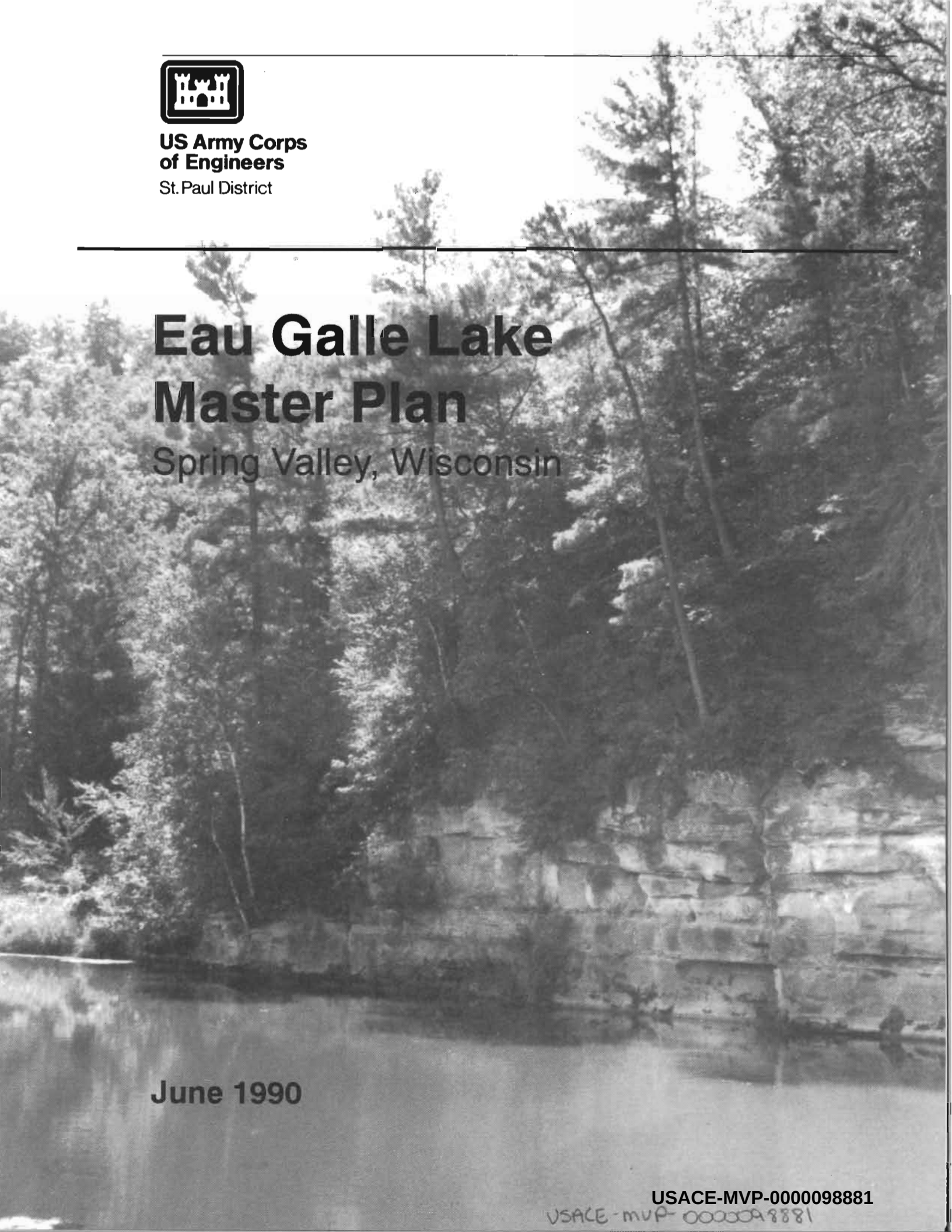
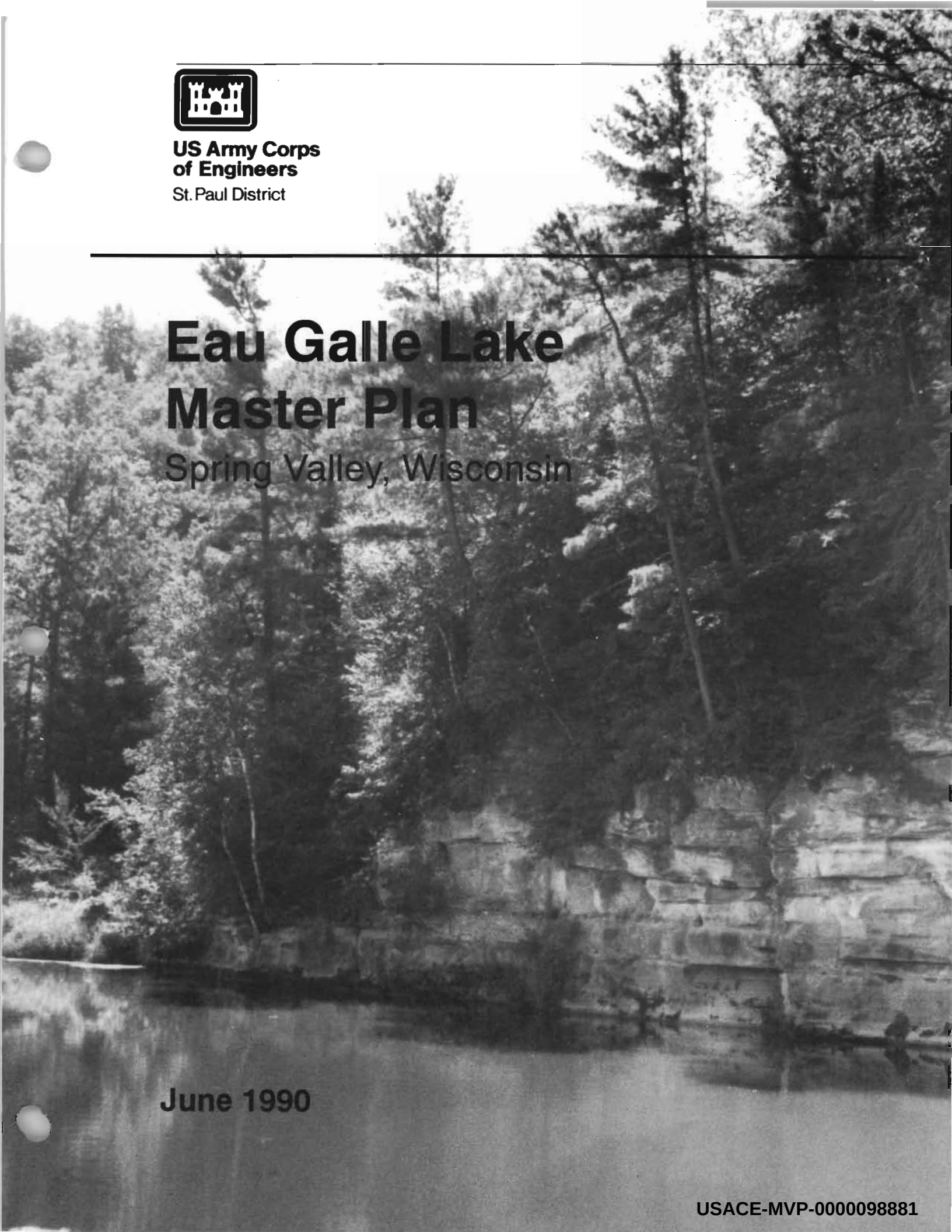


US Army Corps
of Engineers
St. Paul District

Eau Galle Lake Master Plan

Spring Valley, Wisconsin

June 1990



US Army Corps
of Engineers
St. Paul District

Eau Galle Lake Master Plan

Spring Valley, Wisconsin

June 1990

EAU GALLE MASTER PLAN

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SECTION 1

INTRODUCTION

1. INTRODUCTION

1.01 Project Authorization

Authorization to construct and operate the Eau Galle Dam, Reservoir, and downstream channel improvements is contained in the Flood Control Act of 1958 (Public Law 85-500). The project document (Senate Document No. 52, 84th Congress, 1st Session) sets forth the details of the project. Authorized project purposes are flood control, recreation, and enhancement of fish and wildlife, the latter through recognition of incidental benefits. The project was completed and began operation in 1969. A variety of recreation facilities such as picnicking, swimming, camping, boat launches, and trails have been provided. Considerations relating to the enhancement of fish and wildlife have been included in the design and construction of the various facilities.

The authority to analyze environmental impacts of recreational facilities is based on the National Environmental Policy Act of 1969 (Public Law 91-190). This legislation gives the Corps of Engineers authority to and requires them to collect environmental data and to prepare impact assessments/ statements. The planning, preparation, and coordination of such environmental statements are guided by the Council on Environmental Quality Guidelines for Statements on Proposed Federal Actions Affecting the Environment, dated August 1973 (ER 1105-2-507) and Section 122 of the River and Harbor Act of 1970 (Public Law 91-611). Further information on public laws and policies applicable to the Eau Galle Lake project are described in appendix A.

1.02 Authority for the Study

Basic authority to plan and design recreation facilities at the Eau Galle Lake Recreation Area is written in Section 4 of the Flood Control Act of 1944, Public Law 78-534. This act authorized the Chief of Engineers ". . . to construct, maintain, and operate public park and recreation facilities at reservoirs under the control of the Secretary of the Army."

The authority to develop master plans for public use development and resource management is contained in ER 1120-2-400 and ER 1130-2-400. These engineering regulations stipulate that a continuing schedule be established for reevaluation of master plans on completed projects. This study satisfies that requirement and provides a comprehensive evaluation of existing conditions and facilities.

1.03 Purpose of the Master Plan

The purpose of this report is to review the previous Master Plan for the Eau Galle Lake (Reservoir), and other pertinent studies, to determine development capabilities within the resource. The updated Master Plan Report is intended to serve as a working guide, within which ongoing development can occur.

1.04 Scope of the Study

This study reviews and considers a variety of aspects for recreation potential, while simultaneously considering environmental impact, social acceptability, natural resource sensitivity, and associated operation and maintenance concerns. This report also considers archeological findings, environmental concerns, vehicular and pedestrian circulation, activities preferred by recreational users, and a variety of needs not anticipated or thoroughly considered in previous documents. This report also provides an opportunity to make adjustments consistent with defined resource use objectives (see section 4) and to reflect the physical plan of public use development to satisfy present and projected needs.

Section 3 discusses resource factors that have an immediate effect upon later recommendations for resource development, implementation, and management. The recreation information contained in section 5 includes a discussion of the market area, existing recreation, trends, and an evaluation of the demand, supply, and need.

Coordination and communication played a key role in producing this master plan. Section 6 discusses the public involvement and coordination during the planning process. An analysis of the factors affecting development at Eau Galle Lake is provided in section 7. Section 8 describes the plan of development and anticipated effects for the Eau Galle Lake project. The relationships between the natural resources and proposed developments are discussed. Site specific design criteria were established for some facilities, to expand on the general design considerations presented in ER 1110-2-410. Estimated construction costs and potential funding sources are discussed in section 9. The environmental assessment is found in appendix E.

1.05 Prior Studies and Reports

The preparation of this master plan report included an evaluation of the information recorded in the following reports and publications:

1. The Eau Galle Pool Elevation Study, by Barton-Aschman Associates, Inc., 1981. Much of the base data from this study was used for this master plan report. The plan plates were adapted to show additional land purchased and to upgrade the graphic quality.

2. Design Memorandum No. 6, Master Plan for Reservoir Development, by the St. Paul District, Corps of Engineers, 1964.

3. Reconnaissance Report of Recreational Potentialities, by the Department of the Interior, National Park Service, 1962.

4. Phase II Cultural Resources Investigations at Eau Galle, by Robert F. Boszhardt, 1985.

5. Draft of the Fish and Wildlife Management Plan for Eau Galle, by the St. Paul District, Corps of Engineers, 1987.

6. Limnological Studies at Eau Galle Lake, Wisconsin, by Robert H. Kennedy, Robert C. Gunkel, Jr., Environmental Laboratory, U.S. Army Engineers Waterways Experiment Station, 1987.

7. Metropolitan Recreation Demand Study, by Charles K. Smith, Metropolitan Council of the Twin Cities Area. Publication No. 11-84-065, 1984.

SECTION 2

BACKGROUND

2. BACKGROUND

2.01 Location

Eau Galle Lake (reservoir) is located in west central Wisconsin on the Eau Galle River, as shown on plate 1. The reservoir is just north of Spring Valley, Wisconsin, and straddles the Pierce County-St. Croix County line. Eau Galle Lake is approximately 50 miles east of the Minneapolis-St. Paul metropolitan area and 40 miles west of Eau Claire, Wisconsin, and is accessible from Interstate Highway 94.

2.02 Eau Galle Area History

The Eau Galle area was part of the "Big Woods," a large, dense hardwood forest comprised of basswood, maple, butternut, and occasional white pine. The woods extended from a north-south line at Baldwin for 40 miles to the east. The Eau Galle area was occupied over extended periods of time by Sioux, Chippewa, and other American Indian tribes prior to settlement of the area by Europeans and New Englanders during the 1800s. Settlement brought new activity to the Eau Galle region. Lumbering was one of the first activities in the area. The first lumber mill was built in 1853, and by 1888, six lumber mills were located on the Eau Galle River.

Several brickyards appeared in St. Croix County in the early years to provide building materials for the expanding area. Brickyards in Eau Galle Township were the county's largest. Spring Valley, in Pierce County, also had a large brickyard once capable of producing 50,000 bricks a day.

Iron ore was discovered near Spring Valley in 1892. It was also mined at several sites in Eau Galle Township. A smelter was built in Spring Valley to process the ore, and it produced 5,600 tons of pig iron a week by 1900. Several charcoal kilns were built in the area to provide charcoal, used in lieu of coke, for the smelter. Poor ore quality caused the smelter to cease operations in 1908. Today, the charging tower is the only remaining evidence of this large mining and smelting operation.

Spring Valley, originally called Balsam Point, was incorporated in 1893, with a population of approximately 1,000 persons. Balsam Point was the area's largest settlement and could boast of the smelter, an axe handle factory, a foundry and machine shop, a huge sawmill, two creameries, a condensery, a cigar factory, the brickyard, two banks, three drug stores, and many well-stocked general merchandise and hardware stores. Spring Valley also had an extensive livestock and produce operation.

2.03 Project Description

Project History

The history of the Eau Galle Lake project can be traced back to 1942. During that year, two severe floods took place which resulted in approximately $1,500,000 of damages to the city of Spring Valley, Wisconsin. The Corps of Engineers completed a preliminary analysis of the flood problems of

the Chippewa River basin in May 1944. An interim report based on a review survey of the Chippewa River basin for flood control on the Eau Galle River described the project, associated features, resources of the region, and local cooperation required. The interim report was published in Senate Document 52, 84th Congress, 1st session. Design Memorandums No. 1: Hydrology and Hydraulic Analysis, No. 2: Site Selection, No. 3: General, No. 4: Mines Creek Improvements, and No. 5: Dam and Spillway, were submitted between November 1960 and June 1964. The Eau Galle Dam and Reservoir and downstream channel improvements were authorized by the Flood Control Act of 1958 (Public Law 85-500). The Corps of Engineers began construction of the dam, reservoir, and ancillary facilities in 1965 and completed the work in 1969. The city of Spring Valley acquired the land needed for construction of the dam and reservoir and transferred title to the Corps of Engineers. Various recreation facilities have since been developed at the Eau Galle Lake project and are described in section 2.05, Existing Recreational Facilities.

Project Lands and Easements

The project lands of 631.52 acres are held in fee title by the Corps of Engineers. The property boundary is shown on plate 2. This area includes all operation, maintenance, and recreation uses at the project. A flowage easement is held on an additional 519 acres which encompasses the area surrounding the reservoir to an elevation of 1020 feet NGVD. (See table 1.)

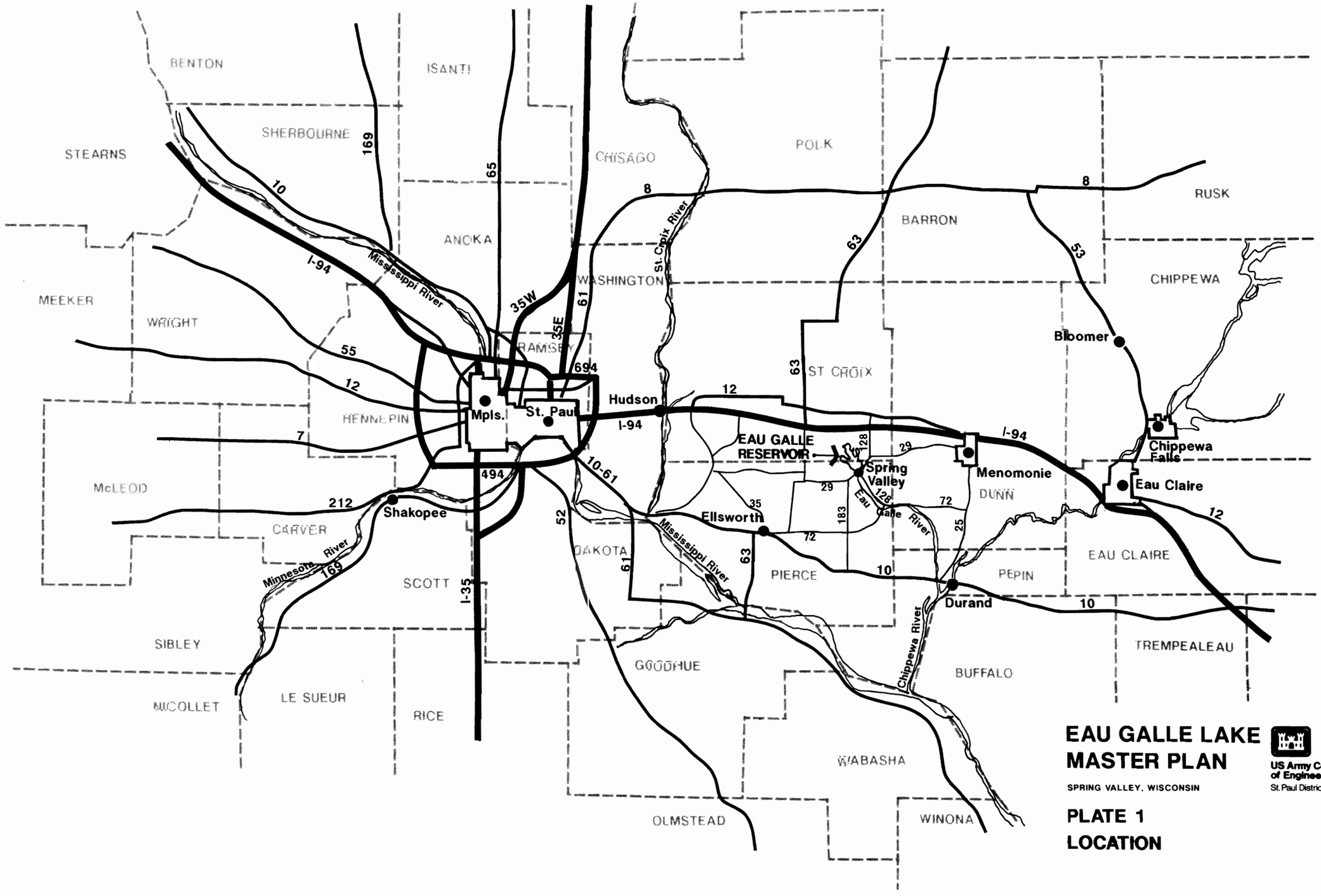
Table 1 - Eau Galle Lake/Reservoir Project Lands

Fee Title	
Elevation of guide-taking line	949.0 feet NGVD
Area	631.52 acres
Flowage Easement	
Elevation of guide-taking line	1020.0 feet NGVD
Area	519 acres

Existing Outgrants, Leases, and Concessionaires

Currently 6 outgrants exist at Eau Galle Lake, including, an easement for access road to adjoining private property; a license to Snow Valley Riders club for maintenance of snowmobile trails; a lease to Spring Valley School District for public park and recreation purposes; an easement to the Village of Spring Valley for a road; an easement to St. Croix Co. Electric for a power line; and an easement to Williams Pipeline Co. for an oil pipeline route.

The only private concession that has been requested at the project is for the operation of a resort. A letter of inquiry was sent to the Corps by a resident of Spring Valley. While specific plans were not



EAU GALLE LAKE MASTER PLAN

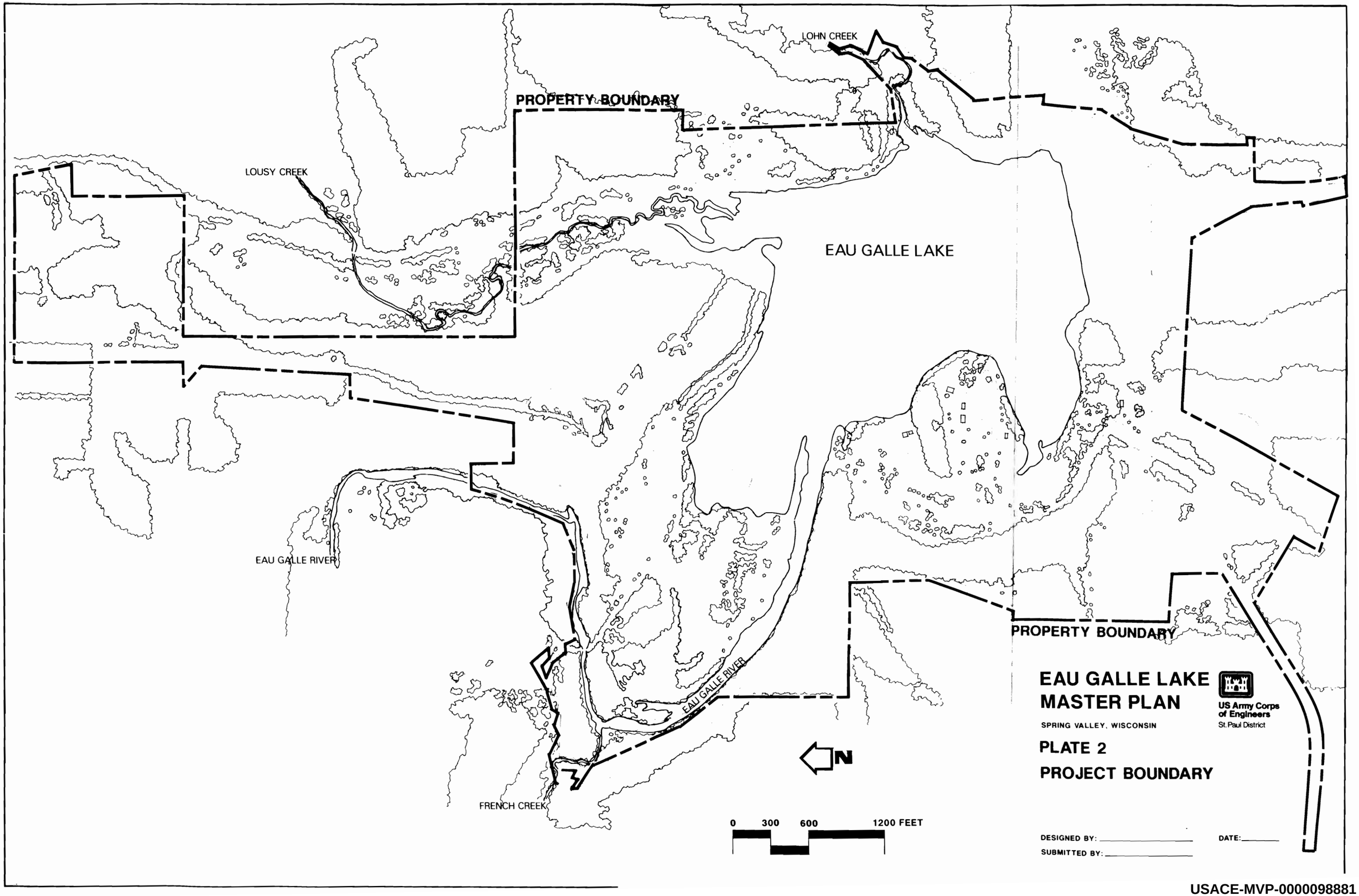
SPRING VALLEY, WISCONSIN

US Army Corps of Engineers
St. Paul District

PLATE 1
LOCATION

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____



EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St. Paul District

SPRING VALLEY, WISCONSIN

PLATE 2

PROJECT BOUNDARY

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

presented, the Corps response was that a resort or other structures in the flowage easement could not be allowed due to the potential hazard of flooding. No inquiries were received after this initial contact.

2.04 Operations and Maintenance

Eau Galle Dam

The principal project structure is the rolled-earth and rock-fill dam having a maximum height of approximately 122 feet and a top length of 1,600 feet. An emergency overflow spillway is located in a natural saddle in the valley bank near the right abutment of the dam. The uncontrolled spillway structure consists of an unlined chute about 1,930 feet long excavated almost entirely in dolomite bedrock and a 100-foot-long concrete weir embedded in dolomite. It is at elevation 1020 feet. Spillway discharges are contained by the rock cut for about 1,500 feet, then released into Mines Creek about 2,000 feet southwest of the dam. A concrete morning-glory intake structure for a horseshoe-shaped conduit 9 feet 9 inches high through the dam embankment automatically maintains a nearly uniform conservation pool level of 940 NGVD. The inlet crest is fitted with a cylindrical cage to prevent trash and other objects from entering the conduit. A low-level gated entrance to the outlet conduit served for diversion of river flow during construction of the dam embankment and is also used as a low flow release for dewatering or drawdown of the conservation pool. Excavated trapezoidal channels lead from the conservation pool borrow area to the low-level intake from the outlet conduit stilling basin to the existing river channel. (See table 2.)

Table 2 - Eau Galle Lake Project Structure Data

Dam length at crest	1,600 feet
Dam height above valley floor	122 feet
Dam elevation at top	1038.5 feet NGVD
Spillway crest, elevation	1020.0 feet NGVD
Spillway crest, length	100 feet
Outlet Conduit	
Intake sill elevation	940 feet NGVD
Conduit size	9 feet 9 inches high (horseshoe-shaped)
Low-level intake invert elevation	6.5 feet NGVD
Low-level intake diameter	4 feet

Channel Improvements

Because of the limited channel capacity of Eau Galle River in the Spring Valley vicinity, channel improvements were required, in addition to reservoir storage, to more effectively pass the floodwaters. A discharge channel was excavated from the outlet works to the main stem Eau Galle River, a distance of about 2,000 feet. This channel, together with a 1,300-foot connecting channel from the spillway to the river, provides the hydraulic efficiency needed in this sector. In addition, Mines Creek, a tributary entering the Eau Galle River at Spring Valley, was channelized and straightened in the 1,450-foot sector adjacent to its mouth. A 1,200-foot section also was straightened 1,300 feet farther upstream from a point beginning at the Chicago and Northwestern Railway bridge. Although basically separate from the Eau Galle Dam and Reservoir, the stream channelization and straightening features on the Eau Galle River and on Mines Creek are integral components of the total plan of protection for Spring Valley and vicinity.

Reservoir

The conservation pool level is maintained near elevation 940 (see table 3). The reservoir functions automatically for flood control. Fluctuation of the conservation pool level is held to a minimum by the uncontrolled crest of the morning-glory intake of the outlet conduit. The pool level rises to an elevation of 949 feet once in about 5 years, to elevation 965 once in about 50 years, and will reach the spillway crest level only on extremely rare occasions. The conservation pool may be lowered periodically to facilitate the control of rough fish by seining or chemical means. Draining of the pool to levels below the drop inlet crest can be accomplished through the low-level gated inlet of the conduit outlet structure.

Table 3 - Eau Galle Lake Reservoir Data

Pool Levels	
Maximum surcharge elevation	1033.5 feet NGVD
Spillway crest elevation	1020.0 feet NGVD
5-year frequency flood level	949 feet NGVD
Conservation pool level	940 feet NGVD
Area	
Maximum surcharge area	1,040 acres
Spillway crest area	880 acres
5-year frequency flood area	230 acres
Conservation pool level area	153 acres
Maximum depth of conservation pool	35 feet
Shoreline length at conservation pool	5 1/2 miles
Storage Capacity	
Maximum pool	56,900 acre-feet
Pool at spillway crest	44,000 acre-feet
Conservation pool	1,550 acre-feet

2.05 Existing Recreational Facilities

The Design Memorandum No. 6 was the 1964 original master plan for reservoir development. The Memorandum located four areas for recreational facilities. At the present time, six areas have been developed, three of which are generally in conformance with the master plan. These recreation areas are located on plate 3 and recreational facilities are summarized in table 4.

Table 4 - Eau Galle Lake Recreation Facilities (1989)

Facility Type	Number
Area A (Eau Galle Lake Main Day Use Area)	
Picnic Tables	58
Fireplaces/Grills	24
Refuse Containers	34
Parking Spaces	32
Boat Ramp	1
Beach	1
Change House	1
Toilets (double units)	2
Group Shelter3	
Water Facilities (well)	1
Area B (Highland Ridge Campground)	
Campsites	34 (7 for tents only)
Picnic Tables	34
Fireplaces/Grills	34
Toilets (double units)	1
Refuse Containers	26
Water Facilities (well)	1
Area C (Northwest Area)	
Picnic Tables	4
Fireplaces/Grills	2
Parking	12
Toilets (satellites)	2
Refuse Containers	8
Area D (Scenic Overlook)	
Parking	10
Trail	1
Picnic Tables	1
Area E (Lousy Creek Boat Launch)	
Boat Launching Area	1
Parking	10
Area F (Dam Outlet Area)	
Parking	20
Picnic Tables	1
Refuse Containers	2

HWY. NN

LOUSY CREEK

LOHN CREEK

PROPERTY BOUNDARY

ENTRANCE ROAD

E LOUSY CREEK BOAT LAUNCH

EAU GALLE LAKE
EAU GALLE RESERVOIR

F DAM OUTLET AREA

B HIGHLAND RIDGE CAMPGROUND

A MAIN DAY USE AREA

D SCENIC OVERLOOK

MAINTENANCE AREA

EAU GALLE RIVER

C NORTHWEST AREA

PROPERTY BOUNDARY

EAU GALLE RIVER

ENTRANCE ROAD

FRENCH CREEK

N

0 300 600 1200 FEET

EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St.Paul District

SPRING VALLEY, WISCONSIN

PLATE 3

EXISTING RECREATION FACILITIES

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

ENTRANCE ROAD

Following are brief descriptions and views of the six developed areas.

Area A - Eau Galle Lake Main Day Use Area

This area, consisting of approximately 53.7 acres, has some relatively low land subject to occasional inundation, with rolling terrain. It is suitable for day-use development. An extension of the project entrance road through the spillway provides access to the public use area. The general facilities include a boat-launching ramp and picnic area with parking facilities for cars and trailers. (See figures 1 and 2.) A swimming beach with a change house and parking lot is out of view, but within walking distance of the picnic area. (See figure 3.)

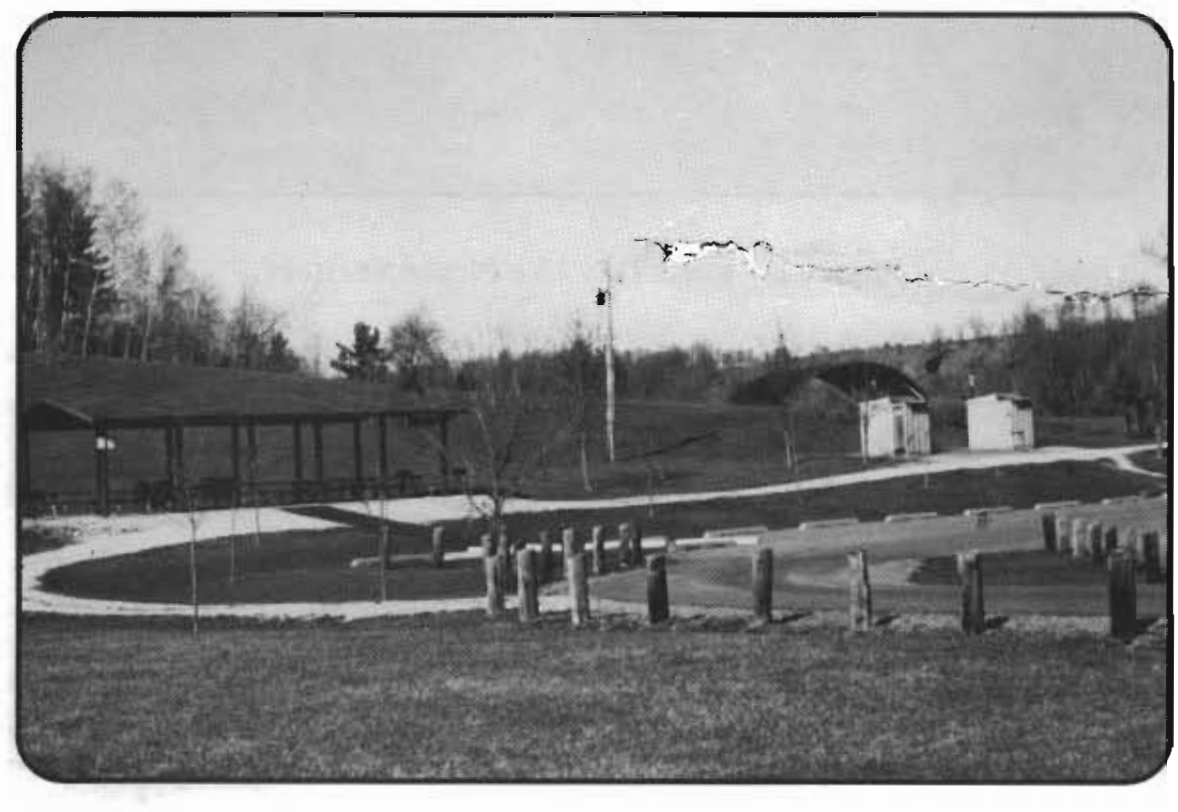


Figure 1 - Picnic and Parking Facilities

Figure 2 - 1 of 3 Day Use Picnic Shelters

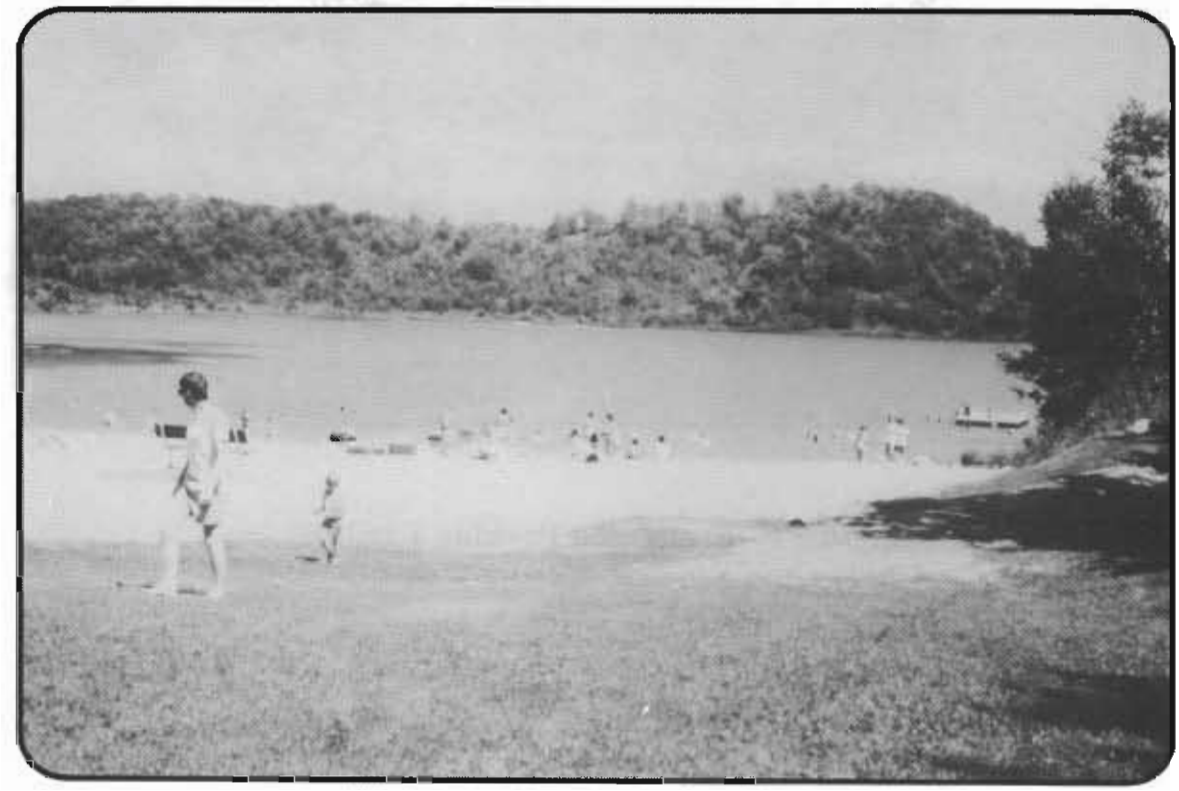


Figure 3 - Day Use Swimming Beach

Area B - Highland Ridge Campground

This area consists of about 146 acres and is located on the north side of the reservoir on a plateau about 100 feet above conservation pool. The plateau terrain is comparatively level and covered with pioneer type brush and numerous trees. This area has a number of mature oak and maple specimen trees and a pioneer understory due to previous heavy grazing of the area. Bluffs are located on three sides of the area and enhance the scenic value of the site. An access road (see figure 4), campsites (both tent and recreational vehicles), tables, grills, refuse containers, toilets, and water facilities are provided.

Figure 4 - Campground Access Road

Area C - Northwest Area

This area, consisting of about 5 acres of lowland, is just north and west at the confluence of the Eau Galle River. The area is within the flood storage area and thus is suitable only for day use. The terrain is comparatively level and covered with underbrush and some trees. The present facilities consist of an access road, picnic tables, fireplace, refuse containers, parking spaces, and toilet facilities. (See figure 5.)

Figure 5 - Northwest Area

Area D - Scenic Overlook

This area has been developed as a scenic overlook. It contains a parking area, sheltered overlook (see figure 6), and trail leading to a second overlook closer to the dam. Views from this vantage point are excellent, as shown on figure 7.

Area E - Lousy Creek Boat Launch

The boat launch located on the east shore of the conservation pool is accessible by a gravel road and contains a parking area. (See figure 8.)

Area F - Dam Outlet Area

This area is located on the south side of the dam. It consists of a small parking and picnic area. (See figure 9.)

A recreation lease for this area is held by Spring Valley School District. Construction plans are awaiting approval.

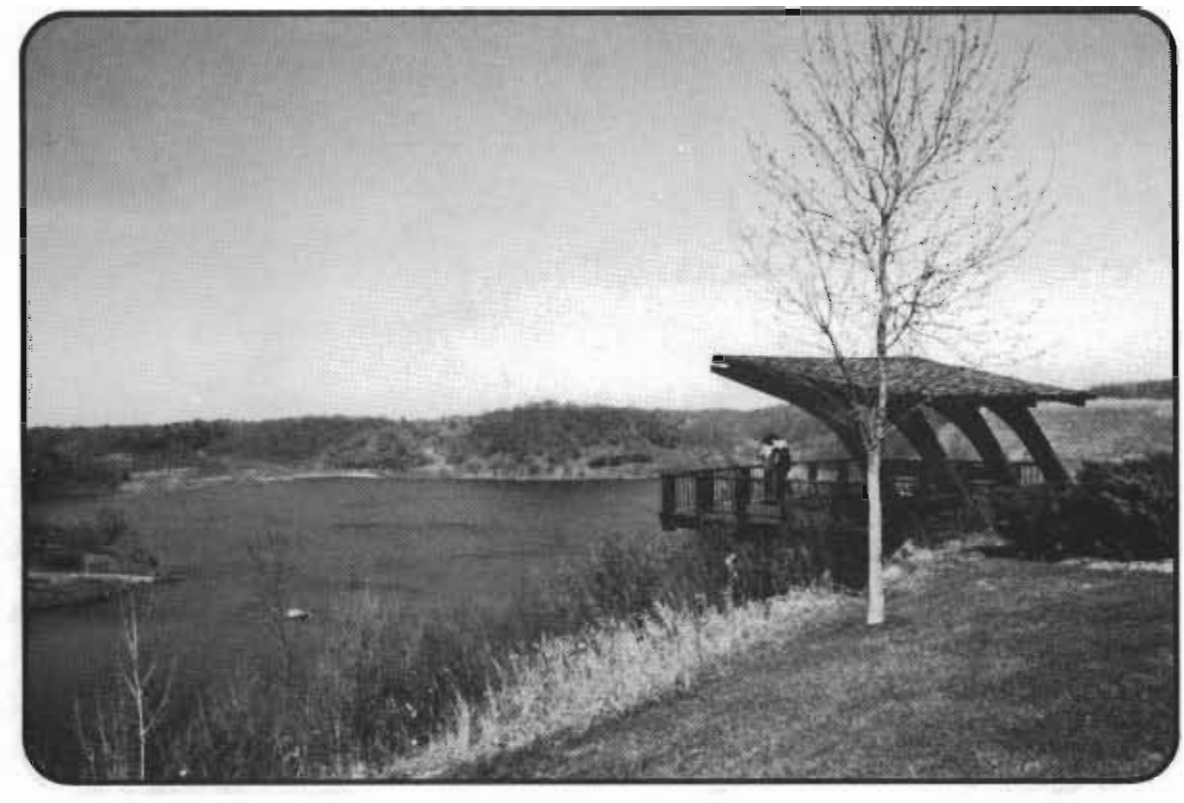


Figure 6 - Scenic Overlook Structure

Figure 7 - View from the Overlook

Figure 8 - Lousy Creek Boat Launch

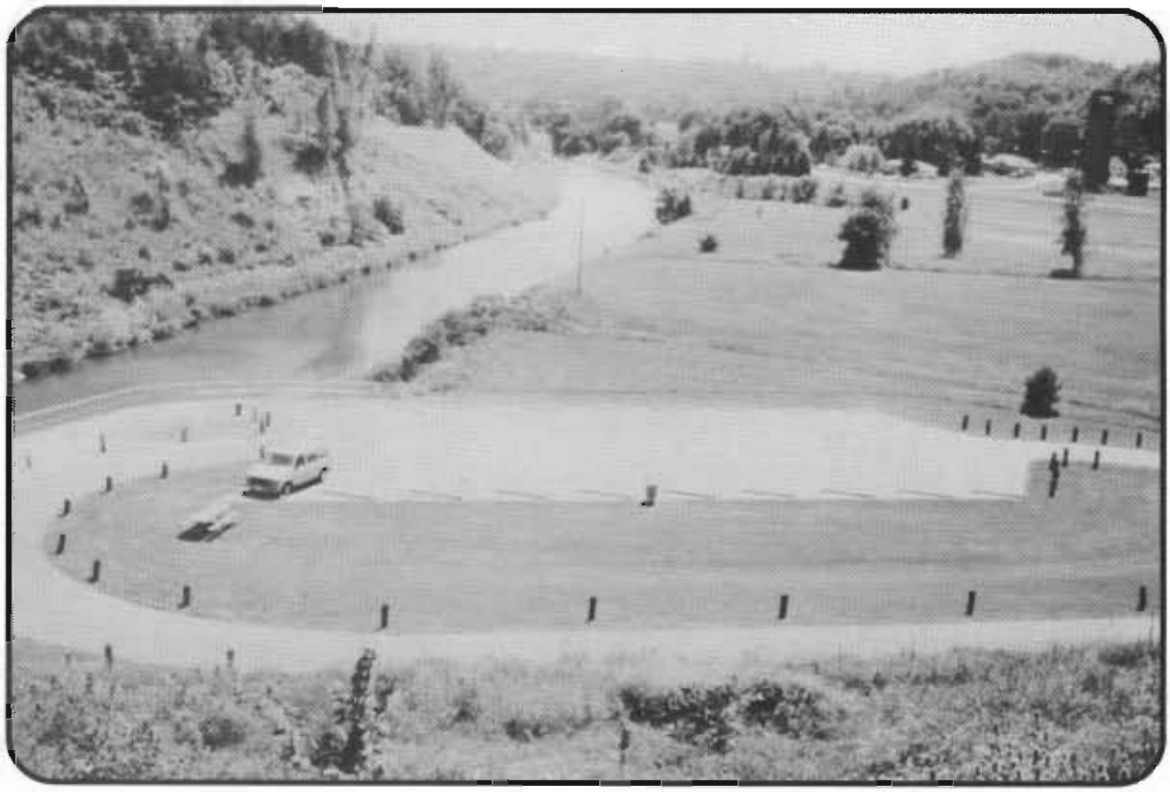


Figure 9 - Parking at Dam Outlet Area

SECTION 3

FACTORS AFFECTING RESOURCE DEVELOPMENT

3. REGIONAL SETTING AND PROJECT DESCRIPTION

3.01 Climate

The climate of the Eau Galle Reservoir area can be described as humid continental. The warmest month is July with a mean temperature of 72°F. Temperatures in the 90's are not unusual, occurring on 10 days during an average year. The coldest month is January with a mean temperature of 15°F. Temperatures dip below freezing 230 days out of the year and typically reach 0°F or colder on 35 days.

