

MASTER PLAN

Eufaula Lake

Canadian River, Oklahoma

April 2013



**US Army Corps
of Engineers**®

Tulsa District

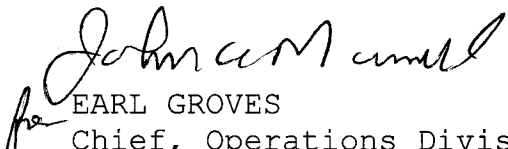
CESWT-OD-NR

MEMORANDUM FOR Commander, Tulsa District

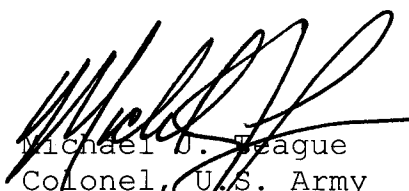
SUBJECT: Eufaula Lake, Canadian River, Oklahoma, Master Plan

1. Enclosed subject Master Plan is submitted for review and approval in accordance with ER/EP 1130-2-550.
2. Point of Contact in Operations Division for this request is John Tennery, 918-669-7406.

Encl


EARL GROVES
for Chief, Operations Division

Approved *A* **JUN 14 2013** approved


Michael D. League
Colonel, U.S. Army
District Commander

PREFACE

The Master Plan for Eufaula Lake was approved 15 February 1978 and was intended to serve as a guide for the orderly and coordinated development and management of all lands and water resources of the project. It presented data on the existing conditions, anticipated recreational use, type of facilities needed to service the anticipated use, and an estimate of future requirements. Over time development along the adjacent shoreline became popular because of the narrow width of public lands to the water's edge. This characteristic makes it very desirable for developers to construct lake homes and to provide access to shoreline approved for the installation of boat docks.

This updated Master Plan presents an inventory of land resources, how they are zoned, existing park facilities, an analysis of resource use, anticipated influences on project operation and management, and an evaluation of existing and future needs required to provide a balanced management plan to enhance the values of the resource. The format utilized for this plan was outlined in ER/EP 1130-2-550 which is the regulation and pamphlet that deals with Recreation Operations and Maintenance Guidance and Procedures. These are different than the original Master Plan format which was a design memorandum. Eufaula Lake's original master plan can be found in design memorandums 12A and 12B.

ACRONYMS

ABB	American Burying Beetle
ATV	All Terrain Vehicle
BMP	Best Management Practice
BO	Biological Opinion
CFS	Cubic Feet per Second
EIS	Environmental Impact Statement
ER	Engineer Regulation
ESA	Endangered Species Act
GIS	Geographic Information Systems
HPMP	Historic Properties Management Plan
MP	Master Plan
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
ODWC	Oklahoma Department of Wildlife Conservation
OMBIL	Operations and Maintenance Business Link
OMP	Operational Management Plan
RV	Recreation Vehicle
SCORP	State Comprehensive Outdoor Recreation Plan
SMP	Shoreline Management Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDU	Waterfowl Development Unit
WRDA	Water Resources Development Act

TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
Preface.....	i
Acronyms.....	ii
Table of Contents.....	iii
Chapter 1 – Introduction	
1.01. Project Authorization.....	1-1
1.02. Project Purposes.....	1-1
1.03. Purpose and Scope of Master Plan.....	1-1
1.04. Description of Project and Watershed.....	1-1
1.05. Design Memorandums.....	1-2
1.06. Pertinent Project Information.....	1-7
Chapter 2 – Project Setting and Factors Influencing Management and Development	
2.01. Description of Reservoir.....	2-1
2.02. Hydrology and Groundwater.....	2-1
2.03. Sedimentation and Shoreline Erosion.....	2-2
2.04. Topography, Geology, and Soils.....	2-2
2.05. Resource Analysis.....	2-4
2.06. Cultural Resources.....	2-7
2.07. Recreational Facilities, Activities and Needs.....	2-8
2.08. Real Estate.....	2-10
2.09. Pertinent Public Laws.....	2-11

<u>Title</u>	<u>Page</u>
Chapter 3 – Resource Objectives	
3.01. Resource Objectives.....	3-1
3.01.A. Shoreline Management.....	3-2
3.01.B. Wildlife and Fisheries Management.....	3-2
3.01.C. Recreation.....	3-3
3.01.D. Oklahoma State Comprehensive Recreation Program.....	3-3
3.01.E. Resource Objective Priorities.....	3-4
Chapter 4 – Land Allocation, Land Classification, Water Surface, and Project Easement Lands	
4.01. Land Allocation.....	4-1
4.02. Land Classification.....	4-1
4.03. Project Easement Lands.....	4-4
Chapter 5 – Resource Plan	
5.01. Classification and Justification.....	5-1
5.01.A. Project Operations.....	5-1
5.01.B. High Density Recreation.....	5-1
5.01.C. Environmentally Sensitive Areas.....	5-4
5.01.D. Multiple Resource Management Lands.....	5-4
5.01.D.1. Low Density Recreation.....	5-4
5.01.D.2. Wildlife Management.....	5-6
5.01.D.3. Vegetative Management.....	5-7
5.01.D.4. Inactive Recreation Areas.....	5-7

<u>Title</u>	<u>Page</u>
5.01.E. Water Surface.....	5-7
5.02. Special Considerations.....	5-8
Chapter 6 – Special Topics	
6.01. Competing Interests on the Natural Resource.....	6-1
6.02. Section 3133 of Water Resources Development Act 2007.....	6-1
6.03. Shoreline Use.....	6-1
6.04. Need for Additional Recreation Facilities.....	6-3
6.05. City of Eufaula.....	6-4
6.06. Carlton Landing.....	6-4
6.07. Cross Timbers Eco-Region.....	6-4
6.08. American Burying Beetle.....	6-5
6.09. Invasive Species.....	6-6
6.10. Water Quality.....	6-8
6.11. Mineral Exploration.....	6-9
6.12. Creek Nation Land Sale.....	6-10
Chapter 7 – Agency and Public Coordination	
7.01. Agency and Public Coordination.....	7-1
Chapter 8 – Summary of Recommendations	
8.01. Summary Overview.....	8-1
8.02. Rezoning Requests.....	8-1
8.03. Vegetative Buffer Zones.....	8-1
8.04. American Burying Beetle.....	8-6

<u>Title</u>	<u>Page</u>
8.05. Dock Suitability.....	8-6
8.06. Shoreline Management.....	8-7
8.07. Recreation.....	8-8
8.08. Vegetative Sensitive Zoning.....	8-8
8.09. USACE Zoning Changes.....	8-9
8.10. Dock Density.....	8-9
8.11. Advisory Committee.....	8-11
8.12. Encroachments.....	8-11
8.13 Partnerships.....	8-11
8.14 Cultural Resources.....	8-11

Chapter 9 – Bibliography

Appendices

- A. NEPA Documentation
- B. Summary of Comments
- C. Applicable Federal Statutes

Plates

CHAPTER 1 INTRODUCTION

1.01. Project Authorization – Eufaula Dam and Lake was authorized by the River and Harbor Act approved 24 July 1946 (Public Law No. 525, 79th Congress, Second Session). The departmental authority for administration of land and water areas related to Eufaula Lake is contained in Section 4 of the Flood Control Act of 1946 (60 Stat. 642), and as further amended by Section 209 of the Flood Control Act of 1954, which was approved 3 September 1954. The authority relative to the initial preparation of the MP is contained in ER 1130-2-550. Recreational authorization at Eufaula Lake is governed by the provisions of the Federal Water Project Recreation Act of 1965 (PL 89-72).

1.02. Project purposes – Eufaula Lake is a unit of the Comprehensive Plan of Development for the Arkansas River Basin for flood risk management, hydroelectric power, navigation, water supply, natural resource management, and recreation. The project is operated for optimum flood risk management benefits on the Canadian River from the dam site to the confluence with the Arkansas River, and on the Arkansas River as far downstream as Van Buren, Arkansas, with major benefits downstream, including the lower Mississippi River.

1.03. Purpose and Scope of Master Plan – This report proposes public use development and conservation necessary to develop and conserve existing project lands to realize the optimal potential of the project. This plan incorporates conservation, enhancement, development, operation, management, and public interest use of all project lands, waters, forests, and other resources throughout the life of the project, and includes plans showing the most desirable and feasible locations and types to meet these goals. Emphasis has been placed on a balanced approach to public access, camping, shoreline use, water based recreation, and conservation. Adequate facilities and land-based requirements are proposed to insure all desired recreational opportunities are achieved and assure compliance with applicable environmental regulations, laws and policies. This plan also proposes proper utilization of natural resources and recreational facilities in regards to available funding while at the same time preserving the biological, scenic, scientific and wildlife resources, plus protecting and enhancing the primary project purposes and benefits. The plan is presented with recreational enhancement funded by the Government limited to existing public use areas rather than acquisition and development of new ones.

1.04. Description of Project and Watershed – Eufaula Lake Damsite is located on the Canadian River (mile 27.0) in McIntosh and Haskell Counties, Oklahoma. The project damsite is approximately 12 miles east of the city of Eufaula, Oklahoma, and about 31 miles south of

Muskogee, Oklahoma. The lake area lies principally in McIntosh, Haskell, Pittsburg, and Okmulgee Counties, Oklahoma, and also involves minor areas in Muskogee and Latimer Counties, Oklahoma. Construction began in December 1956 and embankment closure was completed in February 1964. Power was first generated in July 1964; the last of the three generators started producing commercial power in September 1964. The project was completed for full flood control operation on February 10, 1964. The dam is a rolled earth structure 3,200 feet long, including the spillway and powerhouse intake, and rises to a maximum height of 114 feet above the streambed. Oklahoma State Highway 71 crosses the crest of the dam. At elevation 585 msl, the lake has approximately 800 miles of shoreline. This shoreline is extremely irregular due to the numerous tributary valleys into which the water extends. Topography of the area includes flat to gently rolling lands bordered by steeply rolling terrain.

The climatic characteristics of the Canadian River watershed are somewhat dissimilar in nature. In the western portion of the basin, the winters are moderate with a mild spring and summer. The central and eastern portions are characterized by mild winters and long summers with high temperatures. The Eufaula Lake watershed has a drainage basin of approximately 47,522 square miles with an average annual rainfall of 37.4 inches. This expansive size crosses several eco-regions in the states of New Mexico, Texas, and Oklahoma. The western most sections can be described as arid high plains with the eastern portions identified as the western fringe of the Ozark Plateau.

1.05. Design Memorandums – The following is a list of Design Memorandums previously submitted:

<u>Memo #</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date</u>
1	Administration and Maintenance Building	20 Dec 55	5 Oct 56
2	Construction of Access Road (Left Abutment)	5 Jan 56	18 Dec 56
3	Real Estate for Damsite and Access Road	25 Jan 56	1 Aug 56
4	Hydrology	7 Jun 56	11 Sep 56
5	Hydroelectric Power Capabilities	20 Jun 56	5 Oct 56
6	Construction of Cofferdam and Initial Excavation	18 Jul 56	Superseded

Eufaula Lake Master Plan

<u>Memo #</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date</u>
7	Real Estate for Segments B and C and South Access Road	21 Nov 56	21 Feb 57
8	Initial Excavation	29 Nov 56	24 Jan 57
9	Relocations, General	1 Dec 56	4 Mar 57
10	Construction of Access Road (Right Abutment)	16 Jan 57	12 Jun 57
11-1	Power Plant-(Preliminary Design Report)	26 Apr 57	18 Sep 57
12-A	Preliminary Master Plan	29 Oct 57	13 Jan 58
12-B	Updated Master Plan	01 Dec 77	15 Feb 78
13	Real Estate for Segments K, L, M, N, O and P	22 Nov 57	26 Mar 58
14	Construction of Embankment and Spillway	3 Apr 58	21 Aug 58
15	Geology, Soils and Structural Foundations	28 Apr 58	2 Feb 59
16	Relocation of Oklahoma Highway 113 (Revised August 1958)	27 Aug 58	3 Nov 58
17	Real Estate R.O.W. for Relocation of State Highway 113	20 Mar 58	20 Nov 58
18	Relocation of U.S. Highway 69 M.K.&T. Railroad	18 Sep 58	12 Nov 58
19	Construction Materials (Concrete Aggregates)	26 Aug 58	2 Sep 59
20	Relocation of Oklahoma Highways 9 and 9 Alternate	9 Feb 59	27 Apr 59

Eufaula Lake Master Plan

<u>Memo #</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date</u>
21	Relocation of Sewage Disposal System, Eufaula, Oklahoma	13 Jan 59	19 Aug 59
22	Real Estate Segments D, E, G, H, I, J and W	7 Jan 59	8 Apr 59
23	Real Estate, R.O.W. for Relocation of U.S. Highway 69 & M.K.&T. R.R.	17 Feb 59	17 Apr 59
24	Relocation of U.S. Highway 266 and Oklahoma Highway 72	13 Mar 59	2 Jun 59
25	Construction of Overlook Shelter	9 Mar 59	Disapproved 10 Aug 59
26-Rev	Relocation of Pittsburg County Roads	31 Ju1 59	13 Oct 59
27-Rev	Relocation of Oklahoma Highway 31	11 Aug 59	22 Oct 59
28	Relocation of McIntosh County Roads	4 Jun 59	10 Nov 59
29	Real Estate R.O.W. for Relocation of Haskell and Muskogee County Roads	19 May 59	23 Oct 59
30-Rev	Relocation of Haskell County Roads	26 Aug 59	22 Oct 59
31	Real Estate for Segments 35 thru 64	26 Jun 59	5 Oct 59
32	Real Estate R.O.W. for Relocations of McIntosh County Roads	9 Ju1 59	9 Dec 59
33	Relocation of Okmulgee County Roads	23 Ju1 59	5 Oct 59
34	Real Estate - Coarse Aggregate Site	5 Aug 59	9 Oct 59
35	Real Estate - R.O.W. for Relocation of Pittsburg County Roads	19 Aug 59	27 Nov 59
36	Real Estate - Pozzolan Site	2 Sep 59	13 Oct 59
37	Real Estate - R.O.W. for Relocation of U.S. Highway 266 & Oklahoma Highway 72	8 Sep 59	17 Dec 59

Eufaula Lake Master Plan

<u>Memo #</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date</u>
38	Real Estate - R.O.W. for Relocation of Okmulgee County Roads	8 Sep 59	24 Nov 59
39	Real Estate - R.O.W. for Relocation of Oklahoma Highway 31	9 Sep 59	9 Dec 59
40	Real Estate - Select Impervious Material Borrow Areas	10 Sep 59	28 Oct 59
41	Real Estate - R.O.W. for Relocation of K.O.&G. Railway	4 Aug 60	21 Oct 60
42	Relocation of Tri-Cities Gas Company Facilities	18 Dec 59	13 Apr 60
43	Relocation of Municipal Facilities Eufaula, Oklahoma	11 Feb 60	2 May 60
45-Rev	Relocation of C.R.I.&P. Railway	2 Aug 60	Superseded
46	Relocation of U.S. Highway 270	9 Aug 60	Superseded
47	Real Estate - R.O.W. for Relocation of C.R.I.&P. Railway	1 Sep 60	2 Oct 61
48	Real Estate for Remainder of Reservoir Area	27 May 60	6 Oct 60
49	Relocation of Chicago, Rock Island and Pacific Railroad and U.S. Highway 270	23 Jun 61	13 Sep 61
50	Relocation of K.O.&G. Railway	22 Jul 60	24 Oct 60
52	Relocation of Oklahoma Natural Gas Company Facilities	21 Sep 60	12 Nov 60
53	Relocation of Southwestern Bell Telephone	15 Jan 62	23 Jul 62
54	Municipal Water Supply Facilities Eufaula, Oklahoma	3 Feb 61	19 Mar 62

Eufaula Lake Master Plan

<u>Memo #</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date</u>
55	Relocation of Oklahoma, Mississippi River Products Line Incorporated Facilities	20 Jul 60	28 Sep 60
56	Relocation of Municipal Water Supply Facilities, Checotah, Oklahoma	11 Apr 61	29 May 61
57	Relocation of Kiamichi Electric Cooperative Inc. Facilities	15 Sep 61	17 Nov 61
58	Clearing Reservoir	12 Jul 61	22 Sep 61
59	Relocation of C.C.I. Gas Company Facilities	13 Sep 61	12 Jan 62
60	Relocation of Oklahoma Gas and Electric Company Facilities	27 Apr 61	20 Jun 61
61	Relocation of R.I. West Telephone Company Facilities	9 Oct 61	24 Oct 61
62	Relocation of East Central Oklahoma Electric Coop. Facilities	17 Nov 61	12 Feb 62
63	Relocation of Canadian Valley Electric Coop., Inc., Facilities	9 Feb 62	12 Mar 62
64	Relocation of Public Service Company	16 Aug 62	12 Oct 62
65	Relocation of Southwestern Electric Power Company Facilities	3 Jun 60	10 Aug 60
67	Relocation of Cookson Hills Electric Cooperative, Inc., Facilities	15 Jan 62	16 Feb 62
68	Relocation of Municipal Water Supply Facilities, McAlester, Oklahoma	15 Mar 62	1 Jun 62
69	Relocation of Gas Service Corporation Facilities	8 Mar 62	16 Apr 62
70	Relocation of Arkansas-Louisiana Gas Company Facilities	28 Aug 62	5 Sep 62

Eufaula Lake Master Plan

<u>Memo #</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date</u>
72	Relocation of Canadian Valley Telephone Company Facilities	30 Nov 61	27 Dec 61
73	Floating Bulkheads	20 Nov 61	26 Mar 62
74	Construction of Private Access Road (Little Onion)	9 Mar 64	2 Apr 64

1.06. Pertinent Project Information-The following tables provide pertinent information regarding existing water storage/levels.

