are placed on the outer sides of the end piles to stabilize trail subgrade at the bridge ends.

Railing posts, one side only, are dapped to piles then faced inside with deck stringer. A 6 by 6-inch curbing, raised 2 inches above the decking, is used on the side opposite the railing.

The railing is mortised into the center post, notched into the double end posts. All wood should be pressure treated, all hardware, including deck nails which should be left flush, hot-dip galvanized.



<i>The National Conference on State Parks</i>		FOOT BRIDGE	
in cooperation with <i>The National Park Service</i>			
date	March 1962	plate	240 B
index	B-3129	control	S-0360-B
		Contributed by NATIONAL PARK SERVICE Vicksburg Nat. Mil. Park	



MEN

PROPERTY OF THE  
UNITED STATES  
CORONAVILLE RECEPTION

WOMEN

Revised ~~dated~~ 23 March 61

DESIGN MEMORANDUM NO. 15C  
(REVISION NO. 1)  
REVISION TO MASTER PLAN  
FOR  
CORALVILLE RESERVOIR  
IOWA RIVER, IOWA

APPENDIX D  
FORESTRY STATISTICS

U. S. Army Engineer District, Rock Island  
Corps of Engineers  
Clock Tower Building  
Rock Island, Illinois

## APPENDIX D

### Forestry Statistics

In order to provide the information necessary in the coordination of recreational and other land uses, forest resources on project land around the shores of the conservation pool have been analyzed in detail. Contained in this appendix are the basic data on existing forest resources on fee-owned lands below U. S. Highway 218. This portion of the project will be treated as Part 1 of the overall forestry management plan. Detailed analysis of the forest resources on that portion of the project above Highway 218 will be accomplished as time and funds permit.

#### BASIC STATISTICS

##### Timber on Fee-Owned Land Below U. S. Highway 218

#### Density

a. Dense to moderately dense	(75% to 100% closed canopy)	1,470 acres
b. Sparse to moderately dense	(1% to 75% closed canopy)	875 acres
		_____
Total		2,345 acres

#### Tabulation of Board Feet

a. Average board feet per acre	6,590
b. Board feet (6,590 x 1,470)	9,687,300
c. Overrun (25%)	2,421,825
d. Adjusted estimate of total board feet (9,687,300 - 2,421,825)	7,265,475

SPECIES COMPOSITION

On Fee-Owned Land Below U. S. Highway 218

<u>Species</u>	<u>% of Total</u>	<u>Total Board Feet</u>
Black oak	43	3,124,154
White oak	31	2,252,297
Elm	8	581,238
Hard maple	4	290,619
Basswood	3	217,964
Hickory	3	217,964
Ash	3	217,964
Cherry	2	145,310
Cottonwood	1	72,655
Walnut	1	72,655
Other species	1	<u>72,655</u>
	Total	7,265,475

BOARD FEET TABULATION BY SIZE CLASSES

For Timber on Fee-Owned Land Below U. S. Highway 218

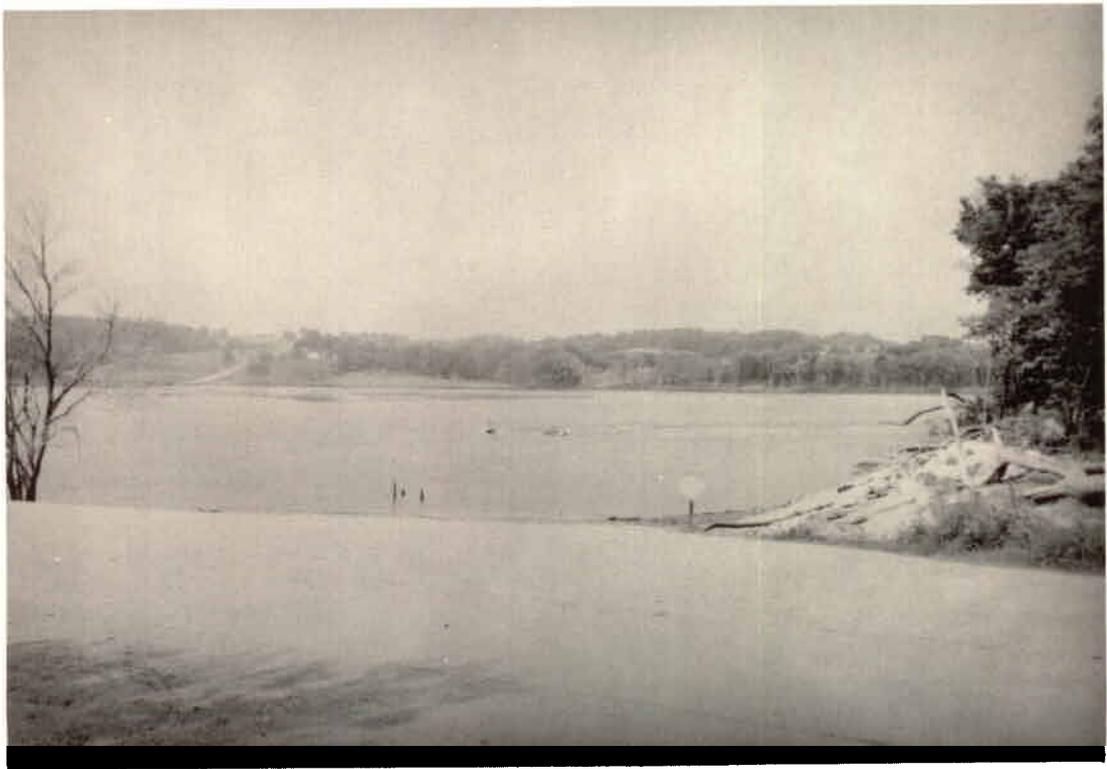
<u>Diameter, breast height</u>	<u>% of Total</u>	<u>Board feet</u>
8" to 11"	12	871,857
12" to 17"	34	2,470,262
18" up	54	<u>3,923,356</u>
Total		7,265,475

The predominance of mature and overmature trees in many of the timber stands at Coralville is emphasized in the above table. The ratio of mature trees to the 8"-12" size class is representative of a park-like condition that is advantageous in recreational areas, but that is not desirable from the overall management standpoint. The statistics in the above table reflect a need for management toward an all-aged stand with emphasis on preservation of high quality seed trees and mast producers.

Of the total existing timber stands below U. S. Highway 218 approximately 340 acres have been assigned a recreational management objective. The remaining stands, comprising approximately 1,295 acres, have been assigned a primary objective for wildlife management.



West Overlook Boat Launching Area



Curtiss Boat Launching Area



West Overlook Picnic Area



Boat-in Picnic Site