This area receives extensive precipitation and several severe storms during any given year, including thunderstorms, tornadoes, hail, and blizzards. Thunderstorms typically occur on 42 days during the year. Tornadoes, although much less frequent in occurrence, are also common. Annual precipitation in the area is 30 inches. The vast majority of this moisture, 72 percent, occurs in the warm months between April and September. The maximum mean monthly precipitation of 4.5 inches of rain typically occurs in June. Annual snowfall is over 40 inches.

Wind direction in the area is predominantly from the south and southwest, based on wind measurements from May 1973 to May 1974 at the proposed Tyrone Energy Park site in Dunn County. Average wind speeds in this area are 12 miles per hour.

3.02 Hydrology

Flood History

The Eau Galle River upstream from the reservoir has a contributing watershed of approximately 64 square miles of primarily agricultural land. This watershed, a subbasin of the Chippewa River, consists of a relatively well-entrenched valley and river system. Gradients average 11 feet per mile on the main stem of the river (0.2 percent). Tributaries are substantially steeper.

Rapid snowmelt or rainstorms of high intensity have historically caused flash flood conditions. River stages normally fluctuate within a range of about 5 feet, but during intense rainstorms, a rise of 10 to 15 feet may occur within a few hours (U.S. Army Corps of Engineers, 1960).

Of the 16 greatest known floods at Spring Valley, only two have occurred since a U.S. Geological Survey gage was established there in 1944. Data for the other flood occurrences is limited to precipitation records from weather stations in or near the Chippewa River basin, approximate high water elevations, and accounts of flood damage published in local newspapers. The major storms of note for which data is available are described in the following paragraph.

The peak discharge of record at Spring Valley occurred on September 17, 1942, when a flow of 33,000 cubic feet per second was estimated. This flow was projected to have a probable recurrence interval of once in about 95 years. Resultant damage to Spring Valley from this flood was placed at $1.5 million. The flood of record resulted from a rainfall of about 9 inches in 36 hours as recorded unofficially

at Woodville in the basin headwaters. The storm covered a wide area extending across the entire State of Wisconsin. The year before, from August 28-31, 1941, an even greater storm centered north of the Eau Galle River basin in the headwaters of the Chippewa River and extended from west-central Minnesota across northern Wisconsin to Lake Michigan. Approximately 12.4 inches of rain fell during an 18-hour period at Hayward, Wisconsin. Other storms of major proportions that have been recorded in the general region include the storm of July 18-23, 1909, which centered in northern Minnesota and Wisconsin, and the storm of June 10-13, 1944, which centered in eastern Nebraska. The greatest one-day precipitation in or near the basin, since the first stream gaging station was established, measured 4.48 inches on July 8, 1955 at Ellsworth. The greatest discharge observed at Spring Valley was on April 15, 1954 and was caused by a 2-day rainfall of 3.16 inches at Spring Valley. During this storm, 4.24 inches were measured at Baldwin and 4.32 inches were reported from Menomonie.

Design Pool Elevations and Discharges

The Eau Galle Dam and reservoir were completed in 1969 to control the flooding along the Spring Valley sector of the river. Release of water from the reservoir is controlled at the dam by means of a "morning glory" intake structure. This device is used to maintain a conservation pool at 940 feet above mean sea level. Based on historical flow data from Spring Valley for the period 1944-1959, the average annual release is about 25 cubic feet per second. A low flow control gate was opened in 1970 to provide a draw of cool, oxygen depleted waters from a depth of 20 feet. This draw provides a continual release of 10 cubic feet per second (cfs).

The low flow release was initiated by the Corps of Engineers at the request of the Wisconsin Department of Natural Resources. The two objectives for providing a low flow release were:

1. To achieve an increase in dissolved oxygen concentrations in deeper water of the reservoir, thereby expanding fisheries habitat.

2. To lower stream water temperatures in the Eau Galle River below the dam to preserve and/or improve trout habitat.

The standard project flood is estimated to reach an elevation of 997.5 feet above mean sea level. This is about 22 feet below the crest of the spillway on the dam (elevation 1019.5 NGVD). This flood level would result in a surface pool occupying 695 acres with a volume of 26,200 acre-feet. Design discharge capacity is 3,700 cfs. In contrast, the conservation pool (940 feet NGVD) occupies 150 acres and stores only 950 acre-feet of water.

The standard project flood may be compared with a number of other probable flood events. For example, a flood with a probable recurrence interval of once in 5 years (5-year flood) would increase the pool elevation to approximately 949 feet. A flood with a probability of once in 50 years would be expected to raise the pool elevation to 965 feet NGVD. The maximum probable design flood would reach the spillway crest, which is at 1019.5 feet NGVD as noted above. A flood of this extreme magnitude may be roughly related to a probability of once in 100 years.

During a 100-year flood, the reservoir pool would occupy 880 acres and store 44,000 acre-feet of water.

Sediments and Water Quality

Sedimentation is an important process which results in the accumulation of materials in reservoirs. In addition to the loss of water storage capacity, deposited sediment and associated nutrients can also have an impact on the reservoir water quality. Amounts of phosphorus, nitrogen, and organic carbon in Eau Galle Lake are consistent with the current trophic state and land use patterns in the surrounding watershed. The small size and shallow water level have resulted in the accumulation of sediment in the deepest parts of the reservoir. Higher concentrations of nutrients, metals, and organic matter are found in these deeper sediments and are likely to influence water quality.

One of the aesthetic concerns is the buildup of algae scum during the summer months. In an effort to reduce internal loading of phosphorus and subsequent algae growth, liquid alum was applied in June 1986 to portions of the reservoir that were deeper than 10 feet. Monitoring of the effectiveness of the alum application will continue through 1989.

Littoral Zone

The littoral zone represents the interface between the land edge and the open-water portions (water depth less than 10 feet) of a lake. Littoral zones are also an important component of the lake ecosystem by providing spawning sites, nursery areas, and food for fish. This zone has the potential to affect recreation, water supply, navigation, and other beneficial uses of reservoir projects, particularly in a shallow reservoir. Approximately 80 percent of the Eau Galle Reservoir is considered to be in the littoral zone. In the littoral zone, relatively high rates of respiration and photosynthesis concentrated in a relatively small volume of water can cause short- and long-term changes in water quality. Additionally, littoral zones may serve as "seed" areas that foster the development of nuisance accumulations of aquatic macrophytes that may impede recreation and navigation and decrease the water quality and aesthetic value of the reservoir.

Wastewater Treatment Facilities

Existing facilities at the Eau Galle Reservoir include vault toilets and satellites for sewage disposal. Wastewater is generally held in concrete vaults that are pumped out at least annually by a licensed contractor. Wastewater disposal is certified by the contractor to be in compliance with applicable State and Federal regulations.

Groundwater

Deep wells in the area are finished in fragments of dolomite and Jordan sandstone bedrock or in other unconsolidated subsurface deposits of gravel and sand. Groundwater from these aquifers is very abundant, and wells at the reservoir could easily accommodate increased usage without adversely affecting supplies. There are three wells in the area: one in the picnic area, one in the maintenance area, and the other at the campground.

3.03 Geology

The Eau Galle Reservoir is part of the glaciated area of Wisconsin. Glacial drift overlies much of the basin area. Underlying bedrock in the upland areas is dolomite and sandstone. Within the river valley, alluvial sands generally overlie unconsolidated deposits of glacial till. In this underlying zone, unassorted deposits of gravel, sand and rock fragments of granite and dolomite predominate. Vertical sandstone and dolomitic cliffs capped with limestone, border the valley a short distance upstream from the dam. In some areas, these materials have sloughed off to leave talus deposits bordering the valley in this sector. Within the river valley and underlying these alluvial, glacial, and talus materials are Oneota dolomite and Jordan sandstone formations of the Ordovician and Upper Cambrian periods. These formations outcrop at various points in the basin. They form scenic cliffs along the valley, where the river has deeply incised its meandering course, during pre-glacial and post-glacial times. (See figure 10.)

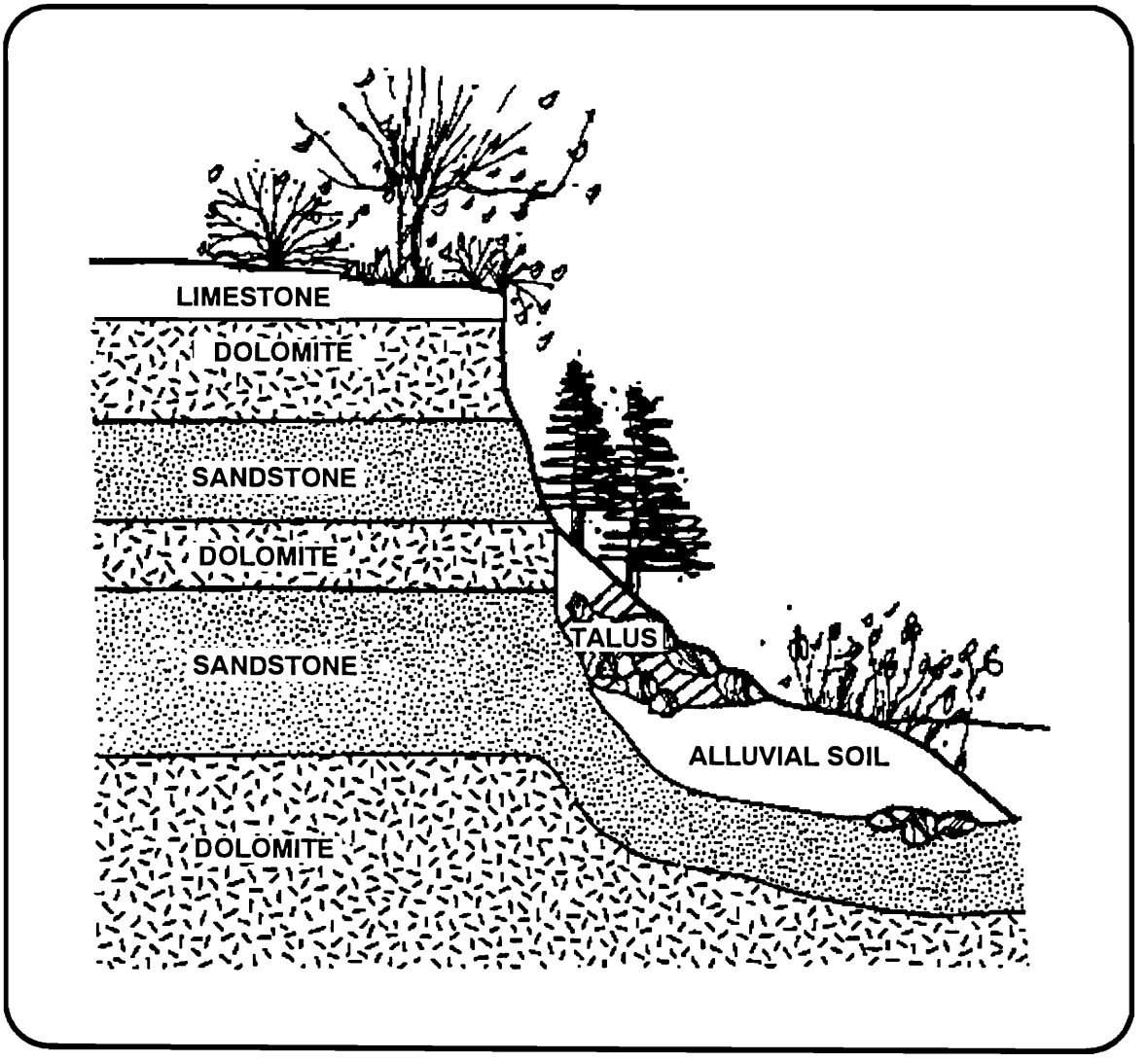


Figure 10 - Geology Formations

3.04 Soils

The predominant soils found at the Eau Galle Reservoir are Whalen, Ritchy, Alluvial, Dubuque, and Dunbarton soils. Plate 4 delineates their location at Eau Galle Reservoir. Typical soils on the level upland areas are Whalen and Otterholt soils. Ritchy, Dubuque, and Dunbarton soils are soils most frequently found on the steep valley slopes. The lowland area surrounding the reservoir and streams is made up of predominantly alluvial sands.

The characteristics of the area's soils reflect the geologic makeup of the area and impact of the river. The alluvial valley soils are, for the most part, fine-grained sandy loams or silt loams. Near the dam site, sandy soils predominate. These soils are almost entirely lacking in clay. They are generally friable, porous, and highly fertile, which is characteristic of alluvial soils. Within the valley, these soils tend to be well saturated with water, and groundwater supplies are more than adequate for the demands placed upon them. Underlying these soils are gravels and sands with a mixture of granitic and dolomitic material. Locally, restructure consolidation of these materials by glacial action and riverborne movements has occurred. Generally, however, these materials tend to exist as unconsolidated subsurface deposits. Rock fragments of dolomite and Jordan sandstone are especially well represented throughout the soil horizons along the valley edges.

Whalen loam, found mostly in the uplands, is a well-drained, moderately permeable shallow soil. Bedrock is 20 inches to 40 inches from the surface. The proximity of bedrock to the surface severely limits the development of septic systems. The small depth to bedrock also limits road construction in areas with slopes greater than 12 percent.

Ritchy loam is a shallow, well-drained soil with moderate permeability. Bedrock dolomite is only 10 inches to 20 inches from the surface, creating problems for roads and septic systems.

The Dubuque and Dunbarton soils are mostly found in Pierce County. These silty soils are well-drained and suited to crop production. The Dubuque soils, usually used for agriculture and stands of timber, generally occupy only small areas. Dunbarton soils are of poorer quality due to the coarse texture, somewhat excessive drainage, and limited depth. The vegetative composition on Dunbarton and Dubuque soils is similar but vegetation grows more slowly on the Dunbarton series.

Soils of the Santiago series are well-drained, silty sediments over glacial till. These soils are not subject to flooding and have a high available water capacity. The limitations for recreation uses depend on the slope. Santiago soils have good woodland productivity and wildlife value, providing both food and cover for various species of wildlife. However, these soils are not very extensive in the project area.

The soil in the Eau Galle area limits to some extent the ability to develop and use the lands surrounding the reservoir for recreational purposes. The impacts of Eau Galle's soils on recreational opportunities have been interpreted from the basic characteristics of the soils. Table 5 identifies soils that are capable of supporting recreation.

Hiking and other trail activities have only minimal land suitability requirements. Extremely steep slopes, wetlands, and unstable soils each present limitations for trail construction. However, specific soil limitation areas have not been identified for these activities because of the small impact soil conditions make on trail feasibility and the adaptability of trails to terrain due to the small land area they require.

Table 5 - Soils Capability to Support Recreation

Soil Type	High	Moderate	Low
Alluvial			X
Dakota		X	
Huntsville			X
Otterholt	X----------	----------X	
Ritchey			X
Whalen		X----------	----------X
Santiago	X----------	----------X	

3.05 Topography

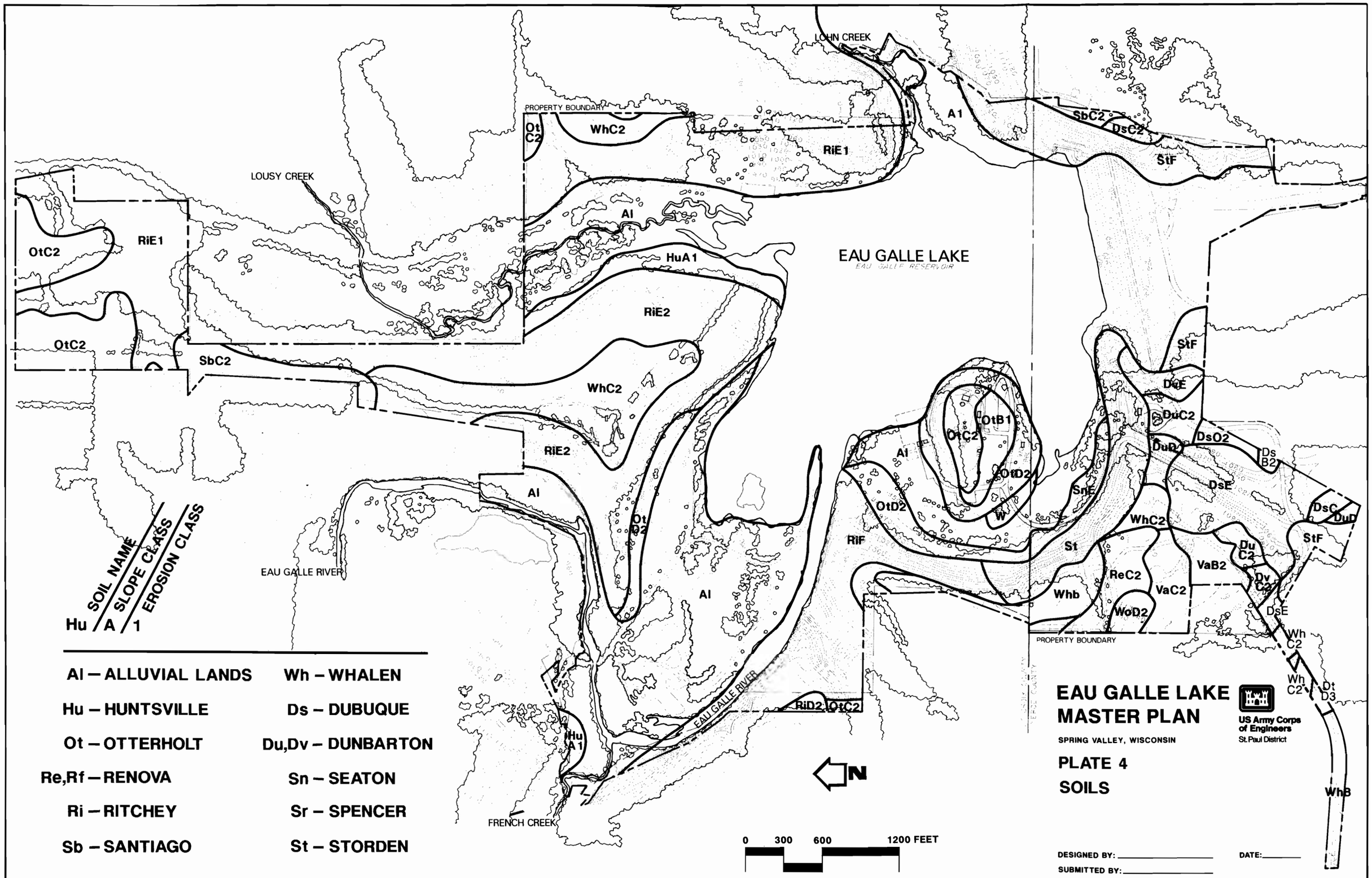
The Eau Galle Reservoir is an area of steep slopes and large variances in elevation. The hills surrounding the reservoir reach elevations of 1160 feet above mean sea level, while the river valley south of the dam reaches depths of 920 feet NGVD.

The slope characteristics found at the Eau Galle Reservoir are illustrated on plate 5. Extensive portions of the Corps of Engineers land have slopes well in excess of 18 percent. The extremely steep areas are predominantly the river valley walls and frequently near the water edges. These slope characteristics present some recreational development limitations and potential hazards. The recreational activity, vehicle access, and erosion problems are all influenced by the degree of slope. Some important reference points for interpreting slopes are:

1. Slopes of 0 to 4 percent appear more or less flat. Active recreation such as athletics can easily be accommodated.

2. Slopes of 4 to 12 percent are still gentle enough for informal movement and activities. Picnicking could be accommodated in areas with this degree of slope.

3. Slopes over 12 percent seem steep and can be actively used only for hill sports. Noticeable effort is required to climb these slopes. Grades of 10 percent to 15 percent are the maximum slope that typical vehicles can negotiate for anything other than a very short distance.



Al – ALLUVIAL LANDS	Wh – WHALEN
Hu – HUNTSVILLE	Ds – DUBUQUE
Ot – OTTERHOLT	Du,Dv – DUNBARTON
Re,Rf – RENOVA	Sn – SEATON
Ri – RITCHEY	Sr – SPENCER
Sb – SANTIAGO	St – STORDEN

EAU GALLE LAKE MASTER PLAN

SPRING VALLEY, WISCONSIN

US Army Corps of Engineers
St. Paul District

PLATE 4
SOILS

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

LOHN CREEK

PROPERTY BOUNDARY

LOUSY CREEK

EAU GALLE LAKE

EAU GALLE RIVER

EAU GALLE RIVER

FRENCH CREEK

PROPERTY BOUNDARY

0-6%

6%-12%

12%-18%

GREATER THAN 18%

N

0 300 600 1200 FEET

EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St. Paul District

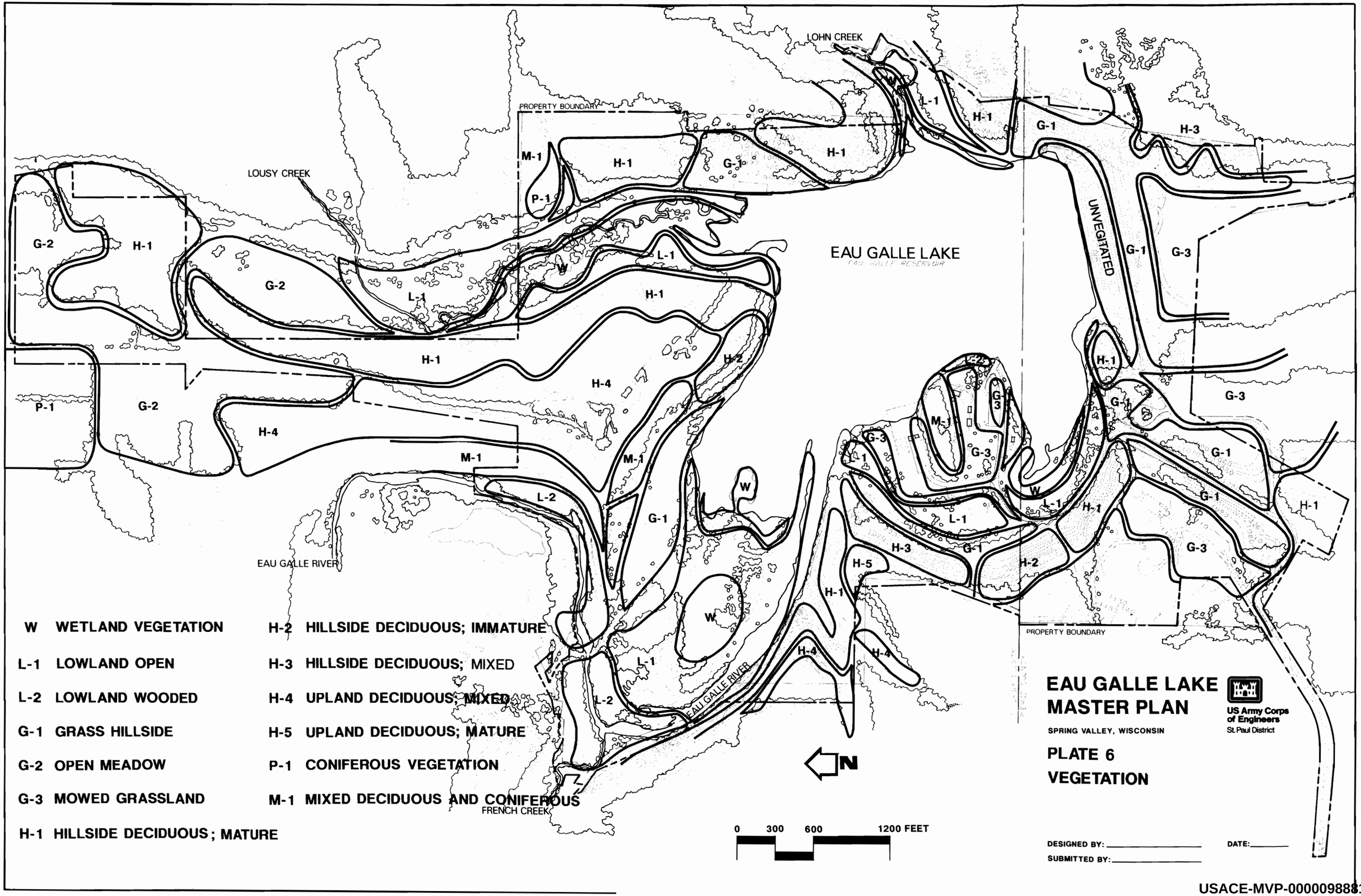
SPRING VALLEY, WISCONSIN

PLATE 5

SLOPES

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____



EAU GALLE LAKE MASTER PLAN

SPRING VALLEY, WISCONSIN

US Army Corps of Engineers
St. Paul District

PLATE 6
VEGETATION

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

4. Slopes over 20 percent are not capable of supporting recreation activities and are impractical to mow.

5. Ground cover is difficult to maintain on slopes over 50 to 60 percent, without terracing or other special treatment.

Because of the extreme slopes in the Eau Galle Lake area, available space for recreational activities is very limited. Activities such as camping and picnicking have been limited by extreme slopes, and important support facilities have not been available. Additional facilities and connections can be developed through careful site selection and detailed site alterations. These extreme slopes have also presented some obvious access problems. Access route opportunities to the existing campground and from the campground to the water are circuitous because of the extreme slopes.
Table 6 identifies slope requirements for specific recreational activities.

Table 6 - Slope Capability to Support Recreation

Recreation Activity	0-6% Slope	7-18% Slope	18%+ Slopes
Camping	High	Low	Low
Picnicking	High	Moderate	Low
Swimming (beach)	High	Low	Low
Boating (access)	Low	High	Low
Playground	High	Low	Low
Parking	High	Moderate	Low
Driving	High	Moderate	Low
Hiking	High	High	Low
Sightseeing	High	High	High
Cross-country skiing	Low	High	Moderate
Snowmobiling	High	Moderate	Low
Bike riding	High	Moderate	Low
Horseback riding	High	Moderate	Low

3.06 Vegetation

Vegetation Cover Types

During 1973 and 1974, all plant species identified in the study area were recorded. In this 2-year period, 366 species representing 75 different plant families were cataloged. The purpose of this investigation was to characterize the distribution of vegetation in the Eau Galle Reservoir study area. As indicated by plate 6, the reservoir area has an extremely rich interspersion of vegetation cover types. This

interspersion provides a pleasing aesthetic experience. This plate provides a visual interpretation of vegetative communities according to six general cover types:

W - wetland vegetation
L - lowland vegetation
G - grassland
H - deciduous woodlands
P - coniferous vegetation
M - mixed deciduous and coniferous vegetation

A listing of the major vegetation categories is provided in table 7. A complete inventory of all plant species recorded in the 1974 study was provided in the Barton-Aschman Reservoir Pool Elevation Study in 1980, and is included in appendix A.

Table 7 - Vegetation Categories

Category Code	Category	Characteristics
W	Wetland Vegetation	- wet during most of the year - marsh grasses, reeds, and cattails
L-1	Lowland Open	- low areas subject to flooding during some or most of the year - marsh and prairie grasses, shrubs, scattered immature invading deciduous trees (willow, box elder, cottonwood)
L-2	Lowland Wooded	- low areas subject to flooding during some of the year - mature deciduous trees (willow, box elder, cottonwood, ash, elm, aspen, birch)
G-1	Grass Hillside	- prairie grasses on slopes - some immature invading trees
G-2	Open Meadow	- open prairie grassland areas
G-3	Mowed Grassland	- maintained stand of cultured or non-cultured grass
H-1	Hillside Deciduous	- paper birch, sugar maple, basswood stands; Mature ironwood, white oak, ash var., burr oak
H-2	Hillside Deciduous (Immature, Scrubby or Prone)	- aspen, birch, ash var., sugar maple

Table 7 - Vegetation Categories (continued)

Category Code	Category	Characteristics
H-3	Hillside Deciduous Stand (Mixed Mature and Immature)	
H-4	Upland Deciduous Stand (Mixed Mature and Immature)	
H-5	Upland Deciduous Stand (Mature)	
P-1	Coniferous Vegetation	- mature white pine; dominant species
M-1	Mixed Deciduous and Coniferous	- mixture of mature coniferous with various species of mature deciduous

Ecosystem capabilities were evaluated to determine the ability of the existing vegetation to support the various recreational activities. (See table 8.)

Table 8 - Ecosystem Capability to Support Recreational Activities

Ecosystem / *Activities*	Wetland/ Water Edge	Lowland Woods	Lowland Open	Open Meadow Grassland	Hillside Deciduous and Coniferous	Upland Deciduous and Coniferous
Camping				X		X
Picnicking		X	X	X		X
Swimming (beach)	X					
Boating (access)	X					
Canoeing	X					
Playground				X		
Hiking		X	X	X	X	X
Sightseeing	X	X	X	X	X	X
Cross-country Skiing		X	X	X	X	X
Snowmobiling			X	X		X
Bike Riding				X		
Horseback Riding				X		X

Rare and Endangered Plant Species

The 1974 Environmental Impact Assessment identified no officially designated rare or endangered plant species in the area. However, seven plant species, considered locally rare by the State of Wisconsin, were indicated as either likely to be found at Eau Galle Reservoir or positively identified to exist. This data appears to still be valid. The seven species are shown in table 9.

Table 9 - Locally Rare Plant Species

Species	Comments
1. Balsam fir (Abies balsamea)	Several specimens. Unusual this far south. Mainly noted on or along cliff areas and north slopes.
2. Leatherwood (Dirca palustris)	Unusual distribution. Rare this far south. Rocky cliffs, north slopes. Scattered.
3. Appendaged water-leaf (Hydrolophyllum appendiculatum)	Mesic wood, colonial-rhizome spreader. Three locations. Forty to fifty plants. Threatened by habitat distribution in much of its range.
4. American gromwell (Lithospermum latifolium)	Much reduced in numbers. Dry mesic woods, hillsides, esp. south slopes. Forty to fifty scattered specimens observed.
5. Showy orchis (Orchis spectabilis)	Uncommon orchid. Single locations in mesic woods. About a dozen specimens observed.
6. Cliff-brake Fern. (Pellaea atropurpurea)	Found only on exposed sandstone cliffs Very limited distribution, but apparently not threatened.
7. Ground hemlock (Taxus canadensis)	Several specimens. Unusual so far south. Mainly on or along steep, especially north slopes.

3.07 Fish and Wildlife Resources

An inventory of species present in various habitats of the Eau Galle Reservoir and vicinity was undertaken by the U.S. Army Corps of Engineers in 1974 during the preparation of the Environmental Impact Assessment (EIA) Report of the Eau Galle Reservoir Project (Vogtman Associates, 1974). This

EIA was updated by the U.S. Department of the Interior, Fish and Wildlife Service to include any new information documenting existing conditions in the reservoir study area. It was concluded in their technical assistance letters that the EIA was a "thorough source" of environmental data (Fish and Wildlife Service, 1978). Although additional field studies have not been undertaken since, contacts have been maintained with knowledgeable professionals in fish and wildlife disciplines and various agencies with fish and wildlife management responsibilities in the study area. The following discussion summarizes information compiled from all available sources: Environmental Impact Assessment Report, Wisconsin Department of Natural Resources (DNR) records, scientific literature, and personal communications from U.S. Fish and Wildlife Service personnel and local investigators.

Field studies resulted in recorded observations of 22 species of mammals, 12 species of amphibians and reptiles, and 143 species of birds. Twenty-six species of fish were tabulated by researchers from the University of Wisconsin, River Falls as occurring or potentially occurring in the study area. Some of these species were collected by the investigators from Wisconsin DNR in 1970. Other collections resulted from seining and creel census operations by the University in 1973. Subsequent inventories by the DNR have resulted in the addition of three species which were not recorded prior to 1973. These later additions bring the total fish species list to 29 species.

Importance of Terrestrial Habitats to Wildlife

Studies on habitat types in Wisconsin strongly suggest that the reservoir area has a greater density and diversity of birds than would be found where the respective habitat types are found in isolation. The interspersion of habitats has resulted in a particular richness of bird species. The Wisconsin Society for Ornithology has selected the reservoir as a favored bird watching area and reported the first sighting of the little blue heron in St. Croix County at the reservoir in 1976.
According to Wisconsin DNR personnel and personal communications from participants in the original University of Wisconsin study, no recent game or non-game population studies have been conducted. However, the reservoir area was generally considered by these investigators to provide a rich habitat for resident and migrant bird species, mammals, reptiles, and amphibians.

Typical Aquatic Habitat Characteristics

Bottom sampling has been conducted in the Eau Galle Reservoir and has indicated extremely uneven bottom contours in the reservoir (possibly due to the movement of bottom materials for dam construction). Large areas of the reservoir (approximately 10 acres in total) are dominated by emergent vegetation (3 feet deep or less) dropping off to depths of as much as 35 feet.

Sport fishing in the reservoir is currently managed by the Wisconsin DNR for largemouth bass and bluegills. Management activities began in 1968 with the chemical treatment of the flowage basin to remove carp, which were considered detrimental to the river and reservoir fisheries. According to the Wisconsin DNR publication "Wisconsin Trout Waters," the Wisconsin DNR still considers the river upstream from the reservoir to County Trunk Highway N as a Class III (stocking required) brown trout fishery.

Stocking of the reservoir began in 1968 and included releases of 2,580 brown trout, 2,000 rainbow trout, 9,840 largemouth bass, and 8,770 bluegills. Trout fishing was very good for the first couple of years after stocking, but by 1970, the trout population and associated fishery began to decline as the bass/bluegill fishery became established. The last stocking of bass was in 1972 and management activities since then have been primarily directed to determining the condition, growth, and reproduction of the fish through periodic boom shocker surveys. It was proposed by Apelgren (1974) that:

> The basic management of the lake's sport fishery should continue for largemouth bass and bluegills. It is felt that future plants of trout in the lake will not contribute enough to the maintenance of a significant trout fishery. For this reason, trout will no longer be stocked in the lake (a few surplus rainbow trout were last stocked in 1973). It is anticipated that no fish stocking will be necessary to maintain the existing sport fishery.

Results of the shocker surveys and reports from fishermen indicated that in 1977 white suckers were becoming quite common in the reservoir and were considered a potential nuisance. In 1978, about 1,000 pounds of this species was removed by shocking, above the reservoir.

Within the Eau Galle Reservoir, eight species were reported in the creel census of 1974. Bluegills, pumpkinseeds, green sunfish, and largemouth bass comprised 98.5 percent of the total catch. Brown trout, black bullheads, rainbow trout, and silver redhorse made up the remainder. The average size of most fish species (except trout and bullhead) were very small. Brown trout were infrequently taken but were a good size, averaging about 1 pound 5 ounces. Bullheads averaged approximately 3/4 pound.

Importance of Aquatic Habitat to Fisheries

The preferred spawning habitat of major fish species in the Eau Galle Reservoir occurs in the littoral zone (surface water area having a depth of less than 10 feet) of the reservoir, which constitutes about 30 percent of the total surface area.

Rare and Endangered Animal Species

The osprey (Pandion haliaetus) is listed as an endangered species in the State of Wisconsin. At the national level, the species is protected under the Federal Migratory Bird Protection Act of 1918, but it is not listed under the Federal Endangered Species Act of 1973. The population of osprey in the Eau Galle Reservoir area and reproductive success of the species are unknown, although active nesting has been reported as recently as 1974. Several osprey sightings have been reported by park personnel every year since 1974. Traditionally, osprey nests have been found in dead tree "snags" either surrounded by water or along the shorelines of lakes, rivers, bays or man-made reservoirs. Nesting typically occurs in coniferous vegetation within 100 meters of open water.

3.08 Social Resources

The Eau Galle Recreation Area serves primarily two populations: (1) those residents of the surrounding counties who are thought to be more likely to use the day-use areas in the park, and (2) Twin Cities area

residents who would find the recreation area at a convenient distance for overnight or weekend camping.

Twin Cities

The Minneapolis-St. Paul Twin Cities area encompasses seven counties with a total 1980 population of 1,985,873. The industrial profile for these counties reveals that most employed persons are working in either service or manufacturing occupations. The population change between 1970 and 1980 in the Twin Cities counties exhibited the typical urban pattern of loss of population in the inner city core (Hennepin and Ramsey Counties) and larger than average population growth in the adjacent counties. (See table 10.)

Table 10 - Population Change: 1970-1980

Area	1970	1980	Percent Change
County			
Anoka	154,712	195,998	26.7
Carver	28,310	37,046	30.9
Dakota	139,808	194,111	38.8
Hennepin	960,080	941,411	-1.9
Ramsey	476,255	459,184	-3.5
Scott	32,423	43,784	35.0
Washington	83,003	113,571	36.8
Minnesota	3,806,103	4,075,970	7.1

The median age for the Twin Cities seven-county area is 29.1 years, which is virtually identical with the Minnesota median age (29.2). Twin Cities counties have relatively slightly fewer people over 65 years old.

Median annual household income (1979) ranges from $24,257 in Washington County to $18,939 in Ramsey County, whereas median annual household income for Minnesota was $17,761. Twin Cities households are less likely to have household incomes of less than $10,000.

Adjacent Counties in Wisconsin

Three counties are adjacent to the Eau Galle Recreation Area. They are Dunn, Pierce, and St. Croix Counties, with a total combined population (1980) of 108,725. Most employed persons in these counties work in service or manufacturing occupations, which is similar to the Twin Cities. Counties adjacent to the Eau Galle Recreation Area experienced moderate growth between 1970 and 1980. (See table 11.)

Table 11 - Population Change: 1970-1980

County	1970	1980	Percent Change
Dunn	29,154	34,314	17.7
Pierce	26,652	31,149	16.9
St. Croix	34,354	43,262	25.9

The median age for Wisconsin (1980) was 29.4 years, which is very similar to the median age for Minnesota (29.2 years). Median age in the counties adjacent to the recreation area was 25.8 years, which is noticeably younger than the Wisconsin median age. An average of 10 to 12 percent of persons were over 65 in Wisconsin.

Median annual household income (1979) for Wisconsin was $17,680, which is almost identical with the median income for Minnesota ($17,761). Median income in Dunn and Pierce Counties was less than for Wisconsin ($13,871 and $16,801, respectively), while median income for St. Croix County ($19,568) was a little higher than that of the State. Percent of households with income less than $10,000 shows the same pattern; Dunn and Pierce Counties have a higher percent than Wisconsin, while St. Croix County has a lower percent.

Neighboring Communities

The village of Spring Valley (1980 population of 987), is about 5 miles south of the Eau Galle Recreation Area. Spring Valley has a small grocery store, a couple of small cafes, a hardware store, and a post office. Business owners in Spring Valley feel that very little business is generated by visitors from the recreation area. One reason could be the out-of-the way road access to Spring Valley from the recreation area.

The small city of Menomonie (1980 population is 12,769) is located 15 miles east of the Eau Galle Recreation Area. Menomonie has a hospital, medical clinic, dental offices, movie theaters, and other amenities. Some Menomonie and many Spring Valley residents participate in the day use recreational activities.