Table 1.1 Pertinent Lake elevations and water levels				
Feature	Elevation (feet)	Area (acres)	Capacity (acre-feet)	Equivalent Runoff (inches)
Top of Dam	612.0	-	-	-
Maximum Pool	604.96	-	-	-
Top of Gates & Flood Control Pool	597.0	147,500	3,825,400	8.53
Flood Control Storage	585.0-597.0	-	1,510,800	3.37
Top of Power Pool	585.0	105,500	2,314,600	5.16
Power Storage	565.0-585.0	-	1,463,000	3.27
Bottom of Power Pool & Spillway Crest	565.0	46,100	851,600	1.90

Chapter 2

Project Setting and Factors Influencing Management and Development

2.01. Description of Reservoir - Eufaula Lake was authorized by the 1946 River and Harbor Act. Authorized Project Purposes include Flood Control, Water Supply, Hydroelectric Power, and Navigation. Construction was completed in 1964 at an approximate cost of \$150 million. The Eufaula Lake powerhouse, which contains three 30-megawatt hydroelectric generators, produces commercial electric power which is valued at approximately 8 million dollars a year. Currently there are six Class A and three Class C campgrounds and several day use parks operated by USACE with numerous other facilities operated by State, private entities and local governments that have approximately 1.5 to 2 million visitors annually. There are approximately 260 housing developments surrounding the lake that provide dispersed recreation opportunities for home owners. In addition, a recent recreation study estimated dispersed use accounts for over 3 million visitor days per year.

Eufaula Lake has 3,825,400 acre-feet of storage that is utilized for flood control, generation of hydroelectric power, and water supply. 2,314,600 acre-feet is located within the conservation and inactive pools. Both of these are utilized for power head and the accumulation of sediment. The lake area at elevation 597.0 feet above msl (top of flood control pool) consists of 147,500 acres with a top power pool elevation of 585.0 feet above msl, comprising 105,500 acres. A total of 163,214 acres were acquired in fee simple title for the operation of the lake, along with an additional easement of 31,667 acres which was acquired for flowage easement purposes. In general, when the lake covers 105,500 acres (elevation 585.0 feet) it contains over 800 miles of shoreline. The maximum discharge that can occur through the outlet works without downstream flooding is about 40,000 cfs. The entire flood control storage of the lake can be expected to be utilized once every 8 years. The lake also has 79,853 acre-feet allocated to water supply. Of this approximately half is utilized in water supply contracts to various private and government entities. This contracted water supply is used for various things such as municipal drinking water, power production, and irrigation.

2.02. Hydrology and Groundwater – Eufaula Dam is located on the Canadian River which has the North Canadian and Deep Fork Rivers, as well as, Gaines Creek as its major tributaries. The confluences of these tributaries are now located in the lake itself. The North Canadian and Canadian Rivers drain areas with sandy soils and contribute to the ongoing sedimentation of the lake on both the North Canadian and Canadian arms. The Deep Fork River drains portions of Oklahoma with red clay soils. Because of this the Deep Fork arm is typically a muddy red in color. Due to the fine particle size of the clay, sedimentation of the Deep Fork arm is much less pronounced than on the North Canadian and Canadian arms. Gaines Creek rises in the hilly

portions of Southeast Oklahoma but before reaching the lake flows through wide bottom areas with dispersive clay soils. Turbidity is typically high on the Gaines Creek arm as a result. The total drainage area of Eufaula Lake is 47,522 square miles. The total flood control storage of the lake is 1,510,800 acre feet.

Two major bedrock aquifers exist within the Eufaula Lake region. Those are the Garber-Wellington and Vamoosa-Ada. There are also two major alluvial aquifers within this region, the Canadian River and North Canadian River. The Garber-Wellington aquifer consists of fine-grained sandstone interbedded with siltstone and shale. Depth to water varies from less than 100 feet to 250 feet. The Vamoosa-Ada aquifer consists of 125 to 1000 feet of interbedded sandstone, shale, and conglomerate. The Canadian River alluvial aquifer consists of clay and silt downgrading to fine to course grained sand with lenses of basal gravel. Formation thickness ranges from 20 to 40 feet in the alluvium with a maximum of 50 feet in the terrace deposits. The North Canadian River aquifer consists of fine to course grained sand with minor clay and silt and local lenses of basal gravel overlain by dune sand. Formation thickness averages 30 feet in the alluvium with a maximum of 300 feet in the terrace deposits.

2.03. Sedimentation and Shoreline Erosion - Shoreline erosion is a major problem on parts of Eufaula Lake. Areas with long wave fetch zones and highly erodible soils are particularly susceptible. A study conducted in the 1980's identified 50 miles of eroding shoreline with 22 miles of shoreline being so seriously eroded as to need protection or stabilization. Attempts were made to stabilize some of these more severely eroded shoreline using natural methods such as willow plantings in conjunction with other treatments but these efforts were mostly unsuccessful due to the extreme conditions. Some areas have been stabilized using rip rap, when funds were available from congressional adds, with this work largely targeted at protecting shorelines adjacent to private housing additions and archeological sites. Some private protection work has also been done over the years using rip rap and retaining walls. In one public use area, shoreline protection has been accomplished by using gabions. The total amount of shoreline that has been stabilized is less than one tenth of the 22 miles of severely eroded shoreline. Shoreline erosion is ongoing and continues to threaten archeological sites and private and public facilities around the lake. Shoreline erosion contributes to sedimentation and has closed off coves in localized areas leading to the need to dredge these areas to keep them open for boating access to private boat docks. This dredging work has been done at private expense by residents of the subdivisions surrounding the affected coves. Due to budget constraints, no large scale shoreline protection or dredging work is anticipated in the foreseeable future.

2.04. Topography, Geology, and Soils – The topography in the Eufaula Lake region is described as flat to gently rolling valley land bordered by steeply rolling to semi-mountainous areas.

These valleys are generally broad, but narrow, restricted regions occur in the more rugged hilly areas. The valleys of the tributaries, for the most part, are V-shaped and narrow. On the northwest and southwest, the land is flat to undulating, with streams entrenched in the broad flood plains.

Geologically, Eufaula Lake lies within the province of the Arkoma Basin. This province includes a portion of Eastern Oklahoma as well as a portion of Southwestern Arkansas. The boundaries of the Arkoma Basin are marked by the Ozark Uplift to the north, the Oklahoma platform to the northwest, the Arbuckle Mountain Uplift to the southwest, and the Ouachita Mountains to the southeast. There are alluvial chert gravels and cobbles found throughout the region, as well as sandstone that would have provided a variety of stone material for prehistoric human inhabitants of this area.

Soils within the valley are comprised mostly of alluvially deposited sandy and silty loams formed from the decomposition of local sandstones and shales. These soils generally consist of very deep, moderately drained, and rapidly permeable upland soils that formed in sandy Pleistocene sediments. The type and range sites of these soils are described in the following paragraphs.

(1) Claypan Prairie consists of nearly level to very gently sloping soils that have a dense clay subsoil. Soils in the group are Parsons Silt Loam and Parsons-Dwight complex. These soils have a grayish surface soil and yellowish-brown, very firm clay mottled with light gray and strong brown subsoil.

(2) Eroded Prairie consists of the Dennis Soils in DennisDwight complex 2 to 5 percent slopes, severely eroded. These soils have lost most of their original surface layer through sheet erosion, and in many they are gullied. Crusts have formed on the soil material that is left and limit moisture intake and plant growth. These soils have a grayish brown loam at the surface and yellowish-brown and gray subsoil.

(3) Loamy Prairie consists of nearly level to gently sloping soils that have a loamy surface layer. The texture and the depth of these soils are such that moisture relations are favorable for the growth of tall grasses. The soils consist of Bates fine sandy loam, Dennis loam, and Taloka silt loam.

(4) Shallow Prairie consists of sloping to moderately steep, medium textured soils that are shallow to very shallow over sandstone and shale. On much of this type of land, there are sandstones on or near the surface. This soil is composed of the Talihina-Collinsville complex. This complex is 45 percent Talihina soils, 20 percent Collinsville soils, 20 percent Eram soils and 15 percent soil intergrading between Talihina and Eram soils.

(5) Deep Sand Savannas consists of deep sands on uplands. These soils are potentially productive for oak trees and tall grasses. Soils in this group include Dougherty Loamy fine sand, Dougherty-Eufaula complex, Eram Clay loam, and Stidham loamy fine sand.

(6) Eroded shallow Savanna consists of Hector soils in Hector-Hartsells complex, steep slopes, severely eroded. These soils are shallow and loamy and are underlain by partly weathered sandstone.

(7) Sandy Savanna consists of deep to moderately deep very gently sloping to moderately steep, sandy-soils on uplands. Trees-make up about 35 percent of the climax vegetation. Grasses and forbs make up about 65 percent of the potential plant cover. Soils in this group include Konawa fine sandy loam and Enders-Hector complex.

(8) Savanna Breaks consist of soils of Enders-Hector complex having a 30 to 60 percent slope. These soils are stony and are moderately deep to very shallow over shale and sandstone.

(9) Heavy bottom lands are made up of deep, poorly drained, very slowly permeable soils that formed in alluvium. These soils have a surface layer of silt loam or silty clay loam. Their subsoil is very slowly permeable. They include Chastain Silty Clay Loam and Rosebloom Silt Loam. Loamy bottom lands are nearly level, deep loamy soils that are highly fertile. Because of position and depth, these soils receive and store more moisture than do other soils in the area. This group of soils includes: Ennis silt loam, Ennis and Verdigris soils, broken, Ochlockonee fine sandy loam, Verdigris silt loam, and Yahola-Norwood complex.

2.05. Resource Analysis Fish and Wildlife Resources: Eufaula Lake provides habitat for an abundance of various wildlife and fisheries located both in the lake proper and in the tail-water area. The lake provides fishing opportunities for the boater and bank angler. Cooperative efforts between the USACE and ODWC have improved fishing success rates with the installation of fish habitat and maintenance of access areas throughout the project. All common game species listed by the ODWC are highly sought after in the lake with the exception of trout and hybrid bass. The tail-water fishery provides excellent striped bass and fishing for catfish opportunities. Other species that are available at the lake and tail-waters include: walleye, black bass, buffalo, gar, crappie, and sunfish. USACE licenses over 31,873 acres of land and water to the ODWC for the purposes of wildlife management, of which 18,440 acres is land. Within this licensed area, two WDU's are intensively managed bringing opportunities to many individuals throughout the hunting season. Outside of these WDU's most of the area is managed for both game and non-game species. The ODWC submits a five year management plan to USACE for review and approval on an annual basis. In addition to the areas leased to the ODWC, several units managed by USACE also provide excellent game and non-game habitat. USACE managed units are approximately 10,000 acres. These areas are also popular with both hunters and individuals wishing to observe wildlife in their natural habitat. Species that are located in these areas include; white-tailed deer, squirrel, cottontail rabbit, raccoon, turkey, quail (limited), dove, eagles, waterfowl, and various song birds.

- i) **Vegetative Resources:** The vegetative resources of the Eufaula Lake project were classified using information derived from the National Vegetation Classification System. GIS was used to download and analyze this data and the results are displayed in Table 2.1.

Division	Order	Class	Sub-Class	Acreage
VEGETATED	Herb Dominated	Herbaceous Vegetation	Grasses	16,222
VEGETATED	Tree Dominated	Closed Tree Canopy	Deciduous closed tree canopy	32,926
VEGETATED	Tree Dominated	Open Tree Canopy	Deciduous open tree canopy	8,566
NON-VEGETATED	NON-VEGETATED	Non-Vegetated	Non-Vegetated	105,500

* Based on the most recent GIS information.

- ii) **Threatened and Endangered Species:** Table 2.2 lists the federally listed endangered species thought to occur on Eufaula Lake.

Species	FED/State List	Inventoried Occurrence	Biological Opinion Issued	Final Recovery Requirements	Recovery Actions Designated
Beetle, American burying	FED	Rare	Y	N	N
Plover, piping	FED	Potential	N	N	N
Tern, least	FED	Rare	Y	N	N
Crane, whooping	FED	Uncommon	Y	N	N
Shiner, Arkansas River	FED	Absent	Y	N	N

- iii) Invasive Species: Table 2.3 lists the important invasive species that occur on Eufaula Lake.

Table 2.3 Invasive Species		
Species	Type of Occurrence	Acreage Impacted
Kudzu	Minor impacts	10
Wild Boar	Moderate	1000
Zebra mussel	Significant Major	105,500
European starling	Minor impacts	290
Multiflora rose	Minor impacts	25

- iv) Ecological Setting: Eufaula Lake lies within three ecoregions. They are the *Arkansas Valley*, *Central Irregular Plains*, and *Cross Timbers*. The following are brief descriptions of the characteristics within these eco-regions.

Arkansas Valley is a region of mostly forested valleys and ridges. The physiography of the Arkansas Valley is much less irregular than that of the Boston Mountains to the north and the Ouachita Mountains to the south. About one fourth of the region is grazed and roughly one tenth is cropland. In the Arkansas Valley even streams that have been relatively unimpacted by human activities have considerably lower dissolved oxygen levels and as a result support different biological communities than those of most of the adjacent regions.

Central Irregular Plains has a mix of use types and tends to be topographically more irregular than the Western Corn Belt Plains to the north, where most of the land is in crops; however the region is less irregular and less forest covered than the eco-regions to the south and east. The potential natural vegetation of this ecological region is a grassland/forest mosaic with wider forested strips along the streams compared to the region to the north. The mix of land use activities in the Central Irregular Plains includes mining operations of high sulfur bituminous coal. The disturbance of these coal strata has degraded water quality and affected aquatic biota in some tributaries of the Gaines Creek arm of Eufaula Lake.

The *Cross Timbers* region is a transition area between the once prairie, now winter wheat growing regions to the west and the forested low mountains of Eastern Oklahoma. The region does not possess the arability and suitability for crops such as corn or soybeans that are common in the Central Irregular Plains to the northeast. The native vegetation in the Cross Timbers is little bluestem grassland with scattered blackjack oak and post oak trees. Due to slow growth rates, some of the blackjack

oak trees within this region are hundreds of years old but are not of great size. Areas of this “old growth” forest are located on Eufaula Project lands.

- vi) Wetlands: Table 2.4 lists the acreages of various types of wetlands at Eufaula Lake.

Table 2.4 Wetlands			
System	Sub-System	Class	Class Acres
Riverine	Lower-Perennial	Unconsolidated Bottom	295
Lacustrine	Limnetic	Open Water/Unknown Bottom	95153
Palustrine	NO SUB-SYSTEM	Forested Wetland	15435
Palustrine	NO SUB-SYSTEM	Emergent Wetland	3245
Palustrine	NO SUB-SYSTEM	Unconsolidated Bottom	498
Palustrine	NO SUB-SYSTEM	Unconsolidated Shore	3

2.06. Cultural Resources Prehistoric hunters passed through the Eufaula Lake area over a span of time from 12,000 to 8,000 B.C. No particular sites relating to this early Paleo-Indian period have been found but scattered finds of their distinctive lanceolate, fluted projectile points are reported. The cultures of this period seem to be primarily oriented toward hunting forms of Pleistocene mega fauna, now extinct. There are a large number of reported sites in the Eufaula locale with an Archaic period context. The Archaic period ranged from 8,000 B.C. to A.D. 500. This rather long time period is characterized by subtle but important climatic and ecological changes. Archeological evidence indicates that during this period the cultures that depended primarily on hunting for subsistence underwent a gradual change toward a hunting and gathering economy. In the final stages of the Archaic, the cultures began increased dependence upon agriculture. The Mississippian period followed the Archaic with an increase in agricultural activity and the introduction of pottery. This period in the Eufaula area is in the northernmost region of the Caddoan cultures centered along the Red River in Southeast Oklahoma. The people living in the early part of the Caddoan stage were primarily horticulturists, but also were hunters and gatherers, living in small villages in the Canadian River valley. These farming peoples participated in a religion oriented toward continued, successful harvests. The more impressive evidence of this religious activity consisted of ceremonial centers with manmade mounds that were used for interment of the dead and for temple structures. One of the largest and most important of these mounds is the Spiro site located about 44 miles east of the project near W. D. Mayo Lock and Dam. The Spiro site was a center of the highly complex culture which

involved a complicated religion in the period between A.D. 900 and A.D. 1400. Small hamlets, farmsteads, and villages were scattered throughout the fertile bottom lands of the Arkansas, Illinois, Canadian, Grand, and Poteau river valleys. Archeological evidence of a Spiro influence is found throughout the Eufaula area in the form of village sites with diagnostic arrow points and pottery shards. Also located in the Eufaula area is the Eufaula Mound which could possibly be a satellite religious center to the Spiro Mound complex. The latter stages of the Caddoan culture (A.D. 1300 to 1600) saw a decline in the maintenance and construction of ceremonial mound centers. There is evidence that there was increasing contact with, and influence by, plains cultures and some indication that these horticulturally based peoples may have become increasingly involved in seasonal buffalo hunting. In 1719, Jean Baptiste Bernard Sieur De La Harpe, representing the first attempt of European trade with the Caddoan groups in Oklahoma, passed through the Eufaula Lake area. A large Wichita village site which he visited was located on the South Canadian, possibly at the mouth of Gaines Creek. The location of the Wichita village is one of the most controversial subjects of the La Harpe expedition. There are 490 known archeological sites in the Eufaula Lake area including prehistoric Indian and historic Creek sites. The lake has inundated 38 of these sites. The HPMP for Eufaula Lake provides guidelines and procedures to enable the USACE and the Eufaula Lake Project staff to meet their legal responsibilities pertaining to cultural resource management at Eufaula Lake.

2.07. Recreation Facilities, Activities and Needs

- i)* **Zones of Influence** – The primary area of influence encompasses portions of the counties of McIntosh, Haskell, Latimer, Pittsburg, and Okmulgee. This five-county region has been utilized as the basis in summarizing the population characteristics of Eufaula Lake. The five-county region in which the lake is located has a medium population density with a 2010 census figure indicating a total population of 130,081 inhabitants. This represents a gain of 3.5% or 4,503 persons, over the 2000 population of 125,578.
- ii)* **Visitation Profile** – The majority of visitors to Eufaula Lake come from within a 100 mile radius of the lake area. Eufaula Lake visitors are a diverse group ranging from campers who utilize the campgrounds around the lake, full time and part time residents of the more than 260 housing developments that border the lake, hunters who utilize the Wildlife Management Areas around the lake, ATV riders who utilize the ORV area, day users who picnic in the city, state and federally operated parks, marina customers and many other user groups. The peak visitation months on Eufaula Lake are April through September when 88 percent of the visits occur. July is the highest visitation month and accounts for 20 to 22 percent of the annual total. Approximately 65 percent of visits to recreation areas occur in Corps managed

recreation areas. Dispersed recreation visits exceed those that occur in recreation areas. Research conducted in association with the EIS (2011-2013) revealed that 3,101,630 visitor days* of dispersed recreation occurred in 2011. This compares to 2,020,895 which is the total visitor days reported in OMBIL for 2011. This indicates that the current visitation formula vastly undercounts the number of visitors who use the lake.

iii) **Recreation Analysis** – Recreational use at Eufaula Lake continues to evolve. While visitation in recreational areas remains strong. Facilities installed in an outgranted area indicate that there is demand for recreational opportunities not offered in traditional Corps managed parks. The popularity of the water park, cabins, swimming pool, and inflatable slides located at Yogi Bear’s Jellystone Park in Eufaula Cove North is an example of this previously unmet recreational demand. Yogi Bear’s Jellystone Park is open seasonally from Memorial Day through Labor Day and is privately owned and operated under a sublease from the City of Eufaula. There is a current private request to develop Roundtree Landing which is a planned but never constructed Public Use Area. The proposal calls for a variety of recreational facilities to be constructed in Roundtree Landing in conjunction with a new planned community called Carlton Landing that is being built on private property adjacent to Roundtree Landing. The planned facilities will be more upscale than the facilities typically found in USACE or State operated parks. There is also great demand for boat docks and vegetative modification in areas adjacent to the many subdivisions located or planned around the lake. Increased development around the lake area has been shown to decrease the natural vegetation in the developed areas both on and off Government property. That natural vegetation has been shown to be more efficient than mowed grass in capturing nutrients and sediments before they reach the lake. Blue Green algae blooms which have occurred lake wide in 2011 and 2012 are fueled by nutrient loading and hot dry weather. Continued algal blooms have the potential to make Eufaula Lake undesirable for water related recreation. The challenge for the future will be meeting recreational demand while improving water quality.

iv) **Recreation Carrying Capacity** – Some portions of Eufaula Lake are more heavily used than others. This is related to water clarity. The areas closest to the dam tend to be clearer than the outlying arms of the lake. The Recreation Study conducted for the EIS divided the lake into six areas. The study found that 70 percent of the annual visits occur in the two lake areas that are closest to the dam. It is in these areas of

* Twelve visitor hours this may be aggregated by one or more persons in single or multiple visits.

the lake that the potential exists to reach and exceed the boating carrying capacity. These lake areas have the greatest number of Public Use Areas, marinas and private boat docks. The Recreation Study revealed that each private boat dock has an average of 3.2 boats stored in it with the greatest impact on boating carrying capacity being the additional docks associated with future shoreline development. The recreation study recommends that the SMP be revised to assure that boating density does not exceed the recommended density of 15 acres of water surface per boat. The study also revealed that annual visits to Eufaula Lake have been increasing at a rate of two to three percent each year. Occupancy rates at Corps operated parks were found to be 46 percent on weekdays and 66 percent on weekends during July which is the peak month for visitation. This indicates that while on some summer weekends these parks are completely full, there is additional capacity in these areas. Eufaula Cove North which is operated by the City of Eufaula, contains the largest marina on the lake, Yogi Bear's Jellystone Park, an amphitheater where large concerts are held, several restaurants and a baseball complex, is the most intensely used public use area on the lake with an average of 2,090 annual visits per acre. There is overcrowding and resource degradation occurring in Eufaula Cove North during peak summer weekends and this area is exceeding its recreational carrying capacity. The City of Eufaula has expressed written interest in expanding their lease area to the north of Eufaula Cove North to help alleviate this overcrowding. The most intensely used Corps operated public use area is Highway 9 Landing with an average of 1383 annual visits per acre. Highway 9 Landing contains the second largest marina on the lake, multiple boat ramps and a large swim beach. Despite periods of heavy use the park is not considered to have exceeded its carrying capacity. Porum Landing, due to its location on the most popular part of the lake, experiences overcrowding on most summer weekends. This situation is exacerbated by large numbers of day use boaters who utilize the two boat ramps in the park because of its proximity to Duchess Creek Island, a heavily utilized natural beach area. The crowding issues at Highway 9 Landing and Porum Landing can be alleviated by constructing additional boat ramp complexes outside the campgrounds. This has been planned but has not been funded. Due to a lack of available land, the overcrowding in Eufaula Cove North will likely continue. The City of Eufaula has improved Eufaula Cove South in an effort to relieve this overcrowding but the area is not popular due to being across the cove from Eufaula Cove North. The areas with the greatest remaining capacity for recreation are the outlying arms. However, these areas have historically not been popular with the visiting public. It is likely that these outlying portions of the lake will continue to be lightly used and the

areas closest to the dam will become overcrowded unless revisions to the SMP limit the number of new private boat docks in these areas.

2.08. Real Estate – The acquisition policy for purchasing lands for Eufaula Lake were: (a) fee area encompassing elevation 597.0 feet, m.s.l., which is the top of flood control pool and (b) the upper guide line for flowage easement acquisition was elevation 600.0 feet, m.s.l., or the elevation of the envelope curve of backwater effects of the 50-year flood occurring after 50 years of sedimentation, whichever is higher. For those areas above 600.0 feet, m.s.l. the acquisition policy was to purchase flowage easement to provide the right to temporarily store flood waters

2.09. Pertinent Public Laws – The following public laws are applicable to Eufaula Lake.

a. Public Law 59-209, Antiquities Act of 1906. - The first Federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities, and Uniform Rules and Regulations.

b. Public Law 74-292, Historic Sites Act of 1935. – Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior".

c. Public Law 78-534, Flood Control Act of 1944. – Section 4 of the act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes the Corps to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to Federal, State or local governmental agencies.

d. Public Law 85-624, Fish and Wildlife Coordination Act 1958. - This act as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

e. Public Law 86-717, Forest Conservation. - This act provides for the protection of forest cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.

f. Public Law 87-874, Rivers and Harbors Act of 1962. – This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

f. Public Law 88-578, Land and Water Conservation Fund Act of 1965. - This act established a fund from which Congress can make –appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.

g. Public Law 89-72, Federal Water Project Recreation Act of 1965. - This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. An OCE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.

h. Public Law 89-90, Water Resources Planning Act (1965). - This act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.

i. Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976. – This act authorized a research and development program with respect to solid-waste disposal. It proposes (1) to initiate and accelerate a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to State and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal programs.

j. Public Law 89-665, Historic Preservation Act of 1966. – This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President’s Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.

k. Public Law 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages. – Section 210 restricted collection of entrance fee at Corps lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

l. Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). – NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a “continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations and public law of the United States shall be interpreted and administered in accordance with the policies of the Act.

m. Public Law 91-611, River and Harbor and Flood Control Act of 1970. – Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.

n. Public Law 92-463, Federal Advisory Committee Act. - The Federal Advisory Committee Act became law in 1972 and is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.

o. Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972. – The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the Federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters."

p. Public Law 92-516, Federal Environmental Pesticide Control Act of 1972. - This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

q. Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.

r. Public Law 93-251, Water Resources Development Act of 1974. - Section 107 of this law establishes a broad Federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plan installations.

s. Public Law 93-291, Archeological Conservation Act of 1974.- The Secretary of the Interior shall coordinate all Federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal Construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered nonreimbursable project costs.

t. Public Law 93-303, Recreation Use Fees. - This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which Federal agencies may charge fees for the use of campgrounds developed and operated at Federal areas under their control.

u. Public Law 93-523, Safe Drinking Water Act. - The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish Federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint Federal-State system for assuring compliance with these standards and for protecting underground sources of drinking water.

v. Public Law 94-422, Amendment of the Land and Water Conservation Fund Act of 1965. - Expands the role of the Advisory Council. Title 2 - Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.

w. Public Law 99-662, The Water resources Development Act. - Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

x. Public Law 110-114, Water Resources Development Act 2007, Section 3133. – This act officially recognizes recreation as a project purpose for Eufaula Lake and requires the formulation of a Lake Eufaula Advisory Committee.

y. Public Law 110-114, Water Resources Development Act of 2007, Section 3134. – This act requires lakes within the State of Oklahoma under Corps of Engineers jurisdiction research methods for demonstration projects to benefit and enhance recreation.

CHAPTER 3 RESOURCE OBJECTIVES

3.01. Resource Objectives - Resource considerations at Eufaula Lake exist primarily due to user demands on the project. Multiple user types have interests in the project lands, recreation facilities, and waters, and such demands regularly create conflicts. We are also obligated to manage these resources for the overall interest of the public and not just for a select group of individuals. It is the responsibility of the project and the agency to attempt to provide an environmentally sound balance of these demands. Impacts on the environment will be assessed during the decision making process prior to any change to management plans or strategies. The following objectives are the priorities for consideration when determining management goals and development activities.

1. To increase the value of all project lands and waters for recreation, fisheries, and wildlife.
2. Manage the existing natural resources and recreation facilities in compliance with all pertinent laws, regulations and policies.
3. Develop and manage the area for maximum enjoyment of the recreating public.
4. Protect and preserve the existing native wildlife species and improve wildlife habitat for now and in the future.
5. To protect and preserve the existing shoreline from erosion and overuse through natural resource management and cooperation with adjacent landowners.
6. To inform the public, through programs and personal contacts, about the project and resource management purposes and objectives.
7. Integrate fish and wildlife management practices with other natural resource management practices while working closely with state and local natural resource agencies.
8. Identify safety hazards or unsafe conditions; correct infractions and implement safety standards in accordance with EM 385-1-1.
9. Avoid the appearance of private exclusive use in areas zoned for limited development in the Eufaula Lake SMP.
10. Encourage non-consumptive use of project lands.

Implementation of these objectives is based upon time, manpower, and budget. The objectives provided in this chapter are established to provide high levels of stewardship to USACE managed lands and resources while still providing a high level of public service. These objectives will be pursued through the use of a variety of mechanisms such as: Assistance from volunteer efforts, hired labor, contract labor, permit conditions, remediation, and special lease conditions. It is the intention of Eufaula Project to provide a realistic approach to the management of all resources.

The Natural resource elements within the identified objectives come in several different categories of work at Eufaula Lake. They can be broken into fisheries, game, non-game, and shoreline use. Management objectives for these categories are dependent on the individual resource, location, and lead agency.

A. Shoreline Management: The Eufaula Lake shoreline management program is one of the primary work burdens for the staff. The objective for this program is to manage public lands in accordance with the Eufaula Lake SMP. The purpose of this document is to manage activities considered as private use on public lands without allowing degradation to natural resources or creating the appearance of private exclusive use. Reference the Eufaula Lake SMP for descriptions of authorized activities within this program.

B. Wildlife and Fisheries Management: Wildlife and fisheries are managed cooperatively between the ODWC and USACE. USACE currently licenses 31,873 acres of land and water to ODWC. These areas are primarily located in the Deep Fork River, Duchess Creek, Canadian River and Gaines Creek portions of Eufaula Lake. ODWC's primary objective in these areas is to manage game species with the understanding those actions benefit both game and non-game species. These areas will continue being managed by this agency under their license.

ODWC is also the primary agency responsible for performing fisheries management. ODWC objectives for fisheries is to continue to monitor current population and insure they are healthy and stable. ODWC does annual sampling and data analysis to assure fisheries populations stay within an acceptable range. They also make adjustments in creel and size limits as necessary to keep existing populations healthy. ODWC can also supplement fish populations with their hatchery program.

USACE is not directly involved with management within the ODWC areas of responsibility. However, USACE has determined that ODWC's objectives compliment our goals for fish and wildlife management and should remain as the primary objectives for these locations. Another USACE objective for ODWC areas of responsibility will be to continue providing support when resources are available. USACE often provides support with assistance in the placement of fish structures, archeological reviews for proposals involving soil disturbance, and assistance with GIS mapping.

In addition to the ODWC licensed areas, USACE has several additional management units established for the purpose of wildlife management. The objectives for these lands are to preserve the existing native wildlife species and improve their habitat. The management plans written within this objective will be centered on both game and non-game species and can be found in the OMP.

C. Recreation: Recreation falls within two categories and can be identified as either land or water based recreation. Management objectives for each type vary depending on the location and the intensity of use. General objectives are provided in this master plan as to the work necessary to meet the public's needs for land and/or water based recreation.

Land-based recreation includes opportunities, activities, areas and facilities that typically occur on, or adjacent to, USACE land and water, such as camping, hiking, hunting, picnicking, ATV use, wildlife/bird viewing, sightseeing, etc. Land-based recreation areas include campgrounds, day-use areas, overlooks, ATV trails/areas, bathrooms, roads, boat ramps, courtesy docks, and wildlife management areas. Facility types typically found within these recreation areas include campsites, picnic sites, hunting areas, and trails. These recreation areas are managed by several entities: USACE, State of Oklahoma, county and city governments, and private/commercial concessionaires. Land-based recreation objective will be to continue providing service and rehabilitate existing parks to a "Justified Level of Service".

Water-based outdoor recreation includes opportunities, activities, areas and facilities that occur on water managed by USACE. These activities include; fishing, boating, swimming, scuba diving, operating seaplanes, kayaking, etc. Unlike land-based recreation the majority of water-based is managed by USACE with some assistance from the Oklahoma Lake Patrol. The objective of this program is to insure public safety while providing recreational opportunities on the water. This program will involve looking at recreation carrying capacity vs. current use patterns, zoning requirements for no-wake or restricted areas, and areas to remain open for public recreation. USACE will keep in close coordination with the Oklahoma Lake Patrol in determining use patterns within the water portions of the project and promote water safety.

D. Oklahoma State Comprehensive Recreation Plan: The 2007 Oklahoma State Comprehensive Recreation Plan (SCORP) indicates the public is primarily concerned with maintaining access to public lands while providing a wide variety of recreational opportunities. One of the unique challenges identified in the SCORP is the change in demographics that all outdoor recreation providers will see an increase in resource user groups that represent ethnic and racial minorities. These groups have differences in preferences for space, facilities, and amenities. This SCORP also demonstrated that low-income and rural constituents often face unique challenges in accessing outdoor recreation resources. Further depletion of the available outdoor recreation resource base would increase the negative impacts on these population groups. Maintaining what is currently held in the public sector and purposefully managing some of these spaces for undeveloped outdoor recreation use would address the needs of these minority user groups.

E. Resource Objective Priorities: Execution of resource objectives at a large multi-purpose project such as Eufaula Lake is difficult. It is a delicate balance between items that often compete for funds, time, and other resources. Priority will be given to those items required by law with an attempt to provide continued public use of Government land. Public access will still be a priority to service all ethnic and economical groups. Access will be in the form of offering hunting, fishing, camping, bird watching, boating, and other various lake related recreational opportunity locations.

The intention is to continue allowing shoreline use activities in areas where private exclusive use can be avoided as well as continued protection of the natural resources. The shoreline use program will need to be monitored closely to assure permitted activities do not exceed the carrying capacity of Eufaula Lake.

CHAPTER 4 LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.01. Land Allocation – Land allocation is identified as the congressionally authorized purpose for which the project lands were purchased. There are four categories of allocation identified as: Operations, Recreation, Fish and Wildlife, and Mitigation. There was a total of 163,214 acres of land purchased for the creation of Eufaula Lake.

A. Operations: These are lands acquired specifically to meet the requirements of the congressionally authorized purpose of constructing and operating the project (i.e. flood control, hydropower, water supply etc.). There were 157,776 acres purchased for this purpose which comprises the majority of the project.

B. Recreation: The Congressional authorization for Eufaula Lake allowed for the Allocation of Recreation, but only for those lands above the acquisition guide contour which was elevation 600.0. There are 5,438 acres of land purchased specifically to meet this purpose and allow development for recreational facilities.

C. Fish and Wildlife: These would be lands that were purchased specifically for the purpose of managing or protecting fish and wildlife. There were no lands congressionally authorized for the purpose of Fish and Wildlife.

D. Mitigation: These would be lands purchased for the specific intention of offsetting the losses associated with the creation of the project. There were no lands congressionally authorized for the purpose of Mitigation.

A map showing the Land Allocations for Eufaula Lake can be found in the plates section.

4.02. Land Classification – Land Classification indicates the primary use for which project lands are managed. There are five categories of classification identified as: Project Operations, High Density Recreation, Mitigation, Environmentally Sensitive Areas, and Multiple Resource Managed Lands. Maps showing the various land classifications can be found in the plates section.

A. Project Operations: This category includes the lands acquired for the dam, spillway, hydropower plant, switch yard, project office, and maintenance yards. There are 133 acres specifically purchased for these features.

B. High Density Recreation: These are lands developed for intensive recreational activities for the visiting public including day use areas, campgrounds, and concession areas. There are 10,353 acres of land classified for high density recreation.

C. Mitigation: This classification is only used for the lands allocated for mitigation for the purpose of offsetting losses associated with the development of the project. There are no lands classified as mitigation since this land allocation was not congressionally authorized.

D. Environmentally Sensitive Areas: These are areas where scientific, ecological, cultural, and aesthetic features have been identified. This designation limits and can prohibit any further development within the area. There is a 135 acre area which the Corps purchased for construction of a park known as Dam Site North. This location is high in elevation and is outside of the flood control pool. It is within the historic range of the endangered American Burying Beetle and has perfect habitat to be managed for this species. Therefore, it is zoned as Environmentally Sensitive to manage and protect this endangered species.

E. Multiple Resource Managed Lands: This classification is for the predominate use of an area with the understanding that other compatible uses can occur within the area. This classification is divided into four subcategories identified as: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. There are 55,953 acres of lands that are under this classification. The following identifies the amount contained in each subcategory of this classification.

- (1) Low Density Recreation – These are lands with minimal development or infrastructure that support passive public use (e.g. fishing, hunting, wildlife viewing, shoreline use, hiking etc.). They were lands purchased for project operations but classified for low density recreation. The intention of these classified lands is to assure available lands for low density recreation between areas classified as recreation intensive use. There are 25,773 acres under this classification at Eufaula Lake.
- (2) Wildlife Management – These are lands designated for the management of Fish and Wildlife resources. They were lands purchased for project

operations but classified for the purpose of wildlife management. There are 29,892 acres under this classification at Eufaula Lake.

- (3) Vegetative Management – These are lands that were previously designated as protected under the original MP. This designation no longer exists within the guidance for writing a MP. Lands zoned for vegetative management are for the management of areas containing vegetation considered to be important to save or conserve. Examples of these vegetative types would be wetlands, forests, prairie, or other native vegetation. There is a 70-acre island near Arrowhead State Park that has a unique forest community that is undisturbed because of its location. The forest community is considered to be cross timber which is a combination of different communities since it is a transition zone between two eco-regions. This area is zoned Vegetative Management to help protect this vegetative community.