3.09 Cultural Resources

Introduction

Prior to 1962, no professional archeological work had been performed in the vicinity of Spring Valley, when the State Historical Society of Wisconsin conducted the first preliminary archeological survey for the Eau Galle Reservoir. At the time of this survey, one site north of the Eau Galle Reservoir had been recorded, and a few of the local property owners had collections of prehistoric artifacts from

the farm fields they were cultivating. Since that survey, a number of archeologists from different institutions have conducted archeological surveys, testing, and excavations at the Eau Galle Reservoir.

General Research Background

The 28 archeological sites which make up the resource base for the Eau Galle Reservoir come from a very limited geographical area. Cultural affiliation at the recorded sites is based primarily on diagnostic artifacts found at these sites. Interestingly, the artifacts suggest that the cultural affiliation is nearly all from a Late Archaic time period.

Some of these sites were excavated and reported in detail (see appendix B), but other sites were tested only in a preliminary fashion. Some sites were inundated after construction of the dam and are no longer available for study, but many others have suffered little disturbance since they were last cultivated. The Lamb V site, one of the most significant sites found in all the years of survey and excavation, is located on the western side of the reservoir. It exists in much the same state as it did during major excavations 20 years ago. It is the only site eligible to be placed on the National Register of Historic Places. The St. Paul District has submitted a formal request to have this site listed on the National Register.

Interpretive Potential

While the sites located within the bounds of the Eau Galle Reservoir are not as numerous, large, or spectacular as other sites in western Wisconsin, they offer a great potential for researching and interpreting the prehistoric development along small order streams. A number of factors lend themselves to interpretation of these resources. Of all of the archeological sites at the Eau Galle Reservoir, the Lamb V site has the greatest potential for interpretation.

The Lamb V site may be adversely affected by proposed design changes in the trail maintenance bridge and the access road from the picnic area to the boat launch and parking area. A copy of this master plan has been sent to the Wisconsin State Archaeologist, the SHPO, and the NPS for comment. The proposed design changes were coordinated separately and the SHPO response is contained in Appendix B.

3.10 Aesthetic Resources

Natural features are commonly considered to have aesthetic value and contribute to the overall character of a site. The natural features of the Eau Galle Reservoir include dramatic changes in topography, meandering streams, vertical sandstone cliffs, rock outcropping, picturesque vistas, micro-environments, and lush vegetation. The location of these natural features is pointed out on plate 7.

The dramatic changes in topography surrounding the lake and river create opportunities for spectacular vistas of the reservoir, dam, and river valley. Excellent views are available at the many edges between the high ground and the steep sloping valley walls. Interesting views are available from the trail at the west edge of the campground (see figure 11).

Figure 11 - View from Campground Trail

The dam itself and the dam overlook provide excellent vantage points for viewing upstream or downstream over Spring Valley. Another good vantage point is the high ground directly west of the picnic and swimming area.

The steep slopes of the valley walls expose rock out-croppings of varying sizes throughout the site. The first of these rock outcroppings is 30 to 40 feet high and extends vertically from the water's edge. It is near the mouth of the Eau Galle River, as shown on figure 12, but can be viewed only from the northwest bank fishing area. The second rock outcropping is not as high but cantilevers out over the upstream Eau Galle River, northwest of the campgrounds (see figure 13). Both of the rock outcroppings can be reached by road or trail from the northwest area. Exposed rock can also be viewed by traveling through the spillway on the entrance road to the Main Day Use Area (see figure 14).

LOHN CREEK

PROPERTY BOUNDARY

LOUSY CREEK

EAU GALLE LAKE

EAU GALLE RESERVOIR

EAU GALLE RIVER

FRENCH CREEK

PROPERTY BOUNDARY

VISTAS(LOW ELEVATION)

VISTAS(HIGH ELEVATION)

MATURE STANDS OF TREES

LOWLAND VEGETATED AREAS

QUALITY STREAM ENVIRONMENT

ROCK OUTCROPPINGS

N

0 300 600 1200 FEET

EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St. Paul District

SPRING VALLEY, WISCONSIN

PLATE 7

UNIQUE FEATURES AND VISTAS

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

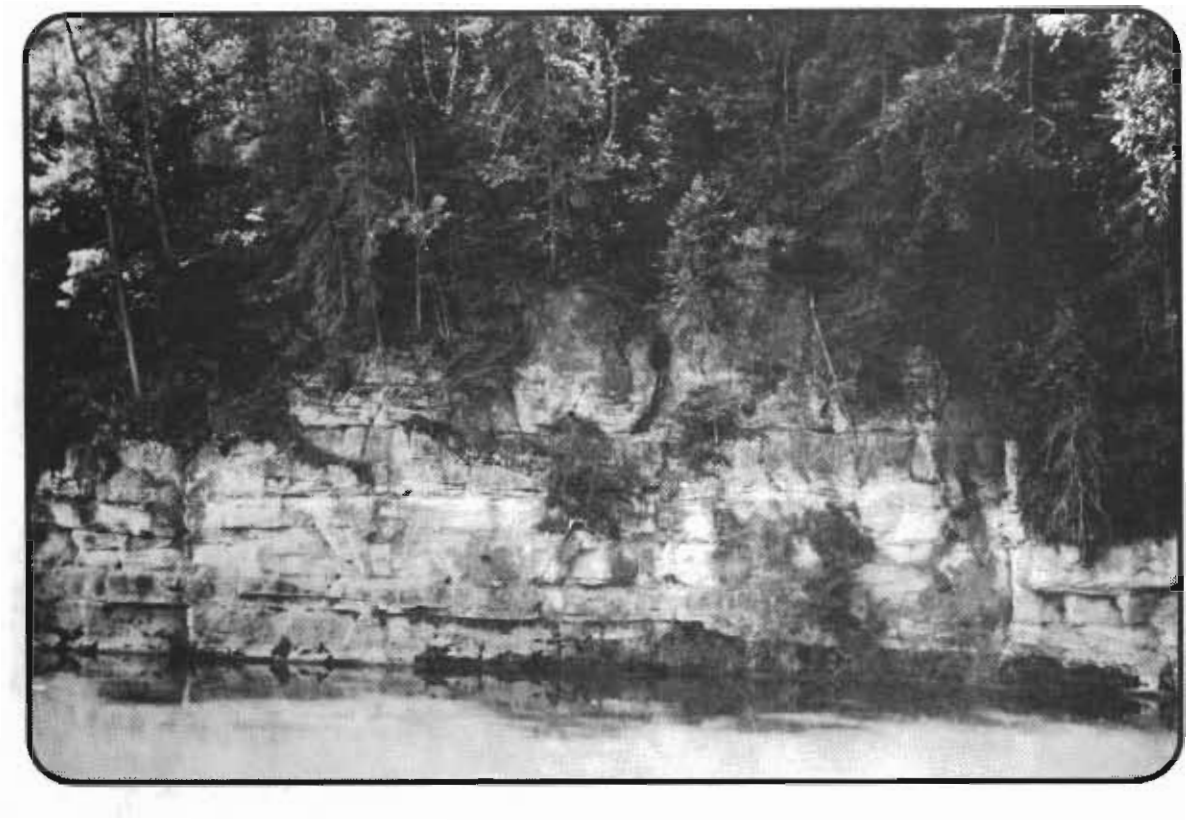


Figure 12 - Bluffs at Mouth of Eau Galle River

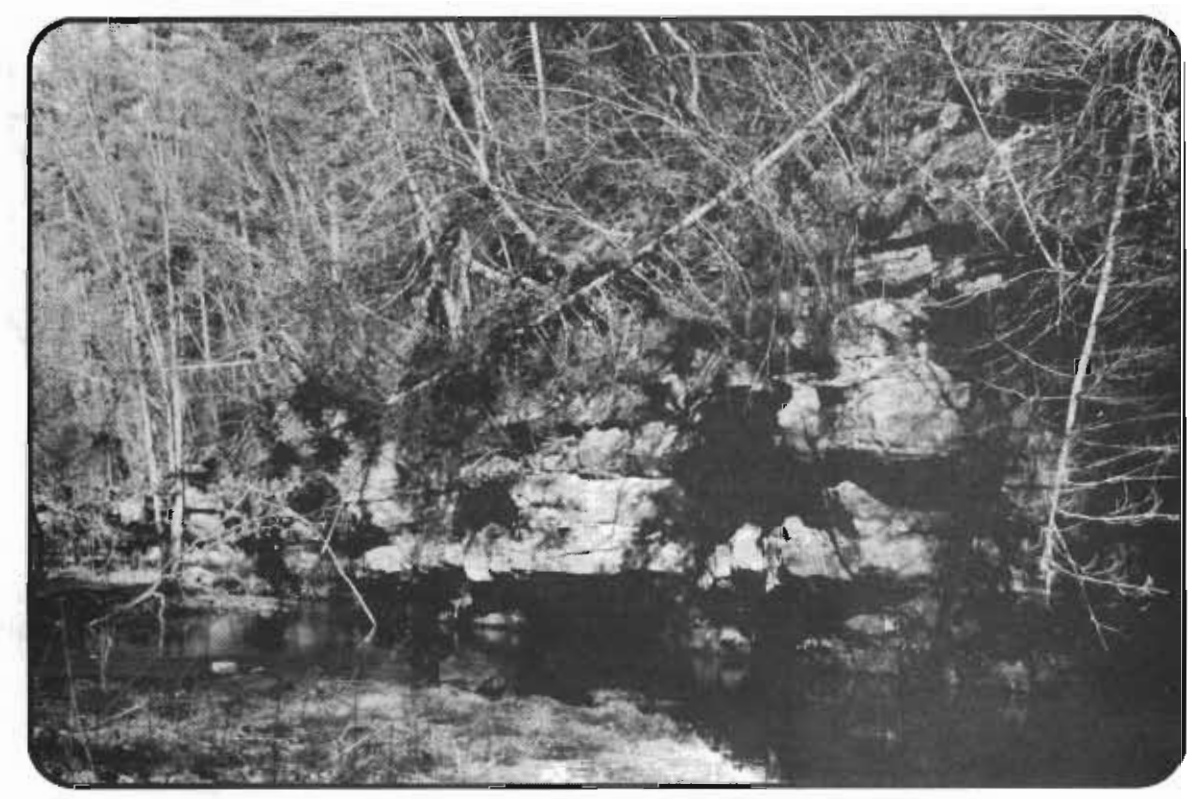


Figure 13 - Cantilevered Bluff Upstream Eau Galle River

Figure 14 - Exposed Rock in Spillway

The meandering streams and the pastoral wetlands adjacent to the rock out-croppings are very pleasant natural environments. The river is shallow at this point, glistening as it tumbles over the rocky stream bed, as shown on figure 15. Large deciduous trees stretch their branches over the stream, creating a natural canopy.

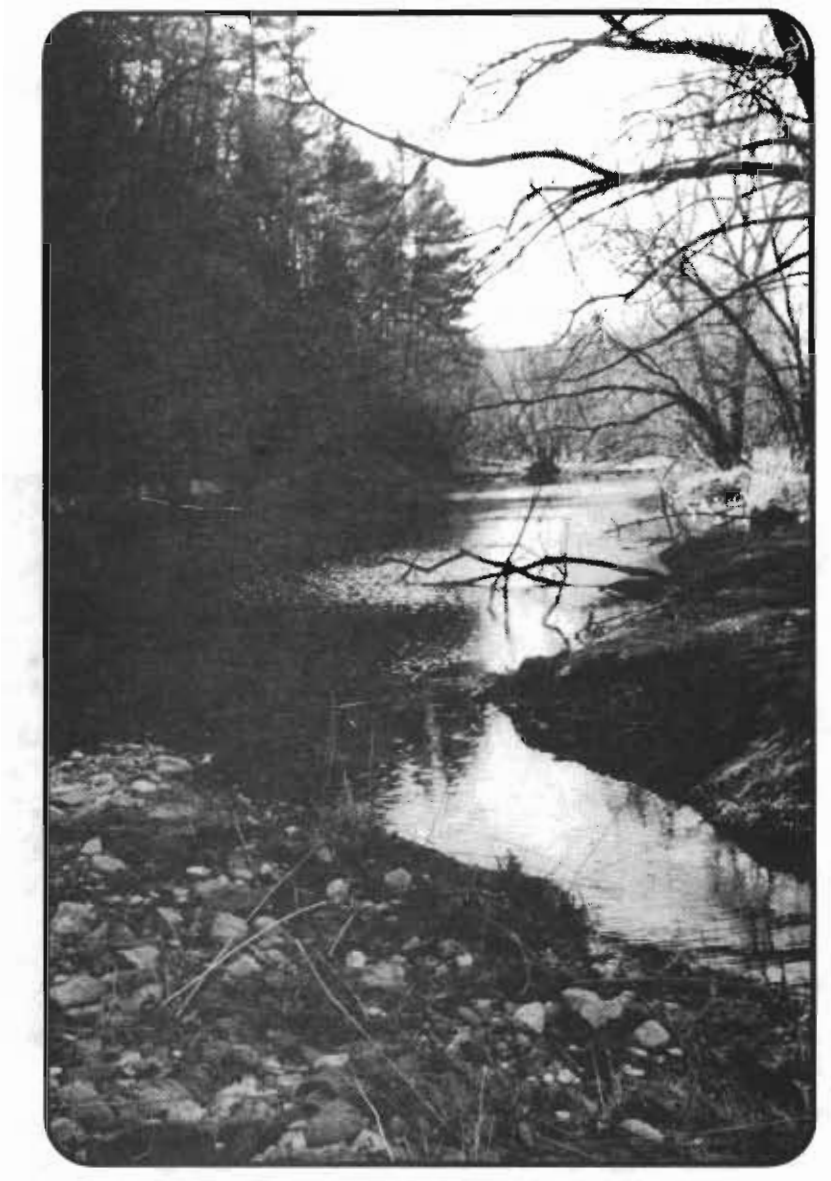


Figure 15 - Eau Galle Rocky Stream Bed

The wetlands and lowlands along Eau Galle River and Lousy Creek are very picturesque, as shown on figure 16. The lowland areas provide a rich habitat for wildlife and many opportunities to view wildflowers (see figure 17) and a variety of other vegetation. The lowland area views are confined because green valley walls serve as a backdrop, defining the area spacially as if it were a large room. Pine trees on the valley slope lend a lush green in the winter, adding to the beauty of Eau Galle Lake.

Figure 16 - Lousy Creek

Figure 17 - Wildflowers at Eau Galle Lake

3.11 Transportation

The network of major roads providing regional access to Eau Galle Lake is shown on plate 1. Interstate Highway 94 provides access for the major urban areas of Minneapolis-St. Paul to the west and Eau Claire and Madison, Wisconsin, to the east. It is approximately 6 miles to the Eau Galle Lake campground and about 7 miles to the Main Day Use Area from Interstate Highway 94. U.S. Highway 63, which is a north and south roadway approximately 7.5 miles to the west of the reservoir, intersects with Interstate 94 and connects Baldwin to the north and Ellsworth to the south. Wisconsin State Highway 29, which runs east and west through Spring Valley, connects to Menomonie on the east and River Falls on the west. State Highway 128 runs north and south through Spring Valley, Glenwood City, and Elmwood, Wisconsin. Wisconsin State Highway 183 runs south from Spring Valley.

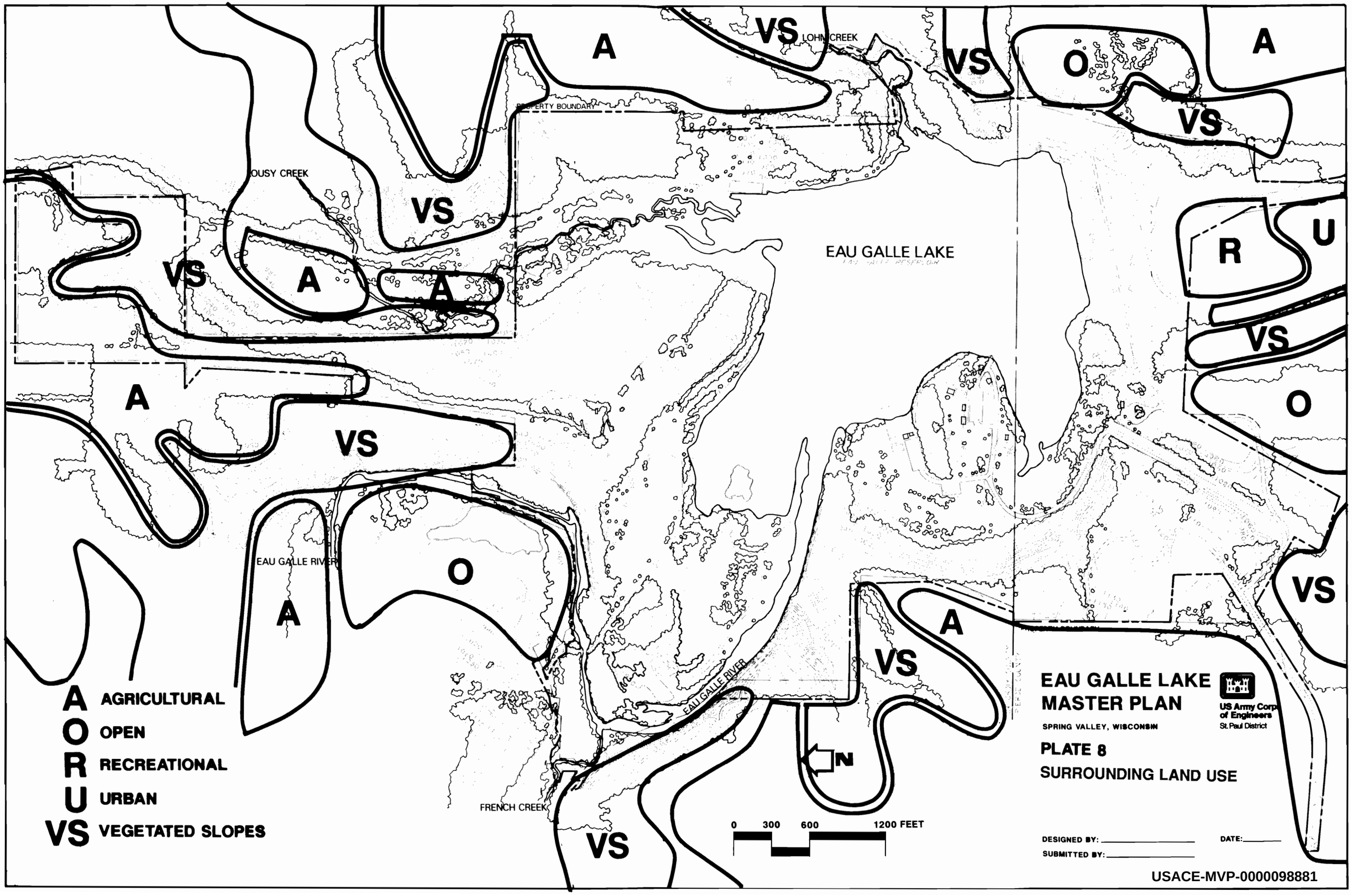
Immediate access to the reservoir and the adjoining recreational facilities is provided by a system of local roads as shown on figure 18.

Figure 18 - Local Transportation Routes

3.12 Existing Land Uses

Land use within the area surrounding Eau Galle Lake is dominated by agricultural activity as shown on plate 8. The exception would be the urban uses associated with the village of Spring Valley. The entire area's economy focuses on agricultural activities relating principally to dairy products. This holds true for the lands adjacent to the Eau Galle project and within the adjacent areas of Pierce and St. Croix Counties. Due to the wooded areas, ravines, steep slopes, marsh, and wetlands, a fairly substantial amount of land is not productive for agricultural purposes. The majority of this land is cultivated and grazed by various herds. Much of the land immediately adjacent to the reservoir is owned by the village of Spring Valley.

Spring Valley is a small urban town within the immediate Eau Galle project area. The land users are dominated by the residential activities which are principally single-family homes. A small business district serves the community and the adjacent market area. Recreational activities provided for the community include a swimming pool, playfields, and parks. The Eau Galle Lake project provides the majority of water oriented recreation such as swimming, fishing, and non-motorized boating.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N
FRENCH CREEK
VS
0 300 600 1200 FEET
A AGRICULTURAL
O OPEN
R RECREATIONAL
U URBAN
VS VEGETATED SLOPES
EAU GALLE LAKE MASTER PLAN
SPRING VALLEY, WISCONSIN
US Army Corp of Engineers
St. Paul District
PLATE 8
SURROUNDING LAND USE
DESIGNED BY:
DATE:
SUBMITTED BY:
USACE-MVP-0000098881

SECTION 4

RESOURCE USE OBJECTIVES

4. RESOURCE USE OBJECTIVES

The resource use objectives developed for the Eau Galle Lake Recreation Area are specific to the resource capabilities and capacities. The list of resource use objectives follows:

1. Develop and manage the Eau Galle Lake Recreation area so that it is compatible with and reinforces the unique landscape character of the site.

2. Preserve ecologically or environmentally sensitive areas, such as unique wildlife habitat or nesting areas.

3. Exclude from development those areas prone to erosion or flooding.

4. Improve aesthetics and provide quality recreation opportunities for visitors of all ages.

5. Maintain the rich diversity of plant and animal species for public use and enjoyment.

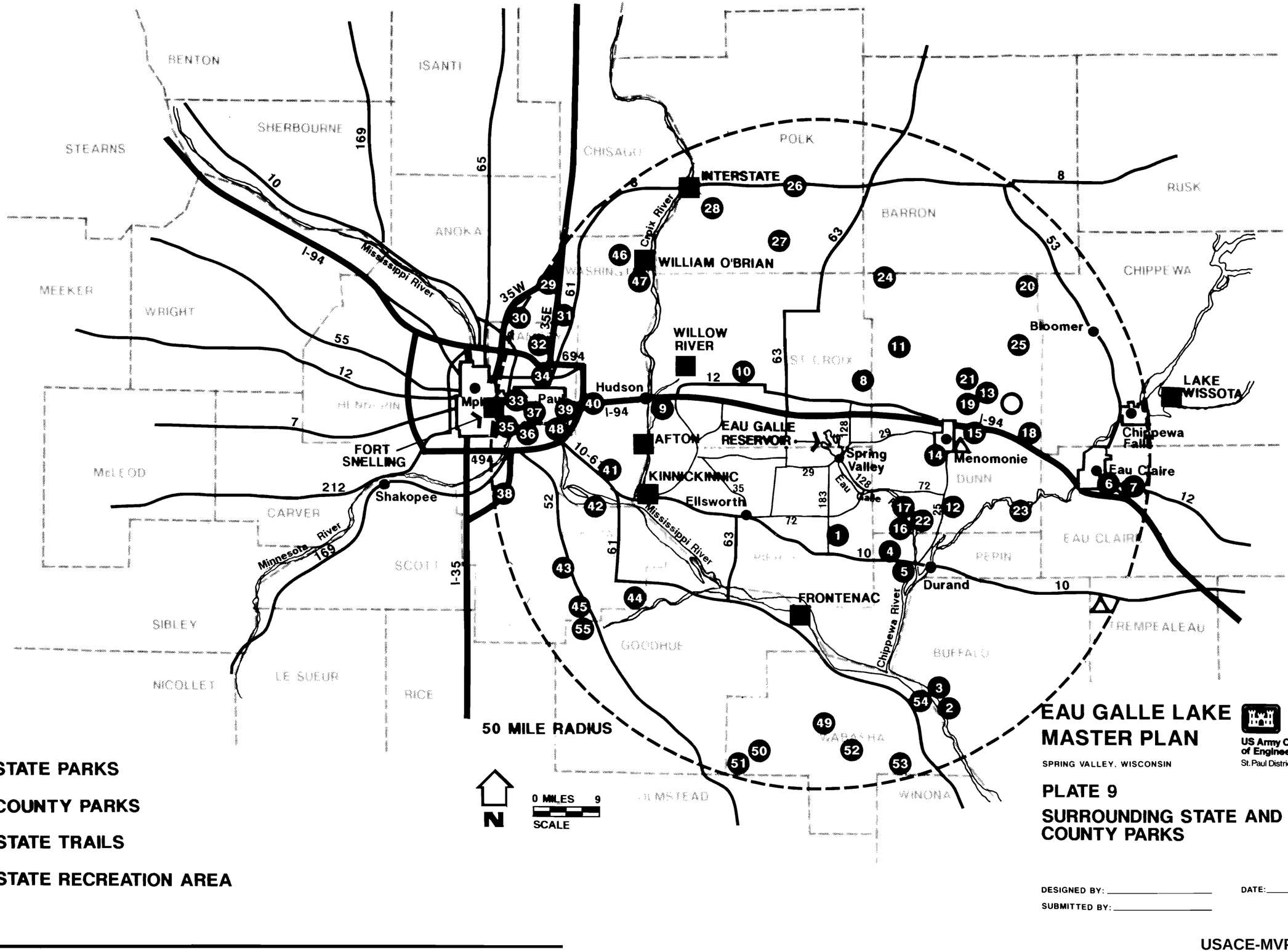
6. Increase visitation, particularly in the campground, by providing desirable facilities without disturbing significant wildlife habitat resources.

7. Provide interpretive and educational opportunities for studying and viewing the cultural/ historic, wildlife, and vegetative site amenities.

8. Develop winter and summer trail corridors through project lands to meet existing regional needs for designated and preserved recreational trails.

SECTION 5

RECREATION DEMAND, SUPPLY, AND NEED



EAU GALLE LAKE MASTER PLAN

SPRING VALLEY, WISCONSIN

US Army Corps of Engineers
St. Paul District

PLATE 9

SURROUNDING STATE AND COUNTY PARKS

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

5. RECREATION DEMAND, SUPPLY, AND NEED

5.01 Market Area

The majority of recreational participation at Eau Galle Lake originates from two distinct areas: Minnesota's Minneapolis-St. Paul metropolitan area and Wisconsin's West Central District (specifically the Eau Claire Administration Area which includes the counties of St. Croix, Chippewa, Dunn, Eau Claire, Pepin, and Pierce). The proximity of Eau Galle Lake to a major metropolitan center and the regional impact of the I-94 corridor contribute greatly to the non-resident participation pattern.

The Minneapolis-St. Paul metropolitan area can be characterized as heavily populated (approximately 2 million) with a high per capita income in an intensely urbanized environment. The metropolitan area has tremendous potential for supplying a large number of visitors to Eau Galle Lake.

Spring Valley, Wisconsin, located immediately south of the Eau Galle Lake, accounts for much of the current day-use visitation.

5.02 Surrounding Recreation Facilities

A number of State and county parks are located within a 50-mile radius of the Eau Galle Lake Recreation Area. These parks, located in Minnesota and Wisconsin, are illustrated on plate 9 and listed in table 12. Four State parks (Lake Wissota, Kinnickinnic, Willow River, and Interstate) are located in Wisconsin. Five State parks (Afton, William O'Brien, Fort Snelling, Frontenac, and Interstate) are located in Minnesota. A State Recreation area (Hoffman Hills) and two State trails (Red Cedar and Buffalo River) are located in Wisconsin, within the 50-mile zone. Crystal Cave is located just south of Eau Galle Lake and may contribute a number of visitors to Eau Galle, especially students on school trips.

County parks in both Minnesota and Wisconsin number 55. The majority of county parks are more than 25 miles away. Nineteen of them are in the Minneapolis-St. Paul metropolitan area. County parks located closest to Eau Galle Lake are in Dunn, Pierce, and St. Croix Counties between 10 and 25 miles to the east and southeast.

The size and characteristics of the parks surrounding Eau Galle Lake vary considerably. Many of the county parks are less than 1 acre in size. The largest parks are the Willow River, Wisconsin, State Park, and the Lino Lakes Regional Park. They are 2,520 acres and 2,900 acres in size. Only five State parks and nine county or regional parks are larger than Eau Galle's 632 acres. The parks found within a 50-mile radius provide a wide range of facilities, but the most common facilities are picnic grounds, swimming beaches, boating, fishing, and camping areas.

5.03 Factors Affecting Recreational Trends

The 1985 Minnesota State Comprehensive Outdoor Recreation Plan (SCORP) uses two factors to identify future recreational participation: (1) the changing age structure and (2) the distribution of the population.

Table 12 - Surrounding State and County Parks (1988)

Parks	County	Size of Park (Acres)	Facilities Provided: Picnic Grounds	Campgrounds (No. of sites)	Swimming	Boating	Fishing	Other*
MINNESOTA STATE PARKS								
Interstate	Chisago	293	X	73 Single 150 group		X	X	1,3,11
Frontenac	Goodhue	2,689	X	58 single 20 group			X	1,9,11
Fort Snelling	Hennepin Ramsey Dakota	3,370	X		X	X	X	1,3,6,9,11
William O'Brien	Washington	1,330	X	125 single 75 group 35 canoe	X	X	X	1,3,5,6,11
Afton	Washington	1,669	X	24 backpack 30 group	X	X	X	1,5,6,11,12
METROPOLITAN REGIONAL PARKS								
Map No.								
29 Lino Lakes Park Reserve	Anoka	2,900	Undeveloped					
30 Rice-Rush-Long Lake	Ramsey							
31 Bald Eagle-Otter Lake	Anoka- Ramsey- Washington	526	X		X	X	X	
32 Grass-Vadnais Park Reserve	Ramsey	1,556	X		X	X	X	
33 Como Park	Ramsey	451	X		X	X	X	1,2,3,5,6,7,8, 9,10
34 Phalen-Keller-Gervais	Ramsey	659	X		X	X	X	1,2,3,4,6,8, 9,10
35 Hidden Falls-Crosby Farms	Ramsey	539	X			X		1,5
36 Lilydale	Dakota	320					X	
37 Harriet Island	Ramsey	63	X			X	X	3,2,4,1,5,7,8, 9,10
38 Lebanon Hills	Dakota	2,261	X		X		X	1,3,6,9,12,14
39 Battle Creek	Ramsey	566	X					1,6,7,8,9,12
40 Lake Elmo Park Reserve	Washington	1,600	Undeveloped					
41 South Washington County Park Reserve	Washington		X					1,6
42 Spring Lake Park Reserve	Dakota	1,532						14
43 Hampton Woods	Dakota		Proposed					
44 Miesville Ravine	Dakota		Proposed					
45 Byllesby Reservoir	Dakota	224	X		X	X	X	2,3,4,9
46 Big Marine Lake	Washington		Proposed					
47 Square Lake	Washington		X		X	X	X	
48 Pigs Eye	Ramsey		Proposed					
49 West Albany Campsite	Wabasha		X					
50 Bluff Valley Campsite	Wabasha		X					
51 Ponderosa Campsite	Wabasha		X					
52 Whiperwill Campsite	Wabasha		X	X	X			
53 Indian Creek Campsite	Wabasha		X					
54 Pioneer Campsite	Wabasha		X		X			
55 Byllesby	Goodhue							

Table 12 - Surrounding State and County Parks (1988)

Parks	County	Size of Park (Acres)	Facilities Provided: Picnic Grounds	Campgrounds (No. of sites)	Swimming	Boating	Fishing	Other*
WISCONSIN STATE PARKS								
Interstate	Polk	54	X	85 single 60 group	X	X	X	1,6,11
Lake Wissota	Chippewa	1,044	X	81 single 80 group	X	X	X	1,3,4,6,9,11
	Pierce	Undeveloped	X	Planned	X	X	X	1,6
Kinnickinnic	St. Croix	2,520	X	72 single	X	X	X	1,3,6,11
Willow River				150 group				
WISCONSIN COUNTY PARKS								
	Pierce	758	X	60	X	X	X	1,3
1 Nugget Lake	Buffalo		X					
2 Buena Vista	Buffalo		X	X				
3 Rieck's Lake	Pepin	4.2	X					
4 Arkansas Creek	Pepin	114	X	X		X		13
5 Silver Birch-Holden	Eau Claire		X		X	X	X	3,4
6 Lake Altoona	Eau Claire		X					1,6,11
7 Phillips	St. Croix	37	X	60	X	X		1,11
8 Glen Hills	St. Croix	0.25	X		X			1,11
9 Troy	St. Croix	2.0	X		Proposed			
10 Pine Lake	Dunn	2	X				X	
11 Boyceville Village Park	Dunn	50						
12 Caddie Woodlawn	Dunn	1	X			X		
13 Allen Champney Memorial	Dunn	3						
14 Devil's Punchbowl	Dunn	50						6,7,10
15 Dunn Co. Recreation Park	Dunn	0.5	X					
16 Eau Galle Dam								
17 Eau Galle Sportsmen's	Dunn	Less than 0.5				X	X	
Landing	Dunn	0.5	X					
18 Elk Mound Lookout	Dunn	1	X			X		
19 Lambscreek Bridge	Dunn	23	X	X		X		
20 Myron	Dunn	0.5				X		
21 Northwest Landing	Dunn	2	X		X	X		
22 Pineview	Dunn	0.5	X					
23 Rock Falls	Dunn	0.5	X				X	
24 Thatcher	Dunn	3	X			X	X	
25 Twenty-Two Mile Ford	Polk	3	X	X				
26 Apple River	Polk	2	X					
27 Black Brook	Polk	4	X					
28 East Lake								

*1. Hiking
2. Sailing
3. Canoeing
4. Water Skiing
5. Biking
6. Ski Touring
7. Downhill Skiing
8. Snowshoeing
9. Snowmobiling
10. Skating
11. Interpretation
12. Horseback Riding
13. Rifle Range
14. Archery Range

Age Structure

Since participation in many activities varies significantly with age, knowing the age structure of the population will determine participation in specific recreational activities. In 1980, the population distribution displayed the normal tapering in the older age brackets, a uniform distribution between 60 and 35, a large bulge in young adults ("baby boom" generation), and a tapering from young adults into the youngest age brackets ("baby bust" generation). By 1995, the "baby boom" generation will produce major increases in the middle age brackets, large decreases will occur in young adults, and moderate increases will occur in younger children.

With this in mind, the two summer activities that should show the highest projected increases in participation are bird watching/nature study and golf. They share two characteristics: (1) a relatively low participation rate in youthful age classes and (2) a high participation rate in older age classes. Fishing, visiting historic sites, and hiking are projected to have participation gains because of the uniformity of participation rates across age classes. Picnicking, boating, camping, and driving for pleasure have projected participation increases across all age classes. Canoeing, swimming, archery, and bicycling are expected to show a moderate participation increase.

The activities with the lowest projected participation increases are: backpacking, horseback riding, tennis, baseball/softball, trailbiking, and orienteering. These activities have a high participation rate in the teen and young adult age classes.

For winter activities, cross-country skiing has the largest projected participation rise with high participation rates from the baby boom generation. Ice fishing has uniform participation rates across the age classes and a projected increase in participation. Snowmobiling shows a moderate projected increase in participation since the highest participation rates occur in the age brackets below 25.

Population Distribution

Population distribution, as discussed in section 3.08, identifies two distinct population groups: the Minnesota Twin Cities metropolitan area and the Wisconsin counties surrounding Eau Galle Lake. The Twin Cities includes seven counties with a population of 1,985,873. The three counties of Wisconsin adjacent to Eau Galle Lake have a population of 108,725.

Activities for which people will travel a great distance were identified on the basis of actual resident travel distances and nonresident participation rates. The recreational activities for which people are willing to travel a long distance include: summer fishing, ice fishing, boating, canoeing, camping, hunting, visiting historic sites, and bird watching/nature study. All except the last three activities (hunting, visiting historic sites, and bird watching/nature study) are water oriented. All other activities have a greater proportion of participation near home. Minnesota metropolitan residents are willing to travel considerably farther from home than are non-metropolitan residents.

Camping is chosen for overnight accommodation by people participating in other vacation activities. Camping has the greatest participation rates from youth to at least the early 50's. The distribution of camping has a large, water-oriented component. According to the Wisconsin SCORP, the number of camping visitors is highly dependent upon (1) the season, and (2) the character of the site. The

greatest number of overnight visitors occurs during the summer and the greatest increases occur in the less urbanized upper one-third of Wisconsin.

Hiking/walking trail participation rates increase with age to the early 60's, with non-residents contributing heavily to trail use. Projected increases in hiking participation are expected in population growth areas and in recreational use patterns.

Cross-country skiing, picnicking, and driving for pleasure have the greatest participation rates from youth to at least the early 50's (similar to camping). The distribution pattern of cross-country skiing is population based, except in a few locales. Picnicking has a distribution pattern with a primary component that reflects population centers and a secondary component that reflects water-oriented vacation areas. Driving for pleasure occurs primarily close to home, in a population-oriented distribution pattern.

Swimming, snowmobiling, skating, sledding, baseball/softball, and bicycling have peak participation rates in the below 25 age bracket. Bicycling, swimming, and skating participation rates decrease rapidly during the 20's, baseball/softball during the 30's, and snowmobiling during the 40's.

Trail Use Trends

Wisconsin identified the trends of trail use by asking managers, since they are in touch with the problems and challenges of trail development and maintenance. The managers indicated that trail use is changing by an increase in the trail user's age, in party size, and in use by women, minorities, and the handicapped. Managers felt that trail information, trail variety, and miles of trails were inadequate. Trail maintenance needs perceived by managers are shown in table 13.

Table 13 - Trail Maintenance

Activity	Maintenance Needs
Hiking	Erosion control, funding
Cross-country skiing	Grooming, funding, maintenance equipment
Snowmobiling	Funding, sign vandalism control
Horseback riding	Erosion control, funding, environmental damage control

5.04 Projected Recreation Demand

The Minneapolis-St. Paul metropolitan area and the city of Spring Valley provide about 90 percent of the market area at the Eau Galle Lake Recreation Area. To determine the demand for recreation at Eau Galle, it is important to include information for both Wisconsin and Minnesota. The following information highlights the Wisconsin and Minnesota SCORP data and surveys from the Metropolitan Council of the Twin Cities Area and Eau Galle Lake.

Identifying Wisconsin's Demand

Wisconsin's State Comprehensive Outdoor Recreation Plan (SCORP) identified the 1986-1991 Needs Assessment based on three elements: (1) Area-based demand analysis, (2) Activity trend analysis, and (3) Facility priority analysis. They were combined to provide an indication of regional recreation needs. Comparisons determined a "High," "Medium," or "Low" priority for each recreational activity.

The State is divided into 16 districts and each district is comprised of separate areas. Eau Galle Lake is located in the West Central District in the Eau Claire Administration Area (259,331 population), which includes the counties of St. Croix, Pierce, Dunn, Pepin, Chippewa, and Eau Claire. The Eau Claire Administration Area showed a high priority for camping, cross-country skiing, organized sports, playground activities, tennis, and pool swimming. Recreational activities in the medium priority included bicycling, canoeing, picnicking, fishing, ice fishing, hiking/backpacking, golfing, motorboating/water skiing, ice skating/hockey, walking/jogging, and sailing. Activities rated as low priority include downhill skiing, horseback riding, over the road vehicles (ORV)/cycles, ORV/other, snowmobiling, and beach swimming.

Outdoor Recreation - The importance of outdoor recreation to Wisconsin residents was assessed by conducting a random telephone survey of 485 Wisconsin residents. They rated swimming as the number one activity, walking/jogging as number two, and fishing as number three. In terms of the number of days of participation, walking/jogging was number one, bicycling was number two, and swimming was number three. Outdoor recreation is valued highly by Wisconsin residents, with over 78 percent participating frequently. Nearly 70 percent of the survey respondents spend money on outdoor recreation, with an average expenditure of $100 per month. About 90 percent of the Wisconsin residents recreate in their own State, and they feel there are enough places to recreate without being crowded. The greatest number of visitors occurs during the summer, and the greatest increases are located in the less urbanized upper one-third of Wisconsin.

Trails - To determine the demand for trails, Wisconsin conducted a telephone survey and an on-site survey during 1984. It was estimated that approximately 60,000 people per year use trails. Trail use was concentrated on weekends, and most trail users were dissatisfied with available trail information.

THE ON-SITE SURVEY PROVIDED THE FOLLOWING RESULTS:

1. Average group size on trails was 5 people.

2. Average time spent on the trail was 3.25 hours.

3. Average distance traveled to the trail head (one way) was 60 miles for Wisconsin residents and 156 miles for out-of-State residents.

4. Trail user profile:
   a. Average age - 34 years.
   b. Income - 55 percent had incomes over $25,000, while only 16 percent had incomes of less than $10,000.
   c. Residence - 80 percent were Wisconsin residents and 20 percent were out-of-State users.
   d. Gender - 60 percent were male and 40 percent were female.

5. The best features listed for Wisconsin trails were: scenery/wildlife, trail maintenance, trail variety, and trail safety.

6. The least enjoyable aspects listed for Wisconsin trails were the adverse natural conditions.

7. Improvements needed for better trails: (1) More trail development, (2) Better trail information, (3) Improved trail facilities and access, and (4) Improved trail maintenance.

Policy recommendations for recreational trails in Wisconsin between 1986 - 1991 will focus on the following priorities:

1. Trail information - Greater publicity about available trails would enable people to use trails closer to home and may reduce overcrowding at some areas.

2. Trail user fees - All trails need to levy a financing fee.

3. Additional activities on trails - Such as picnic areas.

4. Need for increased trail acquisition, development, and maintenance - This study predicts increased trail use from both current users and non-users.

5. Public/private cooperation, trail coordination, linking trails, multiple use trail development - Trail characteristics most desired by users are listed in order of importance: Scenery/wildlife, trail maintenance, variety and safety, convenience, personal challenge, and solitude. Other characteristics such as accessibility to water are rated low.

Public Water Access - Wisconsin's public water access study indicated that the highest priority areas for additional recreational water access sites are in the southeast, south, and west central districts. Non-boating access sites and fishing access continue to be a high priority need on inland lakes and rivers.

The primary focus should be on quality, rather than quantity. This emphasis on quality suggests that primary consideration must be given to (1) site suitability and feasibility, and (2) site maintenance.

Identifying Minnesota's Demand

The Minnesota State Comprehensive Outdoor Recreation Plan (SCORP) identifies the demand of Region 11 (Metropolitan area) by ranking facilities in groups. In 1984, a mail survey of Minnesota households identified opinions on the amount and availability of 37 types of outdoor recreation facilities. The following groups were ranked in order of demand:

1. Trail Group (natural park-like areas; bicycle, walking, and hiking paths; canoe routes; horseback trails; and cross-country skiing trails)

2. Water Group (natural park-like areas, picnic areas, fishing piers, swimming beaches, campgrounds, river accesses, and boat launches)

3. Garden Group (natural park-like areas, fountains/gardens, nature study centers, botanical gardens, historical interpretive facilities, archery ranges, and zoological gardens)

Metropolitan Council Survey - 1982 - The Metropolitan Council of the Twin Cities Area conducted a recreational demand survey to determine visitor characteristics of recreation facilities within the metropolitan area. The survey identified reasons why people selected certain recreational activities. Table 14 does not include the complete list of activities used in the survey, but only those that relate to Eau Galle activities.