- (4) Future/Inactive Recreation Areas – These are lands with site characteristics compatible with potential future recreational development or recreation areas that are closed or open but no longer maintained. These areas will be managed as a multiple resource land until an opportunity to develop or reopen these areas. There are 218 acres under this classification at Eufaula Lake.

Table 4.1 Land Classification Acres	
CLASSIFICATION	ACRES
Project Operations	133
High Density Recreation	10,661
Environmentally Sensitive Areas	135
Multiple Resource Managed Lands Low Density Recreation	14,928
Multiple resource Managed Lands Wildlife Management	31,569
Multiple Resource Managed Lands Vegetative Management	70
Multiple Resource Managed Lands Future/Inactive Recreation Areas	218

F. Water surface: The project does have a surface water management program for two items. First would be the area around the dam which we have identified for no boat entry. There is an area below and above the dam that is buoyed off which no entry is allowed. This is

for both project operations and public safety. Second is seaplane landing areas are only authorized in certain locations. A map of the locations where seaplanes are authorized to land can be found in the plates section.

The remainder of the lake is open to recreational use. There is no specific zoning for these areas, but there is a buoy system in place to help aid in public safety. These buoys mark hazards, no wake areas, and navigational direction. This buoy system is managed by USACE but with close coordination with the Oklahoma Department of Public Safety.

4.03. Project Easement Lands – These are lands on which easement interests are held but no fee title ownership. These are typically composed of three different classification identified as Operations Easement, Flowage easement, and Conservation Easement. There are 31,667 acres of easement lands at Eufaula Lake.

A. Operations Easement: These would be easements the Corps of Engineers purchased for the purpose of project operations. There are no operation easements at Eufaula Lake.

B. Flowage Easement: These are easements purchased by the Corps of Engineers giving the right to temporarily flood private land during flood risk management operations. There are 31,667 acres of flowage easement lands located at Eufaula Lake. The purpose of these easements is to provide adequate storage for flood waters.

C. Conservation Easement: These would be easements the Corps of Engineers purchased for the purpose of protecting wildlife, fisheries, recreation, vegetation, archeological, endangered species, or other environmental benefits. There are no conservation easements at Eufaula Lake.

CHAPTER 5 RESOURCE PLAN

5.01. Classification and justification - This chapter describes the management plans for each area of classification within the MP. The classifications which exist at Eufaula Lake are; Project Operations, High Density Recreation, Environmentally Sensitive, and Multiple Resource Managed Lands. The management plans identified are in broad terms of how these project lands will be managed. A more descriptive plan for managing these lands can be found in the Eufaula Lake OMP.

A. Project Operations: This land is classified for security reasons pertaining to project operations. This would be land associated with the dam and related facilities. There are 133 acres of lands under this classification which are managed by the USACE. The management plan for this area is to continue providing physical security necessary to insure continued operations of the dam, hydropower plant, and related facilities. This means that public access must be restricted in hazardous locations, near the dam and spillway, and within the hydropower plant. Authorization for the public to moor private floating facilities and/or the modification of land form and vegetation are not permitted within this area. The goal for these classified lands is to continue operating as done historically in order to insure project operations.

B. High Density Recreation: There are numerous areas around Eufaula Lake that are designated as High Density Recreation in previous master plans. However, a distinction needs to be made as to what areas are allocated specifically for recreation. The difficulty in describing the exact areas allocation lies in the bases of the acquisition guide contour which was elevation 600 msl. This means that even if an area is classified as recreation, only a portion of the area is actually allocated for that purpose. Eufaula Lake has 10,353 acres classified as high density recreation of which only 5,438 acres are considered to be allocated for recreation. Description of High Density recreation is provided in two separate areas. First are areas classified for high density recreation but leased to another agency/entity for management and operation. Second would be those high density areas which USACE still manages and operates.

There are several areas currently classified as high density recreation which are leased to other organizations for operation and management. These areas include the land purchased for the two state parks and recreation facilities constructed by USACE but were no longer affordable to maintain. USACE does not provide any maintenance within any of these locations but there are times when we provide support to the managing agency. USACE has to provide review of requests and make sure they are in accordance with applicable laws and regulations

for the proposed activity within an area zoned high density recreation. The areas currently leased to other agencies can be found in table 5.1. The goal for these areas is to work with USACE partners to assure recreation areas are being managed in accordance with resource objectives identified in Chapter 3.

Table 5.1 Recreation Area Managing Agency			
Park	Number of Acres	Land Allocated to Recreation	Managing Agency
Eufaula State Park	2,852	Yes	State of Oklahoma
Arrowhead State Park	2,203	Yes	State of Oklahoma
Crowder Point East/West	243	Yes	City of Crowder
Crowder Park	11	No	City of Crowder
Juniper Point North/South	242	Yes	City of Crowder
Eufaula Cove North	111	No	City of Eufaula
Eufaula Cove South	81	Yes	City of Eufaula
Belle Starr North	136	Yes	Belle Starr Marina
Roundtree Landing*	306	Yes	Carlton Landing
Eufaula State Park**		Yes	Muscogee Creek Nation

* The original number of acres for Roundtree Landing was 256. This number grew to 306 acres once it was decided to increase the area zoned High Density Recreation for the proposed Carlton Landing development.

**The Oklahoma Department of Tourism once managed a public golf course within Eufaula State Park. This golf course is now managed by the Muscogee Creek Nation. That golf course area has been separated from the State of Oklahoma’s lease and incorporated into a direct lease with the Muscogee Creek Nation.

A map showing managing agencies and their locations can be found in the plates section.

USACE still operates and manages numerous areas designated as high density recreation. These areas vary from locations that were classified recreation areas that were developed but have since been turned into access points and locations where developed recreational areas are still managed and maintained for high density use. Table 5.2 shows the areas currently managed by USACE.

Table 5.2 Management Goal			
Park	Number of Acres	Land Allocated to Recreation	Management Goal
Damsite East/South	546	No	Maintained Facility
Gentry Creek	414	Yes	Maintained Facility
Overlook, South	16	No	Maintained Facility
Belle Starr South	569	Yes	Maintained Facility
Cardinal Point	290	No	Access Point
Mill Creek Bay	54	Yes	Maintained Facility
Gaines Creek	575	Yes	Access Point/Wildlife Management
Holiday Cove	174	Yes	Access Point
Elm Point	244	Yes	Maintained Facility
Highway 31 Landing	203	Yes	Access Point
Hickory Point	265	No	Access Point
Brooken Cove North	550	Yes	Maintained Facility
Porum Landing	160	Yes	Maintained Facility
Highway 9 Landing	215	Yes	Maintained Facility
Oak Ridge	136	Yes	Maintained Facility
Overlook, North	22	No	Closed

A map showing existing parks and facilities managed by USACE can be found in the plates section.

The areas identified as Access Point under the management goal are locations that were constructed in the early years of the lakes development. These locations were projected to have need for recreational facilities based on projected use. Time revealed that recreational use did not develop for these locations and/or funding to provide services was insufficient. Therefore, over a several year period USACE opted to change some maintained facilities into Access Points. This allowed these areas to stay open for public use but services such as park cleaning, refuse collection, and mowing were no longer provided. Also, any maintenance needs such as improvements or betterments were ceased. The only maintenance performed is the minimal amount necessary to allow safe use of the facilities. Management goal for these areas is to keep them open for public use while meeting the resource objectives identified in Chapter 3.

The areas shown as maintained facility under the management goals are parks that were constructed and managed for high density use. These areas still provide services such as water, electric, mowing, refuse collection, cleaning, and maintenance/improvements. The

plan is to provide a justified level of service by updating camp sites to accommodate larger camping units with 50-amp electrical service, restrooms to a sufficient standard to service the public, and water available for camper hook-up while at campsite. With minor exceptions, all operations and maintenance activities are performed by the USACE employees, contractors, volunteers, and other various methods. The ultimate goal of this program is to insure the safety of our visitors and to provide a wide range of opportunities for outdoor recreational enjoyment while concurrently meeting the resource objectives in Chapter 3. Users and their activities vary greatly at Eufaula Lake and satisfying these demands will be a constant challenge. Routine visitor use surveys will be conducted to identify user desires and preferences. Future management strategies will shift to accommodate the demands indicated in these visitor use surveys.

C. Environmentally Sensitive Area: These are areas where scientific, ecological, cultural, and aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the ESA, the NHPA, or applicable State statutes. These areas must be considered by management to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration. There is one area at Eufaula Lake that fits this description. It is a 135 acre area which USACE purchased for construction of a park known as Dam Site North. This location is high in elevation and is outside of the flood control pool. It is within the historic range of the endangered American Burying Beetle and has perfect habitat to be managed for this species. The goal for this area is to be managed for protection of the American Burying Beetle habitat.

D. Multiple Resource Management Lands: These are areas where predominate use is that of the classification. However, there are other compatible uses which may occur on these lands without impacting the predominant use. These lands can be divided into four sub-categories for the purposes of this master plan. These categories are; Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. The following is a description of each sub-categories resource objectives, acreages, and description of use.

1. Low Density Recreation: These are lands with minimal development or infrastructure that support passive public use. There are 17,800 acres zoned Low Density Recreation which the allowable use within these lands can be categorized as either shoreline use (private floating structures/vegetative modification) or low density recreation.

Portions of the Low Density Recreation lands are areas where USACE has determined that Limited Development can occur under a Shoreline Use Permit. These permits can authorize construction of private floating facilities on the lake as well as vegetative modification on fee owned land. Shoreline use is the major portion of work effort at Eufaula Lake when it comes to natural resources management. These activities may be authorized in designated areas consistent with approved use allocations specified in the Lake Eufaula SMP. The intention of the SMP is to protect natural resources while still providing limited private use activities. The issuance of a private shoreline use permit does not convey any real estate or personal property rights or exclusive use rights to the permit holder.

The current status of shoreline management at Eufaula Lake is there are approximately 3,800 permits issued for boat docks and mowing related activities. It is anticipated this number will increase in future years due to the increase of development from the adjacent private property around the lake. Consult the Eufaula Lake Shoreline Management Plan for specific information on how shoreline use is managed.

The intentions for these lands is to assure they are being managed in accordance with the objectives identified in Chapter 3, and the requirements in CFR, Title 36, Section 327.30. Eufaula Lake staff will monitor permitted shoreline use in these areas to accomplish this task. Staff will assure the appearance of private exclusive use is not occurring and that USACE resource objectives are being met. If areas become saturated, USACE will notify the public why additional shoreline use permits cannot be issued within that area.

There are a few small locations that were purchased with the intentions of being managed for low density recreation parks. These locations can be seen in table 5.3. There was minimal to no development in these areas and effort is no longer provided to maintain these areas as low density parks. Onapa Cove had a road with a few picnic sites which have not been maintained for decades. This area has been abandoned with no maintenance provided. Onapa Cove does make an excellent access point for the public and should be managed in that fashion. Big Ridge only had a gravel parking lot constructed which has not been maintained in decades. The parking lot has become overgrown with vegetation and is no longer discernible. Canadian Landing never had any development of recreational facilities. Both Big Ridge and Canadian Landing do offer opportunities to conduct wildlife management. Management goal for these areas has been and will continue to be wildlife management.

Table 5.3 Low Density Recreation			
Park	Number of Acres	Number of Acres Allocated to Recreation	Interim Use
Canadian Landing	47	No	Wildlife Management
Big Ridge	70	Yes	Wildlife Management
Onapa Cove	78	Yes	Access Point

2. Wildlife Management: These are lands designated for the management of wildlife resources. Wildlife management is conducted by USACE and the State of Oklahoma. There are currently 31,873 acres of land and water licensed to the ODWC. These areas are primarily located in the Deep Fork River, Duchess Creek, North Canadian River, Canadian River and Gaines Creek portions of Eufaula Lake. ODWC’s primary strategy in these areas is to manage game species with the understanding those actions benefit both game and non-game species. The resource plan for ODWC licensed land coincides with the objectives USACE desires to see on land classified as wildlife management. Therefore the plan for these areas is to continue allowing ODWC to implement their management plan.

A special note about USACE involvement within ODWC licensed land is we are not directly involved with the work effort within these areas. However, USACE often provides support to ODWC when time and resources are available. Support often comes in assistance with creation of habitat, archeological reviews, identifying boundary line, and assistance with GIS mapping. USACE will continue to let ODWC be the lead agency when it comes to management of wildlife at these locations.

In addition to the ODWC licensed areas, USACE has property we directly manage within several units for the purpose of wildlife management. These areas are managed with the intentions of providing public hunting opportunities for both big and small game. A level one environmental inventory has been conducted for Eufaula Lake, which is a GIS based measurement of existing wetlands, soils, and vegetative types. The next step is to perform a level two environmental inventory to continue cataloging existing natural resources. This survey is more labor intensive and requires actual field surveillance by staff to identify resources that need to be cataloged. These inventories will identify sensitive natural resources and their location as well as help develop management plans to enhance these natural resources. The management plans will include common wildlife management practices such as: planting of food plots, fencing, cattle grazing for vegetation control, and the use of special restrictions to manage wildlife populations.

Non-game wildlife is something that is also managed by USACE. The species of focus within this area of consideration are animals listed as a threatened or endangered species under the ESA. These species (table 2.2) will continue to receive attention to assure they are managed in accordance to their habitat needs and parameters identified in a biological opinion. Other non-game programs such as song bird nest box construction and installation of bat boxes are often performed on an intermittent basis. The plan is to continue providing effort to these initiatives in order to provide some form of management for non-game species.

The goal for the areas leased to ODWC is to continue working with USACE partners to assure wildlife management is being conducted so that it benefits both game and non-game species. Those lands managed directly by USACE will continue being managed in a fashion to enhance the existing environment and benefit both game and non-game wildlife. A priority will be given to accomplishing the objectives identified in Chapter 3.

3. Vegetative Management: These are lands that have vegetative types considered to be sensitive and needing special classification to ensure success. A good example of these types of vegetation would be forested wetlands and Cross Timber forests. There is a 70-acre island near Arrowhead State Park that has a unique forest community that is undisturbed because of its location. The forest community is considered to be Cross Timber forest which is a combination of different communities since it is a transition zone between two eco-regions. USACE currently has an agreement with the University of Arkansas for them to conduct studies as well as provide management of this forest community. The plan for this zoning is to continue the agreement with the University of Arkansas and to protect this community.

4. Future/Inactive Recreation Areas: These are areas that were classified for recreation but were never developed. There is one location at Eufaula Lake that fits this description. This area is called Duchess Creek and was purchased with the intention of developing a park. For numerous reasons this location was never developed into a park. Duchess Creek is approximately 99 acres in size and has land specifically allocated to recreation. The location has good water quality and is generally desirable for public recreation. Therefore, it should remain as a potential recreational development location. In the interim it should be managed for wildlife and low density public recreation and allow activities such as, hunting, hiking, or wildlife observation.

E. Water Surface: This is in reference to water surface management needs which the project utilizes to ensure project operations. There are two types of water surface zoning utilized at Eufaula Lake. First would be an area that is prohibited for boat traffic. This area is located around the dam and is delineated with buoy lines. There are prohibited entry locations

on both the upstream and downstream side of the dam in accordance with ER 1130-2-520. The purpose of this restriction is to limit public access to ensure the security of the structure and public safety. The second type of water surface zoning is for seaplane landing. There are numerous locations around Eufaula Lake where seaplane landing is prohibited. The goal for this zoning is to continue managing it to provide the optimal recreational experience for the user while still providing high levels of public safety. A seaplane landing map is provided in the plate section of this MP.

5.02. Special Considerations - There is an abundance of cultural resources located around and within Eufaula Lake. Special consideration should be given to any activity that may have a negative impact on cultural resources. Therefore, a thorough review of all actions that have soil disturbance must be conducted and reviewed by the District Archeologist. Any action found to have negative impact must be coordinated with the appropriate state or tribal entity before authorization of work is granted. In addition, the recently developed HPMP must be implemented for managing cultural resources.

There are several endangered species that have a home range within the Eufaula Lake area. Therefore, any work conducted on this project has to be in accordance to the ESA. The methodology to assure all work is done in compliance with ESA is to first; review the proposed action for impacts, second; conduct a field survey to ascertain if the species or suitable habitat is present, and third; if species or suitable habitat are present, follow the requirements of the ESA.

Shoreline management at Eufaula Lake is an integral part of the project. Therefore, it is a management topic that must be identified to help lay the ground work to assure compliance of the regulations. 36 CFR Section 32.30(d)(1) states:

“It is the policy of the Chief of Engineers to protect and manage shorelines of all Civil Works water resource development projects under Corps jurisdiction in a manner which will promote the safe and healthful use of these shorelines by the public while maintaining environmental safeguards to ensure a quality resource for use by the public. The objectives of all management actions will be to achieve a balance between permitted private uses and resource protection for general public use. Public pedestrian access to and exit from these shorelines shall be preserved. For projects or portions of projects where Federal real estate interest is limited to easement title only, management actions will be appropriate within the limits of the estate acquired. “

Generally, Eufaula Lake has been historically managed to achieve the results required in the above policy statement. The intention is to continue managing in this fashion to achieve a balance between public desires for shoreline use and environmental sustainability. Through the recent analysis conducted in conjunction with the EIS it has become apparent that some

changes need to occur to the SMP to assure compliance with this policy statement in the future.

Those changes are recommended in Chapter 8 of this MP and pertain to; endangered species, dock suitability zones, density of development, cultural resources, water quality, and vegetative modification. Special considerations will always be given to the shoreline management program to assure that requirements identified to manage the above areas are kept in balance.

CHAPTER 6 SPECIAL TOPICS

6.01. Competing Interests on the Natural Resource - Eufaula Lake is a large multi-use project with numerous authorized purposes. The authorized purposes have industries and/or user types which have developed over time and are reliant on their provided benefits. These benefits are critical to the local and regional economies and are of great interest to the public. Due to these interests, competing desires on the natural resources develop. It is very difficult to balance these interests so the customer can benefit while insuring there are no adverse impacts. It is the intention of this document to outline a plan, which when executed, provides customer service and appropriate natural resource management.

6.02. Section 3133 of WRDA 2007 - One of the biggest issues to generate the most concern is lake levels. Eufaula Lake was designed with the top of the conservation pool to be managed at 585.0 msl. This is typically an easy elevation to maintain under normal circumstances. However, during drought periods the use of water for hydropower and water supply coupled with extreme evaporation and limited inflow cause the lake elevations to recede. These lower elevations generate a great deal of concern by the local recreation industry and the recreating public. This concern came to a pinnacle during the 2007 recreation season. The concerned citizens were upset with the lake elevation dipping 7-feet below normal and united to voice their concern. This voiced concern generated legislation in the WRDA of 2007 for USACE to initiate an advisory committee at Eufaula Lake. This committee is still in formulation stage but is nearing completion. Committee members would be a cross section of local government, public, citizen groups, and state and federal individuals which would represent all authorized project purposes. This committee would convene twice a year and would provide the Tulsa District Commander advice on lake issues and possible management strategies. WRDA 2007 also requires this committee to initiate the water reallocation process for Eufaula Lake. This process would require a detailed look at the available water within Eufaula Lake and how its utilization would best serve the public.

6.03. Shoreline Use : Although only a small percentage of lake users have a shoreline use permit, the shoreline management program still remains an issue of concern for natural resource and work load management. Current staffing levels allows for the administrative portions of shoreline management to be accomplished. However, this work takes away time for other programs of equal importance. Over time, this deficit has a negative impact on all programs and the overall management of Eufaula Lake. This requires the workload needs of

the shoreline management program to be evaluated and balanced with the remaining programs.

Balance of the shoreline management program workload can be achieved with the implementation of best management practices. Best management practices would include; lengthening of response time to applicant, require dock owners to provide a self inspection of their structure, recommend alternative electricity sources for docks, delegated authority for real estate licenses associated with shoreline use permits, and limit total number of shoreline use permits for the lake.

The current response time for applications of shoreline use requests is approximately 30 days. This response time includes work associated with administrative portion of the request such as plan review, site visits, permit processing, and correspondence. If this processing time was increased to 60 days it would allow additional time for staff to perform other duties outside of shoreline management. This would be a change to existing culture of public service but would not be a reduction of services that are currently provided. A simple change such as this would begin to provide some balance amongst shoreline use and the other critical programs.

Boat dock inspection has been historically done at the time a dock permit is renewed. The dock is inspected to assure that it's structurally sound and in compliance with the term and the conditions of the permit. This service has been provided by Eufaula Lake staff which requires a considerable amount of time and effort. In review of this portion of the shoreline use program it has been determined this work provides a service to a small percentage of the public which utilizes Eufaula Lake. In addition, a dock is a private floating facility which has been authorized to be placed on public lands. The overall responsibility of assuring the dock is structurally sound and is within the terms and conditions of the permit should be the responsibility of the permittee. Therefore, requiring the permittee to inspect their private structure would provide more time for Eufaula Lake staff to dedicate to other programs.

Current policy at Eufaula Lake allows for individuals to install electrical service to their boat dock. This involves the trenching of a line from the nearest commercial service to the dock. A real estate instrument in the form of a license is required for this activity along with other supporting documentation. This is an administrative process that requires the lake office to conduct a report of availability, endangered species survey, archeological survey, and an environmental baseline survey before the request is submitted. All of this information is then packaged and sent to the District Office for review and processing of the license. This effort can be reduced dramatically and possibly eliminated with the use of alternative technology for

powering boat docks. The technology has developed to the point where local companies are able to provide the equipment necessary to power features on a boat dock. The equipment is easily installed on the dock and does not require the placement of an electric line from commercial power. This method of power can then be permitted under the shoreline use permit and would not require an electric line license. Therefore, administrative workload would decrease for Eufaula Lake and District Office staff. An additional positive result of this change would be a decrease in impacts to the natural resources at Eufaula Lake.

The last option for managing shoreline use workload is to place a limit on what the Eufaula Lake Office can and would process. The reason for this tactic is because analysis conducted in the recent EIS indicates dock numbers would continue to rise at Eufaula Lake. The analysis indicates there is spatial capacity to approve 6,550 boat docks. However, the analysis also indicates that the 6,550 boat docks could have an impact to public safety and the natural resources. Table 6.1 gives a prediction of potential growth in dock permits in a 5-year time increment through 2031. These numbers show a potential public demand that could have an impact to public safety, the natural resources and exceed the Eufaula project’s fiscal and manpower capabilities for processing requests.

Year	Average Number	Predicted Number of Boat Docks
2016	48.	1,916
2021	53.	2,183
2026	58.	2,477
2031	64.	2,800

This projected workload indicates the shoreline use program would grow to a point where it’s impossible to manage with current staffing levels. So, at some point staffing levels would need to be increased or a moratorium placed on accepting applications.

6.04. Need for Additional Recreation Facilities : An issue that often gets overlooked but still is important for purposes of this chapter is boat ramp use within USACE managed public use areas at Eufaula Lake. The lake has gained in popularity with the boating community over the last 40 years and has become a popular destination. This increase in use was not anticipated when the USACE built the recreation areas at the lake. The constructed facilities are underdeveloped and insufficient when it comes to boat launching and parking. Often times certain parks can be over-crowded with boaters launching at the ramp and then parking their vehicles/trailers throughout the campground. This causes traffic jams and interferes with our camper’s ability to have an enjoyable recreational experience. The proposed method of

dealing with this problem is to construct two boat ramp complexes on the lake. One is proposed to the north of Porum Landing and the other is to convert Highway 9 East from a campground to a boat ramp complex. If constructed, these two facilities should be sufficient to alleviate the burden boat ramp usage causes within our campgrounds.

6.05. City of Eufaula: The City of Eufaula has a large concession lease with the USACE that includes three restaurants, the largest marina on the lake, a ski shop, a gas dock, a boat marine shop, camping area, swim beach, amphitheater, baseball/softball fields, and Jelly Stone Park. Although most of the facilities found within the concession can be found at other concessions district wide, the addition of Jelly Stone Park provides some unconventional recreational opportunities for lake visitors. The park is open during 1 May – Labor Day weekend and provides services such as putt-putt golf, water toys, full R.V. campsites, a restaurant, swimming pool, inflatable air slides, game room, marina, and cabins. Recent requests have been submitted and are currently under review for an outdoor water park. The construction of this facility began in 2008 and has expanded to encompass most of the available acreage within the lease area. The attraction from those users to the area has increased visitation as well as put a higher demand on the city's infrastructure.

6.06. Carlton Landing: A new development by the name of Carlton Landing is being constructed adjacent to Government property in the Longtown Creek arm of the lake. This is a large development with several hundred homes, business's, and other commercial developments. There are aspects of this development that are proposed for Government property that are currently being reviewed under an Environmental Impact Statement. These proposed activities have not been approved but they include a marina, campground, nature trails, visitor center, recreational areas, and landscaping. Potential impacts associated with this large scale development would need to be monitored closely. If the proposed project is approved, it is anticipated that over time public recreation may get congested on this portion of the lake. This region of the lake would need to be monitored closely to assure recreational patterns are not causing environmental degradation or public safety concerns.

6.07 Cross Timber Eco-Region: Much of the native vegetation found around Eufaula Lake consists of oak-hickory forest and extensive tracts of Cross Timbers woodland. Much of the oak-hickory forests found around the lake are located in areas that were not commonly logged due to the rough terrain and/or low diversity of trees that were available at the time. This resulted in areas of well-preserved old growth oak-hickory forests being kept intact near the lake. For management purposes, USACE worked with the University of Arkansas Tree-Ring Laboratory in 2003 in an attempt to identify areas of old growth forest on government property. The survey studied 10 areas throughout Eufaula Lake. The highlight of the survey was the discovery of

ancient forest cover on a 70 acre island located east of Arrowhead State Park. Since that time, the Eufaula Lake staff has worked with the University of Arkansas for the protection and preservation of the forest by removal of invasive eastern red cedar and periodic controlled burnings.

6.08 American Burying Beetle: ABB can be found at Eufaula Lake. It was proposed for federal listing in October 1988 (53 FR 39617) and designated as an endangered species on July 13, 1989 (54 FR 29652) and retains this status. The ABB is an annual species and typically reproduces once in its lifetime. It competes with other invertebrate species, as well as, vertebrate species, for carrion. Although ABBs are considered feeding habitat generalists, they are believed to be more selective regarding breeding habitat. Direct adverse impacts to ABBs during their inactive and active periods may occur as a result of impacts from clearing vegetation; soil compaction due to heavy equipment operation; fuel and chemical contamination of the soil; grading; soil excavation and filling; and re-vegetation and reseeded of disturbed areas. During construction of dredge disposal pits and access roads, soil is excavated and vegetation is cleared. Excavating soils, clearing vegetation, and constructing access roads involve displacement of soils that could uncover ABBs. Uncovered ABBs could be exposed to predation, adverse environmental conditions, or crushed by equipment. If construction occurs during the active season, ABB broods could be displaced during soil excavation, adults could be separated from larvae/eggs, and/or both could be crushed by equipment.

Section 7(a)(2) of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by such agency is not likely to: 1) jeopardize the continued existence of any endangered or threatened species, or 2) result in the destruction or adverse modification of critical habitat. The term, "jeopardize the continued existence of", means to reduce appreciably the likelihood of both the survival and recovery of listed species in the wild by reducing the species' reproduction, numbers, or distribution. Jeopardy opinions must present reasonable evidence that the project will jeopardize the continued existence of the listed species or result in destruction or adverse modification of critical habitat.

The USFWS reviewed the current status of the ABB, the environmental baseline at Eufaula Lake, the possible effects of the new USACE MP zoning. It was the USFWS's opinion the action is not likely to jeopardize the continued existence of ABB, and is not likely to destroy or adversely modify critical habitat. However, the proposed action likely will result in incidental take of ABBs.

Since incidental take may occur, the USFWS determined that if more than 1.2 acres of land is proposed to be disturbed, USACE will have a section 10 permitted biologist conduct presence/absence surveys using established survey procedures. These surveys must be

performed during the ABB active season and are valid until the beginning of the active season in the following year. Also, if soil disturbance has not commenced by the beginning of the active season in the following year, another survey will be conducted.

If a survey for a project site is positive for the ABB the following best management practices would be implemented:

1. Project footprint will be minimized to the greatest extent practicable.
2. Equipment will utilize existing roads and all equipment will use the same path to minimize disturbance.
3. Habitat will not be altered until necessary for the project construction equipment access points to dredge disposal sites will be minimized to the greatest extent practicable.
4. Project sites will be canvassed and any carcasses that may be present will be removed. Searches for carcasses must be initiated at least two weeks prior to project-related soil disturbance and conducted once a week until soil disturbance begins.
5. The minimum amount of lighting necessary to meet the objectives of the project will be used. If night time work is required, lighting will be down shielded.
6. Vegetation will be established in areas not permanently impacted that were disturbed during project construction as soon as possible following construction. This will be accomplished with an appropriate mix of plant species native to the project site. Plants listed as invasive by the U.S. Department of Agriculture or the state of Oklahoma should be avoided.
7. At least an area equal to the suitable habitat impacted by the project actions (impacts of existing flood pools excluded) will be replaced through improved management or restoration of habitat suitable for ABBs. The Corps will prepare an ABB habitat plan outlining proposed habitat improvements and the improved or restored habitat must be in a location approved by the Service. Management and monitoring of these improved habitat areas must be incorporated to maintain these areas and such actions will be included in an annual report to the Service.

6.09. Invasive Species: The Arkansas River basin has been identified as a major pathway for the introduction of aquatic nuisance species. The following vegetative species are considered of special concern in Oklahoma: alligator weed, Eurasian watermilfoil, hydrilla, purple loosestrife, salvinia, and water hyacinth. Due to its proximity to the McClellan Kerr Arkansas River Navigation System, Eufaula Lake is particularly vulnerable to the transport by boaters of these invasive plants as well as some invasive animal species. Salvinia and water hyacinth have been documented to occur in Eufaula Lake but are not yet at population levels that allow them to

have widespread impacts in the lake. *Salvinia* refers to a genus of perennial, aquatic ferns from South America that are common in water garden and aquarium industries. In Oklahoma giant salvinia has established in ponds, lakes and slow moving streams. It prefers nutrient rich waters and forms extensive mats that can completely cover water surfaces resulting in the degradation of natural habitats by shading natural plants, reducing available dissolved oxygen and creating large amounts of decaying plant material. Giant salvinia can clog water intakes which interfere with irrigation, water supply, and electrical generation. Human transport aids in the spread of this species, with plants adhering to anything entering infested waters including boats, trailers, vehicular wheels, intakes, and gear. Water hyacinth is common in Gulf Coast states and its presence has caused massive problems with navigation, water based recreation, canal systems, pumping stations, and water intakes. While the risk of establishment in Oklahoma is low due to cold winter air temperatures, its continued popularity in water gardens poses a threat that it could adapt to colder temperatures or become established in thermal refugia. In addition to aquatic invasive plants, Oklahoma has a total of 22 invasive plant species on the Oklahoma Invasive Plant Council problem list. Invasive terrestrial plants known to occur on Eufaula Project lands include Japanese honeysuckle, Chinese lespedeza, Japanese climbing fern, kudzu, and autumn olive.

Zebra mussels were found in Eufaula Lake in 2010. Population levels in the main part of the lake have quickly risen to levels that are impacting raw water intakes for water supply and internal piping within the Eufaula Powerhouse. At present these impacts are mainly in the form of increased maintenance costs due to having to remove the mussels. Zebra mussels have yet to spread to the outlying arms of the lake but their spread is inevitable. Grass carp have been found in Eufaula Lake but population levels remain low. Several invasive terrestrial species are known to occur on Eufaula Project lands. Those species include European starling, wild boar, and English sparrow. Impacts associated with these species are localized and minor.

Several native species pose problems for Eufaula Lake and its surrounding lands. The most problematic of these are the Eastern Red Cedar, which is becoming widespread on project lands due to fire suppression, and various species of blue green algae. The spread of Eastern Red Cedar reduces biodiversity and limits food supplies for various animal species by crowding out other plants that produce food. Wide spread blooms of blue green algae also known as cyanobacteria have occurred on Eufaula Lake in 2011 and 2012. The blooms are the result of nutrient loading, drought, and excessively hot summers that have occurred in these years. Various species of blue green algae are capable of producing toxins which have the capability of causing illness and death in humans and animals. The presence of blooms and the associated publicity has impacted visitation at the lake. The implementation of vegetative buffers around

the lakeshore to trap nutrients is one management practice that has the potential to reduce the nutrient loading that enables the blooms.

6.10. Water Quality: Water quality at Eufaula Lake is dependent on many factors. The location and watershed are two primary factors which contribute to general water quality. Eufaula Lake dam is located on the Canadian River in McIntosh County, Oklahoma. The reservoir area lies in Haskell, McIntosh, Okmulgee, and Pittsburg Counties. The watershed's terrain ranges from hills and ridges of the Northern Cross Timbers in the north and transitions southward to the diverse plains, terraces, and wooded hills of the Arkansas Valley and finally to the Fourche Mountains at the far southern border. Eufaula Lake has a conservation pool elevation of 585.0 feet above msl, a mean depth of 20.3 feet, and a cumulative storage capacity of 2,314,600 acre feet at the conservation pool elevation. The lake inflow carries a large amount of sediment that comes mostly from the Canadian, North Canadian, and Deep Fork Rivers. Sediment is deposited at an average rate of 9,417 acre feet per year.

Initially, water quality in Eufaula Lake was generally very good with the exception of the Gaines Creek arm which was impacted by acid mine drainage. The acid mine drainage came from abandoned coal mining activities that were mostly located in the watershed upstream of project lands. This mining activity began in pre-statehood days and was largely over by the 1940's. Numerous vent areas containing highly acidic water flow into tributaries of Gaines Creek and Gaines Creek itself. Some of this acid mine drainage has been lessened over the years due to the installation of passive buffering remediation projects at some locations but the problem is still pervasive.

Recent water quality data and the occurrence of blue green algal blooms in 2011 and 2012 suggest that water quality is declining lake wide. Research has shown that blue green algae blooms are fueled by nutrient loading and hot weather. Both 2011 and 2012 were very warm. More blooms were noted in 2012 than had been seen in 2011 and these blooms occurred in most areas of the lake. The primary sources of the nitrogen and phosphorous in the lake are runoff from fertilized agricultural lands, septic systems, and runoff from fertilized lawns. While nutrients can come from sources throughout the watershed, the progressive increase in residential development around the lake itself coupled with shoreline management practices on the adjacent government property has converted native vegetation to mowed lawns in many areas. One of the BMPs that can lessen the amount of nutrients that get into the lake is the use of vegetated buffer zones around the lakeshore. Research has shown that buffer strips of native vegetation can absorb nutrients at a much higher rate than in mowed areas. The effectiveness of these buffers varies due to topography, soil type, and the width and

condition of the vegetative buffer. If this BMP is implemented the width of the buffer strip will need to be matched to the specific localized conditions where the BMP is implemented.

Eufaula Lake's water quality is impaired for a couple of reasons. Among those causes of impairment is dissolved oxygen which limits fisheries production. The lake stratifies during summer periods and the lower layer of water contains levels of dissolved oxygen that are insufficient for fish and other organisms to survive thus reducing the area of the lake that they can inhabit during that time period. Data collected near Eufaula Dam suggests that this time period begins in early to mid June and ends in late September in most years. Turbidity is also an impairment that occurs in portions of Eufaula Lake. These areas are primarily the outlying arms where the tributary streams contribute to the problem. Many of these areas have highly discolored water which makes these areas less aesthetically appealing for recreational purposes. Due to the size of Eufaula Lake, little can be done except on a localized basis to affect any of these causes of impairment.

Eufaula Lake is typical of many of the reservoirs in Oklahoma and surrounding states that were constructed during the 20th century. As a reservoir ages, water quality declines due to sedimentation, increased human habitation within the vicinity of the lake, changing land management practices within the watershed, increased urban runoff, and many other factors. It is apparent the water quality in Eufaula Lake is declining and if this trend continues the lake will not be optimal for its many intended uses. Recreation is one use that has already been impacted due to blue green algae blooms in recent years. Adverse impacts to the local economy in areas where the blooms were most persistent and severe have been evident and a matter of both local and statewide concern. Stopping or reversing this decline in water quality could allow Eufaula Lake to meet all of its intended purposes for decades to come.