Table 14 - Reasons for Selecting Recreation

Activity	Reasons for Selecting a Particular Facility
Picnic/swimming	Facility maintenance/closeness to home/being with family and friends/restrooms
Trails	Scenery/experience nature
Interpretive	Spacious natural setting with trails/building, display or exhibit/ naturalist
Boat access	Ramp condition/ample parking/closeness to home/quality of lake for boating and fishing
Camping	Variety of reasons

Quality ratings for the activities listed above were limited due to sample size and individual preference, but maintenance consistently received a high rating. The survey pointed out a significant amount of dissatisfaction with water quality and availability of restrooms.

Data was collected by interview and survey counts to determine the most important activities at particular sites. Picnicking was near the top of the list of main activities at most of the parks, regardless of facilities. Support facilities for picnicking seem to be important and necessary for most park users. Relaxing, in the proper setting, was selected as a main activity regardless of how urban the area was. Even the busiest parks seem quiet in the morning and evening. Bike/hike trails are very popular and make up over two-thirds of the main activity use. Interpretive areas are dominated by walkers and seem to serve an important function for quiet walks in an environmental education setting. This emphasizes that a good system of trails should be associated with an interpretive area.

The data also shows the overall importance of the various facilities offered at a site:

1. For picnic/swimming areas, relaxing is an important activity along with swimming and sunbathing. The quality of the setting was emphasized.

2. Where interpretive displays and exhibits are available, approximately 40 percent of the visitors view them. About 10 to 20 percent of the visitors use naturalists.

3. At campgrounds, the activity pattern appears to be very similar to day- use picnic and swimming areas. The importance of swimming, sunbathing and walking is the same; only picnicking has been replaced by camping. The quality that makes camping unique is the setting, which explains why campers are willing to travel some distance to a different setting.

The socioeconomic characteristics were also identified in the Metropolitan Council's demand survey. Those characteristics follow:

1. Occupation of Respondents - Approximately 60 percent of respondents are employed full-time. Facilities closer in seem to serve a larger proportion of the unemployed. Generally, a higher proportion of students uses the trails, and retired people use the interpretive areas. No interviews were conducted with school groups at the interpretive areas; hence, the student response is low.

2. Respondent Housing Type - A higher than average proportion of respondents at all types of park facilities live in single-family residences. This proportion is highest at campgrounds: over three-quarters of the campers live in single-family homes.

3. Age of Respondents - The age data is limited by the fact that only visitors 12 years of age or older were eligible for interview. Generally, a low proportion of senior citizens and a representative proportion of middle-aged adults were surveyed.

4. Respondent Household Income - The areas surveyed serve a population that has a household income higher than the median level (between $24,000 and $26,000) for the region.

5. Household Composition - The areas surveyed generally have more people in the category of married couple with children than other family categories. In campgrounds, nearly three-quarters of the parties surveyed were in this category. However, a significant proportion of the users surveyed were from single person households. Trails tend to be used by a higher proportion of single person households or married couples without children and by a lower proportion of married couples with children.

6. Composition of Groups - In general, there tends to be a higher proportion of people in parks by themselves rather than single person households. This is particularly true of trails where people by themselves are by far the dominant user group. Campgrounds appear to be the facilities where there is the least difference between household type and visiting group type. Overall, group type is perhaps the most valuable bit of user information for determining the audience served by a particular park.

The conclusion of this survey pointed out that there is heavy use by young adults and underuse by senior citizens, and that use by middle-aged adults is based on their distribution in the population. Another conclusion pointed out the strong area of interest in camping for the region's adult population, as indicated by leisure interest and participation surveys. Camping is recognized as an important aspect of tourism with many different market segments.

General Population Survey - 1983 - The recreational interests and constraints of the adult population (18 years or older) were provided in this survey. A table ranked, in order of importance, the public's recreational interests. Indoor pools, zoos, arboretums, and other activities identified by the survey are not included here. The recreational activities that could be considered at the Eau Galle Lake Recreation Area are ranked in order of importance.

1. Travel, sightseeing (outside Twin Cities area)
2. Walking (in natural areas, large parks)
3. Visiting historic sites, museums
4. Non-power boating (canoeing, sailing, etc.)
5. Camping
6. Biking (in natural areas, large parks)
7. Fishing
8. Swimming or sunbathing at a beach
9. Cross-country skiing
10. Picnicking
11. Horseback riding on trails and along roads

The constraints to recreational use included: lack of time, cost, lack of facilities, other people's interests, and other personal reasons. Lack of time seemed to be the biggest constraint. Cost was an important factor for travel. Lack of facilities was somewhat important to walking, swimming/ sunbathing, biking, non-power boating, horseback riding, visiting historic sites, and camping.

Eau Galle Surveys

Campground statistics during 1985 and 1986 indicated that about half of the campers at Eau Galle are from Minnesota. Figures from 1987 indicate a similar pattern. The impact from Minnesota campers at the Eau Galle Lake campground is very important in determining recreation demand. Campground visitors also come from Canada and many other states. Those States that contribute the most to campground use include: Florida, Iowa, Ohio, Michigan, Pennsylvania, Illinois, and Arizona. The visitor origin is shown below in table 15.

Table 15 - Campground Visitor Origin

Year	Wisconsin	Minnesota	Twin Cities Only (not surrounding suburbs)	Other States and Canada	Total
1985	253	250	114	51	554
1986	256	253	176	54	563

During August and September 1987, a survey to review recreational improvements for Eau Galle Lake was distributed to people who attended the trailer display. Only 35 people filled out the survey, but to those people, the most important features at Eau Galle were: privacy, well maintained, not crowded, close to home, scenic views, shade, safety, and nearby restrooms. The most popular proposed changes included the campground trail system expansion, campground shower and flush toilet addition, campground vault toilet addition, and a campground swimming beach possibility. The majority of visitors who filled out the survey were between 30 and 50 years old. All respondents indicated that they use more than one area in Eau Galle.

5.05 Supply, Demand, and Needs Assessment

To determine the demand for recreational activities at Eau Galle Lake, the following material was evaluated: Wisconsin SCORP, Minnesota SCORP, Wisconsin random telephone survey, Minnesota mail survey, Minnesota metropolitan area general population survey, and the Corps of Engineers Eau Galle user survey information.

Numeric values were assigned for selected recreational activities listed in the surveys above. The numbers were added, and a total value was recorded. The number values are listed in front of the activity. Activities rated as high priority were given a larger number than those listed as low priority. Table 16 ranks the demand for recreational activities in order of importance.

Table 16 - Recreational Activity Demand Ranking

Wisconsin West Central District

8 Cross-country skiing
7 Hiking
6 Walking/jogging
6 Camping
6 Playground
5 Fishing (summer and winter)
5 Swimming beach
4 Picnicking
4 Canoeing
4 Sailing
4 Motorboating/water skiing
3 Snowmobiling
2 Horseback riding

Minnesota Metropolitan Area

9 Hiking/walking
9 Visiting historic sites (*)
9 Camping (*)
9 Bird watching/nature study (*)
9 Cross-country skiing
9 Summer fishing (*)
9 Boating (*)
8 Picnicking
8 Canoeing (*)
7 Ice fishing (*)
6 Driving for pleasure
6 Swimming beach
5 Horseback riding
4 Snowmobiling
2 Backpacking
2 Fishing piers

(*) Added 1 point to reflect long distance travel by Minnesotans.

From ranking the importance of the above activities, a similarity occurs for both Wisconsin and Minnesota recreationalists. Hiking/walking, camping, and cross-country skiing rank high in demand and need for both States. These activities should be attractive enough to bring visitors to Eau Galle Lake. Although less important, the same similarity follows for fishing and beach swimming. Picnicking and canoeing are ranked somewhat higher by Minnesotans. In ranking activities, only Minnesota surveys listed historic sites and bird watching/nature study; and only Wisconsin surveys listed playgrounds. Boating seems to be much less important to Wisconsin recreationalists.

Recreational activities associated with travel that are important to Eau Galle Lake visitation include: fishing, canoeing, camping, visiting historic sites, and bird watching/nature study.

Recreation at Eau Galle Lake should accommodate the major increase of the middle age group and large decrease in young adults expected by 1995. The highest participation increases are expected in birdwatching/nature study and cross-country skiing. Canoeing and swimming show moderate participation increase. Horseback riding has a low development priority from a regional perspective but a high priority from a local perspective. Local horse riding groups have been requesting a trail at Eau Galle Lake since 1984 and more recently sent a letter and petition for a horse trail (see appendix D).

Activities popular in all age groups include picnicking, visiting historic sites, hiking/walking trails, fishing, boating, camping, and driving for pleasure.

Regional, site specific, and total demand projections by zone were calculated in the 1981 Barton-Aschman Pool Elevation Study. Since projections are expected to remain similar, they have been included as the demand projections for this master plan report and are reproduced in appendix C. It is assumed that the visitation will level off after the year 2005.

SECTION 6

PUBLIC INVOLVEMENT AND COORDINATION

6. PUBLIC INVOLVEMENT AND COORDINATION

6.01 General

Coordination and communication played a key role in producing the Eau Galle Master Plan. Input from numerous individuals and agencies was contributed during the entirer study process.

6.02 Public Involvement

Public workshops were conducted during the Eau Galle Lake Pool Elevation Study in 1981. The comments and concerns from these meetings have been reviewed and incorporated into the planning process. Since extensive public input was given to Eau Galle Lake so recently, public involvement on a smaller scale was considered sufficient for this master plan update.

A public notice was distributed in August 1987, inviting the public to attend an informal review of the master plan. A trailer exhibit featured the selected plan of development, along with base information, analysis, trail concepts, and development alternatives. The trailer exhibit was open for review and moved to different parts of the site for a 1-month period. Due to the lack of personnel available to staff the trailer on a continuous basis, it was open to the public one weekday and one weekend day each week. A survey was prepared and handed out at the trailer, but with the low attendance, only 35 surveys were completed. The survey is discussed in Section 5.04.

6.03 Coordination

During the planning process, an interdisciplinary team of 10 people attended meetings to pool information, identify goals and objectives, review the base data, analyze the recreational development, develop concepts, discuss land allocations, and work out problem issues. The planning team met approximately once a month from March 1987 through September 1987.

At the first meeting, a slide presentation familiarized team members with the character and background of Eau Galle Lake. Constraints and opportunities were identified, discussed, and listed by the team members. This list was used to generate ideas for development of the concepts (plates 10, 11, and 12). The list of constraints and opportunities follows:

1. Inadequate beach for usage.
2. Inadequate parking at the main day use area.
3. Use State beach design criteria (underwater slope, current, etc.)
4. Gas engines allowed only for the water-ski tournament held in July.
5. Circulation problems (most people do not like gravel roads).
6. Real estate boundaries.

7. Maintenance of township roads (gravel - dust control, etc.)
8. Handicapped accessible facilities for boating, fishing, etc.
9. Educational opportunities.
10. Potential for improving fisheries.
11. Wildlife habitat plans - identify location of recreation -osprey enhancement - 1/4 mile setback during nesting (end of Feb. - Aug).
12. Group camping area needed.
13. Inadequate signage on the Interstate Highway I-94.
14. Campground underutilized.
15. Traffic routed through Spring Valley.
16. Relationships between facilities.
17. Coordination of trails (erosion potential, conflicts).

Resource inventory base data was available from the 1981 Eau Galle Lake Pool Elevation Study. Some members of the team pulled together the missing information on cultural resources, social/economic factors, recreation, and environmental factors to add to the resource base data.

Goals and objectives of planning, circulation systems, wildlife habitat values, resource objectives, alternative concepts, and land allocations were discussed during successive meetings. Two viewpoints from the team involved: (1) maximizing the recreational potential, and (2) preserving the resource. Reconciling these differing viewpoints involved compromise. For instance, certain recreational activities were judged inappropriate because they could excessively degrade the resource or disturb wildlife nesting habitat.

Specific issues that surfaced during the discussions included locating a horse trail, trailhead facilities, and a swimming beach for campers. These issues were discussed at team meetings as described in the following paragraphs.

During a review of the proposed horse trail route, it was noted that the route was located on slopes exceeding 50 percent (erosion potential) and on alluvial soils (soft, wet) near Lousy Creek. A two-way trail had been requested by the trail riders group to provide a connection to existing horse trails on the east and west sides of Eau Galle Lake. A relocation of the horse trail was suggested because:

1. The soils and slopes would be more compatible.

2. A relocated trail would be wide enough to provide a two-way path.

3. The trail would be more scenic and provide better views.

4. The trail would reduce conflicts, in the Lousy Creek area, on hiking/walking trails.

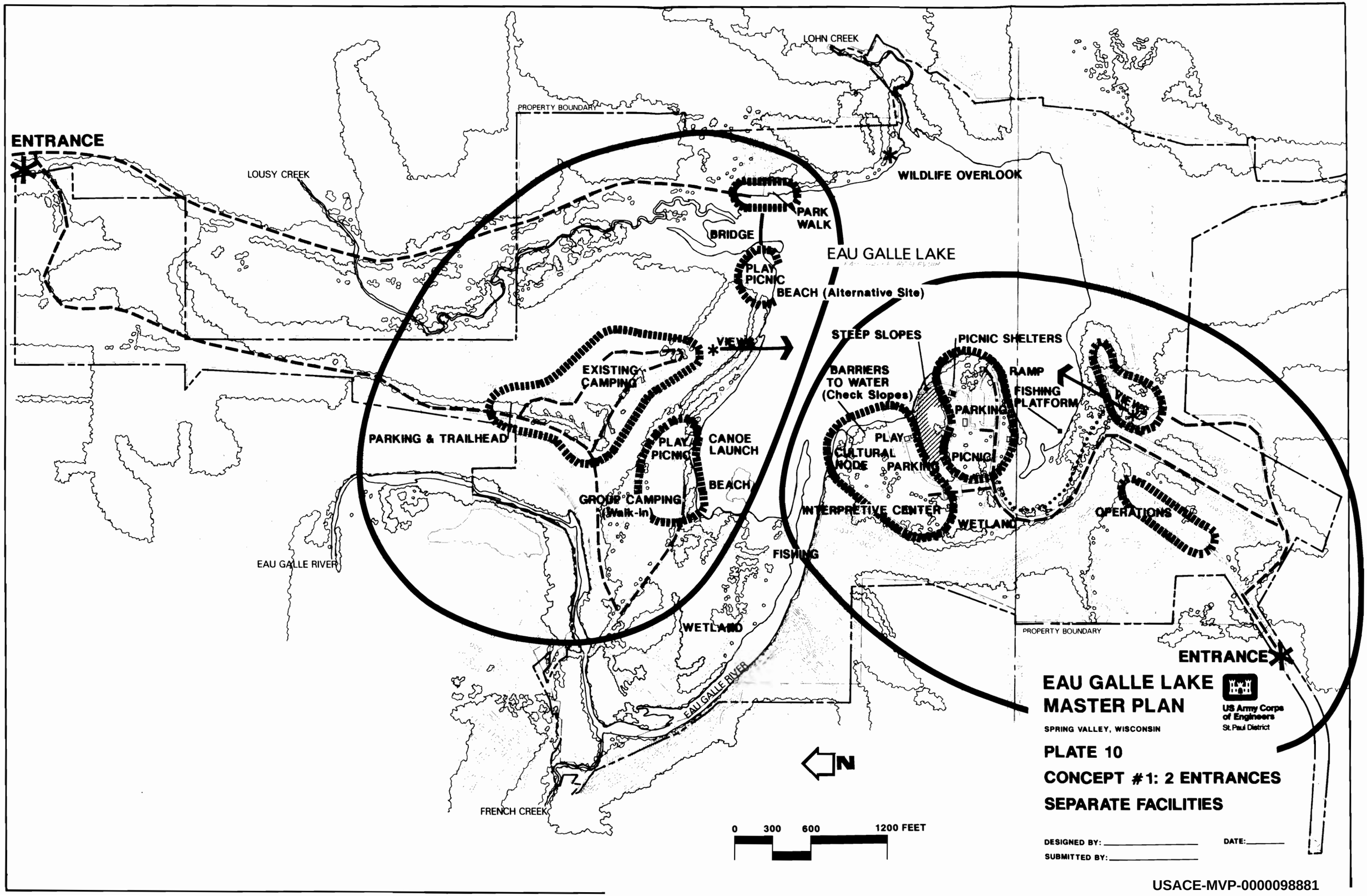
Two alternatives for trailhead facilities were identified. One alternative located the facility near the campground entrance off Highway NN. The other alternative used the Main Day Use Area ranger

station as a trailhead. If the ranger station were used, the snowmobile trail would require relocation since the entrance road (snowmobile trail route) would require snowplowing. Trailhead facilities seemed more compatible near the campground entrance and provided better trail opportunities for cross-country skiing.

Two locations were evaluated for use as campground swimming beaches, because they would have desirable southern exposures, debris-free water edge, a 5-percent slope into the water, sandy soils, and good water circulation. One location was confirmed by the lab group from the U.S. Army Engineers Waterways Experiment Station that is conducting studies at Eau Galle Lake. That beach would be assessable by a 1,500-foot-long switchback trail, sectioned into 100-foot lengths, and alternating at 6- and 12-percent slopes. However, since support facilities would be difficult to maintain in this location, it was suggested that the swimming beach be discarded from the plan. This meant that provision of an access to the existing beach would be necessary, and showers would be absolutely essential at the campground.

Conceptual alternatives were prepared from the list of constraints and opportunities identified at the first meeting. The main theme for the concepts (plates 10, 11, and 12) was to improve circulation, and control the number of entrances. Concept # 1 shows 2 entrances with separation of day and overnight facilities. Overnight facilities include individual and group camping, picnicking, swimming, boat launching, and trailhead. Day use facilties include picnicking, swimming, boat launch, and an interpretive center with trails. Concept #2 shows 2 entrances with a connected circulation route within project lands, to all facilities designated as heavy, medium, and light. Concept # 3 shows 3 entrances with 3 separate areas. Two of the areas are connected by a pedestrian bridge, and includes facilities such as picnicking, group camping, swimming, boat launching, and bank fishing. The other area consists only of camping and associated activities. During discussions of the 3 concepts some ideas from each concept were incorporated into the final plan of development.

Coordination was also maintained with the appropriate Federal, State, and local agencies, since they were part of the team. This coordination should be continued through all stages of project development. Both the U.S. Fish and Wildlife Service located in Green Bay, Wisconsin, and the Department of Natural Resources located in Eau Claire, Wisconsin, were invited to participate in the preparation of the Master Plan. They attended only a few team meetings, but have submitted written and telephone comments. Other agencies such as the Metropolitan Council in St. Paul, Minnesota, and the Spring Valley Administration Office were contacted during the initial search for information. Written comments regarding the master plan are found in appendix D.



EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St. Paul District

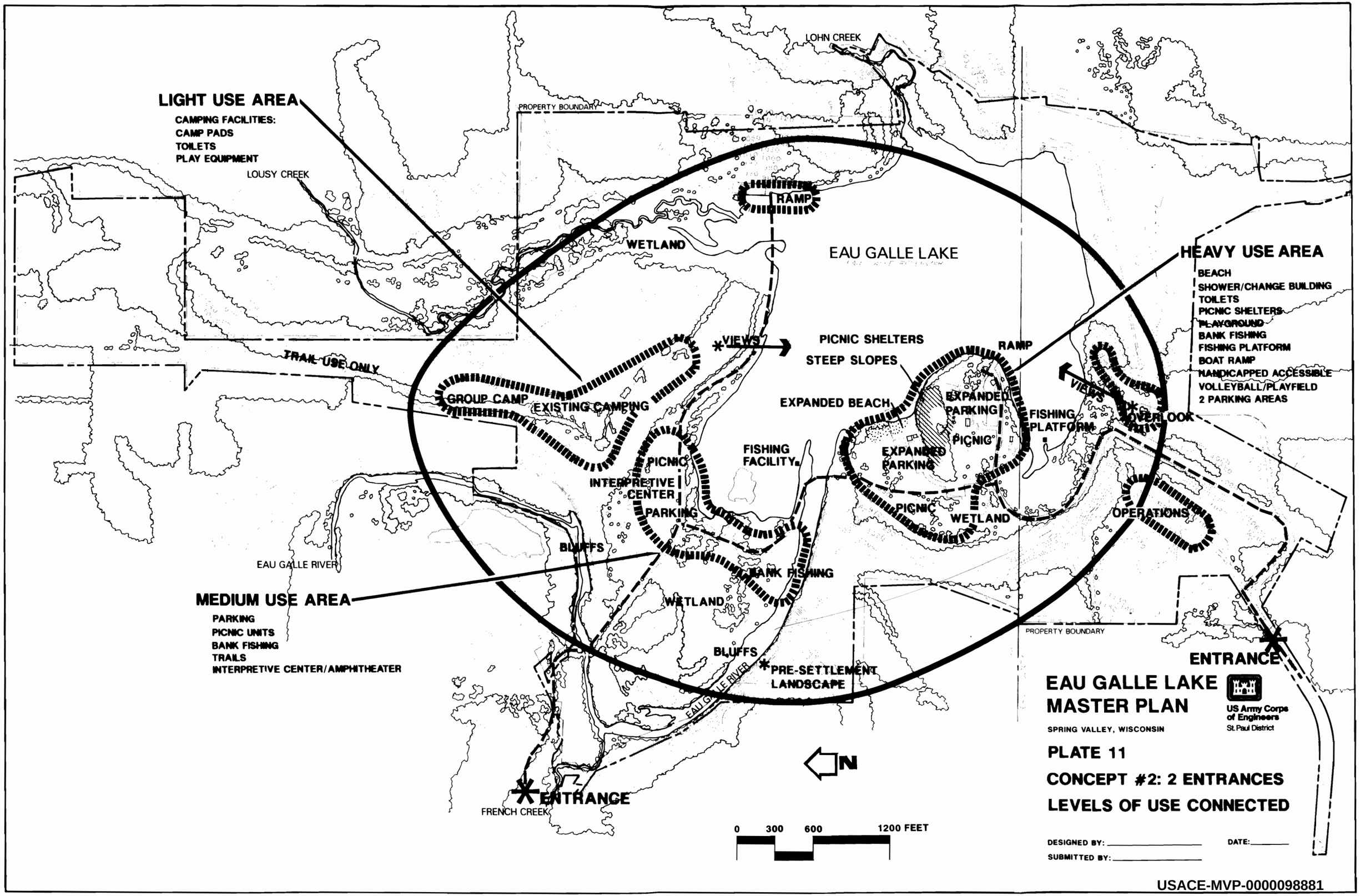
SPRING VALLEY, WISCONSIN

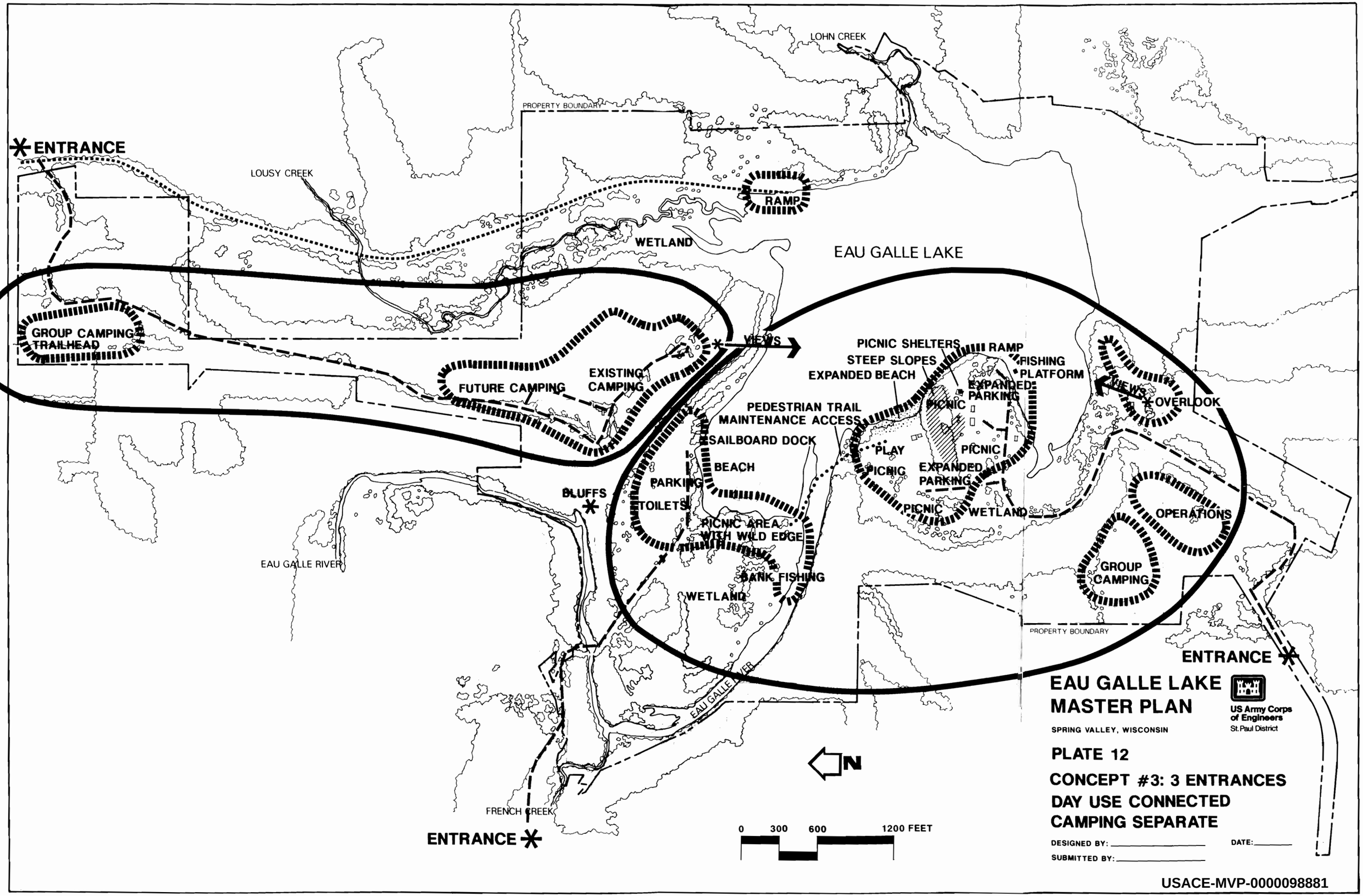
PLATE 10

CONCEPT #1: 2 ENTRANCES SEPARATE FACILITIES

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____





EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St. Paul District

SPRING VALLEY, WISCONSIN

PLATE 12

CONCEPT #3: 3 ENTRANCES DAY USE CONNECTED CAMPING SEPARATE

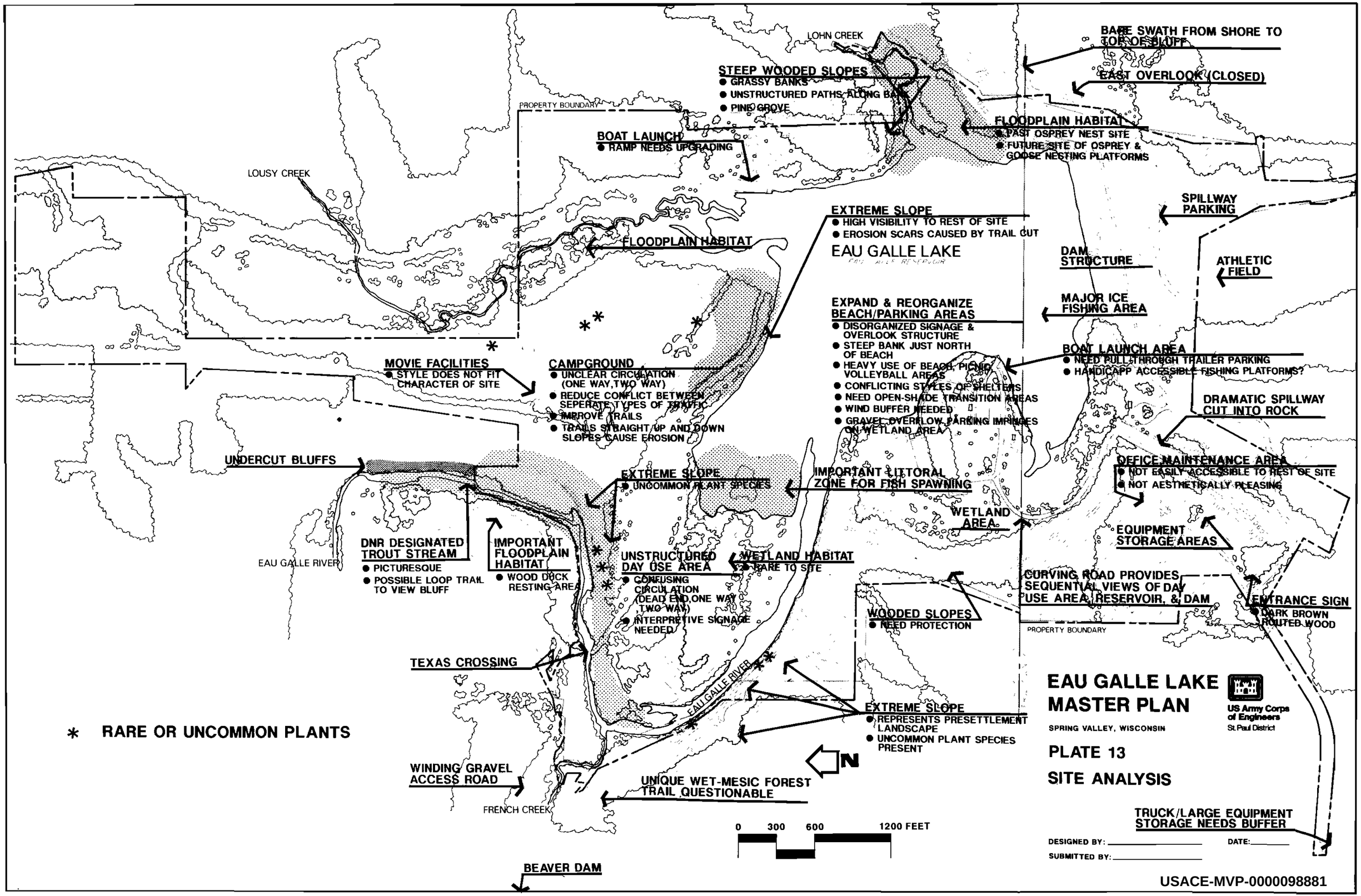
DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

USACE-MVP-0000098881

SECTION 7

ANALYSIS OF FACTORS INFLUENCING DEVELOPMENT AND MANAGEMENT


LOHN CREEK
BARE SWATH FROM SHORE TO TOP OF BLUFF
EAST OVERLOOK (CLOSED)
STEEP WOODED SLOPES
● GRASSY BANKS
● UNSTRUCTURED PATHS ALONG BANK
● PINE GROVE
PROPERTY BOUNDARY
FLOODPLAIN HABITAT
● PAST OSPREY NEST SITE
● FUTURE SITE OF OSPREY & GOOSE NESTING PLATFORMS
BOAT LAUNCH
● RAMP NEEDS UPGRADING
LOUSY CREEK
SPILLWAY PARKING
EXTREME SLOPE
● HIGH VISIBILITY TO REST OF SITE
● EROSION SCARS CAUSED BY TRAIL CUT
FLOODPLAIN HABITAT
EAU GALLE LAKE
DAM STRUCTURE
ATHLETIC FIELD
EXPAND & REORGANIZE BEACH/PARKING AREAS
● DISORGANIZED SIGNAGE & OVERLOOK STRUCTURE
● STEEP BANK JUST NORTH OF BEACH
● HEAVY USE OF BEACH, PICNIC, VOLLEYBALL AREAS
● CONFLICTING STYLES OF SHELTERS
● NEED OPEN-SHADE TRANSITION AREAS
● WIND BUFFER NEEDED
● GRAVEL OVERFLOW PARKING IMPINGES ON WETLAND AREA
MAJOR ICE FISHING AREA
BOAT LAUNCH AREA
● NEED PULL-THROUGH TRAILER PARKING
● HANDICAPP ACCESSIBLE FISHING PLATFORMS?
MOVIE FACILITIES
● STYLE DOES NOT FIT CHARACTER OF SITE
CAMPGROUND
● UNCLEAR CIRCULATION (ONE WAY, TWO WAY)
● REDUCE CONFLICT BETWEEN SEPERATE TYPES OF TRAFFIC
● IMPROVE TRAILS
● TRAILS STRAIGHT UP AND DOWN SLOPES CAUSE EROSION
DRAMATIC SPILLWAY CUT INTO ROCK
UNDERCUT BLUFFS
EXTREME SLOPE
● UNCOMMON PLANT SPECIES
IMPORTANT LITTORAL ZONE FOR FISH SPAWNING
OFFICE MAINTENANCE AREA
● NOT EASILY ACCESSIBLE TO REST OF SITE
● NOT AESTHETICALLY PLEASING
WETLAND AREA
EQUIPMENT STORAGE AREAS
DNR DESIGNATED TROUT STREAM
● PICTURESQUE
● POSSIBLE LOOP TRAIL TO VIEW BLUFF
IMPORTANT FLOODPLAIN HABITAT
● WOOD DUCK RESTING AREA
EAU GALLE RIVER
UNSTRUCTURED DAY USE AREA
● CONFUSING CIRCULATION (DEAD END, ONE WAY, TWO WAY)
● INTERPRETIVE SIGNAGE NEEDED
WETLAND HABITAT
● RARE TO SITE
CURVING ROAD PROVIDES SEQUENTIAL VIEWS OF DAY USE AREA, RESERVOIR, & DAM
ENTRANCE SIGN
● DARK BROWN ROUTED WOOD
WOODED SLOPES
● NEED PROTECTION
PROPERTY BOUNDARY
TEXAS CROSSING
EAU GALLE RIVER
EXTREME SLOPE
● REPRESENTS PRESETTLEMENT LANDSCAPE
● UNCOMMON PLANT SPECIES PRESENT
* RARE OR UNCOMMON PLANTS
WINDING GRAVEL ACCESS ROAD
N
UNIQUE WET-MESIC FOREST TRAIL QUESTIONABLE
FRENCH CREEK
0 300 600 1200 FEET
BEAVER DAM
TRUCK/LARGE EQUIPMENT STORAGE NEEDS BUFFER
EAU GALLE LAKE MASTER PLAN
US Army Corps of Engineers
St Paul District
SPRING VALLEY, WISCONSIN
PLATE 13
SITE ANALYSIS
DESIGNED BY:
DATE:
SUBMITTED BY:
USACE-MVP-0000098881

7. ANALYSIS OF FACTORS INFLUENCING DEVELOPMENT AND MANAGEMENT

During the site analysis, the natural resource and visual quality of Eau Galle Lake was evaluated. Special consideration was given to the character of the site within the organization of developed and undeveloped spaces. The relationship of vehicular and pedestrian circulation, separation or consolidation of activities, spacial organization, and environmental resources were evaluated. (See plate 13.)

7.01 Criteria For Analysis

The following criteria formed the basis of the site evaluation and led to the recommended plan of development. The quality of existing recreational facilities was evaluated using the following factors:

1. **Interrelationship between recreational facilities** - should relate strongly to each other so that people can easily participate in more than one activity.

2. **Directional signs** - to direct people along roads, trails, and at key activity areas.

3. **Circulation/accessibility characteristics** - that provide the visitor a clear, easy route to walk or drive recreational vehicles.

4. **Environment/visual characteristics** - the location of buildings, roads, parking, trails, etc., placed within the natural resource should reflect the visual character of the site.

5. **Basic/desirable facilities provided** - appropriate, necessary, or desired facilities for the intended purpose.

6. **Maintenance** - Maintenance of recreational facilities is the most important aspect to insure visitor satisfaction and usability. Visitors have rated maintenance very high at Eau Galle, according to site specific survey information.

7.02 Evaluation of the Recreational Areas

Interrelationships between recreational activities are especially difficult to evaluate because of the extreme topography and erodible soils in the area. Because of these physical limitations, circulation has been constricted, creating three separate recreational areas at Eau Galle Lake. Since the site is the restricting factor in the evaluation of interrelationships, the site as a whole has been analyzed from a circulation standpoint. Evaluation of the separate recreation areas follows.

Main Day Use Area

The Main Day Use Area contains facilities for three primary recreational activities: picnicking, swimming, and boat launching. These activities are approached from the main entrance off Highway

B. The entrance creates the first impression to the visitor and sets the character of the site. Steeply wooded slopes are viewed, representing the character of the recreational site. A constraint to the site character occurs on the entrance road just before entering the project where the view is dominated by the Timme construction equipment. Plantings of Norway pine have been used in an attempt to screen the construction equipment, but it will be 20 to 30 years before these plants mature. A planting of native shrub species such as Viburnum, Serviceberry or Sumac would provide more immediate visual screening for the visitor.

Circulation from the project entrance is somewhat confusing. It includes a sharp right turn, then a sharp left turn through the spillway; another left-hand turn offers a spectacular view of the picnic, parking, and boat launch area. A pull-over parking space with an interpretive message describing the spillway and recreational facilities available could be provided here.

Visual images that visitors would find disturbing to the environmental character of the site include the view of erosion from a trail cut along the slope below the campground; the view of clear-cutting of woodland on the east side of the dam; the distinctly different architectural styles used for the picnic shelters, toilets, and overview; and the gravel overflow parking area. Tree plantings to soften the straight woodland edge would be beneficial. An architectural style should be selected and incorporated into future structures. The gravel parking area is extremely visible from the entrance road and impinges upon the adjacent wetland area. It is recommended that this parking area be eliminated after the beach parking space has been expanded.

The open field space next to the picnicking area is subject to strong winds, making it difficult to play games. A wind protection vegetative buffer could be provided by a naturalistic planting of trees and shrubs. Other plantings of trees are needed to provide shade for the picnic and play areas and to soften the straight-edge of hillside woods east of the open field.

Signage in the main day use area is scattered or hard to find. This could be improved by consolidating information at key points, usually near parking areas, at entrances to activities.

Pedestrian circulation could be improved by using one continuous surface material for identifying paths/trails. The bench located on the trail between the picnic/play area and the swimming beach could be made more accessible by placing it on level ground.

Play equipment is provided for all age groups, but structures are spaced far apart, eliminating the typical group play pattern of children and access for specially impaired children. The play area is a very hot summer environment due to lack of shade, metal equipment, and large expanse of pea gravel surface. An effort to consolidate the play equipment, adding shade, would contribute to a more comfortable and exciting play experience. With consolidation, more picnic space would be available, and visual qualities could be improved. Slopes could be minimized by filling the low area.

The swimming beach slope gradient into the water has been eroding, creating slopes over 8 percent. A 5-percent slope is considered safe for swimmers.

Highland Ridge Campground

The campground slopes are visible from almost anywhere within the Eau Galle Lake area. Vegetation is essential for the natural environmental character and for visual screening. White pines and mature maples have a high aesthetic appeal and are the predominant trees. Some vegetation will need pruning to provide views from the campground and trails. The campground is separated from other recreational activities available at Eau Galle Lake, but this area provides a desirable backwoods atmosphere. The steep erodible slopes surrounding the campground make it difficult to access the water for recreational activities.

Circulation for vehicles could be improved by continuing the one-way loop through the campground and by providing a directional map to identify routes to the Main Day Use Area and the Northwest Area. The swimming beach is accessible to campers by vehicle only, and this involves a 12-mile trip.

Locating trails from the campground is somewhat confusing. Directional maps/signs showing connections to major focal points of interest would improve pedestrian movement and provide access to the natural amenities on and off site. Trails could also be improved by eliminating erosion problems such as straight up/down slopes and by providing a variety of directional slopes, diversity of vegetation, and minor clearing for better distant views.

The play area and movie screen are located in a passive meadow area. Since these activities are more active in nature, they would be more appropriately located near group camping facilities, a shower building, or other active space. The movie screen could be placed in a screened group shelter building to protect it from weathering and provide campers with bug-free conditions. Group camping with programmable space is not available, but has been requested.

Northwest Area

The resource management for this area is to maintain much of the floodplain vegetation in its natural state as the area is considered environmentally sensitive. This area is separated from the Main Day Use Area by the Eau Galle River, but has a trail link to the campground.

Picnic, trail, and bank fishing opportunities are available and are serviced with satellite toilets. These activity spaces could be consolidated and defined to reduce some mowing maintenance.

Circulation access to this area is on a narrow, winding, dusty gravel road not owned by the Corps. This road leads to an entrance gate and then crosses the Eau Galle River. During flood conditions, this area is inaccessible, limiting its usability, and on occasion may create a hazardous situation. Roads within the Corps boundary are in poor condition, and they dead-end before reaching Lousy Creek and at the mouth of the Eau Galle River. Impacts to the floodplain vegetation have occurred because no boundary limits have been set for vehicle use. Directional signing would improve circulation for recreational users of this area.

Lousy Creek Boat Launch

This boat launch is a separated, minimally developed facility. A large oversized gravel parking space is provided, but the ramp is not developed. This area has no toilet facility, directional signage, shade, or screening from the rest of the site.

Scenic Overlook

The entrance road to the overlook has a natural circulation flow. New visitors would probably miss the turn to the Main Day Use Area and arrive at the overlook. Parking is provided and the views are spectacular. Signs or maps directing users to other parts of the site would be helpful to visitors.

Dam Outlet Area

This area is separated physically and visually from the rest of the project area. There are no signs to explain this area or other areas at Eau Galle Lake. This area offers plenty of parking space, but lacks shade or toilet facilities.

7.03 Development Guidelines

During the site analysis, it was noted that development at Eau Galle Lake needs to be carefully placed to avoid degradation of the natural resource. The following guidelines were used during the planning of recreational development and should continue to be used during plans and specifications.

1. Avoid soils that are easily eroded and slopes that are very steep.

2. Provide scenic views of the lake and a variety of amenities.

3. Redesign areas to reduce circulation conflicts, minimize negative environmental impacts, reduce overcrowding, or provide access to the handicapped.

4. Provide hardened surfaces and define edges to minimize impacts.

5. Provide common space areas along the lakeshore.

6. Design vegetative buffers for privacy, wind shelter, shade, noise control, to screen and frame views, provide visual relief, and act as a traffic control barrier or activity separation.

7. Locate facilities above the 100-year floodplain with appropriate setback.

8. Define user preferences to increase user satisfaction.

9. Increase facilities and amenities to increase use.

SECTION 8

PLAN OF DEVELOPMENT

8. PLAN OF DEVELOPMENT AND DESIGN CRITERIA

8.01 General

This chapter defines the overall character of the Eau Galle Recreation Area, identifies the land use allocations, introduces the proposed recreational development plan, discusses interpretive facilities, and determines design criteria for the development of proposed facilities. Refinement of the actual design and specifications will need to be done at a later stage of development. Design criteria found in the engineering manual EM 1110-1-400, "Recreation Planning and Design Criteria," can also be used as a guide in developing recreation at Eau Galle Lake.

8.02 Character of the Site

The processes that shaped this landscape have created unique natural and cultural attractions in the Eau Galle Recreation Area. Many of the attractions are hidden from view initially, but once discovered, they offer spectacular views of the natural resource.

The definition of unique character at the Eau Galle Recreation Area is portrayed as a contrast from rugged, massive rock bluffs to quiet wild/natural areas. The visual impact is one of strength and power, yet calm and quiet. The design should also be strong and bold in areas that are monochromatic and more simple and basic in areas where diversity abounds. Complex interrelationships exist between the natural physical entities (geology, soils, landforms, water, vegetation, and wildlife) and the man-made elements (cultural, social, roads, and buildings), and these features are not independent of one another.

The most important concern in planning recreation at the Eau Galle Recreation Area is that it preserves and enhances the area's unique natural character.

8.03 Land Use Allocations

Land use categories were refined to fully utilize project lands by Engineering Regulation 1130-2-435, December 1987. The new regulation takes precedence over previous land use categories described in ER 1120-2-400. The following classifications apply to Corps owned land at the Eau Galle Recreation Area and are shown on plate 14.

Recreation

Lands designated for recreation are developed for intensive recreational activities of concentrated public use, such as campgrounds, boat launches, picnic areas, and swimming beaches. These areas generally require extensive facility development and maintenance. Future areas will be classified as multiple resource management until initiation of the development.

Project Operations

These lands are classified to include lands required for the operation and maintenance compound and other areas used solely for project operations.

Environmentally Sensitive Areas

Sensitive areas are allocated to preserve scientific, ecological, cultural, or aesthetic features. This category insures that archeological sites, floodplain nesting habitat, erodible slopes, and rare vegetative species are protected at Eau Galle Lake. Normally, limited or no development of public use is recommended. No agricultural or grazing uses are permitted.

Multiple Resource Management

Multiple resource lands include one or more of the following activities:

Recreation - Low Density - These lands are allocated for nonintensive, low-density recreation use. Low-density or dispersed recreation occurs generally throughout a large area and is not confined to a specific place. Low-density recreation areas normally are not identified with developed facilities or with areas of intense group concentration. Typical activities on such lands include hiking, backpacking, fishing, primitive camping, horseback riding, and cross-country skiing.

Wildlife Management - General - These lands are allocated for fish and wildlife management and provide opportunities for wildlife/wildlands-related recreation such as fishing, bird watching, and photography. The primary management emphasis is protection and enhancement of wildlife habitat values. Designated portions of such lands are reserved as sanctuaries ("closed areas") during migration or nesting periods.

Vegetative Management - Management activities for the protection and development of forest and vegetative cover.

Inactive and/or Future Recreation Areas - These lands will be classified as multiple resource management in the interim, such as recreation areas that are planned for future development or temporarily closed.

8.04 Plan of Development

Plate 15 identifies the improvements proposed on the plan of development at Eau Galle Lake. Recreational trail development is shown on plate 16. The most significant improvements of the plan include:

Reducing the Number of Entrances - Reducing the three major entrances to two entrances could be done by adding a bridge connection over the mouth of the Eau Galle River. This bridge would serve as a vehicle maintenance and foot trail connection between the Northwest Area and the Main Day Use Area. The two major entrances would be at the (1) Main Day Use Area, with the connection to bank fishing and trail use in the Northwest Area; and at the (2) Campground, with a connection to trails and bank fishing in the Northwest Area, and swimming in the Main Day Use Area.

LOHN CREEK

PROPERTY BOUNDARY

LOUSY CREEK

EAU GALLE LAKE

EAU GALLE RIVER

EAU GALLE RIVER

FRENCH CREEK

PROPERTY BOUNDARY

N

0 300 600 1200 FEET

PROJECT OPERATIONS

RECREATION

MULTIPLE RESOURCE MANAGEMENT

ENVIRONMENTALLY SENSITIVE AREAS

EAU GALLE LAKE MASTER PLAN

US Army Corps of Engineers
St. Paul District

SPRING VALLEY, WISCONSIN

PLATE 14

LAND USE ALLOCATIONS

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

LAKEVIEW ROAD
TO HWYS 29 & 128

LOHN CREEK

PROPERTY BOUNDARY

HWY NN

ENTRANCE TO CAMPGROUND

LOUSY CREEK

TOILET

BOAT & HORSE TRAILER PARKING

BOAT LAUNCH

DAM OUTLET

PARKING

VEHICLE CROSSING

EAU GALLE LAKE

TRAILHEAD

PARKING

TOILET

KIOSK

PICNIC

CAMPGROUND

TOILET

GATE

GROUP SITE

40-50 SINGLE SITES

SHOWER/TOILET

DUMP STATION

PLAY

TENT SITES

TOILET

GROUP SHELTER

BOAT LAUNCH

PLAY

PICNIC

TOILET

PARKING

BEACH

TOILET

OVERLOOK

CHANGE HOUSE

RANGER STATION

HANDICAPPED

FISHING ACCESS

EXPANDED

PARKING

SPILLWAY

VEHICLE BRIDGE

PICNIC

MAIN DAY USE

MAINTENANCE AREA

OFFICE

PARKING

TOILET

NORTHWEST

AREA

BANK FISHING

EAU GALLE RIVER

PROPERTY BOUNDARY

MAIN GATE

EAU GALLE RIVER

FRENCH CREEK

N

0 300 600 1200 FEET

EAU GALLE LAKE
MASTER PLAN

US Army Corps of Engineers
St. Paul District

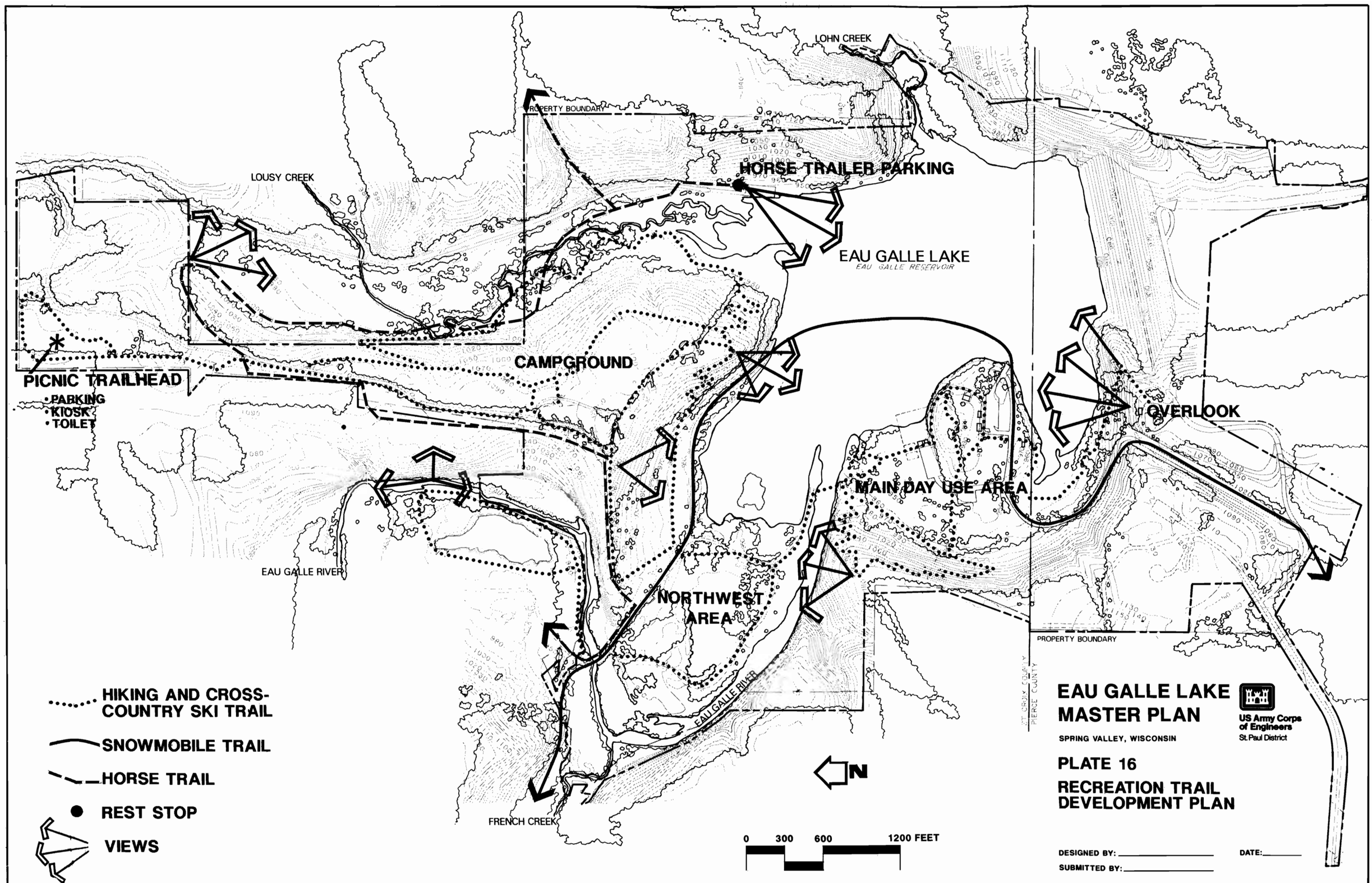
SPRING VALLEY, WISCONSIN

PLATE 15
PLAN OF DEVELOPMENT

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

ENTRANCE TO MAIN DAY USE



EAU GALLE LAKE MASTER PLAN

SPRING VALLEY, WISCONSIN

US Army Corps of Engineers
St. Paul District

PLATE 16

RECREATION TRAIL DEVELOPMENT PLAN

DESIGNED BY: _____ DATE: _____

SUBMITTED BY: _____

Improving Operations/Maintenance Efficiency - A distance of 12 miles one way is required to patrol the camping area. Since the area is patrolled twice a day, 7 days a week, approximately 336 miles are added to the ranger vehicle mileage each week. A bridge access would save maintenance costs by reducing mileage, ranger transit time, and emergency response time. The bridge would connect the Main Day Use Area to the Northwest Area by crossing the mouth of the Eau Galle River. This bridge would be open to vehicle and pedestrian use. The bridge could serve as a visual location node for trail users, campers accessing the beach, and fishermen using the Northwest Area. Campers must now travel about 12 miles by car to reach the existing swimming beach in the Main Day Use Area. A 5,100-foot trail (just under a mile) would provide a walking access to the beach.

A vehicle connection to service the campground and the Lousy Creek boat launch is desirable. The connection, as shown on plate 15, would be to develop a road from the boat launch facility on Lousy Creek, through the Northwest Area, to link the Main Day Use Area by crossing the Eau Galle River. This road would provide easier, more cost effective maintenance, and swimming beach access for campground recreationalists.

Because of the limited access possibilities few alternatives exist, however an alternative using the existing Ox Trail was evaluated during the planning process. This alternative posed some serious constraints concerning available width and conflicting uses.

Expanding Day Use Activities with a Ranger Station - The Eau Galle Lake Recreation Area needs to respond to the recreational demand for visiting historic sites, nature and interpretive study, and birdwatching opportunities. Guided birdwatching tours are currently prepared by a park ranger at Eau Galle, but there is no space to meet and show slides or films. Many bus loads of school children come from the Twin Cities Metro Area. The potential for activities of this type seems to be growing in spite of the lack of appropriate facilities.

A ranger station in the Main Day Use Area would establish the "first contact" between the visitor and the many unique historical, physical, and biological aspects of Eau Galle Lake. The ranger station could provide assistance to visitors in understanding, locating, and using the recreational resources available to them. Since the maintenance building is so far from the activities the ranger station could also be used to monitor recreational use, and provide a safe and secure atmosphere.

Expanding and Upgrading the Campground - Additional facilities to increase revenues would include a shower building, a group camping area with a group shelter, and trailhead facilities for developing a connecting recreational trail system.

Campers perceive flush toilets and hot showers as a necessity, especially when swimming facilities are not easily accessible. Surveys have indicated that, with available shower facilities, visitors would use the campground more frequently and stay longer. A vault toilet would be added in the campground to provide facilities for campers who are farther than the recommended distance from the shower/toilet building. This toilet would also be available for trail users.

The multipurpose group shelter would serve as a group meeting space, a fee collection point, and a retreat from bad weather. It would be used to accommodate audio-visual programs, provide a sense of security, extend a personal welcome, and assist visitors with camping and trail information. Campground visitors need information (maps, brochures, etc.) describing activities available at other parts of the site, along with a route description.

With the addition of the vehicle/foot bridge across the Eau Galle River, campers would have access to the existing beach in the Main Day Use Area.

Expanding Trail Facilities - Additional facilities would include a trailhead, a horseback riding trail, and a cross-country ski trail along portions of existing hiking trails.

8.05 Interpretive Facilities

The natural processes that have shaped the Eau Galle Lake landscape and dominated the cultural history have a great potential for interpretive development. The visitor's experience would be greatly heightened by viewing the scenic attractions and understanding the geologic, ecologic, and archeologic processes. Interpretation would bring recognition to hidden scenic attractions and point out the more subtle features.

Based on previous research, the only site eligible to be placed on the National Register of Historic Places is the Lamb V site. The Lamb V site is a significant resource for understanding the prehistoric adaptations in west-central Wisconsin. It is located in the Main Day Use Area and is quickly and easily reached by foot from the swimming beach. At the present time, a footpath is mowed near the west side of the site. Little additional funding would be necessary for maintenance of the footpath.

Presently, the maintenance facility at the reservoir is too far away from the Lamb V site to provide effective monitoring of the site if it were to be interpreted. If the proposed ranger station were built, the site would be close enough to the ranger station so that it could be monitored to prevent damage from vandalism. The ranger/interpretive station would also serve to provide the public with educational information, including an interpretive space that would tie into the existing hiking/walking trails and the campground facilities.

The Lamb V site and other archeological resources within the Eau Galle region could be interpreted in four ways: (1) providing interpretive signs at the site; (2) providing brochures on the archeology of the reservoir area and its potential in interpreting the archeology of the region; (3) providing a display of artifactual material at the proposed ranger station; and (4) providing guided tours by a ranger to larger groups upon request. These tours could be incorporated into the ranger guided tours that are presently provided, but that currently address only nature and wildlife information.

8.06 Design Criteria

Recreational development at Eau Galle Lake should reflect the resource capability, existing policies and regulations, economics, desired character of the project, and expectations of the visiting public.

Design criteria guidelines are available in Engineering Manual 1110-1-400. Criteria in the manual are geared to general considerations; health, safety, and security; structures; utilities; general landscaping; support items; and some specific areas of development. The following additional design criteria are not covered in the Engineering Manual, but would be important to the development at the Eau Galle Lake Recreation Area.

Site Preparation

Clearing - Areas requiring selective clearing should always retain a natural, not manicured, appearance, and specimen trees should be preserved. To improve views from trails, specific view nodes should be selected and maintained by minor clearing and pruning.

Erosion Control - Because of steep slopes and sandy soils at the Eau Galle Recreation Area, erosion control measures must be an integral part of all design and construction.

Grading - The extent and impact of grading should be minimized. Slopes should be maintained as flat as possible with natural undulating transitions into existing grades. Since bedrock is close to the surface in some areas, it is important that developments lay lightly on the ground without disturbing natural grades. Where cut or fill slopes are steeper than 3:1, mechanical means of stabilization will be needed. The eroding trail cut in the steep slope below the campground needs to be stabilized and revegetated.

Raising the elevation of the Eau Galle Lake Main Day Use play area will provide a more gradual slope. Grading should be kept to a 3 to 6 percent slope, and the area should be topsoiled and revegetated immediately. The lake edge can be left intact without removing vegetation.

Siting of Structures

Structures should be set above the 100-year floodplain elevation 970 with the required 50-foot setback. Any work within the floodplain or the water body will need to be reviewed by the Wisconsin Department of Natural Resources, Water Regulation and Zoning Section.

Ranger Station in the Main Day Use Area - The ranger station should be visible from the entrance road, barrier free, include a paved drop-off area, and provide convenient parking space for buses, recreational vehicles, and cars within 300 feet of the entrance. It is important that the ranger station be designed to complement existing structures, and be physically detached from the high impact maintenance building. The ranger station should blend with and reinforce the natural character of the site. This can be accomplished by design and landscaping. The wooded edge on the hillside can be softened and extended toward the ranger station to create a transition from woodland to open space.

A conceptual design for space allocations of the ranger station is shown on figure 19. A multipurpose room to accommodate film or slide shows, lectures, group meetings, and small conferences should have floor space with a capacity to hold from 30 to 35 persons. This room should have video/slide projection capabilities, and entrance/exit doors. The visitor entrance should be a comfortable, shaded,

and landscaped place for visitors to gather. Exhibit space should provide a flow from the entrance to the information counter to the multi-purpose space. Paved walkways that are accessible to the elderly and handicapped should be provided .

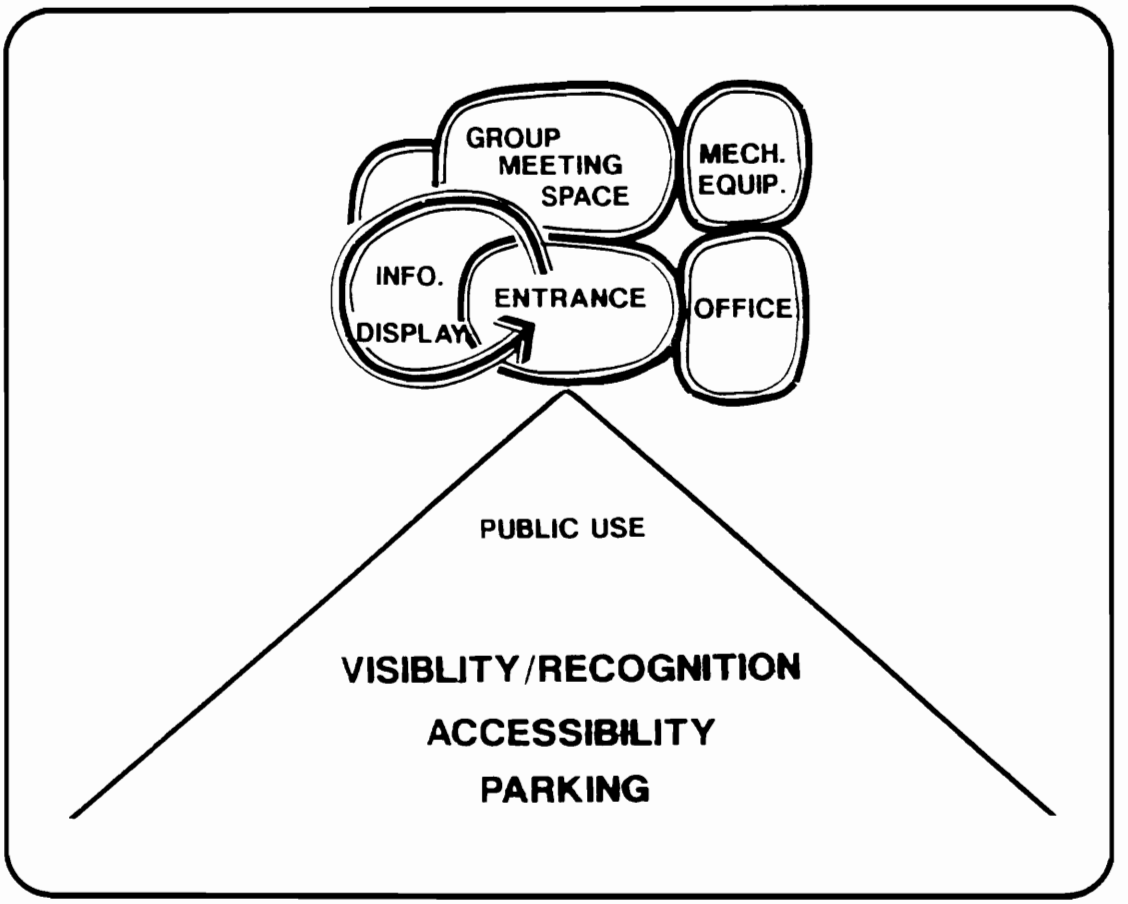


Figure 19 - Ranger Station Concept

Shower/Toilet Facility - If the soil/bedrock conditions are such that the shower building cannot be located in the existing campground, an alternative location near the trailhead facility should be considered for the shower building and group camping.

Eau Galle River Bridge -Because of the popular fishing and trout habitat in the Eau Galle River, it is important that the vehicle bridge structure not alter upstream velocities and existing hydrologic flow of the river. Since this crossing is the key to providing adequate circulation throughout the Eau Galle

Project, and since it's cost will be significant, several different types of structures should be considered. The alternative selected should be based on engineering feasibility, affects on the flood control purpose of the project, and environmental impacts. Coordination with the Wisconsin Department of Natural Resources is required.

Swimming Beach

Beach Erosion - The existing beach area is eroding because the coffer dikes were originally placed to divert the flow of the Eau Galle River. The coffer dikes have created a sandbar across from the beach which keeps the flow along the shoreline, eroding the beach. Slopes into the water are over 8 percent and still increasing. Presently, sediment carried by the Eau Galle River is deposited in part at the entrance to the reservoir pool in the coffer dike location. It was recommended by the group from the Waterways Experiment Station working at Eau Galle Lake that the removal of the coffer dike closest to the northwest area would change the flow back toward the center of the lake. If the coffer dike removal can be done, then the swimming beach would be continually nourished by new sand.

Beach Carrying Capacity - The existing beach is 100 by 149 feet, but 40 of the 100 feet should be used as active circulation space, leaving a 60- by 149-foot area, or 8,940 square feet of space, for beach users. If 50 square feet is required per person, then 178 people can use the beach at one time without crowding, and another 30 percent, or 89 people, can be in the water. The carrying capacity for the existing beach is about 267 people.

Annual visitation survey figures indicate that approximately 4,652 people participated in swimming during 1986. Most of this use occurred during 12 weeks of summer, with peak use during July. This would mean that approximately 388 people participated in swimming during each week. It can be assumed that people participated only on a few days during the week, depending on the weather conditions. Therefore, some weeks or months would have very few participants, with the majority of use occurring on certain days rather than being spread out during the week.

In the future, when the vehicle/trail bridge becomes available, more campers will use the swimming beach. Additional space needs would be determined by the actual number of occupied campsites. It is estimated that the beach should accommodate another 150 to 200 people, or 7,500 to 10,000 square feet.

Beach Parking Facilities - The closest parking lot (within 300 feet) is 90 by 240 feet and contains about 50 single car spaces. The overflow parking lot (within 600 feet) contains about 20 parking spaces. Both parking lots will accommodate a total of 70 cars or 210 people (three people per car is used, as recommended in the draft Engineering Manual 1110-1-400). According to park planning beach standards, the parking lot should accommodate the capacity of the beach/swimming area (267 people), plus 40 percent (107 people), to provide access for the bank fishermen, volleyball players, trail users, and spectators. Calculating 3 people per car, the parking area should be able to provide about 125 car spaces. The overflow lot is being looked at for expansion; however, this lot is already infringing upon the wetland environment which was meant to be retained in its natural setting. From circulation, environmental, and aesthetic viewpoints, additional parking should be added to the closest existing

beach parking lot. It is recommended that the existing parking lot be expanded to provide the additional parking spaces needed and the overflow lot be eliminated. Fill for the parking lot expansion is available from a stockpile in the maintenance area and the existing overflow lot.

Trails

Trails at Eau Galle Lake should be developed to connect related functional use areas (camping, fishing, picnicking, swimming, parking, etc.), give access to areas of scenic quality, connect to other trail systems in the area, and satisfy special trail uses (cross-country skiing, horseback riding, nature interpretation, and snowmobiling), without causing significant soils damage (erosion). The general purpose of trails is to look natural while maximizing the recreational, aesthetic, and educational potentials of the area. Trails should provide a variety of experiences revealing dramatic/unique features or views. Long stretches of viewing the same scenery should be avoided, even if the scenery is magnificent. The trail should reveal impressive views while allowing the user to experience solitude. It is desirable to separate hiking and equestrian trails, but steep slopes limit the horse trail location to a portion of an existing hiking trail (Ox Trail).

To reduce trail erosion, the maximum slopes for trails should be limited to 10 to 12 percent grade on stable soils. Trail slopes should be given a slight lateral tilt to allow water to drain off the side of the trail rather than flow down to create gullies. Steep grades on erodible soils should be avoided. Switchbacks, ladders, and steps should be employed in steep, restricted terrain to maintain a desirable trail grade. Side hill cuts should be avoided. When necessary to support a trail section where sloughing is anticipated, natural stone retaining walls should be used. Large native stones with some crushed stone will be necessary on some trail sections to produce a more durable surface. These trails should be wide enough to allow small maintenance vehicles to replace the stone as needed. Water bars, drainage dips, culverts, and other devices should be employed on steeper slopes, or where erosion is anticipated.

Trailhead Facilities - Trailhead facilities are being provided for cross-country ski and hiking use. The trails do not need to be groomed but should be well signed to indicate the name, length, and difficulty of the trails. Trails for winter skiing will follow most of the hiking and horse trails.
Additional trail connections will be developed to provide between 5 and 7 miles of total trail length. Facilities should include water (drinking fountain), sanitary facility, trash receptacle, picnic tables, informational signage (kiosk), and parking.

Day Use Hiking Trail - A trail for hikers who do not stay overnight on the trail varies in length, from 2 to 8 miles. Hiking trails usually have a destination point, such as an overlook or waterfall, and will pass by a variety of scenic attractions along the way. The trail width should be 1 1/2 feet on level terrain and 2 to 3 feet on steep terrain, with a clearing of 4 feet by 7 feet (8 feet in heavy undergrowth). The trail should not exceed slopes of 10 to 12 percent. Surface materials can be earth, grass, or stone and gravel where stabilization is needed.

Day Use Equestrian Trail - The horse trail alignment uses the most stable soils on slopes that average 6 to 10 percent. A natural earth surface (without cutting into the existing soil) should be used on 0 to 6 percent slopes. The length of existing trail (Ox Trail) should be surfaced to prevent further

erosion. The horse trail will be approximately 2 1/2 miles in length with trailer parking, water, hitching post, and toilet facilities provided at the Lousy Creek boat launch.

Because the trail is a connecting trail between other available trails, the width must be at least 6 feet to accommodate two-way traffic and allow access by maintenance vehicles. The trail will need to be cleared to 8 feet wide by 10 feet high, maximum.

Nature and Interpretive Trail - Nature and interpretive trails are usually less than 3 miles in length. The purpose is to be used as a self-guided interpretive tour of specific attractions or as a brief trail experience within a dominant facility, such as a campground or picnic area. The trail width should be 3 to 6 feet, with a clearing of 3 to 6 feet wide by 8 feet high, on maximum slopes of 6 percent.

Surface materials can be earth, grass, stone, gravel, asphalt, corduroy (log), or other, as trail dictates. In areas to be accessible to the handicapped and in heavily trafficked areas, asphalt or a non-slip surfaced concrete should be used.

Signs

A unified and harmonious signage system should be developed at Eau Galle Lake following the nationwide standards adopted by the Corps (Engineer Pamphlet 310-1-6) in November 1987.

Overlooks

An overlook should serve both motorists and pedestrians. The dam overlook on the south side of the site is accessible by car, but not by foot. With a trail connection from the Main Day Use Area, the overlook would be accessible to hikers also. Barrier-free access for the young, elderly, and handicapped is provided. This overlook, with parking and picnic sites offers breathtaking views, and a short trail to a lower overlook. A safety railing is provided, but the lower railing should be enclosed to protect young children. The interpretive format should be updated, the trash receptacle should be altered to fit the quality of the site, and a comfort station could be provided.

A trail overlook is provided for pedestrians in the campground. This overlook should be signed, and selective trimming should be performed to heighten the viewing potential.

Boating

Eau Galle Lake is restricted to electric motors, thereby limiting the use for large motorboats. Water-skiing is allowed during one weekend in July as a celebration for water-skiing enthusiasts. The lake has approximately 150 total acres of water surface, of which about 45 acres contains littoral vegetation important to the fisheries. Eau Galle Lake is considered a fishing lake rather than a boating lake.

Hunting

Hunting is not allowed on Corps project lands at Eau Galle because of the few acres available for hunting and the proximity to the city of Spring Valley.

8.07 Summary

Since the main goal of the Eau Galle Lake Recreation Area is to provide for visitation use, and enjoyment of a unique natural area, it is essential that the natural scenic qualities, which are the attraction, be preserved within the development of recreation. The level of development, therefore, has incorporated improved trail and interpretive opportunities, and the design criteria have emphasized the natural elements. As the planning process moves to more detailed levels, unique problems may develop which may require an alternative design solution.

An effort was made to provide visitors with an enjoyable, quality experience within the unique natural character of Eau Galle Lake. The master plan of development will provide facilities that will accommodate various levels of interest and capability. Extra effort was given to provide the elderly and handicapped with accessible facilities.

SECTION 9

PLAN IMPLEMENTATION

9. PLAN IMPLEMENTATION

9.01 Priorities

Since the Eau Galle Recreation Area is separated into three major areas (1) Main Day Use Area, (2) Northwest Area, and (3) Campground, the priority should be to implement site specific developments in support of each other. As an example, the campground trail connections should be developed before the trailhead parking and kiosk are developed. The following site specific developments should be implemented in order of priority, as the budget allows, as follows:

1. Bridge connection on the Eau Galle River, to link the Northwest Area to the Main Day Use Area.
   a. Bridge designed for vehicles and trail use.
   b. Road development.
   c. Fishing dock provided near the bridge, for the elderly and the handicapped.

2. Horse trail development.
   a. Horse trail development (clearing, grubbing, etc.).
   b. Trail signs, hitching post, etc.
   c. Designate parking for horse trailers.
   d. Repair and revegetate erosion along previous trail cut.

3. East boat launch improvement.
   a. Surface parking area (provide turnaround space for boat launching and designate space for horse trailer parking).
   b. Vault toilet addition.
   c. Replace courtesy dock.
   d. Improve signage.

4. Main Day Use Area swimming beach and parking lot expansion.
   a. Parking lot expansion (use gravel from overflow parking lot - restore native wetland).
   b. Handicapped walkway from parking lot to fishing dock.
   c. Prepare beach with fill and regrade to 5 percent maximum slope into water.
   d. Improve signage (consolidate individual signs).
   e. Add barrier free rinse-off shower outside change house.
   f. Add handicapped accessible water faucet.
   g. Add handicapped accessible ramp with railing into water.

5. Main Day Use Area ranger station facilities.
   a. Multi-use ranger station building.
   b. Entrance designed and surfaced for elderly and handicapped.
   c. Landscaping for shade, screening, and wind buffering.
   d. Develop interpretive program.

6. Campground improvements.
   a. Shower and flush toilet addition.
   b. Group camping addition.
   c. Group shelter addition (multi-use).
   d. Campground vault toilet addition.
   e. Improve signage (move entrance location sign near group shelter - explain what is available, with a map showing how to get there).
   f. Move play equipment near group shelter.

7. Campground trail improvements.
   a. Provide switchbacks on steep slopes.
   b. Expand trail length (include upstream Eau Galle River).
   c. Add trail signs.
   d. Connect trail from overlook to Northwest Area.

8. Main Day Use Area picnic areas.
   a. Landscaping for shade, screening, and buffering winds.
   b. Site fill, grading, and revegetation for low play area.
   c. Upgrade and consolidate play equipment.

9. Main Day Use Area trail improvements.
   a. Develop interpretive trail (tie into ranger station).
   b. Improve upland trail (switchback trail slope gradient change and provide views).
   c. Provide connection trail from picnic area to dam overlook structure.
   d. Add trail signs.

10. Main Day Use Area entrance road change.
   a. Plantings to screen construction zone along entrance road.
   b. Move project sign for better visibility.
   c. Improve signage.

11. Northwest Area.
   a. Improve parking area and toilets.
   b. Improve trail system (block off vehicle traffic on trails).

12. Campground loop extension for individual sites.
   a. One-way road extension with camp pads.
   b. Handicapped sites provided near shower building.
   c. Playground improvements.

13. Cross country ski trailhead facilities.
   a. Parking area provided.
   b. Vault toilet provided.
   c. Kiosk provided.
   d. Trail connections.

9.02 Project Funding

During the time this report was prepared, no potential non-Federal sponsor indicated an interest in participating with the Corps in designing or constructing any new development at Eau Galle Lake. Under current policy contained in Public Law 99-662, 50-percent cost sharing by a non-Federal sponsor is still applicable; however, in the absence of local participation in recreation development at reservoir projects, it is recommended that Special Recreation User Fee (SRUF) revenues be used for additional facilities, improvements, and consolidation of recreation activities.

Development plans, as presented here, are expected to reduce operation and maintenance costs because of the mileage reduction in patrolling the separate areas. It is estimated that approximately 336 miles are traveled per week by a ranger to patrol the Northwest Area and Campground. The mileage can be reduced to less than 12 miles per week with the construction of a vehicle bridge accross the Eau Galle River. The bridge access would also save time in transit and in response to calls and would provide campers with a vehicle or trail access to the swimming beach.

It is estimated that revenue capabilities would be greatly enhanced by providing quality recreational facilities in the campground area with access to a swimming beach. The quality of the campground would be improved by providing group camping, showers, trail extensions and signage, and a multi-purpose ranger station. A gate attendant located near the entrance would provide visitors with a safe, secure atmosphere and a convenient fee collection service.

The renovation and consolidation plan at Eau Galle Lake includes reducing the number of existing, separated entrances from three to two main entrances, constructing/consolidating safe play equipment, improving trail facilities, and limiting parking areas. These improvements would lower maintenance costs, minimize conflicts, increase visitation/fees, and improve the quality/aesthetics of the recreational experience.

Elements of the plan that include signage, lighting, planting, trails, safety improvements, interpretive programs, and maintenence reductions will be implemented under normal operation and maintenance funding procedures.

9.03 Estimated Costs

A summary of estimated costs for the Eau Galle Lake recreational development has been prepared and is provided below. The quantities reflect all of the improvements illustrated on the development plans, and the costs are based on January 1989 unit prices.

MAIN DAY USE AREA

Item	1989 costs
Vehicle/pedestrian trail bridge over mouth of Eau Galle River	$135,000.
Expand parking lot & add road to bridge (excavation, subgrade prep., base, & paving -remove overflow parking lot & use as fill - approx. 800 lineal feet)	41,000.
Beach improvement (stripping/grading, 2 foot sand fill needed - approx. 200 C.Y.)	3,500.
Ranger Station (barrier free, with landscaping - approx. 800 to 1,000 sq. ft.	75,000.
Fill & grade low play area near picnic area (strip topsoil, fill - approx. 200 C.Y., grade, seed, & landscape picnic area)	9,000.
Improve native wetlands environment along entrance road (plant native wetland plants)	3,500.

NORTHWEST AREA

Improve access road connection from bridge, across Lousy Creek, through the Northwest area (excavate, subgrade prep, ag. base, paving)	36,000
Construct road connection from Northwest dead end across water - dike type construction - approx. 700 lineal feet	114,360.
New vault toilet building	40,000.

CAMPGROUND

Construct group camping area (clear & grub, grade, seed, & landscaping)	11,270.
Construct road & parking spurs for group camping (excavation, subgrade prep, aggregate base, paving)	36,740.

Construct group shelter (move playground & movie equipment near/in group shelter building) ..... 40,000.

Construct shower & flush toilet building (men: 1 shower, 1 toilet, 1 urinal, 2 wash basins; women: 1 shower, 2 toilets, 2 wash basins; barrier-free unisex space: 1 shower, 1 toilet, 1 wash basin; 1 barrier-free drinking fountain) ..... 100,000.

Construct vault toilet ..... 40,000.

LOUSY CREEK BOAT ACCESS

Improve parking facilities for boat launching/parking, & horse trailer parking (minimum subgrade prep., paving, launch lane construction) ..... 18,000.

Construct vault toilet ..... 40,000.

Install 2 picnic tables & 1 trash can ..... 950.

Construct sign location map & horse trail route signs ..... 2,500.

Boat launch ramp, 30' x 12' comcrete precast units..... 15,000

TRAIL SYSTEM

Trail improvements (minor clearing & grubing of 3 switchback trail segments ..... 11,000.

Trail extensions (4' wide - clearing, grubbing, light grading if any, earth surface - approx. 8,000 lineal feet) ..... 3,750.

Trail signs for main day use, campground, and northwest area, (trailhead map & orientation signs)..... 3,136.

Trailhead facilities for cross-country skiing (access road, paved parking lot (60'x 100'), vault toilet, kiosk, 2 picnic tables, 1 trash can)..... 73,890.

Horsetrail (clearing, grubbing, earth surface some large stones & gravel, 8' wide 2,000 lineal feet - not stripping of soils - trail to lay lightly on land)..... 3,500.

SECTION 10

SPECIAL PROBLEMS AND CONCERNS

10. SPECIAL PROBLEMS AND CONCERNS

1. The most important concern in planning recreational facilities at Eau Galle Lake is that the unique character be preserved and enhanced.

2. The archeologic site (Lamb V) is located south of the proposed trail/vehicle bridge crossing the Eau Galle River. The bridge will link the Main Day Use Area with the Northwest Area. It will be necessary to coordinate the bridge design and location without disturbing the site. Mitigation of any artifacts will be done prior to construction. Additional cultural resources survey and mitigation will be undertaken for all aspects of plan implementation as needed.

3. The Eau Galle Recreation Area has three main entrances. It would be ideal to have only one entrance, but because of the physical site limitations, it is difficult to connect the Main Day Use Area directly to the campground. The site can be limited to two entrances with the vehicle connection through the Northwest Area. The third entrance to the Northwest Area could eventually be closed to vehicles and used only as a trail entrance. A vehicle bridge across the Eau Galle River will be the connection allowing the closing of the Northwest Area entrance. It will be in the best interest of the Corps to proceed with this bridge design while coordinating with the State of Wisconsin.

4. The location of the shower building in the campground will need to be carefully selected to avoid any shallow bedrock in the area. A quick study of the geology should be initiated before the shower building is specifically located.

SECTION 11

CONCLUSIONS & RECOMMENDATIONS

11. CONCLUSIONS AND RECOMMENDATIONS

11.01 Conclusions

The updated Master Plan for the Eau Galle Lake Recreation Area presents a basis for the design and construction of needed recreation facilities. Particular attention was focused on the circulation within the site, especially from an operation and maintenance standpoint. Attention was also placed on the capability and character of the natural resource. Opportunities to expand recreation is limited, due to the physical constrictions, and land available for development. However, it is possible to raise the quality of the recreational experience by providing improvements and maintaining existing facilities. The preservation of the natural resource value is important to making development decisions. The recreational development master plan attempts to improve the recreational experience while maintaining an ecological balance, and providing the framework for future development.

11.02 Recommendations

It is recommended that this master plan be approved and that it replace the 1964 approved Design Memorandum No. 6 as the basis for development. It is further recommended that this master plan and accompanying design concepts serve as the basis for detailed construction drawings and specifications.

General recommendations that would improve the visitation and the visual quality at Eau Galle Lake are listed below:

1. Exit signs off the freeway should identify activities available at Eau Galle Lake and note mileage. For example, camping should be identified at exit 28 heading west and at exits 24 and 28 heading east; signs could indicate that the next two exits are available.

2. The majority of recreational activities should be consolidated into two activity centers: (1) Main Day Use Area and (2) Campground with a trail/vehicle connection through the Northwest Area. The three existing entrances can then be reduced to two entrances, thus saving on operation and maintenance costs.

3. Interpretive information on the Lamb V site should be included at the ranger station (artifactual material for display should be considered).

4. A conscious effort should be made to reflect the character of the site in the design and construction of facilities at Eau Galle Lake.

5. A complete uniform and harmonious sign system should be developed to include all of the visual amenities at the site, to complement Eau Galle Lake's natural character, and to provide information for the visitor.

6. Native shrubs and trees should be planted to provide wind buffering, visual screening, shade, to soften harsh edges, and to frame views.

APPENDIX A

APPLICABLE LAWS

APPENDIX A APPLICABLE LAWS

APPLICABLE LAWS FOR RESOURCE DEVELOPMENT AND MANAGEMENT

The federal statutes that are listed below are applicable with respect to the development and management of federal reservoirs according to the intent of the Congress of the United States and the executive office.

PUBLIC LAW 59-209, JUNE 1906 - Public Law 59-209, the Antiquities Act of 1906 (34 Stat.225), 8 June 1906, provides for the preservation and protection of antiquities on public lands. This includes archeological remains and historic sites.

PUBLIC LAW 534, 1944 - The 78th Congress Flood Control Act of 1944 provides authority for the Corps of Engineers to develop and maintain power and recreation facilities at water resources projects. Section 4 of Public Law 534 was amended in 1962 by Section 207 of Public Law 87-874. Section 1 of this law, and section 1 of Public Law 14, Seventy-Ninth Congress (known as the River and Harbor Act of 1945) specify coordination with state agencies in planning for flood control and watershed development.