6.11. Mineral Exploration: Eufaula Lake is located in an area where rich natural gas resources exist. There were several gas wells drilled on what are now project lands prior to acquisition by USACE. Many of these well were plugged but others remain in production today. The government did not purchase the mineral below the majority of project fee lands. Several wells have been drilled on USACE managed property to gain access to those private minerals. The latest trend in gas exploration in the Eufaula Lake area is the hydrofracking of shale formations to produce previously unobtainable gas. Directional drilling techniques are used in this type of exploration which allows companies to access gas under USACE surface from a well located on private land. This reduces the number of wells that are requested on Corps surface. Hydrofracking requires large amounts of water and this water is pumped from the lake and often transported miles to the well site via portable above ground irrigation pipe. A permitting process has been developed to allow access to the areas where the water is diverted. This

process assures that no surface damage occurs on USACE fee land. Hydrofracking is controversial and the water that is withdrawn from Eufaula Lake for this purpose is becoming a point of contention during periods of drought when the public's focus is on lake levels and the competing uses of the water in the lake.

Another issue as a result of mineral exploration is the proximity which they conduct these activities adjacent to the flood control structure. There is great concern that hydrofracking or other mineral exploration operations could have a negative impact on the flood control structure. Presently, there is no statute, regulation or other control that clearly prohibits exploration and drilling activities in those locations in close proximity to major structures where the United States does not own the surface estate, the mineral or both. However, 33 United States Code 408 provides that it is unlawful for any person to impair the usefulness of any flood control work by the United States. Therefore, a 3,000 foot lateral exclusion zone shall apply to the structure at Eufaula Lake. Within this exclusion zone, no surface occupancy, hydrofracking, and drilling (including horizontal drilling) would be allowed.

6.12. Muscogee Creek Nation Land Sale: House Bill 1554 required the USACE to sell approximately 18 acres of federal land to the Muscogee Creek Nation. This particular bill did not get approved but it is anticipated it would be reintroduced in future legislation. The issue with the sale of the land is this particular parcel lies adjacent to private property the Muscogee Creek Nation purchased with intentions of developing a resort including a casino. This combination of property ownership is located within an area currently owned by USACE but leased to the Oklahoma Department of Tourism for Eufaula State Park. The Muscogee Creek Nation has already taken over management of the golf course from the state and is planning to move forward with their remaining development plans. The location of the property is above the top of flood pool elevation and its loss would not have an impact to flood risk management. The primary issue that would need to be managed, should this resort be constructed, is the increase in visitor use within the vicinity. This region of the lake would need to be monitored closely to assure recreational patterns are not causing environmental degradation or public safety concerns.

CHAPTER 7 AGENCY AND PUBLIC COORDINATION

7.01. Agency and Public Coordination - The USACE planned to update the Eufaula Lake MP and SMP in the spring of 2011. In order to conduct these changes an EIS needed to be performed on the proposed changes and how they would impact the environment. Coordination of updating these documents was done concurrently with the scoping and public review periods of the EIS.

The first step was to schedule a public scoping meeting which the public could participate and have an avenue to ask questions and provide comments. Therefore, a Notice of Intent was published in the *Federal Register* (Volume 76, No. 79; April 25, 2011), and a public scoping workshop was held in Eufaula, Oklahoma, on June 2, 2011.

In conjunction with publishing this in the Federal Register, the Tulsa District placed paid advertisements in the *McAlester News-Capital*, McAlester, Oklahoma and the *Eufaula Indian Journal* in Eufaula, Oklahoma. The ad ran in the *McAlester News-Capital* from 30 May through 2 June 2011 announcing the 2 June workshop. The ad ran in the *Eufaula Indian Journal* 29 May through 1 June 2011 also announcing the workshop.

USACE employees hosted the workshop, which was conducted in a semi-structured manner. Participants were asked to sign-in at a table where staff provided the participants with information regarding the structure of the scoping meeting, comment forms, and postage paid envelopes to return comment forms. After signing in, participants were directed to an area where topic-specific information tables were set up. Large-scale boards were displayed at each table to convey information about the following topics:

- Public Involvement Process
- Project Overview
- Overview of the NEPA Process
- Environmental Impact Statement
- Shoreline Management Plan/Master Plan
- How to Submit Comments

At each of the information tables and throughout the meeting room, USACE representatives were available to answer questions and receive comments. Interested persons had the opportunity to comment about the project using a variety of methods, including the following:

- Filling out a comment form at the open house;
- Taking a comment form home to be returned in a pre-stamped envelope;
- Submitting a comment using electronic mail; and
- Submitting a comment and mailing it in on letterhead or choice of paper.

Comments were received from concerned citizens, interest groups, partner agencies, other government agencies, and businesses. In total, 40 comments of some form were received. Of these, one development proposal (Carlton Landing) was submitted that would require a change in both the shoreline allocation and the land use classification. In addition, another ten requests for specific zoning changes under the shoreline management plan were received.

All of the received comments were considered a proposal for review in making changes to the SMP and MP. These proposals were then integrated into the review process for the EIS. Each proposal was analyzed for potential impacts to the environment should they be approved.

The draft EIS was finalized and released for public comment. Notice of availability of the Draft EIS was published in the Federal Register on December 7, 2012 and copies of the Draft EIS were mailed to the distribution list on November 28 and 29, 2012, which included almost 200 agency staff and individuals. In addition, a postcard notice of availability was mailed to the approximately 2,280 shoreline permit holders.

The public comment period was 46 days long and closed on January 22, 2013. Although the comment period bracketed the late December holidays, it did extend well into January and provided the public with an opportunity to review and comment on the Draft EIS. A public workshop was held on December 19, 2012 to allow the public to ask questions of USACE staff and to make written and verbal comments about potential alternatives and potential impacts. The workshop was advertised in the following papers on the dates shown:

- Tulsa World – December 5, 2012
- The Oklahoman – December 5, 2012
- The Muskogee Phoenix – December 6, 2012
- Eufaula Indian Journal – December 6, 2012

- McIntosh County Democrat – December 6, 2012
- Stigler News Sentinel – December 6, 2012
- Country Star – December 6, 2012
- McAlester News Sentinel – December 7, 2012

Two hundred and three people signed in at the public meeting. Eleven people spoke to a court reporter and 15 people submitted written comments at the meeting. Another approximately 118 written comment letter and emails were received during the public comment period. Seven letters were received from agencies, elected officials, and tribes. In addition, another two requests for rezoning were received.

This meeting provided an open forum for members of the public to approach USACE personnel and inquire about any of the alternatives identified in the EIS. Participants were asked to sign-in at a table where staff provided the participants with information regarding the structure of the open house. After signing in, participants were directed to an area where topic-specific information tables were set up. Large-scale boards were displayed at each table to convey information about the following topics:

- No Action Alternative
- Alternative 1 (least environmental impact)
- Alternative 2
- Alternative 3
- Alternative 4 (most environmental impact)

A USACE representative was available at each station and was able to answer public questions. Interested persons had the opportunity to comment about the project using a variety of methods, including the following:

- Filling out a comment form at the open house;
- Taking a comment form home to be returned in a pre-stamped envelope;
- Submitting a comment by providing it to a court reporter that was present at the meeting;
- Submitting a comment using electronic mail; and
- Submitting a comment and mailing it in on letterhead or choice of paper

The information provided in the feedback from these agencies and the public was then utilized to formulate a final version of the SMP and MP. A summary of these comments and their responses can be found in Appendix B.

CHAPTER 8 SUMMARY OF RECOMMENDATIONS

8.01. Summary Overview - Following are the recommendations for the courses of action necessary to manage Eufaula Lake's current and future issues. The belief is actions taken today can ensure the future health and longevity of Eufaula Lake while still allowing continued use and development. The factors considered cover a broad spectrum of public use, environmental, socioeconomic, and manpower. Information on each one of these topics was thoroughly researched before the final decision was made. The final MP for Eufaula Lake will continue to provide for and enhance recreational opportunities for the public, improve the environmental quality and create a management philosophy more conducive to existing staffing levels at the Eufaula Project.

8.02. Rezoning Requests - A public notice was developed as part of the initial process for conducting an EIS for the Eufaula Lake SMP and MP updates. This public notice requested the public to provide proposals for rezoning. During this process there were 11 zoning requests with an additional request for a comprehensive recreational development on Government property. In addition to these, two rezoning request were received during the draft EIS comment period. Table 8-1 has a breakdown of each request, if it's approved and a justification for the decision.

8.03. Vegetative Buffer Zones - The EIS also reviewed the change in how vegetative modification is handled at Eufaula Lake. Historically, permits were issued for members of the public to conduct mowing on Government property from the shared boundary line to the water's edge. This permitted activity created a visual appearance of a mowed and manicured lawn on public lands. This effect is highly desirable to the local public and is something they desire to see continue. The issue with this allowed activity is it has a degradation affect on water quality. The lack of natural vegetation along the shoreline causes an increase in sedimentation and nutrient loading. This over time puts the system out of balance.

A solution to this issue is implementation of required buffer zones. Buffer strips are a linear band of permanent vegetation adjacent to an aquatic ecosystem intended to maintain or improve water quality by trapping and removing various nonpoint source pollutants (e.g., contaminants from herbicides and pesticides; nutrients from fertilizers; and sediment from upland soils) from both overland and shallow subsurface flow. Buffer strips occur in a variety of forms, including herbaceous or grassy buffers, grassed waterways, or forested riparian buffer strips. A buffer strip may provide habitat for a variety of plants and animals if sufficient land area is retained to meet the life history needs of those species. Buffer strips may also function

as movement corridors if they provide suitable connections between larger blocks of habitat. The review indicates that a buffer would help water quality.

TABLE 8.1 REZONING REQUESTS

REQUEST	DESCRIPTION	RESPONSE
REZONING REQUEST #1	Duchess Creek Acres I and II: Shoreline areas abutting the existing Duchess Creek Acres I and II subdivision, near Porum Landing, are currently designated Protected and are included in a license agreement with ODWC for wildlife conservation. The subdivision has been developed since the 1960s and currently there are two private docks in this area that would not ordinarily be allowed under the current shoreline allocation. These docks are grandfathered and allowed to remain under 36 CFR 327.30. The owner requests a change of shoreline allocation to Limited Development to allow for application for a permit to construct three additional 20 slip community docks	NO - Since the Protected areas of shoreline in this zoning request are encumbered with a license agreement with ODWC, this zoning request was eliminated from further consideration in the EIS.
REZONING REQUEST #2	Dam North Eufaula Cliffs: Shoreline areas abutting a 40 acre proposed subdivision just north of Eufaula Dam (S25/T10N/R18E) are currently designated as Protected. The request is to change this allocation to Limited Development (Sellers 2011).	No - This request is not being approved because the proposed location is going to be established as American Burying Beetle habitat restoration. The need for this has recently been recognized because the USFWS is requesting replacement of any habitat destroyed greater than 1.2 acres. This designation will provide approximately 135 acres of land that can be utilized to offset any Corps activities that may impact ABB habitat in other locations of the lake. Therefore, not requiring any additional cost for endangered species habitat restoration.

TABLE 8.1 REZONING REQUESTS (continued)

REQUEST	DESCRIPTION	RESPONSE
REZONING REQUEST #3	Lake Eufaula Association: A shoreline area west of Highway 69 on the north side of the town of Eufaula is currently designated Limited Development. The Lake Eufaula Association requests a change to Public Recreation to allow for the development of a fishing pond and park area (Morris 2011).	YES – This area needs to have the zoning changed to recreation in both the SMP and MP.
REZONING REQUEST #4	Roberts Ridge: Shoreline areas abutting the 39 acre subdivision (1S/T09N/R17E) are currently designated as Limited Development. The owners request that the shoreline remain Limited Development. The owners plan to request permits for a community dock for use by homeowners on interior lots and for private docks for use by waterfront lots (Bradley 2011).	YES - Currently zoned LD. The determination has been made to leave this area zoned Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.
REZONING REQUEST #5	The Meadows on Longtown Creek: Shoreline areas abutting the 8.77 acre proposed subdivision (S29/T9N/R17E) are currently designated Limited Development. The owners request that the zoning remain Limited Development as they plan to apply for a permit to locate a 12 slip dock in this location (Rowe and O’Brien 2011).	YES - Currently zoned LD. The determination has been made to leave this area zoned Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.
REZONING REQUEST #6	Bass Request: Shoreline areas between Holiday Hills and Windsor Woods (S3/T8N/R16E) are currently designated as Limited Development (Bass 2011). The owner requests to maintain that allocation.	YES - Currently zoned LD. The determination has been made to leave this area zoned Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.
REZONING REQUEST #7	Lakeview Country Estates V: Shoreline areas abutting the proposed Lake View Country Estates V subdivision, near Porum Landing (S13/T10N/R18E), are currently designated Limited Development. The owner requests that the area remain Limited Development (Sellers 2011).	YES - Currently zoned LD. The determination has been made to leave this area zoned Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.

TABLE 8.1 REZONING REQUESTS (continued)

REQUEST	DESCRIPTION	RESPONSE
REZONING REQUEST #8	Falcon Tree: Shoreline areas adjacent to the proposed Falcon Tree subdivision are currently designated Protected (Roberts 2011). The owners request a change to Limited Development.	YES - Currently zoned Protected. The determination has been made to change this area to Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.
REZONING REQUEST #9	Saltsman’s Orchard: Shoreline areas adjacent to Saltsman’s Orchard are currently designated Public Recreation (Saltsman 2011). The owners request changing this area to Limited Development.	NO – This area is currently zoned as Recreation High Intensity and lies adjacent to the City of Eufaula’s lease. The City of Eufaula has expressed interest in utilizing this area for recreational development. This is considered to be more beneficial to the public and the reason why this request is denied.
REZONING REQUEST #10	Sycamore Bay: Shoreline areas abutting the Sycamore Bay subdivision are currently designated Limited Development and have private boat docks (Sycamore Bay Property Owners 2011). The owners request that this area remain Limited Development.	YES - Currently zoned LD. The determination has been made to leave this area zoned Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.
REZONING REQUEST # 11	Tefertiller Development: Shoreline areas adjacent to Mr. Tefertiller's property located in Section 8, Township 9 East, Range 17 East, McIntosh County, Oklahoma. The owner requests changing this area from Protected to Limited Development.	YES - Currently zoned Protected. The determination has been made to change this area to Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.

TABLE 8.1 REZONING REQUESTS (continued)

REQUEST	DESCRIPTION	RESPONSE
REZONING REQUEST #12	This request is for an area known as Breckenridge Estates which is located off of Highway 9 and to the south of Eufaula. The request is for an area approximately 2 acres in size to be rezoned from Protected to Limited Development. The requestor claims this area is in a cove adjacent to Highway 69 and would be protected from any wind fetch. This request was not submitted during the original scoping process but during the draft EIS review period.	NO - The reason for this is the dock location is adjacent to US Highway 69. Since the shoreline management program began it has been a long standing policy to not approve docks adjacent to major highways. 327.30 specifically requires us to not spoil the shoreline for public enjoyment. USACE has always interpreted this to mean that we do not allow docks along major highways.
REZONING REQUEST #13	Mr. Turner Hunt has requested that a portion of property in the Fame Creek area of the lake be rezoned from Protected to Limited Development. This request was not submitted during the original scoping process but during the draft EIS review period.	YES - Currently zoned Protected. The determination has been made to change a portion of the requested area to Limited Development. However, will need to review the dock suitability to make sure docks can be constructed at this location.
GRANT OF LEASE AND SHORELINE REALLOCATION FOR CARLTON LANDING	The 1,650 acre privately-owned site on which the Carlton Landing development is proposed to be located is along the central part of Eufaula Lake, approximately 2.8 miles southwest of Longtown. The development plan for the Carlton Landing community was created in July 2008 and is modeled after the urban planning tyle of “New Urbanism”, which is the ideal of a walkable, compact, mixed-use community. At full build-out, the privately-owned uplands of Carlton Landing are planned to include the construction of approximately 2,570 home lots, a K-12 school, a town center area with restaurants, retail and grocery stores, and community and open spaces, among other development. The government land located in this vicinity would be subject to a lease if the proposed rezone and lease are granted.	YES - Currently (primarily) Zoned as High Intense Public Recreation in MP. Currently Zoned as F&W in SMP. Agencies intention was to develop as recreation area. With current request - public access maintained. Local economic benefits. More potential for recreational users - possible relief on existing facilities. Recommend that area currently zoned as Protected included in proposal be zoned in Master Plan as Low Density Recreation

The research within the EIS indicates that water quality would improve over time with the implementation of buffer zones. However, the reviewed option for implementing a sliding buffer zone based on topography, soils, and vegetation appear to be cumbersome and would be difficult to implement and manage. Therefore, it is recommended that a minimum 45-foot buffer be implemented lake wide. To further simplify this management change it has been determined to continue allowing the current tree trimming policy within this vegetative buffer. This is to continue to allow the public to have the visual aesthetics they have grown accustomed to while still providing some environmental benefit.

It has been determined to implement this policy change immediately for any new vegetative modification requests. However, there will be a five year transition program for all existing permit holders. That way the Corps can assure that any written commitments to existing permit holders is honored until their permit expires.

8.04. American Burying Beetle (ABB) - The endangered ABB was also found on the project. A BO has been formulated for the impacts that may occur at Eufaula Lake. The BO allows for the incidental take for flood control activities within the reservoir and development of that portion of Carlton Landing located on Government property. Anything outside of this would possibly require consultation with the USFWS or at a minimum be required to follow the BMP's outlined in Chapter 7. One additional option recommended is implementation of an ABB mitigation area. The location would be the area purchased to construct Dam Site North Park which was never developed. This location sits high above the flood pool and is comprised of 135 acres. The area would be classified as Environmentally Sensitive area in the MP and as Protected in the SMP. Development of an ABB plan would need to coordinate with the USFWS.

8.05. Dock Suitability - Dock suitability was reviewed as part the EIS. Suitability was defined by the following criteria: **Depth of water:** To accommodate boat mooring, use of a boat water lift, and to avoid access difficulties when the lake is at low water levels, the water must be at least 6 feet deep or deeper when the lake is at its normal pool elevation (*i.e.*, elevation 585 feet above mean sea level). **Distance from shoreline:** Docks greater than 200 feet from the shoreline at normal pool elevation become impracticable to construct and maintain and may conflict with regulations that limit dock length to less than one-third of the width of the cove in which they are constructed. **Exposure to severe wave action:** Along south facing shoreline areas, wind fetch greater than 1 mile and along north facing shoreline areas, wind fetch greater than 1.5 miles can result in severe wave action. Wind fetch is defined as the distance across open water that wind travels and creates waves before reaching a shoreline. A long wind fetch results in big waves during storms that break docks apart and subsequently leaves debris scattered along the

shoreline. Docks constructed in these exposed locations typically do not last more than a year or two and are impracticable to maintain.