PUBLIC LAW 85-624, 12 AUGUST 1958 - The Fish and Wildlife Coordination Act, Public Law 85-624, provides for integration of fish and wildlife programs with Federal water resource developments. It also provides for coordination with the U.S. Fish and Wildlife Service for the assessment of project alternatives.

PUBLIC LAW 89-72, 9 JULY 1965 - The Federal Water Project Recreation Act of 1965 established development of the recreational potential as a full project purpose. Section 2 specifies that benefits for recreation should be included in the economics of a project. Section 77 of the Water Resources Development Act of 1974 (P.L. 93-251) requires cost sharing for recreation and Fish and Wildlife enhancement at reservoir projects authorized after 1 January 1965.

PUBLIC LAW 89-80, 22 JULY 1965 - The Water Resources Planning Act establishes the National Water Resources Council to bring together and coordinate the variety of activities of Federal, State, and local government agencies concedrned with water resources development.

PUBLIC LAW 86-665, 1966 - The National Historic Preservation Act of 1966 declares that the historical and cultural foundations of the country must be preserved as a living heritage of our background and development. It provides for Federal assistance to state and local governments, private organizations, and individuals for historic preservation projects.

EXECUTIVE ORDER 11593, 13 MAY 1971 - The Protection and Enhancement of the Cultural Environment extends the 1966 Act by providing review of the cultural surroundings to assure protection on federally owned lands.

ER 1105-2-11, 15 MARCH 1972 - Federal Laws provide instructions on the coordination with state historic preservation programs and the objectives of the Secretary of the Interior and the Advisory Council on Historic Preservation for the purpose of providing responsibility for planning, protection, preservation and maintenance of unique historic sites and objects in regard to water resource development programs.

ER 1105-2-12, 15 MAY 1972 - Federal Laws pertaining to Archeological Salvage Operations and indicating that investigation of archeological resources and salvage of artifacts, including obtaining funds for all such work, shall be the responsibility of the National Park Service and the Smithsonian Institution.

PUBLIC LAW 93-205, 28 DECEMBER 1973 - This Federal Law repeals the Endangered Species Act of 1969, and Public Law 93-205 is presently referred to as the Endangered Species Act of 1973. This act is concerned with the development and management of any endangered species of fish, wildlife, or plant with federally owned or operated land, and stipulates that any proposed developments allow for the protection of threatened species, and species of a wide range of influence, such as migratory waterfowl and fish.

PUBLIC LAW 93-291, 1974 - The Preservation of Historic and Archeological Data Act permits the expenditure of up to one percent of the amount appropriated for a Civil Works project for survey, recovery, analysis, and reporting of important (scientific, historical, archeological, and paleontological) data which may be lost as the result of Civil Works under Corps jurisdiction, including non-federal lands provided by local interests for certain types of projects. The authorities of P.L. 93-291 apply to operating projects as well as those in the planning or design stages.

PUBLIC LAW 99-662, 17 OCTOBER 1986 - Under the cost sharing title of this law non-Federal sponsors are required to contribute 50% of the cost of recreation development. Additional detailed policy guidance on recreation is contained in ER 1105-2-20, ER 1165-2-400, and EC 1165-2-140.

RELATED REGULATIONS - (ER 1165-2-400, ER 1130-2-400, ER 1120-2-400, EM 1110-2-400)

The objective of Corps recreation resource management activity is to insure continued public enjoyment and maximum sustained use of lands, waters, forests, and associated recreational resources, consistent with their carrying capacity and their aesthetic and biological values. These actions emphasize the need for preserving and enhancing the quality of the outdoor recreational potential created by water resources projects for the benefit of present and future generations. Project planning shall consider the incorporation of trails for nature study, hiking, bicycle, horseback riding, snowshoe, cross-country ski, and access for fisherman and hunters. When practicable, such trails should be located to tie into existing trails.

EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS - Agencies shall avoid new construction located in wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands.

EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT - Agencies are to avoid, to the extent practical, adverse impacts associated with modification of floodplains. Agencies are expected to restore or preserve natural and beneficial floodplain values.

APPENDIX B

CULTURAL RESOURCES

APPENDIX B CULTURAL RESOURCES

1.00 INTRODUCTION:

1.01 Prior to 1962, when A. Dewey Buck and Bent Thygesen of the state Historical Society of Wisconsin conducted the first preliminary archeological survey for the Eau Galle Reservoir, no professional archeological work had been performed in the vicinity of Spring Valley, Wisconsin. At the time they surveyed, Charles E. Brown (1925) had recorded one site north of the Eau Galle reservoir, and a few of the local property owners had collections of prehistoric artifacts from the farm fields that they were cultivating. Since Buck and Thygesen surveyed, a number of archeologists from different institutions have conducted archeological survey, testing, and excavation at the Eau Galle Reservoir.

1.02 Nearly 30 archeological sites were located during these survey efforts. Some of these sites were excavated and reported on in detail, but, other sites were only tested in a preliminary fashion. Some sites were inundated after construction of the dam and are no longer available for study, but many others have suffered little disturbance since they were last cultivated (see Table 1). The Lamb-5 site, one of the most significant of the sites found in all the years of survey and excavation is located on the western side of the reservoir. It exists in much the same state as it did during major excavations twenty years ago.

1.03 While the sites that are located within the bounds of the Eau Galle reservoir are not as numerous, large, or spectacular as other sites in Western Wisconsin, they offer a great potential for researching and interpreting the prehistoric development along small order streams. This appendix will discuss the history of archeological research in the Eau Galle area, the nature and significance of the archeological resources that remain, and the ways in which these can be developed for interpretation for those who visit and use the Eau Galle recreation area.

2.00 PREVIOUS RESEARCH:

2.01 The Buck and Thygesen Survey of 1962: In July of 1962, A. Dewey Buck and Bent Thygesen of the State Historical Society of Wisconsin conducted the first professional survey in the area. This survey was the direct result of the newly passed Reservoir Salvage Act of 1960 which required archeological survey to be done prior to the construction of the Eau Galle Dam. The work was funded by the St. Paul District but was administered by the National Park Service.

2.02 During the course of their survey, Buck and Thygesen located 15 archeological sites (see Table 2). Two other sites were reported to them by landowners, but they were unable to locate them in the field. Survey efforts during the preliminary work were primarily limited to surface reconnaissance; subsurface testing was accomplished at only four locations, three of which produced cultural material. As a result of the survey methods and the conditions of some of the areas to be surveyed, "only about half of the area to be inundated by the reservoir was surveyed" (Buck and Thygesen, 1962).

EAU GALLE RESERVOIR
SUMMARY OF PREVIOUS INVESTIGATIONS & SITE CONDITIONS

SITE NAME	SITE NO.	MOST RECENT RECOMMENDATIONS	STATUS OF RECOMMENDATIONS	PRESENT SITE CONDITION
Larson I	Sc-9	testing - 1964	not completed	poor/inundated
Larson II	Sc-10	testing - 1964	not completed	poor/inundated
Larson III	Sc-11	no recom. - 1982	tested 1964 & 1982	disturbed/in pasture
Lamb I	Pi-22	testing - 1964	not completed	unknown
Lamb II	Sc-12	no further work-1964		unknown
Lamb III	Sc-13	no further work-1985	tested 1985	disturbed/in play ground
Strum I	Sc-14	testing - 1964	not completed	unknown/available?
Strum II	Sc-15	testing - 1964	not completed	unknown/available?
Hollman I	Sc-16	testing - 1964	not completed	unknown/non-Corps fee title
Hollerude I	Sc-17	testing - 1964	not completed	unknown/non-Corps fee title
Hollerude II	Sc-18	testing - 1964	not completed	unknown/non-Corps fee title
Hollerude III	Sc-19	no further work - 1964		unknown/non-Corps fee title
Anderson I	Sc-20	no further work-1982	not completed	poor/marshland
Anderson II	Sc-21	no further work-1985	tested 1985	disturbed/eroding
Anderson III	Sc-22	no further work-1985	tested 1985	disturbed/eroding
Emmerson property		no recommendation	site not found	unknown
Lamb IV	Sc-24	testing -1964	not completed	poor/inundated?
Lamb V	Sc-25	nominate to NRHP	submitted to NRHP	good/undisturbed
Lamb VI	Sc-26	testing - 1964	not completed	poor/inundated
Lamb VII	Sc-27	re-survey - 1982	not completed	unknown/available
Johnson I	Sc-33	no further work - 1964		unknown/non-Corps fee title
Johnson II	Sc-34	excavation - 1964	not completed	unknown/non-Corps fee title
Larson IV	Sc-23	no further work-1985	tested 1985	poor/redeposited
Holman II	Sc-29	no recomm.-1982	relocated-1982	poor/severely disturbed
Holman III	Sc-30	further testing?-1964	not completed	unknown/non-Corps fee title
Holman IV	Sc-31	re-survey & test -1964	not completed	unknown/non-Corps fee title
Strum III	Sc-28	re-survey & test - 1964	not completed	poor/inundated?
Geiger I	Sc-32	no recomm. - 1982	relocated - 1982	disturbed/in pasture
Longseth I	Sc-35	re-survey -1982	not completed	unknown/available
Lousy Creek	Sc-42	no further work -1985	tested 1985	disturbed/in plow zone

TABLE 1

2.03 The large majority of the material recovered by Buck and Thygesen was lithic in nature; and the majority of these lithic materials were flakes. A few projectile points were found, but these were not identified by type. Only two of the sites produced any faunal remains, and only one of the fifteen sites produced ceramic material. At the Larson II Site, a single grit-tempered, cord-roughened body sherd was found.

2.04 The Kerr Investigations of 1964: Following the survey made by A. Dewey Buck and Bent Thygesen in 1962, Hank Kerr from the State Historical Society of Wisconsin returned to Spring Valley in the summer of 1964 to continue archeological field investigations. During the course of the summer, the field team located 13 additional sites, excavated two sites, extensively tested one site, and tested 3 others to a lesser degree. Most of the sites that had originally been located by Buck and Thygesen were field checked by Kerr in 1964. However, for six of the sites located in 1962, it was impossible to determine from Kerr's report if he had rechecked these sites (see Table 2).

2.05 Of the three sites that were tested, one was unable to be located. This missing site was previously searched for by Buck and Thygesen in 1962 with equally little success. It had been reported to Buck that projectile points were found in bottom land owned by Gordon Emmerson but the exact location of the finds could not be recalled. An unspecified number of test pits were located in the suspected area in 1962; the following 1964 survey made another attempt to locate the site through excavation of two 5x5 foot excavation units and 28 - 2x2 foot excavation units.

2.06 The selection of sites for testing during the summer of 1964 appears to have been based on a number of factors. The two sites selected for excavation seemed to be those that would provide the greatest amount of data about the archeology of the area. Kerr (1965: 9) states that "the Lamb V site (Sc-25), received more attention than any other in the reservoir because of its location, size, depth, and relatively high artifact yield. The second site, Johnson II (Sc-24), was chosen for excavation because of its prolific yield of flake debris..." However, an overriding factor in the selection of sites was the fact that many of the sites were unavailable for excavation and testing because of crops. Kerr(1965: 45) state that "no other sites [except the Larson IV Site, Sc23] were extensively tested because they were either too limited in surface area or because they were covered by corn or other crops. This latter factor was a handicapping one in many areas of the reservoir."

2.07 The 1964 excavation of the Lamb V site focused work on both the lower and upper terraces adjacent to the Eau Galle River. Two grid systems were excavated; grid A was located on the first terrace in a pasture and grid B was located on the upper terrace along the northern edge of a corn field. The upper terrace grid consisted of only 2 - 5x5 foot units. These units were soon abandoned as no cultural material was produced from the first three levels of either unit. Major excavation of the site was then focused on the lower terrace. By the end of the 1964 field season, a block of 25 -5x5 foot units was excavated from the central portion of the site, and 4 - 5x5 foot units were excavated from areas surrounding this block.

EAU GALLE RESERVOIR
1962 AND 1964 FIELD SEASONS
SURVEY AND TESTING

		1962 INVESTIGATIONS		1964 INVESTIGATIONS	
SITE NAME	SITE NO.	RESULTS	RECOMMENDATIONS	RESULTS	RECOMMENDATIONS
Larson I	Sc-9	surveyed	test	field checked	test
Larson II	Sc-10	surveyed	extensive testing	field checked	test
Larson III	Sc-11	surveyed	test	tested	no further recomm.
Lamb I	Pi-22	surveyed	no recommendation	field checked?	test
Lamb II	Sc-12	surveyed	no recommendation	field checked	no further work
Lamb III	Sc-13	surveyed	test	field checked?	test
Strum I	Sc-14	surveyed	no recommendation	field checked?	test
Strum II	Sc-15	surveyed	no recommendation	field checked?	test
Hollman I	Sc-16	surveyed	test	field checked	test
Hollerude I	Sc-17	surveyed	test	field checked	test
Hollerude II	Sc-18	surveyed	test	field checked	test
Hollerude III	Sc-19	surveyed	test	field checked	no further work
Anderson I	Sc-20	surveyed	no recommendation	field checked?	test
Anderson II	Sc-21	surveyed	no recommendation	field checked	test
Anderson III	Sc-22	surveyed	no recommendation	field checked?	no further work
Emmerson property		surveyed	site not found	re-surveyed	site not found
Lamb IV	Sc-24	surveyed	test		
Lamb V	Sc-25			excavated	further excavation
Lamb VI	Sc-26			surveyed	test
Lamb VII	Sc-27			surveyed	test
Johnson I	Sc-33			surveyed	no further work
Johnson II	Sc-34			excavated	further excavation
Larson IV	Sc-23			extensive testing	further testing
Holman II	Sc-29			surveyed	test
Holman III	Sc-30			tested	further testing (?)
Holman IV	Sc-31			surveyed	resurvey & test
Strum III	Sc-28			surveyed	resurvey & test
Geiger I	Sc-32			surveyed	resurvey & test
Longseth I	Sc-35			surveyed	test

TABLE 2

2.08 The Johnson II site was also excavated during the 1964 field season. This site was located in pasture land along the east bank of the Eau Galle River farthest from the proposed damsite. Excavations on the high terrace during 1964 completed 15 - 5x5 foot units to a depth of 1 to 2 feet.

2.09 The Larson IV site (Sc-23) was scheduled to be extensively tested during the 1964 field season. Two grids were excavated at this site in addition to a single test unit located about 110 yards southeast of grid B.
A single 5x5 foot unit was excavated in grid A and 5 - 5x5 foot units were excavated in grid B. These units were excavated to a depth of 2-3 feet based on stratigraphy of the bank of the Eau Galle River which indicated that the site may extend to a depth of at least 2 feet. Kerr abandoned excavations at this site early because of a low yield of cultural material.

2.10 Limited testing was conducted at the Larson III site (Sc-11) and the Holman III site (Sc-30). Two 5x5 foot units were excavated at the Larson III site, located on a high rise east of Lohn Creek. Excavation at this site only extended to a depth of 1.5 feet. Excavations at the Holman III site were carried out to determine the depth of the site. Three 5x5 foot test units were excavated to a depth of 1-2 feet.

2.11 The Excavation of the Lamb V Site - 1966: In 1966, the National Park Service awarded a contract to the State Historical Society of Wisconsin for the intensive testing of selected sites in the Eau Galle Reservoir. The only site which was excavated as a result of this contract was the Lamb V site. No work was conducted at any of the other archeological sites during the 1966 field season because "all the other seemingly good sites in the area were still under cultivation which precluded their being excavated (Brandon, 1967: 3)." Work at the Lamb V Site focused only on the lower terrace where Kerr had found the only undisturbed portion of the site. By the end of the 1966 field season the total number of excavated 5x5 foot units which had been dug into the site numbered 106. Depth of the units excavated ranged from 1.0 to 4.5 feet.

2.12 The Hudak Survey of 1981: In 1980 the St. Paul District contracted with Archaeological Field Services, Inc. (AFS) to conduct archeological investigations at Eau Galle Reservoir. The purpose of the survey was to relocate sites that had been recorded in the previous surveys and assess their present condition, and to survey portions of the Reservoir lands
that had not been previously surveyed. The survey also included a downstream portion of the reservoir spillway. No new sites were recorded in any of the previously unsurveyed areas and none of the previously recorded sites were relocated.

2.13 The Boszhardt Survey of 1982: After reviewing the Hudak report, the St. Paul District found it difficult to believe that none of the sites located in the 1960's could be relocated in the field. After relocating two of the 1960's sites (Sc-13 & Sc-25) in a one day field effort in the Autumn of 1981, St. Paul District personnel awarded a contract to Mississippi Valley Archeology Center, Inc. to resurvey selected portions of the areas covered by Hudak. Five of eight sites located in the selected portions of the reservoir were relocated (Sc-21, Sc-22, Sc-23, Sc-29, and Sc-32). Shovel test transects failed to locate Sc-27 and Sc-35, and Sc-20 is likely located in the now marshy area where Lousy Creek enters the reservoir. Three previously unreported sites were also discovered, and one site, Sc-11, which was

outside of the area specified in the contract was also reinvestigated. Two of the five relocated sites were found to be eroding into the reservoir (Sc-22 and Sc-23). The newly reported sites consisted of one prehistoric site, Sc-42 located west of Lousy Creek, and two historic sites, the Old Bridge Site into the Northwest Camping Area, and the old Otis Anderson Farmstead along Lousy Creek. (see Table 3)

EAU GALLE RESERVOIR
1982 AND 1985 FIELD SEASONS
SURVEY AND TESTING

1982 INVESTIGATIONS				1985 INVESTIGATIONS	
SITE NAME	SITE NO.	RESULTS	RECOMMENDATIONS	RESULTS	RECOMMENDATIONS
Larson I	Sc-9				
Larson II	Sc-10				
Larson III	Sc-11	tested	no recommendations made		
Lamb I	Pi-22				
Lamb II	Sc-12				
Lamb III	Sc-13			tested	ineligible for NRHP
Strum I	Sc-14				
Strum II	Sc-15				
Hollman I	Sc-16				
Hollerude I	Sc-17				
Hollerude II	Sc-18				
Hollerude III	Sc-19				
Anderson I	Sc-20	not relocated	presently marsh area		
Anderson II	Sc-21	relocated	phase II testing	tested	ineligible for NRHP
Anderson III	Sc-22	relocated	phase II testing	tested	ineligible for NRHP
Emmerson property					
Lamb IV	Sc-24				
Lamb V	Sc-25			tested	eligible for NRHP
Lamb VI	Sc-26				
Lamb VII	Sc-27	not relocated	re-survey	re-survey deleted	
Johnson I	Sc-33				
Johnson II	Sc-34				
Larson IV	Sc-23	relocated	phase II testing	tested	ineligible for NRHP
Holman II	Sc-29	relocated	no recommendations made		
Holman III	Sc-30				
Holman IV	Sc-31				
Strum III	Sc-28				
Geiger I	Sc-32	relocated	no recommendations made		
Longseth I	Sc-35	not relocated	re-survey	re-survey deleted	
Lousy Creek	Sc-42	surveyed	phase II testing	tested	ineligible for NRHP

TABLE 3

2.14 The Boszhardt Investigations of 1985: Two contracts were awarded to Mississippi Valley Archeology Center, Inc. in 1985. The first was for efforts to relocated Sc-27 and Sc-35, and the second was for testing of sites Sc-21, Sc-22, Sc-23, and Sc-42. During the 1985 field season, St. Paul District decided to eliminate the relocation efforts for site Sc-27 and Sc-35 since two previous efforts to relocate these sites had failed. Instead, efforts were focused on testing site Sc-13 adjacent to the old Lamb farmstead and in determining the condition of cultural remains at Sc-25.

2.15 The results of the 1985 testing program found that sites Sc-13, Sc-21, Sc-22, Sc-23, and Sc-42 were all shallow sites that had been badly disturbed by cultivation prior to construction of Eau Galle Dam. Cultural remains at the Lamb V Site (Sc-25) were found to be intact; however, because of the level of the reservoir, lower strata at the site are now within the water table.

3.00 DESCRIPTION OF RESOURCES:

3.01 GENERAL DESCRIPTION OF RESOURCES: While the 28 archeological sites which make up the resource base for the Eau Galle reservoir come from a very limited geographical area, the information that can be derived from this area is very interesting. Cultural affiliation at the recorded sites is based primarily on diagnostic artifacts found within the cultural assemblages at these sites. Interestingly, the artifacts suggest that the cultural affiliation is nearly all from a Late Archaic time period. Only two recorded sites seem to suggest a later occupation of the reservoir area. Two small Woodland ceramic sherds and a few late prehistoric projectile points were recorded at these sites in the 1960's.

3.02 Boszhardt (1986) states that "this information is intriguing when considered in a regional perspective. The Eau Galle locality is situated in upstream portions of the Eau Galle River valley, which in turn joins the Chippewa River; a substantial tributary of the Mississippi River. As such, and in the rugged terrain of the Eau Galle locality, the area can be considered as a prehistoric hinterland. Yet numerous apparent Late Archaic camp sites have been reported for this area. This contrasts an apparent absence of pre-late Archaic use and only minimal Woodland activity at Eau Galle. Possible explanations for this have not been examined, but may include a decrease in the resource base from Archaic to Woodland periods, or differences in subsistence-settlement practices between these cultures.

3.03 Boszhardt explanation is even more intriguing when the Eau Galle area is compared to the Upper Kickapoo area to the southeast in Vernon County, Wisconsin. Each area is in similar geographical localities, ie. near the headwaters of a river which is a tributary to a major tributary of the Mississippi River. While the Eau Galle area seems to show little Woodland occupation of the area, the Kickapoo area has considerably more Woodland occupation sites, including both habitation and mound sites. Unfortunately, at the present time there are no investigations planned for the Eau Galle area which would help to shed light on the reasons for the suspected settlement patterning in this region.

3.04 DESCRIPTION OF THE LAMB V SITE: As discussed in the Previous Research Section above, this site was first recorded by Hank Kerr in 1964 and reinvestigated in 1966 by the State Historical Society of Wisconsin under the direction of Dr. Joan Freeman, the State Archeologist. The lower terrace of the Eau Galle River was the focus of the excavation work during 1964 and 1966 because it had remain undisturbed. Cultural material at this site extended from the surface to a depth of 4 feet.

Level 4 of the 1966 excavation provided the highest concentration of artifactual material with decreasing frequencies in the upper and lower levels of the site. Horizontal distribution of artifacts at the site concentrated at the eastern central area of the terrace and also at the western end of the terrace.

3.05 Thirteen features were located during the course of the two field seasons;nine during the 1964 season and the remainder in 1966. All but one of these features were hearths. Feature 7 was a concentration of lithic detritus interpreted as a tool manufactory. Three additional concentrations were also located but were never assigned feature numbers. One of these concentrations included over 1400 chert and quartzite flakes in addition to a number of projectile points, bone fragments and charcoal. Many of the hearths contained burned and unburned bone fragments in addition to charcoal.

3.06 Based on an analysis of the lithic materials recovered from the Lamb V Site, the major occupation at this site is one of Late Archaic. Brandon (1966: 36) states that "since the majority of the points recovered at the site are related to the Late Archaic types known for Wisconsin, I suggest that the Lamb-5 site represents a series of short-lived Late Archaic, occupations by small groups, which occurred over a
relatively short time interval. The Site was probably used as a hunting
station or transient camp where the manufacture of stone implements was carried on to a small degree."

3.07 A very limited post-Archaic settlement was discovered at the Lamb V Site during the 1966 field season. This settlement was limited to the extreme western end of the site and had not been discovered during previous work at the site. The only diagnostic artifacts in level 1, the post-Archaic or Woodland association, were the rim of a miniature vessel and two small triangular projectile points. The rim sherd was described by Brandon (1966: 30) as having a flared rim with a flattened lip. The body of the vessel was smoothed over with the only decoration being a band of oblique fingernail impressions regularly spaced around the neck of the vessel.

3.08 Brandon (1966:31) notes that "while the specimen of pottery is, in itself, non-diagnostic, its association with a small triangular projectile point indicates that the earliest possible affiliation is with Effigy Mound Culture." It is possible that some of the Woodland occupation of the Lamb V site has been eroded along the extreme western edge of the site where a gully could have removed approximately 6 feet of the upper portion of the site.

4.00 INTERPRETIVE POTENTIAL OF CULTURAL RESOURCES:

4.01 The cultural resources at the Eau Galle Reservoir, while not spectacular in nature, have some degree of interpretive potential. A number of factors lend themselves well to an effort to interpret these resources.

4.02 Condition of the Lamb V Site: The Lamb V Site has the greatest potential for interpretation of all of the archeological sites at Eau Galle Reservoir. This site was never backfilled after excavation in 1966, because of a misunderstanding of the fact of inundation of the site. The researchers believed that the site would be permanently inundated, and therefore, they did not attempt to backfill the site. While the site is periodically inundated, it is not within the permanent reservoir pool. With minor

cutting of weedy vegetation at the site, it could be made to appear very similar to its condition at the end of the 1966 field season.

4.03 Location of the Lamb V Site to the Main Day Use Area: The Lamb V Site is located only a short distance from the main day use area. It is quickly and easily reached on foot from the swimming beach. At the present time, a footpath is mown from the swimming beach to and through the Lamb V Site. Little additional funding would be necessary for maintainance of the footpath.

4.04 Location of the Lamb V Site to the Proposed Ranger Station: Presently, the Maintence facility at the reservoir is too far away to provide effective monitoring of the site if it were to be interpreted. If the proposed Ranger Station were to be built, the site would be close enough to the Ranger Station so that it could be monitored to prevent damage from vandalism.

4.05 The Lamb V Site and other archeological resources within the Eau Galle region could be interpreted in three ways: 1. providing interpretive signs at the site itself, 2. providing brochures on the archeology of the reservoir area and its potential in interpreting the archeology of the region, and 3. providing a display of artifactual material at the proposed Ranger Station. A fourth option is that the Rangers at Eau Galle could give guided tours to larger groups upon request. These could be incorporated into the guided tours which are presently provided, but only address nature and wildlife information.

5.00 IMPACTS TO THE RESOURCE BASE:

5.01 Based on previous research, the only site which is eligible to be placed on the National Register of Historic Places is the Lamb V Site. The St. Paul District will submit a formal request to have this site listed on the National Register.

The proposed bridge that will connect the northwest day use area with the main day use area could adversely affect this site. The degree of potential impacts to this site will depend greatly on the proposed design of the structure. If the bridge were designed so that the lower terrace along the Eau Galle was not affected by approach or abutments, the impacts to the site may not be adverse. Any affects on the lower terrace may require some degree of mitigation. Because of the increase groundwater levels resulting from the creation of a permanent pool, excavation of the lower levels of the Lamb V Site would require dewatering. This problem would add significantly to the cost of excavation.

Changes in the alignment of the access road may also impact the Strum II Site which is located near the vicinity of the intersection of the proposed bridge and the existing road on the north side of the Eau Galle River. An effort will be made to relocate and test this site to determine any potential impacts. The picnic and parking area proposed for construction at the trailhead for the cross-country ski trail was never surveyed for cultural resources. This should be completed before design and construction of these features so that presently unrecorded cultural resources are not adversely impacted.

This environmental assessment has been coordinated with the Wisconsin State Historic Preservation Officer, the State Archeologist, and the National Park Service.

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608/262-3266

HISTORIC PRESERVATION DIVISION

September 14, 1988

Mr. Charles Workman
Chief, Environmental Resources Branch
Department of the Army, St. Paul District
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

SHSW: 88-1378
RE: Eau Galle Reservoir

Dear Mr. Workman:

Thank you for advising us of your plans to construct a trail maintenance bridge and expand an existing access road at Eau Galle Reservoir near Spring Valley, Wisconsin.

Our records indicate that at least two archeological sites may be affected by the project. These are Sc-15 (Strum II Site) and Sc-25 (Lamb 5 Site). Sc-15 is located in the vicinity of the intersection of the proposed maintenance bridge and the existing road on the north side of the Eau Galle River. It was originally described in Buck and Thygesen's 1962 report and evidently, the site has never been evaluated for National Register eligibility.

The Lamb-5 site has been partially excavated as you noted in your correspondence, and on May 22, 1986 we provided the Corps with our view that the site is eligible for listing on the National Register of Historic Places. At that time, we also recommended that the Corps proceed with the submission of a National Register nomination. This apparently has not been done and the site is neither listed nor has it been determined eligible.

We therefore have three recommendations with regard to the proposed project. First, all portions of the project area that have not been surveyed should be examined by a qualified archeologist. Second, Sc-15 should be evaluated for listing on the National Register. Third, the Corps should proceed with a formal Determination of Eligibility for the Lamb-5 site.

Once the results of these additional investigations are available, we will be in a position to formally determine what the effect of the project will be on significant archeological sites, as we are already aware of the significance of the Lamb 5 Site, you would be well advised to avoid or minimize any effect to this property.

Sincerely,

Richard W. Dexter
Chief, Compliance and Archaeology Section

RWD:lkr

1107N

August 12, 1988

Environmental Resources Branch
Planning Division

Mr. Richard Dexter
Compliance Coordinator
Historic Preservation Division
State Historical Society of Wisconsin
816 State Street
Madison, Wisconsin 53706

Dear Mr. Dexter:

The U.S. Army Corps of Engineers is in the process of planning a trail maintenance bridge capable of carrying vehicle loads and the expansion of the existing access road at Kau Galle Reservoir near Spring Valley, Wisconsin. The project may affect parts of five known archaeological sites, one of which, 47-Sc-25, has been determined to be eligible for the National Register of Historic Places.

A map is enclosed showing the planned placement of the maintenance bridge and access road to the boat launch and parking areas at the northern end of the reservoir. The known archaeological sites are shown in blue. Of these sites, 47-Sc-21 and 47-Sc-22 were relocated in a survey in 1982 and tested in 1985 by Mississippi Valley Archaeology Center. They were found to be ineligible for the National Register. Sites 47-Sc-27 and 47-Sc-35, first found in 1964, could not be relocated in 1982 or 1985 and the search for them was abandoned. The fifth site, 47-Sc-25 (Lamb V), was tested in 1964 and 1966.

Initially, the plans called for a smaller bridge, and site 47-Sc-25 would only have been affected by fill material along its western end. It is possible the revised plans would have a greater impact.

Please send us your comments on this proposed undertaking. If you have any further questions, contact Laurie Lucking at (612) 220-0263.

Sincerely,

Enclosure

Charles E. Workman
Chief, Environmental Resources Branch
Planning Division

Identical letters to:

Dr. Joan Freeman
State Archaeologist
State Historical Society of Wisconsin
816 State Street
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Rocky Mountain Region Office
National Park Service
1279 W. Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287

THE STATE HISTORICAL SOCIETY OF WISCONSIN
1846
HISTORIC PRESERVATION DIVISION

May 22, 1986

Mr. Robert J. Whiting, Acting Chief
Department of the Army
St. Paul District, Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, Minnesota 55101-1479

SHSW: 85-0906
RE: Eau Galle Reservoir

Dear Mr. Whiting:

Our staff has reviewed the archeological report entitled "Phase II Cultural Resources Investigation at Selected Sites at the Eau Galle Recreation Area in St. Croix County, Wisconsin," by James Gallagher and Robert Boszhardt as well as the appended National Register nomination form for the Lamb-5 Site (Sc-23). The testing procedures utilized were sufficiently thorough to evaluate the archeological sites for eligibility for inclusion in the National Register of Historic Places. It is our opinion that the Lamb-5 site is eligible for listing in the National Register of Historic Places. The site possesses undisturbed Late Archaic period deposits that have a demonstrated potential to yield significant information concerning Late Archaic settlement and subsistence patterns in Wisconsin. The site is also unique in that it is the only known Late Archaic site in west-central Wisconsin for which in situ deposits have been documented.

We also agree that sites Sc-21, Sc-22, Sc-23, and Sc-24 are not eligible for listing in the National Register due to a high degree of previous disturbance and do not warrant further management efforts.

As the Lamb-5 site is in no immediate danger of effect by any proposed project, it would seem to us to make the most sense to proceed with the submission of a National Register Nomination for this site rather than seeking a determination of eligibility. Procedures for nominating federally owned properties to the National Register of Historic Places are contained in the enclosed regulations at 36 CFR 60.9. If there are any questions on this process please contact Mr. Robert Birmingham at (608) 262-2970.

Sincerely,

Jeff Dean
State Historic Preservation Officer

JD:jp
Enclosure
cc: James Gallagher

THE STATE HISTORICAL SOCIETY OF WISCONSIN
816 STATE STREET · MADISON, WISCONSIN 53706 RICHARD A. ERNEY, DIRECTOR

May 23, 1990

Environmental Resources Branch
Planning Division

Mr. Richard Dexter
Compliance Coordinator
Historic Preservation Division
State Historical Society of Wisconsin
816 State Street
Madison, Wisconsin 53706

Dear Mr. Dexter:

Enclosed please find a copy of the Environmental Assessment for the Eau Galle Reservoir Recreational Master Plan, Spring Valley, Wisconsin. Also enclosed is the cultural resources input to the main body of the Master Plan and the contents of Appendix B on cultural resources at the Reservoir.

We would appreciate having your comments on this environmental assessment as soon as possible, but no later than 22 June 1990, or thirty days after your receipt of this letter.

Thank you for your cooperation.

Sincerely,

Enclosure

Robert J. Whiting
Chief, Environmental Resources Branch
Planning Division

Identical letters furn:
Mr. J.J. Hoffman, Rocky Mountain Region Office
Dr. Robert Birmingham, State Archaeologist

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608/262-3266

July 20, 1990

Mr. Robert J. Whiting
Chief, Environmental Resources Branch
St. Paul District, Corps of Engineers
1421 U.S. Post Office & Custom House
St. Paul, Minnesota 55101-1479

SHSW: 85-0906
RE: Eau Galle Reservoir- Environmental Assessment

Dear Mr. Whiting:

Thank you for the opportunity to comment on the cultural resource section for the Master Plan Update for the Eau Galle Recreation Area. As you are aware, we provided comments on the Operational Plan in a letter dated September 11, 1989. Based on these earlier recommendations, we would like to offer the following comments.

The potential effects of proposed developments at the Eau Galle Recreation Area, on cultural resources, has been thoroughly considered. We believe that appropriate recommendations were provided. However, the interpretive applications of these cultural resources, and the enhancement of the visitor experience, could have been developed in greater detail.

Appendices A and B summarize all of the data currently available on cultural resources in Eau Galle Recreation Area. It provides an historical perspective on this project and the varying nature of archeological investigations. It is a good compilation of site specific data, noting the status of each archeological site in the evaluation process, a description of site condition, and references current management recommendations.

Finally, thank you for addressing the completion of the registration form for nominating the Lamb 5 Site (47 Sc-25) to the NRHP. Should you have any questions, please contact our staff archeologist, Jennifer Kolb, at 608/262-2970.

Sincerely,

Richard W. Dexter
Chief, Compliance Section
DIVISION OF HISTORIC PRESERVATION

RWD:JLK (3073N)

APPENDIX C

RECREATION DEMAND PROJECTS

APPENDIX C RECREATION DEMAND PROJECTIONS

TABLE 1. REGIONAL DEMAN (MEASURED IN RECREATION ACTIVITY OCCASIONS PER AVERAGE WEEKEND DAY)

Selected Activities	1980	1990	2000*	2005*	<—years
Fishing	28,100	28,950	31,500	31,500	
Camping	10,600	11,900	12,600	12,600	
Swimming & Sunbathing	40,500	45,650	48,200	48,200	
Hiking, walks for pleasure & cross-country skiing	9,400	10,450	11,300	11,300	
Picnicking	26,200	30,350	32,400	32,400	
Boating and Canoeing	17,900	19,600	21,600	21,600	

NOTE: Source of data for developing the above projections was the 1977 Wisconsin Outdoor Recreation Plan (SCORP).

* These projections are conservative because they use SCORP 1995 demand projections and assume no change/ increase in the future.

TABLE 2. REGIONAL FACILITY NEEDS

Selected Activities	1980	1990	2000*	2005*
Fishing [1]	~90 launch sites 22,000 water surface acres	~95 launch sites 25,000 water surface acres	~95 launch sites 25,000 water surface acres	~95 launch sites 25,000 water surface acres
Camping	None (however there are local exceptions	~100 campsites	216 campsites	~216 campsites
Swimming & Sunbathing	None (however there are local exceptions)	32 beaches of 5,000 sq.ft. and 2,500 sq.ft. of water surface area	51 beaches of 5,000 sq.ft. and 2,500 sq.ft. of water surface area	51 beaches of 5,000 sq.ft. and 2,500 sq.ft. of water surface area
Hiking, walks for pleasure & cross-country skiing	360 kilometers of developed trails	420 kilometers of developed trails	450 kilometers of developed trails	450 kilometers of developed trails
Picnicking	1,650 units/ picnic tables	2,340 units/ picnic tables	2,680 units/ picnic tables	2,680 units picnic tables
Boating & Canoeing [1]	~90 access points and 47,500 surface acres of water	~95 access points and 53,000 surface acres of water	~95 access points and 53,000 surface acres of water	~95 access points and 53,000 surface acres of water

* Years 2000 and 2005 projections are conservative in that they utilize SCORP 1995 need projections as a constant in the future.

[1] Only 28% of the lakes in the region currently have public access points. Wisconsin SCORP identifies serious need for public access points and public shoreline. Calculations of needs were based upon these assumptions: 5 acres per fishing boat, turnover of 2, 3 persons per boat, 20 acres for power boats.

TABLE 3. SITE-SPECIFIC DEMAND AT EAU GALLE LAKE (MEASURED IN RECREATION ACTIVITY OCCASIONS PER AVERAGE WEEKEND DAY)

Selected Activities	1980	1990	2000*	2005*
Fishing [1]	540	556	605	605
Camping [2]	600	673	713	713
Swimming & Sunbathing[3]	790	890	940	940
Hiking, walks for pleasure and cross-country skiing [4]	275	306	330	330
Picnicking [5]	600	695	742	742
Boat & Canoeing [6]	200	219	241	241

1 Assumes that 2.6% of annual use occurs on an average weekend day.
2 Assumes that 2.0% of annual use occurs on an average weekend day.
3 Assumes that 2.65% of annual use occurs on an average weekend day.
4 Assumes that 1.0% of annual use occurs on an average weekend day.
5 Assumes that 2.0% of annual use occurs on an average weekend day.
6 Assumes that 2.6% of annual use occurs on an average weekend day.

* Projections for years 2000 and 2005 are conservative because the 1995 SCORP projections have been assumed as a constant in the future.

NOTE: Calculations of site-specific demand has been accomplished using a basic methodology which assumed site-specific demand increases proportional to regional demands identified by SCORP.

TABLE 4. TOTAL FACILITY DEMAND
EAU GALLE LAKE THROUGH 2005

Selected Activities	1980	1990	2000*	2005*
Fishing [1]	21 parking spaces, 175 surface water acres, 1 winter access, 1,000 lin. ft. shoreline	23 parking spaces 180 surface water acres, 1 winter access, 1,100 lin. ft. shoreline	26 parking spaces 200 surface water acres, 1 winter access, 1,200 lin. ft. shoreline	26 parking spaces 200 surface water acres, 1 winter acess, 1,200 lin. ft. shoreline
Camping [2]	7.5 acres developed campground, 41 campsites	8.5 acres of developed campground, 43 campsites	9.0 acres of developed campground, 45 campsites	9.0 acres of developed campground, 45 campsites
Swimming & Sunbathing [3]	39,500 sq.ft. of beach and 20,000 sq.ft. of water area, 49 car parking	44,500 sq.ft. of beach and 22,000 sq.ft. of water area, 56 car parking	47,000 sq.ft. of beach and 23,500 sq.ft. of water area, 58 car parking	47,000 sq.ft. of beach and 23,500 sq.ft. of water area, 58 car parking
Hiking, walks for pleasure, and cross-country skiing [4]	17 car parking 1.38 miles of developed trails	18.5 car parking 1.52 miles of developed trails	20 car parking 1.66 miles of developed trails	20 car parking 1.66 miles of developed trails
Picnicking [5]	57 car parking 47 picnic units/ tables	66 car parking 55 picnic units/ tables	70 car parking 58 picnic units/ tables	70 car parking 58 picnic units/ tables
Boating & Canoeing [6]	175 acres of lake, 1.5 launch ramps, 45 car parking	180 acres of lake, 1.6 launch ramps, 48 car parking	200 acres of lake, 2 launch ramps, 60 car parking	200 acres of lake, 2 launch ramps, 60 car parking

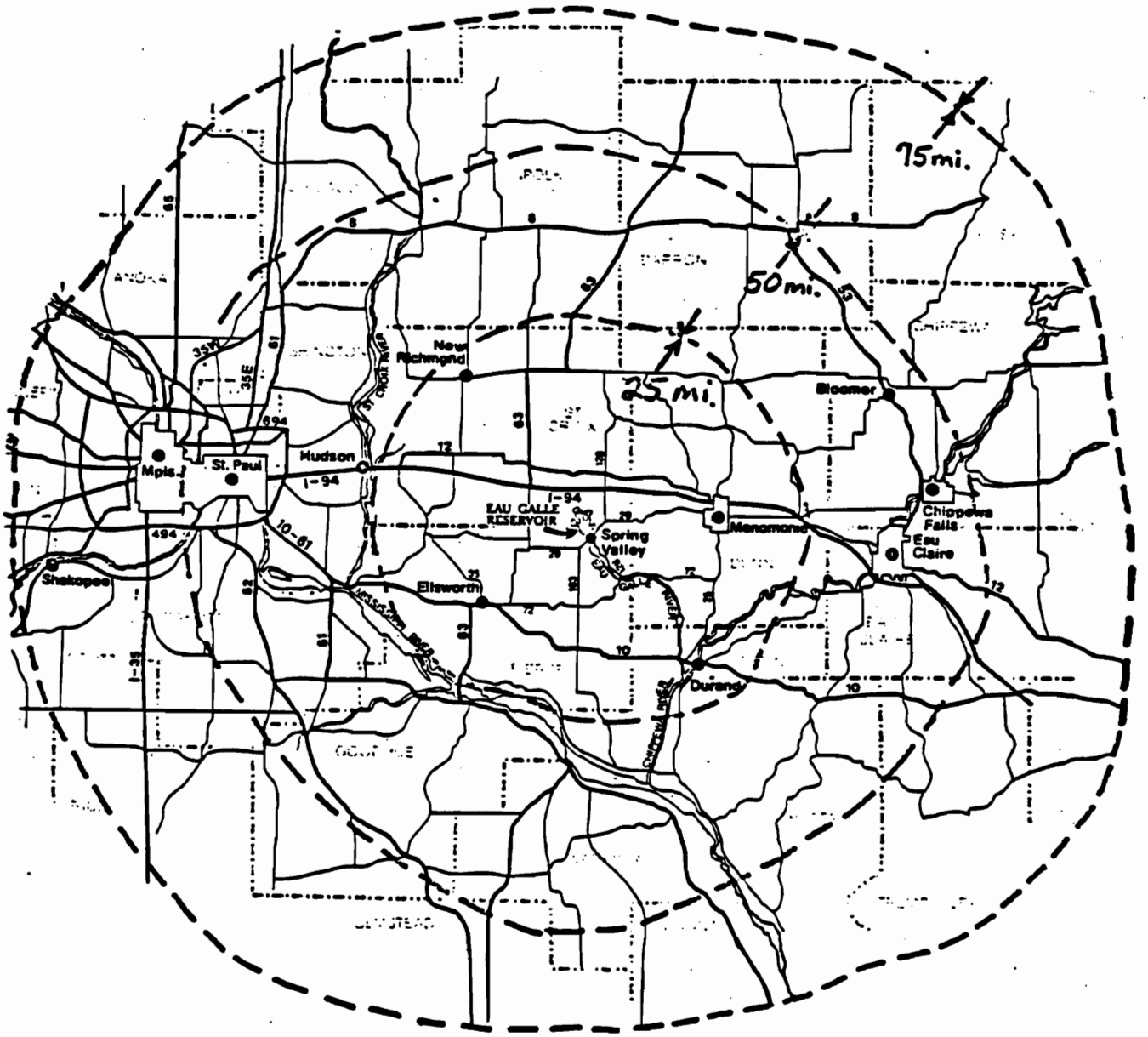
1 Assumes boaters are fishing also, 1.33 acres required per ramp, 3.0 persons per boat, 5 acres per boat, turnover rate of 2, 30 parking stalls per ramp.
2 Assumes 5 units per acre, 4 persons per unit.
3 Assumes 50 sq.ft. of surface water per swimmer, 100 sq.ft. of beach needed per user, turnover rate of 4.0, 4 persons per car.
4 Assumes turnover rate of 6, 2.75 persons per car, 200 activity occasions per daily use per mile of developed trail.
5 Assumes 3.5 persons per car, turnover rate of 3.0, 1.2 parking spaces per table.
6 Assumption same as for fishing except 20 acres of water per boater.

*Projections for years 2000 and 2005 are conservative because 1995 SCORP need projections were assumed constant in future.

TABLE 5. DEMAND PROJECTIONS BY ZONE (METHODOLOGY USES ZONAL POPULATION TIMES ZONAL PER CAPITA USE RATE TO EQUAL ZONAL VISITATION IN RECREATION DAYS)

Zones in the Market Area	1980	1990	2000	2005
Minnesota Zone 2 (25-50 miles)	5,293	8,070	9,795	10,562
Minnesota Zone 3 (50-75 miles)	7,055	9,557	10,465	10,915
Wisconsin Zone 1 (0-25 miles)	36,342	43,999	54,532	60,681
Wisconsin Zone 2 (25-50 miles)	7,309	8,594	10,368	11,387
Wisconsin Zone 3 (50-75 miles)	1,085	1,271	1,235	1,653
Minn-Wis.* Zone 4 (over 75 miles)	5,709	7,150	8,640	9,520
Totals by Years	62,795	78,640	95,035	104,715

* Assumes 10% of use originates from outside the 75 miles zone-of-influence.



Market Area Zones

APPENDIX D

WRITTEN COMMENTS

DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605-1592

REPLY TO
ATTENTION OF

CENCD-CO-MO

AUG 0 1 1989

MEMORANDUM FOR Commander, U.S. Army Engineer District,
ATTN: CENCS-PD-ES, 1135 U.S. Post Office &
Custom House, St. Paul, Minnesota 55101-1479

SUBJECT: Authority to Construct An Equestrian Trail at Eau Galle Lake Project, Spring Valley, Wisconsin

1. Reference your 6 July 1989 request to construct an equestrian trail at Eau Galle Lake through the use of volunteer labor prior to the final approval of the revised project Master Plan.

2. During the NCD Division review of the subject Master Plan no adverse comments were made regarding the proposed trail. Your 6 July request indicated that the proposed project had no adverse cultural and environmental impacts. Given this information, you are hereby authorized to construct the equestrian trail by the method specified in your request.

FOR THE COMMANDER:

Edward K. Stepek

EDWARD K. STEPEK, P.E.
Acting Chief, Construction-
Operations Division

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**

Western District Headquarters
1300 W. Clairemont Avenue
Call Box 4001
Eau Claire, WI 54702-4001

Carroll D. Besadny
Secretary

August 1, 1989 File Ref: 1640-1

Mr. Louis Kowalski, Chief
Planning Division
St. Paul District Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, MN 55101-1479

Dear Mr. Kowalski:

Re: Eau Galle Lake Master Plan, Spring Valley, Wisconsin

The Department appreciates the opportunity to review the above plan.

The only substantial issue we have identified is that associated with the Eau Galle bridge (and causeway). We agree with you on page 62 that this is a critical structure with respect to vehicle circulation. Many use area connections and facilities are dependent on this one major element of the plan, yet it is being deferred until feasibility studies are completed. We suggest this unresolved issue makes it difficult to determine the pros and cons of the overall proposal.

Sincerely,

Tom Lovejoy
Environmental Impact Coordinator

c: EA/6
Mike Ries
EI/TL025.sz

METROPOLITAN COUNCIL *Mears Park Centre, 230 East Fifth Street, St. Paul, MN. 55101 612 291-6359*

July 31, 1989

Louis Kowalski, Chief
Planning Division
Department of the Army
St. Paul District, Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, MN 55101-1479

Dear Mr. Kowalski,

Thank you for the opportunity to review the master plan for Eau Galle Lake, Wisconsin. The Metropolitan Council data presented on pages 44 - 46 appears to accurately reflect the research findings.

As you are probably aware, the Regional Recreation Open Space System provides many close-to-home outdoor recreation opportunities to residents of the Twin Cities Metropolitan Area. The Eau Galle Lake Recreation Area is a considerable distance from the twin cities; however, I would envision use occurring from destination activities (such as camping) and transient use when Minnesota residents are travelling through this area.

Thank you again for the opportunity to comment.

Sincerely,

Grant Scholen
Regional Park Planner

P.S. Please note our address has changed.

CENCS-PD-ES 6 July 1989

MEMORANDUM FOR: Commander, North Central Division, Attn: CENCD-CO-MO, Mr. Mike Loesch, 536 South Clark Street, Chicago, Illinois 60605-1592

SUBJECT: Horse Trail Construction at Eau Galle Lake, Spring Valley, Wisconsin

1. Reference 15 May 1989 CENCD-CO-MO Memorandum, subject: NCD Review and comment of Draft Eau Galle Lake Master Plan for Public Use Development and Resource Management.

2. The draft Eau Galle Lake Master Plan has been distributed for the 30-day NEPA public review and comment. Comments received will be incorporated into the final document.

3. In the interim, horse trail enthusiasts have indicated their desire to start construction on the relocated horse trail (item j on pg. 2) designated in the Master Plan. Horseback riding has a low development priority from a regional perspective but a high priority from a local perspective. Local horse riders have been requesting a trail for many years, and in 1984 they identified a connecting route through Eau Galle to other regional trails. This horse trail route was relocated during the Master Plan preparation, due to its location on steep slopes adjacent to the reservoir and impacts on flood plain habitat. The new route has been coordinated with local horse clubs and is supported by them. The new route has also been determined to have minor impacts on the environment as indicated in the Environmental Assessment.

4. Horse trail enthusiasts are willing to volunteer their time and energy to prepare the horse trail. Our involvement would be limited to an on-site review of existing vegetation and field staking the exact route. Corps rangers will oversee the construction work by volunteer groups.

5. We request approval for this project pending final review and coordination of the Master Plan. Questions should be directed to Karen Nagengast at 612-220-0241.

ROGER L. BALDWIN
Colonel, Corps of Engineers
Commanding

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1135 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

REPLY TO
ATTENTION OF

July 5, 1989

Economic Social Recreation Branch
Planning Division

The enclosed Master Plan for Eau Galle Lake, Wisconsin, has been reviewed and approved by the North Central Division of the U.S. Army Corps of Engineers, pending a final 30-day public review. The Master Plan will serve as a guide to the use and development of this natural and man-made resource.

Five appendices have been added to the main report, including the Environmental Assessment (EA). The EA analyzed the impacts of proposed development at Eau Galle Lake Recreation Area.

The comment period is being provided to obtain final input from Federal, State, and local agencies; organizations; and interested individuals on the plan of development for Eau Galle Lake.

Please respond with your comments before August 15, 1989. Following the close of the 30-day comment period, all written comments will be compiled and reviewed to determine if any changes are necessary.

For specific questions regarding the Master Plan, please contact Karen Nagengast in the Public Use Planning Section, St. Paul District, at (612) 220-0241.

Sincerely,

for Charles E. Crist
Louis Kowalski
Chief, Planning Division

Enclosure

Identical letter sent to:

Ms. Janet Smith
U.S. Fish & Wildlife Service
University of Wisconsin - Green Bay
Wood Hall 480
Green Bay, Wisconsin 54301

Mr. Gregg Powell, Administrator
Village Municipal Building
Spring Valley, Wisconsin 54767

Mr. Grant Scholen, Park Planner
Metropolitan Council
300 Metro Square Building
7th & Robert Street
St. Paul, Minnesota 55101

Dahlgren, Shardlow & Uban, Inc.
ATTN: Ken Grieshekes
300 First Avenue No., #210
Minneapolis, Minnesota 55401

Mr. Jim Lissack
District Director
Department of Natural Resources
Call Box 4001
Eau Claire, Wisconsin 54702-4001

Department of Agriculture
Soil Conservation Service
130 No. Chestnut
Ellsworth, Wisconsin 54011

Mr. J.J. Hoffman
Branch of Interagency Archaeological Service
National Park Service
1279 W. Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

Mr. Michael Kennedy
Wisconsin Department of Transportation
4802 Sheboygan Avenue
P.O. Box 7913
Madison, Wisconsin 53707-7913

Wisconsin Department of Transportation
District 6
718 West Clairmont Avenue
Eau Claire, Wisconsin 54701-6143

Mr. Valdas V. Adamkus, Administrator
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1421 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

July 13, 1989

REPLY TO
ATTENTION OF

Construction-Operations
Project Operations
Natural Resource Management

Mrs. Sue Brenden
Route 1, Box 149A
River Falls, Wisconsin 54022

Dear Mrs. Brenden:

Thank you for your letter concerning the horse trail plans for the Eau Galle recreation area. We appreciate all comments and suggestions.

The persons who are in charge of making the decisions for the site will be meeting soon to discuss the draft master plan for Eau Galle. They will review all letters and oppinions concerning the horse trail, such as lengthening it, providing a camping facility for horse riders, and a possible loop system. Matters to be considered when deciding the final trail plan include the terrain conditions at Eau Galle, such as the slopes, hills, and unstable soils. These conditions all combine to provide limited space for trails without causing environmental damage. However, we are aware of the demand for a horse trail and we intend to carefully study and discuss any ideas pertaining to this matter.

Using the hiking trails for horses also may not be advisable due to conflicts that could result between the two user groups. There should not be any problem, though, with all-terrain vehicles, since they are not allowed on the site.

Shelley Boney, the Park Ranger at Eau Galle, would also be available to discuss any plans and considerations regarding the trail. She is tentatively planning a meeting in September with volunteers to begin trail construction.

We will keep your ideas in mind as we proceed with the plans at Eau Galle.

Sincerely,

Dennis L. Erickson

for Dennis E. Cin
Chief, Project Operations Branch

St. Paul District, Corps of Engineers June 13, 1989
1421 USPO & Customs House
St. Paul, Mn 55101-1449
ATTN: Project Operations Branch

Dear Sir,

I have just seen a draft of the Master Plan for Eau Galle Recreation Area in which horse trails are planned.

I heartily endorse the planned horse trails! It appears to be about two miles long, - a "short" trail, but an adequate start!

I would hope in the future five year plan, that there would be additions to this short trail for added length will make for more interesting riding. Loop trails are also an idea, as they bring you back without re-tracing your original path. Loops could also accommodate carriage driving on the trails if the trails would be made one-way.

Multi-use trails seem to be the coming type of trail for bicyclists, hikers, horseback riders, cross county skiers and snowmobilers. Each of these groups can accommodate each other with very little trouble. Each are relatively quiet, (especially in summer) and cause very little environmental damage to trails. However, ATV groups can cause erosion and considerable damage on trails, especially in hilly areas. If the trails are open to ATV'S, perhaps parts of the trail could be restricted from their use to control erosion.

Multi-use trails have lots of use year round and are definitely more economical to build and use than separate trails for each user group. Most trails for horses, and bikers can be hard packed earth, which is easily maintained by cutting the undergrowth periodically.

There is a horse trailer license fee bill before the Wisconsin legislature this session which will dedicate $2.00 from each horse trailer licensed to a state trails fund for building and maintaining horse trails within the state. The monies will be allocated 75% for state use and 25% for counties to use. These monies could be beneficial to the counties involved in supporting the trail system in Eau Galle.

Earlier, I mentioned carriage driving on the trails. Carriage driving is fast becoming a big recreational pasttime. Our carriage club, based in Marine on the St. Croix, has members from Minnesota and Wisconsin. We drive from May to January (the St. Paul Winter Carnival). We are always on the look out for safer places to drive than "road" drives. We have an overnight camp out during the season, and our club is 60 member-families strong, and growing! And we are not the only club within driving distance to Eau Galle!

It would be a boon to have a trail to drive on with my cart in our local area, and since it is a growing recreational pursuit, (perhaps for us older riders), trail width may need to be addressed, or other alternatives, such as a one-way loop system on narrower trails, so that

carriages going both ways have room to pass. Each carriage/cart is generally between 4-5 feet wheel to wheel, so you can see a need for one-way trails on 8 foot wide trails, or 12 wide trails for two way trails.

Based on statistics from the American Horse Council in Washington, D.C., in 1984 the estimated horse population in Wisconsin was 156,000. A conservative figure of $700.00 per year to maintain a horse leaves one with a conservative estimate of initial dollars attributed to horses in the state to $109,000,000. ($700 x 156,000.).* This dollar figure represents only the basic maintenance of hay, grain, and bedding.

According to the American Horse Council, 80 % of the equine population is used for pleasure riding. This means that $87,200,000 of the economic impact dollars can be directly attributed to recreational riders!

Horse trails and camping are also of interest to a lot of riders. Camping facilities would definitely enhance use of the trail. In order to attract horse-campers, the trail will probably need to be extended, since a 2 to 3 mile trail can be ridden/driven in one hour's time.

In summary, I think the trail will be an attractive asset to the Eau Galle Dam recreation Area, and that it will have a positive economic impact on the surrounding communities.

Please find inclosed a petition which shows this area's interest in trail riding; as this petition was designed for the NE Minnesota- NW Wisconsin Rail corridor for horse trails to be included in the master plan. This petition signed by local residents would mean a drive of over an hour to reach the St. Croix Falls southern end of the trail for riding. This petition should show the interest in using local trails as well.

Thank you for your time.

Sincerely,

Sue Brenden

Mrs. Sue Brenden

*The facts and figures within this letter are sourced within the Wisconsin State Trails Councils Economic Fact sheet prepared by Lynn Beckford, and Sue Lodl, 1984.

Sue Brenden
Rt 1 Box 149A
Osceola Falls, Wi 54022

TO DEPARTMENT OF NATURAL RESOURCES
bUREAU OF PARKS AND RECREATION

WE, THE UNDERSIGNED, EARNESTLY REQUEST THE INCLUSIN OF HORSE RIDING OPPORTUNITIES ON THE NORTHWEST WISCONSIN-NORTHEAST MINNESOTA CORRIDOR. AS THE MASTER PLAN IS BEING DRAFTED, WE REQUEST THAT THE BUREAU AND COMMITTEES EXAMINE HOW THE TRAIL MIGHT BE DEVELOPED TO ENSURE SAFE AND PLEASURABLE USE BY MANY HORSEMAN IN THIS PART OF THE STATE.

DATE	NAME	ADDRESS
4/7/89	Sue Brenden	Rt1 Bx 149A R Falls
4/7/89	Bart Moore	116 CRABTREE HALL River Falls.
4/7/89	Dianna Thearin	102 Cemetery Rd RF, WI
4/8/89	Pamela Maggle	677 Baker Rd Hudson WI
4/8/89	Kate Caravalia	677 Baker Rd Hudson WI
4/9/89	H. Rhodes	RR 2 Ellsworth WI
4-11-89	James Murray	1416 Washington River Falls WI.
4/11/89	Maggie Kelly	461 Roosevelt Ave Eau Claire, WI 54701
4/18/89	Megan Jones	40 Alice St. St. Paul 55107
4/18/89	Jen Hyatt	Grey Mn. 56175 54017
4/21/89	Allen Nyhagen	R.R. 4, Box 103 New Richmond
4/25/89	Marlene Hint	953-La Barge Rd. Hudson, Wis.
4-25-89	Natalie Kundek	102 Cemetery Rd. River Falls, WI.
4-25-89	Patricia Coates	328 Athens rd Hudson Wis 54016
4-25-89	Diane Reeck	Rt1 Box147 Osceola, WI 54020
4-25-89	Sara Lamman	720 W Elm River Falls, WI 54022
4/25/89	Laura Blumenauer	110 E 2nd Hastings MN 55033
4/25/89	Pamela Hanson	1082 110th Ave Roberts WI 54023
4/25/89	Paula O'Brien	Rt2 Fall Creek, WI 54742

TO DEPARTMENT OF NATURAL RESOURCES
BUREAU OF PARKS AND RECREATION

WE, THE UNDERSIGNED, EARNESTLY REQUEST THE INCLUSIN OF HORSE RIDING OPPORTUNITIES ON THE NORTHWEST WISCONSIN-NORTHEAST MINNESOTA CORRIDOR. AS THE MASTER PLAN IS BEING DRAFTED, WE REQUEST THAT THE BUREAU AND COMMITTEES EXAMINE HOW THE TRAIL MIGHT BE DEVELOPED TO ENSURE SAFE AND PLEASURABLE USE BY MANY HORSEMAN IN THIS PART OF THE STATE.

DATE	NAME	ADDRESS
4/9/89	Rita Conrad	13288-10th St So Afton, Mn
4/9/89	Jim Fisk	1601 E. Cliff Rd. Burnsville, MN.
4/9/89	Ned Hahn	1946 Hwy 63 Emerald, Wi 54012
4/9/89	Elaine Sjoquist	Rt. 1 Box 18 North Branch, MN
4-9-89	[illegible]	Rt 3 Box 248 River Falls, WI 54022
4-9-89	Dorothy [illegible]	Rt 3 Box 248 River Falls, WI
4-9-89	Veronica [illegible]	Rt. 5 Box 120 Buffalo Mn. 55313
4/9/89	[illegible]	Rt 1 Box 1161 St Croix Falls
4-9-89	Candice J. Hankins	Box 2254 Solon Springs WI 54873
4-9-89	Lynn [illegible]	Rt 5 Box 120 Buffalo 55313
4-11-89	Bettie Arneson	Rt 2 Box 252 Maiden Rock WI
4-11-89	Pat Miller	Rt. 2 Box 97 Roberts Wi 54023
4-11-89	Marge Diehler	RR3 Box 256 Ellsworth Wi 54011
4-11-89	David T. Woodbury	Rt 4 Box 229 River Falls WI 5402[illegible]
4-11-89	Robin Oeckman	Rt 1, Box 12 Elmwood, Wi 54740
4-11-89	Sally Clark	Rt. 2, Box 215 Ellsworth, WI 54011
4-11-89	Donald Berning	RR 4 Box 235A Ellsworth Wis 5401[illegible]
4-11-89	Patricia Berning	Rt 4 Box 235A Ellsworth Wis 54[illegible]
4/11/89	[illegible]	R1 Box 160 Ellsworth Wi 5401[illegible]

TO DEPARTMENT OF NATURAL RESOURCES
BUREAU OF PARKS AND RECREATION

WE, THE UNDERSIGNED, EARNESTLY REQUEST THE INCLUSIN OF HORSE RIDING OPPORTUNITIES ON THE NORTHWEST WISCONSIN-NORTHEAST MINNESOTA CORRIDOR. AS THE MASTER PLAN IS BEING DRAFTED, WE REQUEST THAT THE BUREAU AND COMMITTEES EXAMINE HOW THE TRAIL MIGHT BE DEVELOPED TO ENSURE SAFE AND PLEASURABLE USE BY MANY HORSEMAN IN THIS PART OF THE STATE.

DATE	NAME	ADDRESS
4-7-89	Wm Pollei	R2 Box 2376 Hager City, Wis
4-7-89	Susan M. Schmidt	Rt 2 Box 273 River Falls, WI
4-10-89	Amylynn Klenast	336 Parker River Falls WI
4-10-89	Sherri Mabie	110 Cemetery Rd River Falls WI
4-10-89	Ruth Hale	Rt. 1, Box 1369, Hager City, WI
4-10-89	Diane Paterek	405 S. Wasson Lane, Apt. 204, R.F. Wi. 54022 54014
4-10-89	Al Ayckford	Rt 3 R.F. Wis.
4. 10. 89	Julie Crabtree	Rt 3 Box 252 River Falls. WI.
4-10-89	Angie Ely	115 Prucha Hall River Falls WI
4-11-89	Judith Peskar	Rt 2 Box 35, River Falls, WI 54022
April 11, 1989	Elly Dean	12 1/2 S. Main St. River Falls, WI 54022
4-11-89	Dennis Mausolf	Rt. 1 Box 55 Prescott, Wis 54021
4-12	Diane Lamagn	Rt. 1 Box 203A Beldenville Wis 54003
4-13	Dean Schulz	1024 E. Cascade River Falls Wi 54022
4-13	Sara Sam	129 Prucha River Falls WI 54022
4/13	Cath Parker	Rt. 4 Box 317 River Falls WI 54022
	Rick Parker	" " " " "
4/15	Elmar Anderson	Rt 1 Bx 285A River Falls Wis 54022
4-14	Stacia [illegible]	Rt 4 Box 120 River Falls
4-15	Ken & Katy Giske	Rt 2 Box 316 River Falls Wi 54022

USACE-MVP-0000098881

TO DEPARTMENT OF NATURAL RESOURCES
bUREAU OF PARKS AND RECREATION

WE, THE UNDERSIGNED, EARNESTLY REQUEST THE INCLUSIN OF HORSE RIDING OPPORTUNITIES ON THE NORTHWEST WISCONSIN-NORTHEAST MINNESOTA CORRIDOR. AS THE MASTER PLAN IS BEING DRAFTED, WE REQUEST THAT THE BUREAU AND COMMITTEES EXAMINE HOW THE TRAIL MIGHT BE DEVELOPED TO ENSURE SAFE AND PLEASURABLE USE BY MANY HORSEMAN IN THIS PART OF THE STATE.

DATE	NAME	ADDRESS
4/15/89	Ray Magnuson	Rt #4 RiverFalls WI
4/15/89	Randy Deis	Rt. 4 River Falls Wis.
4/17/89	[illegible] GILL	RT. 1 Box 279 River Falls WI
4/18/89	Nigel Gibbs	Rt 1 Box 269 River Falls, WI
4/18/89	Lonnie Cundall	Rt 1 Box 18 River Falls Wis
4/18/89	Sandra Welch	Rt #1 Box 182 River Falls, WI
4-18-89	Mary E. Rusek	Rte. 3-Box 244 River Falls, WI
4/18-89	Julie Bohrhoff-Overby	Rt. 3 Box 147 River Falls WI
4/18-89	Brad Wolff	321 PLAINVIEW DR RIVER FALLS WI
4/20/89	John W. Gerber	RT. 2 River Falls, WI 54022
4/20/89	Diane Olson	RT2 River Falls, Wi 54022
4/21/89	Steve Wallin	Rt 4 RiverFalls Wi 54022
4/21/89	[illegible]	R1 " " 54022
4/21/89	Brian Peterson	Rt 3 " " "
4-22-89	Pat Kolman	Rt 1 River Falls, WI 54022
4-26-89	Walt Cundall	RR#1 River Falls, Wis 54022

TO DEPARTMENT OF NATURAL RESOURCES
bUREAU OF PARKS AND RECREATION

WE, THE UNDERSIGNED, EARNESTLY REQUEST THE INCLUSIN OF HORSE RIDING OPPORTUNITIES ON THE NORTHWEST WISCONSIN-NORTHEAST MINNESOTA CORRIDOR. AS THE MASTER PLAN IS BEING DRAFTED, WE REQUEST THAT THE BUREAU AND COMMITTEES EXAMINE HOW THE TRAIL MIGHT BE DEVELOPED TO ENSURE SAFE AND PLEASURABLE USE BY MANY HORSEMAN IN THIS PART OF THE STATE.

DATE	NAME	ADDRESS
4-26-89	Mary Funk	Rt1 Box 21 River Falls, Wi 54022

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340–15; the proponent agency is The Adjutant General's Office.

DATE: 5 June 89

SUBJECT OF CONVERSATION

Fish and Wildlife Coordination Act Comments for Eau Galle Master Plan Update

INCOMING CALL		
PERSON CALLING: Ron Spry	ADDRESS: USFWS Green Bay Field Office	PHONE NUMBER AND EXTENSION: 414-465-2682
PERSON CALLED: T. Birkenstock	OFFICE: CENCS-PD-ER	PHONE NUMBER AND EXTENSION: 612-220-0274

OUTGOING CALL		
PERSON CALLING	OFFICE	PHONE NUMBER AND EXTENSION
PERSON CALLED	ADDRESS	PHONE NUMBER AND EXTENSION

SUMMARY OF CONVERSATION:

Mr. Spry called to say the Fish and Wildlife Service (FWS) had reviewed the Eau Galle Master Plan and Environmental Documentation, and that the document appears to adequately address the protection of fish and wildlife resources and has been thoroughly coordinated with the his office. Mr. Spry noted that these comments were being provided under the authority of and in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; U.S.C. 661 et seq.) and that no further correspondence from the FWS regarding the subject action would be provided.

DA FORM 1 APR 66 751 REPLACES EDITION OF 1 FEB 58 WHICH WILL BE USED.

☆U.S. G.P.O. 1982-564-036 0371

US Army Corps
of Engineers
St. Paul District

Public Notice

Project: DRAFT MASTER PLAN FOR PUBLIC USE DEVELOPMENT AT EAU GALLE LAKE, WISCONSIN

Date: JUNE 23, 1989

In Reply Refer to: CENCS-PD-ES

PUBLIC REVIEW AND COMMENT PERIOD

The Corps of Engineers has been developing an updated master plan for the Eau Galle Lake Recreation Area. This plan has been approved by the North Central Division of the U.S. Army Corps of Engineers, pending a 30-day public review. The Master Plan will serve as a guide to the use and development of this natural and man-made resource.

Copies of the Draft Master Plan are available for public review at the office/maintenance building at the Eau Galle Recreation Area and at the Spring Valley Public Library.

For questions regarding the Master Plan, please contact Karen Nagengast in the Public Use Planning Section, St. Paul District, at (612) 220-0241.

Please bring this announcement to the attention of anyone you know who may be interested in this Master Plan. Comments are requested by July 31, 1989.

Address comments to:

U.S. Army Corps of Engineers
St. Paul District
ATTN: CENCS-PD-ES
1421 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

Louis Kowalski

Louis Kowalski
Chief, Planning Division

DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605-1592

REPLY TO
ATTENTION OF

MAY 15 1989

CENCD-CO-MO

MEMORANDUM TO Commander, U.S. Army Engineer District, St. Paul, ATTN: PD-ES, 1135 U.S. Post Office & Custom House, St. Paul, Minnesota 55101-1479

SUBJECT: NCD Review of Draft Eau Galle Lake Master Plan for Public Use Development and Resource Management

1. Reference 14 March 1989 CENCS-PD-ES Memorandum; subject, as above.

2. The following comments are provided for your consideration as you prepare for the remainder of the public input phase of plan development.

a. Page 4, Section 2.03 (Existing Outgrants...) - The first sentence in the "Existing Outgrants" subsection is incorrect in stating that only one outgrant exists at the project. Real Estate records indicate that two public recreation outgrants (one lease and one license) and three easements have been issued at the project. CENCS-RE-M should review and provide the correct data (CENCD-RE).

b. Page 2, Appendix A - The paragraph on Public Law 99-662 is incorrect. Doesn't the discussion concern cost-sharing on Federal land? Even if LERRD's are provided, the cost-sharing split does not address crediting for LERRD's. The paragraph as it stands is very confusing (CENCD-RE).

c. General Comment - The draft master plan indicates that all easements held at the project are for flowage rights. However, based upon the maps, it appears that some of the easement acreage may be for rights-of-way (access), rather than flowage. This should be reviewed and appropriate action taken (CENCD-RE).

d. General Comment - It is our understanding that the Corps leases an area below the dam to the community of Spring Valley for a recreation area (ballpark). However, this area is not mentioned in the master plan. This omission should be corrected (CENCD-RE).

e. Page 13 (Figures 8 & 9) - Figure 8 shows a parking area rather than a boat ramp and figure 9 shows very little parking lot. Are better photographs available? (CENCD-PD-ER)

f. Page 25 (Table 10) - The last figure in the "percent changes" column is incorrect (CENCD-PD-ER).

g. Page 36 - The items included as Resource Use Objectives appear to contain a mixture of goals, objectives, and even development criteria. Suggest that ER 1130-2-400 and other regulations in the natural resource management area be consulted to develop a more broad set of program goals. From that statement of goals a set of specific objectives could be developed; however, specific work objectives are usually developed as a part of the project Operational Management Plan (CENCD-CO-MO).

h. Page 46, General Population Survey - Why is a portion of the group of activities included in a list and the remainder in a paragraph? (CENCD-PD-ER)

i. Page 49 - Re-evaluate the need for the statement "Wisconsin people do not like gravel roads" (CENCD-PD-ER).

j. Page 66, Paragraph 9.01, #2 - The second priority of horse trail development appears inconsistent with Pages 46 and 47 which list survey results noting horseback riding very low in importance (CENCD-PD-ER).

k. Page 68 - 69, Section 9.03 - The cost for improving native wetlands should be entered within the table based upon its location. The cost of $1,200 for the installation of two picnic tables and one trash can appears to be excessive or a typographical error (CENCD-CO-MO and CENCD-PD-ER).

l. Page EA-12. Paragraph 7-17 - The wording of the last sentence should be changed to read "A survey for these plants should be conducted so that the proposed trail and group

campground facilities can be sited to eliminate their potential destruction" (CENCD-CO-MO).

m. Page EA-16, Paragraphs 7.43 and 7.44 - Replace the word "should" with "must" in order to place emphasis on the proper course of action (CENCD-CO-MO and CENCD-PD-ER).

n. Appendix D - One of the two USDI letters dated 18 March 1988 should be deleted. There are numerous CENCS letters to various publics included within this appendix which are unnecessary-delete (CENCD-PD-ER).

o. Page EA 3, Paragraph 3.01 - The statement, "...All activities ...are described...in the Master Plan. The activities that...could affect the environment are described below...", identifies the dependency of the EA on the Master Plan. The EA and Master Plan therefore must always be distributed together. An alternative the District may wish to consider is to expand the EA to be inclusive of all known planned activities. This would allow the District to send out only the EA to the majority of the publics (CENCD-PD-ER).

p. Page EA 3, Paragraph 3.05; Page EA 11, Paragraph 7.11, and; Page EA 15, Paragraph 7.41 - The decision to build the "road connection" or "bridge" should be decided now, impacts determined and reported in the DEPA document. In addition, the need for a 404 (b)(1) evaluation (see paragraph 9.02) determined and prepared, if necessary. As presently developed, the NEPA document is inadequate because it is not known what project features are to be built and, if a 404(b)(1) evaluation is necessary, what are the water quality impacts - correct (CENCD-PD-ER).

q. Page EA 9, Paragraph 6.03 - The phrase, "...restrictions on outboard motors..." is not consistent with Page EA 14, Paragraph 7.27 which notes electric trolling motors would be allowed. Correct for consistency (CENCD-PD-ER).

r. EA (General) - All of the 17 points of PL 91-611 have not been addressed (CENCD-PD-ER).

s. Page EA 17, Paragraph 9.03 - Add documentation that the FWCA has been complied with from both the USFWS and the State of Wisconsin DNR (CENCD-PD-ER).

t. The term msl is frequently used within the report. Generally, this term has now been replaced by NGVD - National Geodetic Vertical Datum (CENCD-CO-MO).

v. Please see attached marked up copy of draft report for marked misspellings and editorial suggestions (CENCD-CO-MO).

3. You are hereby authorized to distribute copies of this draft report to Federal, State, and local agencies and the public for formal review. You may first consider and incorporate the suggested changes and then distribute the report for review or you may incorporate these comments at the conclusion of the agency and public review.

FOR THE COMMANDER:

Encl

ROBERT A. NEAL, P.E.
Acting Chief, Construction-Operations Division

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608/262-3266

HISTORIC PRESERVATION DIVISION

September 14, 1988

Mr. Charles Workman
Chief, Environmental Resources Branch
Department of the Army, St. Paul District
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

SHSW: 88-1378
RE: Eau Galle Reservoir

Dear Mr. Workman:

Thank you for advising us of your plans to construct a trail maintenance bridge and expand an existing access road at Eau Galle Reservoir near Spring Valley, Wisconsin.

Our records indicate that at least two archeological sites may be affected by the project. These are Sc-15 (Strum II Site) and Sc-25 (Lamb 5 Site). Sc-15 is located in the vicinity of the intersection of the proposed maintenance bridge and the existing road on the north side of the Eau Galle River. It was originally described in Buck and Thygesen's 1962 report and evidently, the site has never been evaluated for National Register eligibility.

The Lamb-5 site has been partially excavated as you noted in your correspondence, and on May 22, 1986 we provided the Corps with our view that the site is eligible for listing on the National Register of Historic Places. At that time, we also recommended that the Corps proceed with the submission of a National Register nomination. This apparently has not been done and the site is neither listed nor has it been determined eligible.

We therefore have three recommendations with regard to the proposed project. First, all portions of the project area that have not been surveyed should be examined by a qualified archeologist. Second, Sc-15 should be evaluated for listing on the National Register. Third, the Corps should proceed with a formal Determination of Eligibility for the Lamb-5 site.

Once the results of these additional investigations are available, we will be in a position to formally determine what the effect of the project will be on significant archeological sites, as we are already aware of the significance of the Lamb 5 Site, you would be well advised to avoid or minimize any effect to this property.

Sincerely,

Richard W. Dexter
Chief, Compliance and Archaeology Section

RWD:1kr

1107N

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**
West Central District Headquarters
1300 West Clairemont Avenue
Call Box 4001
Eau Claire, WI 54702-4001

Carroll D. Besadny
Secretary

September 3, 1987 File Ref: 2500

Ms. Karen Nagengast PD-ES
US Army Corps of Engineers
St. Paul District Planning Div.
1135 US Post Office & Custom House
St. Paul, MN 55101

Dear Karen:

I've reviewed your draft master plan and questionnaire. Most of my comments are directed toward the master plan, although I feel you'll get a lot of useful information from your questionnaire.

Most of the changes you are evaluating should, if implemented, add to the area's recreational base and user enjoyment. In evaluating the proposal, I had some difficulty due to lack of information. Will there be a narrative covering the master plan changes? If so, I'm probably raising questions you'll address in detail later, so please bear with me.
Each Change Item is addressed below:

1. The cross-country ski trail head is a good idea and should serve the skiers well. Will water be available? How about a small warming shelter?

2. My first question is, what does the horse trail connect to? Is it a long trail system or just a local trail? Would a corral, watering area, and loading ramp be in order for people bringing horses in? Could generate use in the group camp or call for development of a horsepersons campground.

   The overlook is close to the campground and hiking trail. Will this create user conflicts? How much horse use is foreseen, and how often will the area be cleaned?

3. I can't tell existing from proposed, as the symbols are the same.

4. I like the group camp; however, do you foresee any noise or other conflicts arising from being so close to the family campground?

5. I like the ranger station concept, but need more data on when it will be staffed and what services will be offered and when? Security will be a major benefit.

6. I like showers and flush facilities. The public perceives them as absolutely necessary. Should increase length of stay.

7. Toilets will be closer to users and much more convenient.

8. Should provide a less strenuous path to the beach and possibly increase use.

9. Will water, change stall, and toilets be provided? I believe they should be. If you propose a sand blanket, you'll need a Chapter 30 permit. You may also want to check permits needed under Admin. Code 116 and compliance with Federal Executive Order 11988. Check with Wis. DNR Water Regulation & Zoning personnel.

10. Trail and information kiosk are a good ideas if they fit the site and offer an enjoyable experience for the visitor.

11. Nice facilities, may want to check on floodplain permits.

12. Should provide good fishing access.

13. This should eliminate pedestrian-vehicular conflict and provide a quieter fishing experience. May eliminate convenient vehicle access for elders or handicapped fishers. However, the fishing pier may mitigate this concern.

14. Floating bridge needs substantial detail and review by WDNR Water Regulation & Zoning because it's longer than 35 feet and should have 5' clearance for boat navigation. Chapter 30 & 31 permits may be needed.

15. Good idea, should be less strenuous and reduce erosion problems.

16. Parking expansion is good if the size of the beach and surrounding area can accommodate additional use without loss of turf, erosion, or decreased user satisfaction.

17. Services and security should be maximized if staffing is available.

18. Great idea! I would suggest developing a small 2-3 car parking lot near the facility and restrict use to those with disabled plates or permit. This would eliminate traveling long distances from the parking lot.

19. I don't know where this is as there is no difference in symbols for existing vs. proposed.

20. Changing the overlook parking area is a good idea if it provides more convenience and eliminates conflicts.

I hope these comments are of use to you. Sorry I can't make the meeting, as I would like to hear the other task force members comments and ideas. I would especially like to see the user comments.

Good luck!

Sincerely,

Mike

Mike Ries
Senior Landscape Architect

MR:sz
MRT259

United States Department of the Interior

FISH AND WILDLIFE SERVICE

GREEN BAY FIELD OFFICE (ES)
Univ. of Wisconsin-Green Bay
Green Bay, Wisconsin 54301-7001

IN REPLY REFER TO:

March 18, 1988

Robert L. Northrup
Chief, Economic Social Recreation Branch
Planning Division
Department of the Army
St. Paul District, Corps of Engineers
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

re: Preliminary Draft
Master Plan for
Eau Galle Lake
St. Croix and Pierce Counties
Wisconsin

Dear Mr. Northrup:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced preliminary Draft Master Plan for Eau Galle Lake in St. Croix and Pierce Counties, Wisconsin. We offer the following comments on the proposed Master Plan's potential impacts on fish and wildlife resources.

The preliminary Draft Master Plan thoroughly identifies the fish and wildlife resources within the project boundaries and accurately assesses the impact of plan implementation on those resources. Further, the plan provides a sound management plan to accommodate recreational use of the reservoir area while protecting the unique biological resources within the project boundaries.

Federal Endangered and Threatened Species

A review of information in our files indicates there are no federally listed endangered, threatened, or proposed species present in the project area. This precludes the need for further action on this project as required by the 1973 Endangered Species Act, as amended. Should the project be justified or new information become available that indicates listed or proposed species may be affected, consultation should be reinitiated.

We appreciate the opportunity to respond

Sincerely,

Janet M. Smith

Janet M. Smith
Field Supervisor

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**
West Central District Headquarters
1300 West Clairemont Avenue
Call Box 4001
Eau Claire, WI 54702-4001

Carroll D. Besadny
Secretary

March 3, 1987 File Ref: 2500

Mr. Louis Kowalski
Chief, Planning Division
Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, MN 55101-1479

Dear Mr. Kowalski:

Re: Eau Galle Lake Reservoir Master Plan Update

In reference to your memo of February 25th, I am designating Michael Ries, Park Planner for the Department of Natural Resources, to be the person from our department involved in the review of your updated master plan for the Eau Galle Lake Reservoir. Mike is familiar with all of our park operations in the West Central and Northwest districts. I'm asking Mike to contact Karen Nagengast regarding which of the scheduled meetings he will need to attend.

Thank you for the opportunity to review and be involved in the development of this master plan update.

Sincerely,

James L. Lissack

James L. Lissack
District Director

cc: Mike Ries
Dave Weizenicker - PR/4

APPENDIX E

ENVIRONMENTAL ASSESSMENT

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1421 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

REPLY TO
ATTENTION OF

May 25, 1990
Social Recreation Branch
Planning Division

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, the St. Paul District, Corps of Engineers, has assessed the environmental impacts of the following project.

EAU GALLE RECREATION AREA
MASTER PLAN UPDATE
FOR PUBLIC USE DEVELOPMENT AND RESOURCE MANAGEMENT
SPRING VALLEY, WISCONSIN

The purpose of this project is to update the plan for public use development and resource management at the Corps of Engineers' Eau Galle Recreation Area. This Master Plan Update provides a comprehensive evaluation of existing conditions and facilities, and proposes a plan of development to satisfy present and projected needs, while considering resource use objectives, site capabilities, and environmental, social, and operational concerns.

The proposed modifications are considered to be optimum development with, in most instances, minor and short term negative environmental impacts. With proper planning and monitoring, no significant adverse or long-term impacts should occur.