It is recommended that dock suitability be instituted to assist in managing the shoreline management program at Eufaula. However, it should not be utilized as a tool to change Limited Development to Protected. Areas currently zoned Limited Development should remain that way but have suitability established within the area. That way, Limited Development is not restricted on a wide scale but areas not suitable for docks will be identified.

8.06. Shoreline Management - Shoreline Management workload is a continual issue at Eufaula Lake. Several options have been reviewed in an attempt to reduce or streamline the work so that it is manageable for the current staff. First recommendation is to implement a requirement for the public to self inspect their dock at the time of renewal. This is fairly simple and can be accomplished by developing and implementing a program that provides directions to the public on how to perform the inspection and submit a report along with their renewal application. Second recommendation would be to require use of alternative power. The Corps of Engineers is mandated thru Executive Order 13504 to reduce greenhouse gas emissions. The use of alternative energy is the preferred alternative for any future permit requests. This power could come in the form of wind turbine or solar and can be authorized with a Shoreline Use Permit. This would meet the goals for reducing reliance on fossil fuel and reduce manpower required for processing or issuance of a license. If the applicant can validate that it is unfeasible to use alternative power they can request authorization of a conventional electric line. Third recommendation is to place a moratorium on the shoreline use program. This would be done by looking at existing and predicted impacts to public safety, natural resources, budget, and workload capacity in relation to incoming requests. The intention would be to assure all program goals are being met and that a balanced workload exists across the various business functions.

Eufaula Lake Office can handle the current workload. However, analysis conducted for the EIS indicates a steady growth in boat dock numbers. Table 8.1 gives a prediction of what dock numbers would be in 5-year increments through 2031. It has been determined that a program review must be conducted once the total number of permitted boat docks reaches 2,183. The purpose of this review is to establish if a moratorium must be placed on the shoreline use program. It is anticipated this number of permitted boat docks would not be reached until sometime in the year 2021.

Year	Average Number	Predicted Number of Boat Docks
2016	48.	1,916
2021	53.	2,183
2026	58.	2,477
2031	64.	2,800

Placing a moratorium on the shoreline use program would have an impact to public service and would be a decision not taken lightly because of its potential impacts. In addition to requiring an updated assessment of the public safety and natural resource impacts, a set of business matrices would be established to clearly measure existing performance, workload capacity, and impacts to other programs authorized project purposes. These matrices would be developed in a transparent method so the public would be informed of the processes involved and understand the risks to public safety and the environment. A public information campaign would be conducted 12-months prior to placing a moratorium on the shoreline use program.

8.07. Recreation - USACE still maintains and operates numerous recreation areas at Eufaula Lake. The recommendation is to continue to provide the service to which the public has grown accustomed. This service is increasing in cost every year and has grown to become a substantial part of the operating budget. USACE should continue to strive in developing innovative and cost efficient methods to conduct business. Should budget constraints not allow for continued service then the recommendation is to either reduce services or campground availability or a combination of both in order to cut costs.

Funds spent on recreational improvements are very limited but do materialize some times. When these funds are present there should be a priority system for improvement projects within recreational areas. The recommendation is to give the day use facilities at Porum Landing and Highway 9 highest priority. This would alleviate a congestion problem currently experienced in both of these parks because of boat ramp usage. After these, priority should be given to park improvements that increase recreational opportunities for the public by increasing number of campsites in certain congested parks or increasing the number with 50-amp service.

8.08 Need for Vegetative Sensitive Zoning - There is a 70-acre island near Arrowhead State Park that has a unique forest community that is undisturbed because of its location. The forest community is considered to be cross timber which is a combination of different communities since it is a transition zone between two eco-regions. USACE currently has an agreement with

the University of Arkansas for them to conduct studies, as well as, provide management of this forest community. Therefore, it is recommended this area be zoned as Vegetative Sensitive and be protected for research purposes.

8.09. USACE Zoning Changes - During the EIS process it became apparent that several other areas within the existing SMP were zoned for a management strategy that was no longer applicable. Basically, there were several small locations that were zoned for Limited Development where no one could actually physically place a dock (i.e. siltation causing the location to be inaccessible by boat). These areas were reviewed and determined to be more appropriately zoned as Protected since they could never be utilized for shoreline use. One additional change that was necessary is the area known as Dam Site North. This area was zoned for Recreation High Intensity in the old MP and Fish and Wildlife Management in the old SMP. The recommendation is to change the zoning of these locations to Protected in the new SMP and Low Density Recreation in the new MP. The recommendation for Dam Site North can be found in the endangered species section of this chapter (paragraph 8.04). Table 8-2 has a breakdown of each location and its new zoning.

8.10. Dock Density - 36 CFR Section 327.30(j) states: "The density of private floating and fixed recreation facilities will be established in the SMP for all portions of Limited Development areas consistent with ecological and aesthetic characteristics and prior written commitments. The facility density in Limited Development Areas should, if feasible, be determined prior to the development of adjacent private property. The density of facilities will not be more than 50 per cent of the Limited Development Area in which they are located. Density will be measured by determining the linear feet of shoreline as compared to the width of the facilities in the water plus associated moorage arrangements which restrict the full unobstructed use of that portion of the shoreline. When a Limited Development Area or a portion of a Limited Development area reaches maximum density, notice should be given to the public and facility owners in that area that no additional facilities will be allowed. In all cases, sufficient open area will be maintained for safe maneuvering of watercraft. Docks should not extend out from the shore more than one-third of the width of a cove at normal recreation or multipurpose pool. In those cases where current density of development exceeds the density level established in the SMP, the density will be reduced to the prescribed level through attrition."

There are several instances around Eufaula Lake where the development density would be considered greater than 50 per cent. The recommendation is these locations need to be identified and managed for reduction of boat docks. This means not allowing replacements of docks when they need to be replaced which would cause attrition. Once an area has been identified, the boat dock owners within vicinity must be notified that dock density is greater than what is allowed by regulation and the plan is to utilize attrition to reduce the number

down to 50 per cent development. This notification must contain the total number of docks allowed within that location.

Table 8.3 USACE REZONING LOCATIONS (continued)			
REZONING NUMBER	LOCATION	FROM – TO - SMP	FROM – TO - MP
REZONING #1	Dam Site North	Fish and Wildlife to Protected	High Density Reaction to Environmentally Sensitive Area
REZONING #2	70-acre Island near Arrowhead State Park	No Change	Low Density Recreation - Multiple Resource Managed Lands (Vegetative Management)
REZONING #3	Canadian Shores/Sam’s Point	Limited Development to Protected	No Change
REZONING #4	Mill Creek – Area East of the N-S road that leads to Mill Creek Bay.	Limited Development to Protected	No Change
REZONING #5	Coal Creek West of U.S. Hwy 69	Limited Development to Protected	No Change
REZONING #6	Roadside North of Hwy 31 Landing	Limited Development to Protected	No Change
REZONING #7	Blue Creek	Limited Development to Protected	No Change
REZONING NUMBER	LOCATION	FROM – TO - SMP	FROM – TO - MP
REZONING #8	Un-named tributary of the Duchess Creek arm near Texanna Road	Limited Development to Protected	No Change
REZONING NUMBER	LOCATION	FROM – TO - SMP	FROM – TO – MP
REZONING #9	Roadside N of Eufaula and East of Hwy 69B	Limited Development to Protected	No Change

REZONING #10	Area East of Push Hill Cove	Limited Development to Protected	No Change
REZONING #11	Duchess Creek	No Change	High Density Recreation – Future Inactive Recreation

8.11. Advisory Committee - Although the Advisory Committee has not been officially formulated it is recommended that some work be performed in conjunction with the final approval process. The reason for this recommendation is because the law authorizing the committee also authorized the committee to pursue reallocation of water within Eufaula Lake. The reallocation process can take considerable time and funds. A good way to approach the future need to conduct this study is to start requesting funds necessary to perform the work in out-year budgets. Therefore, it is recommended that a budget package be submitted for this work during the next budget cycle.

8.12. Encroachments - Encroachments have been a long standing issue for Eufaula Lake. This comes from the narrow boundary acquired under the real estate guidance for the project. This narrow boundary allows for home construction near the water which is highly desirable by the public. Unfortunately, there are times when construction encroaches onto Government property held in fee title or flowage easement. There are numerous instances where this has occurred around the lake with new encroachments being done on a frequent basis. The resolution is to have all encroachments removed or authorized by a real estate instrument. Therefore, it is recommended that an encroachment policy be created which strives to have all encroachments removed unless determined to be justifiably on Government property and can be authorized with a Real Estate instrument.

8.13. Partnerships - Partnerships are a new trend which USACE has embraced when it comes to providing services to the public which cannot be provided by the Government. This typically entails a second party that has resources with which to develop an area for a more enhanced recreational experience beyond what the USACE can provide. These opportunities should be researched to determine if they are in compliance with the regulations and if they provide a better opportunity for the public without negative effects to the lake. If so, recommend that agreements be formalized with the new partner and the development be allowed to occur.

8.14. Cultural Resources - Cultural resources are abundant in the Eufaula Lake area. A HPMP has recently been developed to assist in managing these materials. The HPMP is a five year

plan prepared in compliance with applicable federal laws, regulations and guidance. It is recommended this plan be implemented in accordance with the following:

- Protect historic properties.
- Determinations of eligibility for previously surveyed resources.
- Survey of uninvestigated areas at Eufaula Lake.
- Provide training for USACE Personnel.
- Capitalize on opportunities for Public Involvement.
- Ensure ongoing consultation with SHPO and Tribes.
- Create GIS data layer for the Management of Cultural Resources.

CHAPTER 9 BIBLIOGRAPHY

CDM Smith. 2012. Water Quality Technical Report; for Environmental Impact Statement to Update the Shoreline Management Plan Eufaula Dam and Reservoir and Supplement the Eufaula Lake Master Plan.

CDM Smith. 2012. Recreation Study Report; for Environmental Impact Statement to Update the Shoreline Management Plan Eufaula Dam and Reservoir and Supplement the Eufaula Lake Master Plan.

CDM Smith. 2012. Cultural Resources Technical Report; for Environmental Impact Statement to Update the Shoreline Management Plan Eufaula Dam and Reservoir and Supplement the Eufaula Lake Master Plan.

CDM Smith. 2012. Historic Properties Management Plan; for Environmental Impact Statement to Update the Shoreline Management Plan Eufaula Dam and Reservoir and Supplement the Eufaula Lake Master Plan.

Oklahoma Water Resources Board. 2012. Oklahoma Comprehensive Water Plan, Eufaula Watershed Planning Region. Available at:
http://www.owrb.ok.gov/supply/ocwp/pdf_ocwp/WaterPlanUpdate/regionalreports/OCWP_Eufaula_Region_Report.pdf.

U.S Army Corps of Engineers (USACE). 1977. Eufaula Lake, Canadian River, Oklahoma, Master Plan, USACE, Tulsa District, Oklahoma.

USACE. 1998 . Shoreline Management Plan Eufaula Dam and Reservoir, Canadian River, Oklahoma. USACE, Tulsa District, Oklahoma.

USACE. 1956. Design Memorandum #4, Hydrology, Eufaula Reservoir, Canadian River, Oklahoma. USACE, Tulsa District, Oklahoma.

USACE. 1958. Design Memorandum #13, Real Estate for Segments K, L, M, N, O and P, Eufaula Reservoir, Canadian River, Oklahoma. USACE, Tulsa District, Oklahoma.

USACE. 1959. Design Memorandum #15, Geology, Soils and Structural Foundations, Eufaula Reservoir, Canadian River, Oklahoma. USACE, Tulsa District, Oklahoma.

USACE. 28 January 1989. Eufaula Erosion Control Project Report. USACE, Eufaula Lake Office, Tulsa District, Oklahoma

USACE. 2012. OMBIL Environmental Stewardship Module. USACE, Tulsa District, Oklahoma

USACE. 2012. OMBIL Recreation Module. USACE, Tulsa District, Oklahoma

USACE. 2009. Operational Management Plan for Eufaula Lake Oklahoma,. USACE, Tulsa District, Oklahoma

USACE. 2013. ER 1130-2-550, Project Operations, Recreations Operations and Maintenance Guidance and Procedures . HQ, USACE

USACE. 2013. EP 1130-2-550, Project Operations, Recreations Operations and Maintenance Guidance and Procedures. HQ, USACE

United States Census Bureau. 2012. Easy Facts Website. Accessed at:
<http://www.census.gov/easystats/>.

APPENDIX A
NEPA DOCUMENTATION

A copy of the Final Environmental Impact Statement can be found at:

<http://www.swt.usace.army.mil/Missions/Environmental/EufaulaFinalEISSMPMP.aspx>

**RECORD OF DECISION
EUFAULA LAKE SHORELINE MANAGEMENT PLAN REVISION
AND MASTER PLAN SUPPLEMENT**

The Eufaula Lake, Oklahoma Shoreline Management Plan (SMP) revision and Master Plan (MP) supplement, and the Final Environmental Impact Statement (FEIS), dated March 2013, provide documentation in support of land and shoreline development zoning changes and a proposal for a lease of government property at Eufaula Lake. Based on the reports, the reviews of other Federal, State, and local agencies, appropriate coordination with Native American Tribal governments, public input, and the review by my staff, I find the actions to be technically feasible, in accordance with environmental statutes, and in the public interest. Thus, I approve the implementation of the revised Eufaula Lake SMP and MP. I likewise approve, pending execution of an appropriate lease agreement, a lease of government land at Eufaula Lake for construction and operation of a marina and other public shoreline recreational facilities at the Carlton Landing development.

Under the SMP, all project shoreline is allocated to regulate the type of facilities and activities that may be permitted on the lake and adjacent shoreline. These allocations are intended to complement the land classifications in the project MP. The MP classifies government lands and the general use allowed within these areas. The first SMP at Eufaula Lake was completed in 1976 with subsequent updates in 1981, 1986 and 1998. The shoreline allocations have been changed under each revision of the SMP but the MP has never been supplemented to reflect these changes. In addition to soliciting input regarding changes to the SMP and MP, the public scoping process also included a request for submission of proposals to lease public lands at Eufaula Lake for recreational development. This proposal is a part of the Oklahoma Demonstration Lakes Program that encourages the Corps to seek public/private recreation development opportunities as authorized under Section 3134 of the Water Resources Development Act of 2007. Carlton Landing was the only entity to submit such a proposal. The Carlton Landing lease proposal was therefore included in the review under the National Environmental Policy Act (NEPA).

A broad range of alternatives developed in consideration of revisions to the SMP and MP and the lease proposal at Carlton Landing. These alternatives were screened to determine viability as to which should be carried forward for detailed impacts analyses in the FEIS. The result was six alternatives reviewed in the FEIS:

- No Action Alternative: Under the no action alternative, no changes would occur to the existing Eufaula Lake SMP or MP. There would be no change to the vegetative management policies or dock suitability, spacing, or access requirements, and the MP would continue to be out-of-date with respect to the SMP. The grant of a lease at Carlton Landing would not be approved and no rezoning requests would be granted. A total of 273 miles of shoreline allocation would remain Limited Development, with a potential maximum of 8,810 private docks based upon physical spacing constraints.
- Alternative 1: This alternative reverts to shoreline allocations as they existed in the 1981 SMP. This would require a significant amount of existing Limited Development

shorelines be changed to Protected. MP maps would be revised to be consistent with the SMP shoreline allocations. The vegetative management policies would be changed to apply the extended buffer zone policies and there would be no change to dock access or spacing requirements. The grant of a lease at Carlton Landing would not be approved and the individual rezoning requests would not be approved. Limited Development allocated shoreline would be reduced to 42 miles, and the potential maximum number of docks would be 2,278 based upon physical spacing constraints.

- Alternative 2: This alternative would convert Limited Development areas that are unsuitable for docks and which do not have existing developments adjacent to government shoreline to Protected. This alternative would implement dock suitability, and MP land use classification maps would be revised to be consistent with SMP shoreline allocations. There would be no change to dock access requirements and the extended vegetation buffer zones would be implemented. The grant of a lease to Carlton Landing would not be approved and only a portion of the rezoning requests would be approved. Under this alternative, the length of Limited Development shoreline decreases to 182 miles, which could support a potential maximum of 5,844 docks based upon physical spacing constraints.
- Alternative 3: This alternative would convert some Protected areas that are suitable for docks and which do not have an existing license agreement of the government shoreline to Limited Development. The MP land use classification maps would be revised to be consistent with the SMP shoreline allocations. The vegetative management policies would be changed to apply the baseline buffer vegetation management zone. There would be no change to dock access but dock suitability would be implemented. The grant of a lease at Carlton Landing would not be approved and the proposed marina and other public recreational facilities along the shoreline would not be permitted; however, the shoreline allocation would be changed to Limited Development. The amount of Limited Development shoreline would increase to 367 miles, which would support a potential maximum of 11,844 docks based upon physical spacing constraints.
- Alternative 4: This alternative would convert all Protected areas that do not have an existing license agreement for use of government shoreline to Limited Development. The MP land classification maps would be revised to be consistent with the SMP shoreline allocations. Vegetation management policies would be changed to apply the baseline buffer vegetation management zone and there would be no change to dock spacing or access requirements. The grant of a lease at Carlton Landing would be approved and the proposed marina and other public recreational facilities along the shoreline would be permitted. Most individual zoning requests would be approved. The amount of Limited Development shoreline would increase to 480 miles, which could support a potential maximum of 15,491 docks based upon physical spacing constraints.
- Preferred Alternative: The preferred alternative would slightly reduce the amount of shoreline allocated to Limited Development and increase the amount of Public Recreation shoreline in the SMP. This alternative would change the MP land use classifications to be consistent with the SMP designations. Limited Development

allocated shoreline would decrease to approximately 265 miles, which could support a potential maximum of 6,550 docks based upon physical spacing constraints. A vegetative buffer of 45 feet would be applied to all new vegetative modification permits with a five year transition period for existing permits. Dock spacing would be increased to 75 feet, dock suitability zones would be created, and dock access requirements would be modified. Most individual zoning requests received during the NEPA review process and addressed in the EIS would be approved, including zoning appropriate for a lease to Carlton Landing for marina development and other publicly-accessible shoreline recreational facilities.