The actions outlined in Section 3.00 of the environmental assessment are considered necessary to upgrade the recreational integrity of the Eau Galle Recreation Area, to ensure the safety of visitors, to increase operation and maintenance efficiency, and to enhance and protect the natural resources. Alternative plans (involving more or less construction) or alternative sites would likely result in greater impacts, or would allow facilities and environmental conditions to deteriorate. Section 7.00 of the environmental assessment provides a more complete description of the impacts.

The environmental review indicates that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement will not be prepared.

30 May 1990
Date

Roger L. Baldwin
Colonel, Corps of Engineers
District Engineer

ENVIRONMENTAL ASSESSMENT
EAU GALLE RECREATION AREA
MASTER PLAN UPDATE
FOR PUBLIC USE DEVELOPMENT AND RESOURCE MANAGEMENT
SPRING VALLEY, WISCONSIN

1.00 INTRODUCTION

1.01 The purpose of this document is to assess the environmental impacts associated with newly proposed activities for public use development and resource management at the Eau Galle Recreation Area. These activities are described in detail in the Master Plan Update (MPU). Activities associated with operation and maintenance activities, and natural resource management activities are addressed in separate documents.

2.00 BACKGROUND

Project Purpose

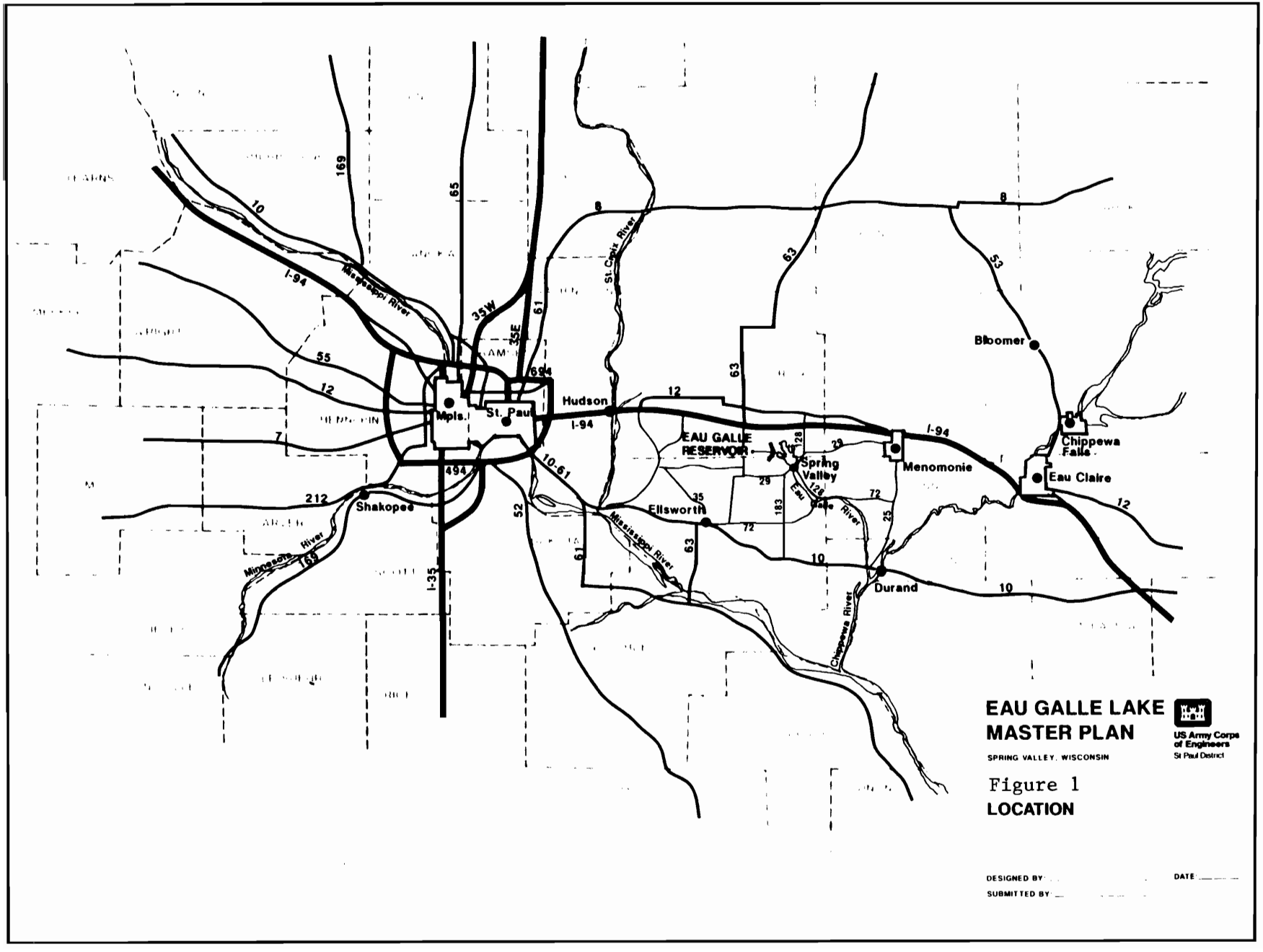
2.01 Major floods on the Eau Galle River in 1938 and 1942 caused approximately $1,500,000 of damages to the town of Spring Valley, Wisconsin. The U.S. Army Corps of Engineers (COE) completed a preliminary analysis of the flood problems in the Chippewa River basin in 1944. The Eau Galle dam, lake, recreation areas, and downstream channel improvements were authorized by the Flood Control Act of 1958 (Public Law 85-500). The Corps began construction of the dam and ancillary facilities in 1965 and completed the work in 1969.

Location

2.02 Eau Galle Reservoir is in midwestern Wisconsin on the Eau Galle River, and is approximately 50 miles east of the Minneapolis-St. Paul, Minnesota, and 40 miles west of Eau Claire, Wisconsin (See Figure 1). The lake is just north of Spring Valley, Wisconsin. Project lands lie in Pierce and St. Croix Counties.

Project Features

2.03 Project Lands and Easements - Project lands of 632 acres are held in fee title by the COE. This area includes all operational, maintenance, and recreational facilities at the project. A flowage easement is held on an additional 519 acres that encompass the area surrounding the lake to an elevation of 1,020 feet msl (feet above mean sea level).


EAU GALLE LAKE
MASTER PLAN
SPRING VALLEY, WISCONSIN
US Army Corps of Engineers
St Paul District
Figure 1
LOCATION
DESIGNED BY
DATE
SUBMITTED BY
Mpls.
St. Paul
Hudson
Shakopee
Ellsworth
Spring Valley
Menomonie
Bloomer
Chippewa Falls
Eau Claire
Durand
EAU GALLE RESERVOIR
Mississippi River
Minnesota River
St. Croix River
Chippewa River
I-94
I-35
I-35E
I-35W
10-61

E2

2.04 Recreational Facilities - The recreational facilities at Eau Galle Reservoir include a campground (34 campsites: 7 tent sites and 27 recreational vehicle spaces), a picnic area (58 tables), a swimming beach, bank fishing area (3), boat launch ramps (2), a scenic overlook, and hiking trails (5 miles).

3.00 PRESENT CONDITIONS AND PROPOSED ACTIONS

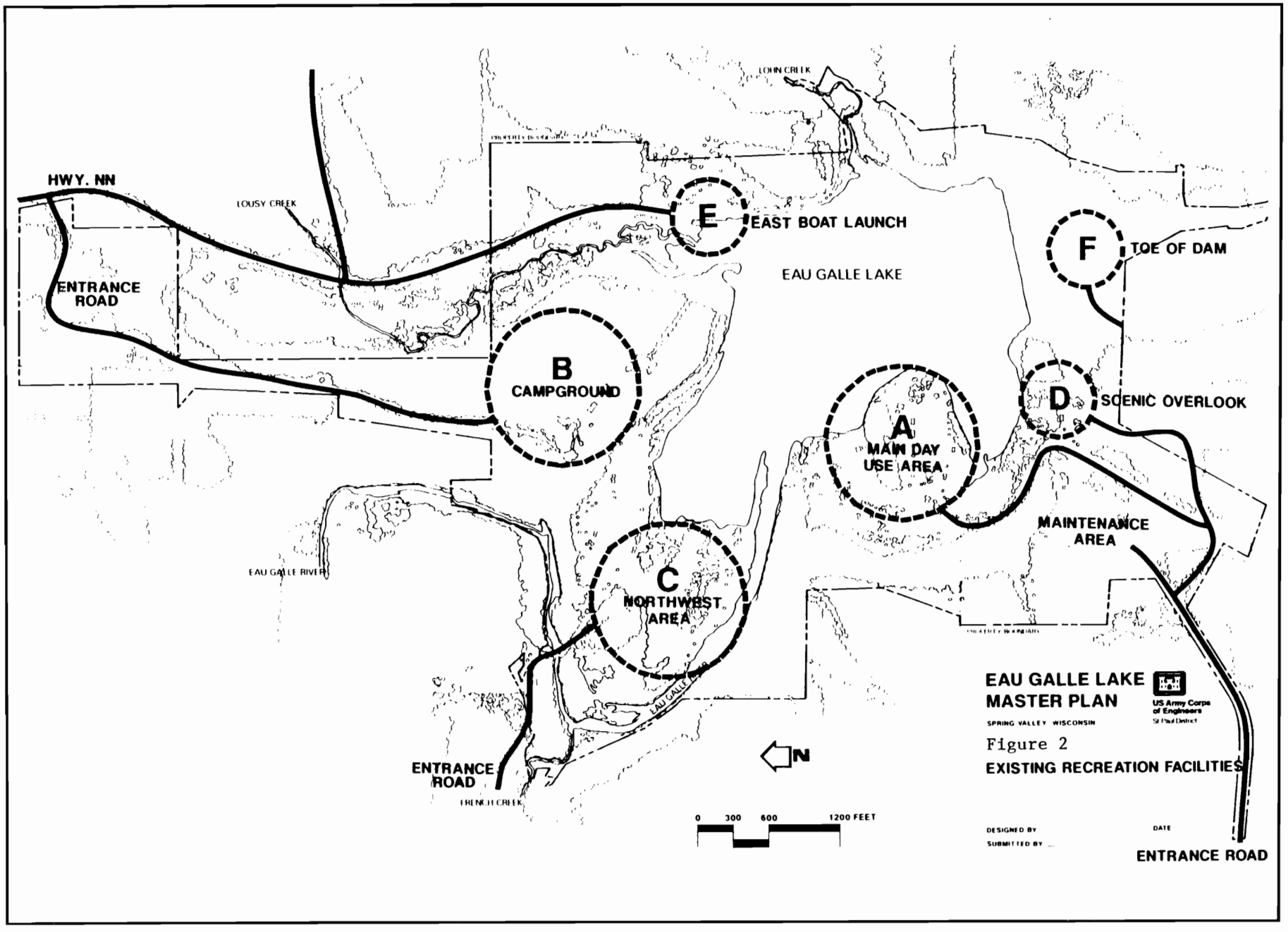
3.01 All activities proposed for park and recreational development are described in detail in the Master Plan, and are briefly listed here:

1. Bridge connection between the Northwest Area and the Main Day Use Area.
2. Horse trail development.
3. East boat launch improvement.
4. Main Day Use swimming beach and parking lot expansion.
5. Main Day Use ranger station facilities.
6. Campground improvements.
7. Campground trail improvements.
8. Main Day Use picnic area improvements.
9. Main Day Use trail improvements.
10. Main Day Use entrance road improvements.
11. Northwest Area.
12. Campground loop extension for individual sites.
13. Cross country trailhead facilities.

The activities that could potentially affect the environment are described below, for the four development sites as they would occur (See Figure 2). One of the proposed actions will impact three of these areas. A road connection from the East Boat Launch Area, across Lousy Creek, along the northern edge of the lake and the Northwest Recreation Area, and over a new Eau Galle River vehicle bridge, is proposed to reduce the travel distance required to patrol the project grounds, and required by campers to reach the beach. Because of the magnitude of this project, in terms of anticipated impacts, probable costs, and overall changes to the character of the site, the action will be evaluated in detail in separate environmental assessment, once more specific plans are available. General impacts anticipated from this road connection, that will occur regardless of final alignment, construction methods, etc., will be discussed below.

3.02 Main Day Use Area - This area of rolling terrain, consisting of approximately 54 acres, is allocated mainly to intensive recreation, and is suitable for day-use development. An extension of the project entrance road provides access. The general facilities include a boat-launching ramp and picnic area with parking facilities for cars and trailers. The picnic facilities consist of tables, fireplaces, refuse containers, toilet and water facilities, and a group shelter. A swimming beach with a change house and parking lot is provided north of the picnic area.

3.03 An evaluation of constraints identified in the Main Day Use Area include inadequate connections between different functional areas at the project, steep slopes connecting parking and recreation areas



(poor handicap access), poorly defined and signed trails, poorly defined activity areas, inadequate vegetation transition zones between activity areas, and erosion of the swimming beach.

3.04 Proposed Modifications - A ranger station is proposed for construction within 300 feet of the west end of the main parking lot. This structure would be visible from the Main Day Use Area entrance road and from the overlook and would function as a meeting space, interpretive center, and a location to disseminate recreation information. New toilet facilities have recently been built nearby.

3.05 If construction of the proposed road connection is determined unfeasible, a bridge would be constructed across the Eau Galle River to provide a pedestrian and small maintenance vehicle connection between the Main Day Use Area and the remainder of the site. This would also provide walking access to the beach and ranger station/interpretive center for campers. An easily accessed fishing area for the elderly and handicapped would be provided near the mouth of the Eau Galle River, possibly connected with the bridge.

3.06 The existing swimming beach would be replenished and regraded to a slope of five percent into the water. The swimming beach parking lot would be expanded to ease the crowding that presently occurs on weekends during the summer. In such instances, cars are parked in the grassy areas adjacent to the paved lot.

3.07 Filling and grading in the area currently used for play equipment would improve drainage problems in that area. Safer timber play equipment would be installed. The entrance road to the picnic area would be realigned to provide a less confusing and more pleasant entrance experience.

3.08 Trails would be expanded and improved by incorporating switchbacks on steep slopes and adding trail connections. A new trail for cross-country skiing, separate from the existing snowmobile trail, would be added to minimize the interaction of these conflicting activities.

3.09 Campground - This area consists of about 146 acres and is located on the north side of the reservoir on a plateau about 100 feet above conservation pool. Bluffs are located on three sides of the area and enhance the scenic value of the site. An access road, campsites (both tent and recreational vehicles), tables, gills, refuse containers, toilets, and water facilities are provided.

3.10 Constraints identified in the campground area include lack of connections with the water and associated water activities, poor trail coordination and design (steep grades and erosion problems), confusing circulation roads, inadequate handicap facilities, and overall primitive facilities.

3.11 Proposed Modifications - A shower building would be constructed inthe campground to provide campers with desired showers, flush toilets, and laundry facilities. An alternate location would be near the new trailhead site depending on campground soil/bedrock conditions and the type of septic system required.

3.12 A vault toilet would be provided for campers who are further than the recommended distance from the shower building. The facility would also be available for trail users.

3.13 A campground ranger station at the entrance to the campground would serve several functions. Visitors would be provided with camping and trail information; a sense of security; interpretive/ education meeting space; an indoor meeting/cooking space for groups; slide or movie capabilities; and a weather retreat.

3.14 A group camping facility would be constructed near the ranger station and within 500 feet of the shower facility, but distant enough from individual campsites to minimize noise conflicts. Handicap sites would be provided. An alternate location may be required if the shower building cannot be located where proposed. An alternative location would be near the proposed trailhead facilities.

3.15 The campground trail system would be expanded to provide connections to scenic areas or facilities, provide more miles of hiking and skiing trails and incorporate a horse trail. Trail gradient changes would provide an easier slope for hiking.

3.16 A two-way horse trail route with trailer access and rest stop would connect to other trails across Lousy Creek, along an existing hiking trail across the Eau Galle River. The hiking/horse trail connection could also be used as a maintenance vehicle access road to the campground. Considerable planning and protection would be required because of the erosion potential along the proposed route.

3.17 A trailhead facility with an emphasis toward cross country skiing would be located on the campground entrance road just off Highway NN. Parking, toilet, kiosk, and trail connections would be provided. Trails for winter skiing would follow most of the summer hiking trails and the horse trail. Additional trails would be developed to provide approximately 5 to 7 miles of total trail length.

3.18 Northwest Recreation Area - This area consisting of about 5 acres of lowland just north and west of the confluence of the Eau Galle River and the reservoir. The area is within the flood storage area and thus is suitable only for day use. The terrain is comparatively level and covered with underbrush and some trees. The present facilities consist of an access road, picnic tables, fireplace, refuse containers, parking spaces, and toilet facilities.

3.19 Constraints identified in the Northwest Recreation Area include lack of connections with the Main Day Use Area or campground areas, disorganized facilities and uncoordinated spaces, poor trail signage or connections, confusing circulation roads in poor condition, floodplain location limits usability.

3.20 Proposed Modifications - The Northwest area would function as an extension of the Main Day Use Area and the campground. Minimum facilities would include trail connections and bank fishing opportunities. A second parking area and toilet near the bank fishing area along the Eau Galle River would be proposed only if the bridge and road connection to the Main Day Use Area is not constructed.

3.21 The trail system would be expanded to provide better connections to scenic areas or facilities, provide more miles of hiking and skiing trails, and incorporate a horse trail.

3.22 East Boat Launch - The boat launch, located on the east shore of the conservation pool, is accessible by a gravel road and contains a gravel parking area. Improvements would include surfacing the parking area, turnaround space, and boat/canoe launch, and providing a toilet, signage, and horse trailer parking. The road connection to the Main Day Use Area will likely begin at this point.

4.00 PHYSICAL FEATURES AT THE PROJECT

The climate, soils, geology, ground water hydrology, watershed, reservoir water quality, and adjacent land use are described in detail in the MPU.

Fish and Wildlife Habitat Conditions

4.01 Reservoir - The lake at conservation pool elevation has a surface area of approximately 150 acres and a mean and maximum depth of 10 and 29 feet, respectively. Littoral areas are restricted to the shallow bay regions of the lake less than 10 feet deep and comprise roughly 30 percent (45 acres) of the lake's surface area.

4.02 Eau Galle River - The Eau Galle River is the major tributary to the reservoir, discharging about 10 times the flow of the other streams. Mean annual discharge is 31 cfs (cubic feet per second), and ranges from 7 to 283 cfs. The substrate is gravel, sand, and rocky in the gorge immediately upstream of the reservoir. The stream is productive, with periphyton and water buttercup (Ranunculus sp.) and numerous species of macroinvertebrates.

4.03 Stream - Minor streams entering the lake include French, Lousy and Lohn Creeks. These streams are 2.5 to 4 miles long and have watersheds of 2.7 to 6.4 square miles. Discharges in these streams are generally less than 2.8 cfs (range: 0 to 28.2 cfs). Collectively, discharge from these minor flowages contributes only 10 percent of the average total discharge entering Eau Galle Reservoir. They are periodically dry.

4.04 Beaver Ponds - Beaver dams on Lousy Creek have created several temporary ponds. Wetland margins of these wetlands are vegetated with willow and cattail. Central portions of these basins support lush growths of submersed aquatic plants, mainly coontail and water milfoil.

4.05 Terrestrial Habitat - Vogtman (1974) noted that the plant species composition at Eau Galle was extremely diverse. He identified 366 plant species (75 taxonomic families) on Eau Galle project lands and speculated that over 450 plant species probably occur on the area. Uncommon plant species found at Eau Galle include balsam fir, leatherwood, appendaged water-leaf, American gromwell, showy orchids, cliff-brake, and ground hemlock.

4.06 The dominant plant community is the mesic Southern forest (Curtis, 1959), but the varied topography and numerous micro-climates present have allowed diverse plant communities to develop. These communities include oak savanna, upland conifers, wet-mesic forest, lowland hardwoods, and wet meadow. Existing vegetation is the result of a variety of disturbances. Level uplands were cleared

for agriculture. Steeper slopes not cleared for cultivation were probably logged or pastured. Some areas have been modified because of project operations, resulting in areas of mowed grassland.

Cultural Resources

4.07 Since Dewey Buck and Bent Thygesen of the State Historical Society of Wisconsin surveyed the Eau Galle Reservoir in 1962, a number of archeologists from different institutions have conducted archeological survey, testing, and excavation at Eau Galle Reservoir (for a detailed description of previous research and the archeological sites located in the Eau Galle Reservoir, see the Cultural Resources Appendix B of the Master Plan). Prior to the 1962 survey, little was known about the archeology of this area. Charles E. Brown (1925) had recorded one site north of Eau Galle reservoir, and a few of the local property owners had collections of prehistoric artifacts from the farm fields that they were cultivating.

4.08 These survey efforts located nearly 30 archeological sites. Some of these sites were excavated and reported on in detail, but, other sites were only tested in a preliminary fashion. Some of these sites were inundated after construction of the dam and are no longer available for study, but many others have suffered little disturbance since they were last cultivated. The Lamb-5 site, located on the west side of the reservoir, is one of the most significant of the sites found in all the years of survey and excavation. It exists in much the same state as it did during major excavations twenty years ago. The St. Paul District is currently nominating this site to the National Register of Historic Places.

5.00 DESCRIPTION OF DEVELOPMENT AREAS

5.01 Main Day Use Area - The vegetation consists of open mowed grassy areas surrounding the parking lots and picnic shelters. These areas blend into more natural grassy areas with pioneering deciduous shrubs and trees. A 200 foot wide strip of trees (large white pine, birch, and aspen), and dense understory cuts through the middle of the area, and acts as a buffer separating the beach facility from the picnic/boat launch area. Two small wetland areas, 100 feet north and south of the overflow parking lot provide habitat diversity and run-off storage capacity, and should be protected from development activities.

5.02 Campground - This hilltop area consists of a diverse mesic hardwood forest of mixed age classes, with some significant stands of white pine. A number of large mature sugar maple are noteworthy. Four species of rare plants were identified near the campground area in 1974, but their current status is unknown.

5.03 Northwest Day Use Area - This site is in the floodplain of the Eau Galle River and consists of a mix of old field, regenerating wet-mesic shrubs and trees. A transitional zone (old field/savanna) occurs between mature forest and floodplain habitat along the northeast portion of this site.

5.04 East Boat Launch - This area is adjacent to a west facing slope of mixed vegetation and the floodplain of Lousy Creek.

6.00 STATUS OF FISH AND WILDLIFE RESOURCES ON PROJECT LANDS

Wildlife Resources

6.01 Vogtman (1974) observed 143 bird species, 22 mammal species, and 12 reptile and amphibian species on Eau Galle project lands. These records probably are incomplete. Wildlife species potentially found at Eau Galle Reservoir Recreation Area are listed in the appendix of the MPU. The bird fauna at Eau Galle is notably diverse.

6.02 Potentially troublesome wildlife species (i.e., species of wildlife that might cause damage in the recreation area or that might disturb visitors) include bats, raccoon, beaver, striped skunk, porcupine, and white-tailed deer. Moles, pocket gophers, and 13-lined ground squirrels occasionally damage mowed areas.

Fishery Resources

6.03 Thirty species of fish have been found in Eau Galle Reservoir. The sport fishery is sustained mainly by bluegills and largemouth bass. Habitat volume in the lake is limited by summer anoxia in deeper water. Structural fish habitat is quite good, with sufficient submersed aquatic macrophytes. Only electric trolling motors are allowed, which provides a quiet, scenic, and rewarding summer fishing experience. Stable winter water levels allow good ice formation and opportunities for drive-on ice fishing.

Threatened and Endangered Species

6.04 Uncommon wildlife species recorded on Eau Galle include milk snake, pileated woodpecker, osprey, and bald eagle. The bald eagle and osprey are listed as endangered by the State of Wisconsin. The bald eagle is a federally listed threatened species in Wisconsin. No endangered fish species are known to occur in the project area; however, the rainbow darter and hog-sucker are considered rare.

7.00 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTIONS

GENERAL IMPACTS

7.01 Many of the proposed activities would not have adverse impacts on the environment because they occur in intensive recreation areas which provide minor habitat value. Many of these activities would be designed to enhance the aesthetics and environmental conditions and to maintain the unique natural setting at the Eau Galle Recreational Area. Most of the proposed activities would have minor impacts on the environment; however, with proper planning and monitoring, no significant adverse or long-term impacts would occur. All contractors are required to submit an environmental protection plan that is reviewed by the District Environmental Resources Branch before work begins. This requirement

provides an opportunity to mitigate any potential impacts that may arise with individual projects. Potential positive and negative impacts of the proposed actions are discussed below.

Social Factors

7.02 Noise - The proposed activities should not create any extensive increases in noise levels. Activities such as parking lot expansion, or ranger station construction would increase noise levels temporarily. These increases would come from trucks, earth shaping equipment, and general human activities.

7.03 A group campsite and overall higher use of the campground could result in greater noise in the campground and disturbance to campers. Patrolling by park rangers or 24 hour surveillance by a campground attendant should provide a means to minimize this impact.

7.04 The result would be a slight increase in overall noise levels as improvements attract more visitors to the site. This greater noise and human disturbance would be distracting to some visitors and to wildlife but should not have adverse impacts because of the small size of the proposed actions and effort to avoid work during peak visitation periods.

7.05 The road connection would increase noise levels slightly through the center of the project lands. This increase will be dependent on the amount of traffic that will use the new road, and would be expected to be highest during periods of high campground use, as visitors travel between the beach and campground.

7.06 Aesthetic values - Any construction activities could detract from the aesthetic quality of the recreation areas. However, most of these activities would be of short duration, and most disturbed areas would be returned to preconstruction condition or improved with new plantings or seeding. A high priority would be given to maintenance or improvement of site aesthetics during the design of new facilities. Increases in wildlife numbers resulting from increasing edge habitat would also improve the aesthetic quality of the site for many visitors. Slight positive benefits could result from the public viewing the project as safe and well maintained.

7.07 The visual resource, a major component of the uniqueness and attractiveness of the Eau Galle site to the general public would be negatively impacted by the proposed road connection. Being visible from four of the five major overlooks around the project, the road would degrade many of the natural scenic views presently available at the Eau Galle site. This negative impact would be a trade off for improved efficiency of maintenance and patrol of the site.

7.08 Overall, the aesthetic value of the project would be temporarily decreased by construction activities, permanently decreased by the road connection, but maintained or improved by the remaining proposed public use development activities.

7.09 Recreation - Recreational opportunities should be increased by most of the proposed actions. Improved access should make the site more attractive to and increase use by the handicapped. The

proposed recreation expansion activities should increase opportunities for camping, hiking, swimming, boating, picnicking, natural history interpretation and wildlife viewing. The quality of recreation should increase in most instances from the elimination of confusing roads and trails, and upgrades of primitive facilities. The quality of recreation will decrease, however, for users who prefer greater privacy and more primitive camping conditions.

7.10 Quality recreational activities at Eau Galle are dependent on the visual aesthetics and available scenic views. Recreational surveys show that camping visitation is highly dependent upon the site's natural characteristics. Interpretive facilities and trail use are dependent upon scenic values and the chance to experience nature. Surveys indicate that adverse natural conditions are the least enjoyable aspect of trail use. The proposed road alignment would likely be considered an adverse natural condition relative to the present conditions by most site visitors because it would be seen as an unnatural fit with the existing environment. Because recreational use of the overlook, campground, picnic areas, hiking trails, interpretive facilities, and the water surface would be adversely affected by these negative views, a drop in visitation could occur. This negative impact would be a trade off for improved efficiency of patrol and maintenance of the site. As described for aesthetic values, positive benefits could result from the public viewing the project as safe and well maintained.

7.11 Overall the positive and negative impacts of proposed developments could lead to a change in the average type of visitor at Eau Galle. If the road connection is constructed, use by people who prefer more conveniences and who are less interested in the scenic aspects of the site would likely increase. Similarly, with the presence of the road connection, the quality of recreation would decrease for users who prefer greater privacy and more primitive, natural conditions and their use of the site will likely decrease.

7.12 Economic Effects - Positive economic benefits should accrue from the expansion of the recreation facilities at the project. If improved and attractive facilities leads to increased visitation, local service businesses would benefit.

7.13 Contract work for the proposed construction projects would most likely be done by local or regional firms, which could lead to additional employment opportunities. Purchase of materials for maintenance and facility improvements would benefit regional businesses.

Natural Resource Effects

7.14 Air Quality - The proposed actions should have no appreciable effect upon air quality. Construction equipment would degrade air quality slightly for short periods. If visitation at the site and travel along the road connection increases, vehicle exhaust would also increase, degrading local air quality slightly. Increased use of the campground would also probably degrade air quality because of the greater number of campfires. This minor change in air quality would likely be undetectable by visitors or local residents.

7.15 Vegetation and Wildlife Habitat - The current master plan update has several potential impacts for vegetation and wildlife in the reservoir area. Most impacts would be associated with the

campground area because of the number of proposed activities and the greater amount and quality of wildlife habitat present. One impact would be direct habitat or population losses due to construction. Hiking trail expansion, and ranger station and shower building construction, would destroy a small amount of vegetation but would increase visitor comfort and thereby improve opportunities for visitor appreciation of the natural resources of the project area.

7.16 Public use and the intensity of that use would increase due to the addition of camp sites and the group use area. In its present location this recreational activity extends into the center of a mature mesic deciduous forest rather than being restricted to existing edges as is the case with other proposed facilities. Besides the issue of increased forest fragmentation, several rare plant species were previously identified in the campground area. There are also potential conflicts with trails in this area. For three species, the plants identified in this location represent the total population known to occur on reservoir lands. Increased use in the campgrounds area would have a negative impact for both forest interior bird species and sensitive plant species.

7.17 Four locally rare plant species, leatherwood (Dirca palustris), appendaged water-leaf (Hydrophyllum appendiculatum), showy orchis (Orchis spectabilis), and American gromwell (Lithospermum latifolium), were identified in the campground area before construction, but their current status is unknown. The group campsite and continued maintenance of the campground increase the possibility that visitors could accidentally or intentionally damage or eliminate these plants. Although these species are not officially listed as threatened or endangered, their loss would reduce the overall plant diversity at the project and would eliminate potential interpretive uses of these species. A survey for these plants should be conducted so that proposed trail and group campground facilities can be sited to eliminate their potential destruction.

7.18 Natural resource management activities include creation of forest openings to increase horizontal and vertical vegetation diversity. The trail expansions would provide openings, although of small size, and thereby increase diversity in vegetation structure. Trails would increase edge habitat (areas where two habitat types border each other), which is important to many species of wildlife. These trails could be detrimental to species that require unbroken stands of forest, but because of the small size of the project area, and the small acreages of undisturbed forest that are present, this impact should not be significant.

7.19 Minor negative impacts on vegetation would occur during the construction of the group campsite. Clearing would be limited to underbrush to the greatest extent possible. This clearing would probably have a positive effect on wildlife species that use edges but a negative impact on species requiring large unbroken habitat such as pileated woodpeckers. Use by wildlife would be most limited by large groups of people at the campsite, but this impact should not be significant.

7.20 For portions of its length the road connection will follow established dirt roads and no impacts are expected along these areas. However, the road will also cross two floodplain areas and will eliminate vegetation in these locations. Site specific impacts will be evaluated when a specific alignment and construction methods are proposed.

7.21 Fish and Wildlife - Negative impacts on wildlife could result from disturbance during construction and from increased visitation at the project. More reclusive forms of wildlife would use the area less, but this change should not be significant because most activities would not occur in the most sensitive or productive wildlife habitats. Some decreased use by wildlife in the campground areas would likely result.

7.22 There are no historical data to indicate changes in bird species diversity or population size due to development of existing reservoir recreation facilities. For most species there is also no established minimum habitat size that would have to be considered to maintain current bird species diversity and numbers. However, there is no question that the dispersed pattern of planned recreation facilities would tend to reinforce the fragmentation of habitat which would limit reproductive potential for at least some bird species. Facilities which would promote this trend are primarily associated with the campground and trails.

7.23 The proposed activities should not impact fishery resources. Vegetation along the Eau Galle River would be maintained or enhanced to protect the trout fishery. The addition of sand to improve the slope of the swimming beach should not have adverse impacts because the sand would provide spawning habitat for bluegill, a popular pan fish in the lake. The reservoir pool is expected to receive some additional fishing pressure in the future, but the increase would likely be small and would not likely cause adverse impacts on the fishery.

7.24 Construction of the road connection in floodplain areas could affect fish spawning areas. These potential impacts will be evaluated in a separate environmental assessment.

7.25 Endangered Species - The only threatened or endangered species known to occur at Eau Galle are the bald eagle and the osprey. The bald eagle is occasionally seen in the spring during migration. No recent nesting attempts have been recorded. The osprey nested at Eau Galle in 1974 and has also been seen frequently in the spring. A platform would be erected to try to entice the osprey to nest. This nesting platform would be placed along Lohn Creek. This location should provide better protection from human disturbance than other locations. The current practice of opening the park on May 1 each year would also help minimize disturbance to any nesting attempts by osprey.

7.26 The most common use areas and most likely nesting sites for osprey are the Eau Galle River floodplain upstream of the northwest day use area and the Lohn Creek floodplain. Construction activities near these areas could disturb osprey or eagles using the site. The proposed activity closest to the common use areas is the east boat launch improvement, 1/4 mile away. If a nesting eagle or osprey is observed before construction at the east boat launch, those activities will be delayed, if possible, until after August 1. Other proposed activities are 0.5 mile or more away from these main osprey use areas. Several of the proposed actions are planned for late summer or fall, and this schedule would help minimize disturbance to any nesting attempts by osprey. Because no major use of the site by threatened or endangered species occurs at present, overall the proposed actions should not have adverse impacts.

7.27 Water Quality - The proposed actions should have little impact on water quality. Minimizing soil erosion is a prime concern at the site and would be closely monitored during construction activities.

The water of the Eau Galle Reservoir is of good quality for water sports and fishing. Use of motorized boats would continue to be prohibited, except for electric trolling motors.

7.28 Some run-off could occur from ground disturbance during construction of the East Boat Launch facilities, water access dock for campers, and Main Day Use Area entrance road repair. Erosion would be closely monitored during construction activities and any impacts should be temporary and minor. The addition of sand to improve the slope of the swimming beach should not have adverse water quality impacts because clean sand would be used.

7.29 Any new permanent restroom facilities would be constructed above the 100-year floodplain. This would comply with state standards and would assure that water quality would be protected from more frequent flood events.

7.30 Construction of the road connection in floodplain areas could affect water quality. These potential impacts will be evaluated in a separate environmental assessment.

7.31 Soil Erosion - The steep terrain at Eau Galle provides a great potential for the development of soil erosion problems related to recreational activities. All-terrain vehicles (including mini-bikes, trail bikes and three-wheelers) cause negative impacts by destroying vegetation and thereby leading to direct habitat loss and soil erosion problems. These vehicles also cause negative impacts on air and noise quality. Because of the large potential for environmental damage from these vehicles, the policy of prohibiting such machines on project land would continue. Snowmobiles are allowed to cross project land but are required to stay on trails clearly marked by the local snowmobile club. Snowmobiles are not allowed to traverse cliffs or other sensitive areas at the site.

7.32 Hiking trails are another potential area where erosion problems could develop. Frequent inspections would be conducted on these trails, and any signs of erosion problems would quickly repaired. Trails would be closed and/or rerouted if necessary.

7.33 The road connection and bridge design will have to carefully consider potential impacts on soil stability, as soils sensitive to construction activities will likely be affected.

7.34 Cultural Resources - Based on previous research, the only site which is eligible for the National Register of Historic Places is the Lamb V Site. The St. Paul District will submit a formal request to have this site listed on the National Register. The proposed bridge that will connect the northwest day use area with the main day use area could adversely affect this site. The degree of potential impacts to this site will depend greatly on the proposed design of the structure. If the bridge were designed so that the lower terrace along the Eau Galle was not affected by approach or abutments, the impacts to the site may not be adverse. Any affects on the lower terrace may require some degree of mitigation. Because of the increase groundwater levels resulting from the creation of a permanent pool, excavation of the lower levels of the Lamb V Site would require dewatering. This problem would add significantly to the cost of excavation.

7.35 Changes in the alignment of the access road may also impact the Strum II Site which is located near the vicinity of the intersection of the proposed bridge and the existing road on the north side

of the Eau Galle River. An effort will be made to relocate and test this site to determine any potential impacts.

7.36 The picnic and parking area proposed for construction at the trailhead for the cross-country ski trail was never surveyed for cultural resources. This should be completed before design and construction of these features so that presently unrecorded cultural resources are not adversely impacted.

7.37 No other cultural resources will be impacted by any of the proposed developments at Eau Galle Reservoir.

7.38 This environmental assessment has been coordinated with the Wisconsin State Historic Preservation Officer, the State Archeologist, and the National Park Service.

SITE SPECIFIC IMPACTS

7.39 The bridge across the mouth of the Eau Galle River would be highly visible to people fishing along the river, and visible to a lesser extent from the other activity areas. Because of this visibility, it would be desirable to minimize visual intrusion by keeping the bridge at low profile and building with natural materials. The bridge should be high enough, however, to allow boat passage.

7.40 Presently sediment carried by the Eau Galle River is deposited in part at the entrance to the reservoir pool. In order to protect the popular fishing and trout habitat of the Eau Galle River, it is important that the foundation structure of the new bridge does not alter current velocities of upstream segments of the river. Thus earth fill should not be used in the main channel area. Also the bottom of the deck should be higher than the surrounding land. This will ensure that backwater pressure is not produced until the river has already over-topped its banks. The structure itself should be armored against damage due to periodic flooding.

7.41 The bridge connection on the south bank must be carefully located because of the steep banks to the west, the presence of a cultural site, and a transitional wetland along the shore of the pool. A 404(b)(1) (Clean Water Act) evaluation would be prepared as necessary.

7.42 Since many of the recreators using the East Boat Launch will be campers, the provision of a stream crossing foot bridge over Lousy Creek is desirable. This would provide access to users of the water access dock and the hiking trail on the west side of Lousy Creek with the boat launch and toilet facilities. During normal flow the creek in this area is 3-4 feet or less and 10-15 feet wide. Both stream bed and banks consist of medium to fine sand, with the banks about 2 feet above the water level. Bank erosion protection and flood damage to the bridge must be considered in design and construction of such a bridge.

7.43 Portions of the horse trail would lead up steep slopes, especially along the current foot trail ("ox trail"), and reinforcement will be necessary for stabilization. At present some erosion is occurring here and will need to be stabilized to prevent the wash-out of a few large trees. Because this trail will also support maintenance vehicle use and hiking, and passes through erodable silty soil, the trail must

be carefully planned and armored against erosion. Also, care must be taken to divert run-off from the upper portion of the trail, down the side slope in a dispersed fashion, and to keep it from concentrating and flowing down the steeper, lower portions of the trail.

7.44 The campground ranger station, shower, and group camping area locations must not jeopardize any sensitive habitat or endangered species. The final location would be "fine-tuned" to avoid stands of older, large trees, or other unique vegetation.

8.00 ALTERNATIVES TO THE PROPOSED ACTIONS

No Action

8.01 The no action alternative would mean that the present facilities would remain in use and any improvements would be made in a haphazard fashion. This would likely result in greater overall cumulative impacts, greater costs, and more inefficient operation of the project. Under this alternative, the positive and negative impacts associated with the construction would not occur. The recreation areas would continue to function as they now do and would not be used to full capacity. Existing shortcomings would not be corrected: standards would not be upgraded, and handicapped access would not be improved.

Alternative Plans

8.02 The actions outlined in the MPU and discussed in this assessment are considered necessary to upgrade the recreational integrity of the Eau Galle Recreation Area, to ensure the safety of visitors, to increase operation and maintenance efficiency, and to enhance and protect the natural resources.

8.03 During the planning of the proposed modifications at the recreation areas, a set of planning criteria coupled with an analysis of site capabilities were utilized in arriving at the proposed plans. The planning criteria along with the site capability analysis are documented in the updated Master Plan. The proposed modifications are considered to be optimum development with, in most instances, minor and short term negative environmental impacts. Alternative plans that would involve more or less construction, or alternative sites would likely have greater impacts, or would allow facilities and environmental conditions to deteriorate. Where the feasibility of a proposed action has not yet been determined (such as for the road connection), alternatives have been described. The greatest concern with any alternative, as described above, relates to the shallow topsoil (often sandy) present over most of the site. All construction activities should strongly consider the potential for erosion because once it occurs, repair is much more difficult and costly than is proper planning to avoid it.

9.00 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

National Environmental Policy Act of 1969

9.01 Completion of this environmental assessment partially fulfills the requirements of the National Environmental Policy Act of 1969 and of Council on Environmental Quality and Corps of Engineers regulations for implementation of that act. Full compliance will occur when the St. Paul District Engineer signs the finding of no significant impact.

Clean Water Act of 1977

9.02 The proposed actions comply with the Clean Water Act of 1977. An evaluation, as required by Section 404(b)(1) of the act, will be completed for any actions not covered by previous documents, and that involve placement of fill material in waters of the United States, or will result in a discharge to such waters. These evaluations will be coordinated with the Environmental Protection Agency and the Wisconsin Department of Natural Resources.

Fish and Wildlife Coordination Act

9.03 The proposed actions comply with the Fish and Wildlife Coordination Act. The Fish and Wildlife Service and the Wisconsin Department of Natural Resources were part of the master planning team, and all required environmental documents have been coordinated with these agencies.

Endangered Species Act of 1977

9.04 The proposed action has been coordinated with the U.S. Fish and Wildlife Service, relative to endangered or threatened species. The COE biological assessment has determined that no protected species, or their habitat, would be negatively affected by this project. The Fish and Wildlife Service has concurred with that determination.

National Historic Preservation Act

9.05 In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, the National Register of Historic Places has been consulted. The proposed actions fully comply with the act. This environmental assessment has been coordinated with the Wisconsin State Historic Preservation Officer, the State Archeologist, and the National Park Service.

10.00 REFERENCES

10.01 Curtis, John T. 1959. The Vegetation of Wisconsin. University of Wisconsin Press. 657 pages.

10.02 Vogtman, D. 1974. Environmental Impact Assessment, Eau Galle Reservoir Project, Spring Valley, Pierce and St. Croix Counties, Wisconsin, December 1974, prepared by Don Vogtman Associates.