As a mitigation measure under the preferred alternative, approximately 135 acres of undeveloped land, Dam Site North, will be designated for management of the American Burying Beetle (ABB), an endangered species, as coordinated with the U.S. Fish and Wildlife Service (USFWS). The Biological Opinion (BO) issued by the USFWS on 10 April 2013, covering the ABB and other species, details comprehensive consultation activities for the Arkansas and Red River basins in Oklahoma, including this proposed action at Eufaula Lake. The comprehensive BO was finalized subsequent to the issuance of the FEIS and is incorporated by reference.

Consultation under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) is complete for this project. Tulsa District sought and received comments from the Oklahoma State Historic Preservation Office (SHPO), Oklahoma Archeological Survey (OAS), and appropriate Native American Tribes for the proposed revision of the MP and SMP. Those comments have been reported in the EIS and addressed as appropriate. The Tulsa District conducted Section 106 consultation specifically on the proposed lease of government land to Carlton Landing. As noted in a SHPO response letter dated September 10, 2012, no historic properties were found to be affected within the proposed lease area. The State Archaeologist provided an additional response during final review expressing concern that the potential for vandalism of archaeological sites could increase with greater shoreline development. However, any future definitive proposals for use or development of government lands at Eufaula Lake as a result of rezoning associated with this action would be subject to separate and complete review and consultation under Section 106 of the NHPA.

A lease to Carlton Landing for shoreline development of the proposed amenities would be dependent upon execution of an appropriate lease agreement. Mitigation measures to be included in lease agreement terms would include a specific requirement for Carlton Landing to coordinate with the Oklahoma Department of Wildlife Conservation (ODWC) prior to removal of any standing dead timber in Eufaula Lake. Lease terms will also include the requirement to institute standard best management practices (BMPs) and meet all regulatory requirements for mitigating impacts to wetlands, aquatic habitat, water quality, soils, and other resources.

The environmentally preferable alternative is Alternative 1. However, this alternative does not meet the purpose and need for action as detailed in the FEIS. All practical means to avoid, reduce, and minimize environmental harm have been incorporated into the proposed action. Future monitoring will include activities necessary to ensure compliance with SMP policies and regulations as well as compliance with lease terms and conditions at Carlton Landing. No compensatory mitigation in the form of replacement lands or habitat is appropriate or proposed.

All practicable means were employed to avoid or minimize the environmental and socioeconomic harm from implementing the preferred alternative.

All applicable laws, executive orders, regulations, and guidelines were considered in the evaluation of alternatives and the selection of the recommended actions. Based on the review of the Eufaula Lake Shoreline Management Plan Revision and Master Plan Supplement FEIS, I approve the implementation of the Preferred Alternative A program review would be conducted once the total number of private docks reaches 2,183. The purpose of the review would be to establish if a moratorium must be placed on the shoreline management program. It is anticipated that this number of permitted boat docks would not be reached until sometime in the year 2021. This Record of Decision completes the National Environmental Policy Act process.

7 June 2013

Date



Thomas W. Kula
Brigadier General, U.S. Army
Commanding

APPENDIX B SUMMARY OF PUBLIC COMMENTS

Updating of the Eufaula Lake SMP and MP required an EIS. It was decided to incorporate these updates concurrently with the EIS process. Therefore, the public was asked in the initial scoping request for an EIS to provide recommendations for the MP and SMP. This request generated numerous comments which fell into several categories of concern. Those categories were: National Environmental Policy Act Process, Public Lands and Access Considerations, Socioeconomic Concerns, Recreation Opportunities, Fish and Wildlife Issues, Water Quality Concerns, Visual/Scenic Considerations, Cumulative Effects, and Zoning Requests. The following are further details of the comments received in each of these categories.

Concerns Related to the (NEPA Process

- Need for Environmental Impact Statement (EIS) and Scope
- Federally-funded EIS is required for entire lake
- Scope of EIS should be limited and process should be expedited
- EIS should focus on lake wide impacts
- EIS should address cumulative effects
- EIS should address previous instances where the ultimate action that occurred went beyond what was considered in consultation and in the NEPA process
- EIS should address the previous planning documents for Eufaula Lake, including the 1977 Master Plan; and the 1998 Shoreline Management Plan
- EIS must look at the action objectively, and not as a “done deal”
- EIS should form a fact-based foundation for sound future planning and lake development
- EIS should be scientific in nature, be derived from intensive research, and should be peer reviewed
- Data collection in EIS should be defensible and representative of factors that may affect the data (e.g., weather, season, etc.)
- EIS should be written clearly and in layman’s terms
- Alternative Development
- Alternatives must detail the private development included in the action
- Alternatives should not address deed restrictions on land above 597 feet msl
- Alternatives should not address deed restrictions on land below 597 feet msl that are unnecessary or otherwise tied to particular concerns that are addressed through other regulatory means (e.g., endangered species act)
- Alternatives that unreasonably limit development features or shoreline uses should be rejected
- No action alternative should be based on current plans for developing the adjacent private property

- Mitigation Plans
- Mitigation should address both fish & wildlife and recreation issues
- Mitigation discussion should address the development of environmentally conscious plans, including minimization of tree and vegetation loss, reduction of erosion and sedimentation into the lake, view-shed protection, preservation of sensitive environmental resources, increased public access, and mandated community open space

Public Lands and Access Considerations

- Loss and fragmentation of Public Lands
- Existing uses of Public Lands (e.g., quasi-public leases of federal land)
- Leased government land is not public and should not be considered public
- Shoreline access
- Public Trust Doctrine
- Access to lands identified for transfer
- Public/private conflicts
- “Private” nature of development and exclusivity issues
- Difficulty of access to Public Lands throughout reservoir
- Changes in use of Public Lands over time
- Access to land below floodpool and identified as easement
- Public use areas within the planned development
- Proportions of Public Lands available/unavailable at reservoir and in adjoining states
- Nature of action as “precedent-setting”
- Shoreline ruggedness as a factor in public access

Socioeconomic Concerns

- Economic benefit (property values; tax base; increased tourism; jobs)
- Economic growth stimulation
- Infrastructure development (water; sewer; roads; electricity)
- Traffic loading
- Market analysis and competition (resorts; marinas; golf courses)
- Facilities/opportunities already available; underutilized facilities
- Economic effects of flood/drought conditions
- Effects of development’s actions on other small businesses in area
- Short-term and long-term economic viability
- Annual/seasonal activities and economic viability
- Impacts of infrastructure development (erosion, water quality, vegetation, fish, wildlife)
- Population, demographics, social groups living and recreating in area
- Public/private conflicts
- Socioeconomic group conflicts

- Effects of development on lake operations (economic/political pressure)
- Effects of floodpool easement on lake operations
- Previous use of project area as rock quarries; effect on developing land
- Quality of improvements because of single developer
- Possible conflicts with Land and Water Conservation Fund project

Recreation Opportunities

- Boating
- Fishing
- Hunting
- Swimming
- Hiking
- Archery hunting
- Birding
- Primitive camping
- Recreational vehicle camping
- Photography
- Wildlife viewing
- Access to/within cove
- Shoreline access
- Safety (boating) and volume of users
- Public/private conflicts
- Public/hunting areas fragmentation and displacement
- Impact of existing developments and quasi-public leases on public/hunting areas
- Quality of recreation opportunities
- Resorts, golf courses, and high-end recreation opportunities
- New recreation facilities
- Access and use of “natural” areas
- Increased recreation benefits should be discussed, including public boat ramps, boat docks, public parks, open spaces, trails, and two public golf courses

Fish and Wildlife Issues

- Ecosystem
- Fish spawning and effects of dredging and bulkheading
- Habitat, including “critical” habitat
- Wildlife corridors
- Environmental buffers
- Shoreline habitat
- Effects of floodpool easement on habitat
- State species/habitat protective rating/state evaluation of habitat

- Relationship to water quality
- Habitat fragmentation
- Fish and wildlife populations; effects on hunting and fishing
- Previous use of project area as rock quarries
- Migratory bird nesting season (1 April – 15 July)

Water Quality Concerns

- Data on existing conditions
- Runoff expected from development
- Pesticides and herbicides used for golf courses
- Erosion and sedimentation; effects on water quality
- Effects of vegetation removal on water quality
- Effects of environmental buffers on water quality
- Effects of poor water quality on fish and wildlife; vegetation
- Data on increased fecal coliform bacteria, with emphasis on heavy rain events
- Effects of dredging, bulkheading, and wave action on water quality
- Effects of aging buried septic systems
- Effluents and sources
- Total daily maximum load
- State water quality standards
- State Clean Water Act Section 303(d) list
- Effects of increased sedimentation (from development) in lake; impact on reservoir operations

Visual/Scenic Considerations

- Shoreline/scenic impacts
- “Natural” areas
- Visibility of development from water
- Impact of diminished scenery on tourism (revenues, visitation)
- Returning “protected status” to habitat areas classified as limited development (as mitigation)

Cumulative Effects Analysis

- Loss and fragmentation of Public Lands and access to remaining Public Lands in reservoir area, and in adjoining states
- Loss and fragmentation of recreation opportunities
- Changes in water quality
- Changes in socioeconomic conditions
- Loss of visual/scenic attributes and impacts on recreation and socioeconomic conditions

- Cumulative effects of outgrants, transfers, encroachments, permits, and leases
- Sedimentation of reservoir (e.g., underwater surveys and mapping)
- Effects on reservoir flood risk management, hydropower, and water supply
- Cumulative effects analysis, including foreseeable actions, should not include detailed study of all projects proposed for the lake
- Court cases which address the Public Trust Doctrine and relationship to this action

Zoning Requests

- Several requests for area zoned Protected be changed to Limited Development.
- One requestor wanted an area zoned as public recreation in the City of Eufaula to create a public park.
- Several Requestors wanted the existing zoning to remain as it was in the 1998 SMP.
- One requestor wanted an area zoned Recreation High Density changed to Limited Development.
- One requestor wanted an area zoned for Recreation High Density to create a private lease for development of a large scale housing development and associated water based recreational facilities.

The information gathered in this process was utilized to develop several alternatives for an EIS. This EIS was drafted and made available for public review. A public workshop was conducted in December 2012 for the draft EIS on the proposed update to the MP and SMP for Eufaula Lake. These comments fell into several categories of public concern. Those categories were: Vegetation buffers/mowing permits, Erosion, Recreation/Number of boats and boat docks, Carlton Landing, Economic Effects, Fish and Wildlife, Water Quality, Individual Zoning Requests, and Additional Specific Comments. These comments were reviewed, grouped by topic, and summarized in the below categories.

Vegetation Buffers/ Mowing Permits

Comment: Adjacent property owners should be able to clear dead trees, branches, and brush from government lands to reduce fire risk and remove potential hazards to pedestrians:

Response: The current SMP already allows for the removal of dead trees that pose hazards upon approval of the Lake Office. There are no plans to eliminate this option. Similarly the current SMP allows for the clearing of a fire break adjacent to structures. “Firebreaks” allowed under a shoreline use permit for vegetation modification allow mowing, clearing of trees less than 4 inches in diameter, and limbing of trees up to 8 feet above the ground within the first 30- feet of government land immediately adjacent to the private property for fire break purposes only. This is determined on a case by case basis. The ability to create firebreaks as necessary would still be allowed under the revised SMP.

Comment: Several people expressed concern that the proposed vegetation buffer would make access to boat docks and beaches difficult and that the natural vegetation would harbor dangerous animals such as snakes.

Response: The current SMP already allows for the creation and maintenance of 6-foot wide meandering paths. There is no plan to eliminate this so it would still exist in a new SMP. The lake office would still have the ability to approve a pathway so people can safely access their dock and the lakeshore.

Comment: Some commenter's stated that maintained Bermuda grass is more stable and results in less erosion than natural vegetation and does not impact wildlife use of the shoreline areas.

Response: Vegetated buffers filter runoff by slowing water velocity and increasing infiltration by 10 to 15 times compared to grass turf. The use of vegetated buffers in this way has been proven to trap 80 to 90 percent of sediment and pollutants. While grass turf does have dense roots, when it is mowed it doesn't provide the roughness needed to slow overland flow of stormwater runoff and filter out the sediments that are carried by the stormwater runoff from adjacent development. Native grasses and woody vegetation assist with slowing the velocity of runoff and reducing scouring.

Comment: Many commenters suggested that current mowing permits should be grandfathered if the proposed change is applied or that the buffers should not be implemented in areas where mowing is currently allowed.

Response: The new SMP would implement this policy change immediately for any new vegetative modification requests. However, there would be a five year transition program for all existing permit holders. That way USACE can assure that any written commitments to existing permit holders are honored until their permit expires. Current shoreline use permit holders would be able to get another 5 year permit to continue mowing as done previously. Any of those permits that expire in 2018 or beyond would be required to incorporate a buffer zone. Current practices for maintaining woody vegetation would still be allowed within the buffer zone. Buffer zones could be comprised of grass and forbs.

Comment: In response to the proposal that variable buffers might be applied, commenters expressed the opinion that a 45 foot buffer would be sufficient and those larger buffers would not be necessary.

Response: The new SMP would apply a uniform 45 foot buffer as this was determined to provide sufficient water quality and shoreline protection.

Comment: Some commenter's suggested that modifications to the proposed buffers should be allowed on a case-by-case basis where erosion barriers such as a rocked shoreline exist or where the shoreline is watered and mulched to maintain a good grass cover.

Response: Vegetation modification permits are currently issued on a case-by-case basis. There is no plan to eliminate this required site review prior to approval of shoreline use permits. Buffer zones have been found to be a natural erosion control methodology. This change would help control erosion on a lake-wide basis and would be applied regardless of what other shoreline stabilization measures might be present. Vegetated buffers filter runoff and remove nutrients and sediments that are carried by stormwater that runs off from adjacent private lands. This filtering benefit prevents sediments and nutrients from reaching the lake. Rocked shorelines do not provide these benefits.

Comment: Several commenters are concerned that the proposed vegetation buffers would adversely impact views of the lake.

Response: If structures are at the same elevation as the shoreline, then views in the summer may be filtered through a narrow fringe of trees that may occur on the 45-foot buffer. Current practices for maintaining woody vegetation would still be allowed within the buffer zone. Buffer zones could be comprised of grass and forbs. Winter views with leaves off, would be virtually unobstructed.

Comment: Several commenters are concerned that the proposed vegetation buffers would adversely impact property values.

Response: It is difficult to predict whether the proposed vegetative buffer would adversely affect property values as home values are more strongly influenced by the proximity to the water and the ability to have a boat dock.

Comment: "The Corps already struggles to maintain the shoreline, and a Buffer Zone would only collect trash and be detrimental to the beauty, environmental safety, and commercial recreational use of the shoreline. A Buffer Zone would cause undue hardship on the Corp requiring the substantial expense of surveys to even establish such zone."

Response: Buffer strips are a linear band of permanent vegetation adjacent to an aquatic ecosystem intended to maintain or improve water quality by trapping and removing various nonpoint source pollutants (e.g., contaminants from herbicides and pesticides; nutrients from fertilizers; and sediment from upland soils) from both overland and shallow subsurface flow. A buffer strip may provide habitat for a variety of plants and animals if sufficient land area is retained to meet the life history needs of those species. Buffer strips may also function as movement corridors if they provide suitable connections between larger blocks of habitat. The review indicates that a buffer would help water quality. However, it is apparent that having a

sliding buffer zone width based on natural settings would be difficult to manage. Therefore, a minimum 45-foot buffer was selected as the only one necessary to be utilized lake wide. This buffer would not be surveyed lake-wide, but would be established on each parcel as shoreline vegetation modification permits are approved.

Erosion

Comment: Allowing the use of concrete or asphalt paths to boat docks would reduce erosion.

Response: The current SMP requires pathways to “follow a route, taking topographic conditions into account that will prevent soil erosion.” There are no plans to change this requirement from the revised SMP. Therefore, a properly located and maintained pathway should not need to be armored with concrete or asphalt to prevent erosion.

Comment: Many commenters expressed the opinion that natural vegetation along the lakeshore would be more susceptible to erosion than managed or mowed landscapes.

Response: Vegetated buffers protect against erosion by slowing water velocity and increasing infiltration of stormwater runoff. While the effectiveness of different vegetation types is variable, natural vegetation is preferred over non-native vegetation and may increase infiltration of stormwater runoff by 10 to 15 times compared to grass turf. The use of vegetated buffers has been proven to trap 80 to 90 percent of sediment and pollutants. When grass turf is mowed it doesn't provide the roughness needed to slow overland flow of stormwater runoff and filter out the sediments that are carried by the stormwater runoff from adjacent development. Native grasses and woody vegetation assist with slowing the velocity of runoff and reducing scouring.

Comment: Development and gravel roads were recognized as sources of erosion and suggestions included better controls on development or the placement and management of gravel roads to reduce erosion.

Response: Development (e.g. boat docks) or gravel roads that are located on government property may only be constructed with an approved shoreline use permit. Such permits will require the implementation of Best Management Practices (BMPs) to reduce and prevent erosion, both during construction and throughout the life of the structure

Comment: Several commenters noted that low lake levels or water level fluctuations are resulting in shoreline erosion.

Response: As a reservoir, water level fluctuations may occur due to drought, retention of flood waters to protect downstream resources and people, or water releases to generate hydropower or provide downstream flows for navigation and resource protection. Eufaula Lake is one unit of several on the Arkansas River Basin and is designed to fluctuate up to 12 feet

depending on current conditions. While water level fluctuations can result in shoreline erosion, lake level management is not within the scope of the SMP or MP revisions under consideration.

Under the current drought conditions, the water levels in the lake have been abnormally low for an extended period of time. Shoreline erosion may occur at whatever elevation the water surface is at in a lake or reservoir. Since a prolonged drought has been experienced over the last several years it may appear that erosion has gotten worse because there is more un-vegetated shoreline exposed. In actuality, however, the erosion rate has not changed, it is just occurring at a lower elevation.

Comment: Several commenter's suggested that USACE should provide expert engineering advice to property owners wishing to implement erosion control projects.

Response: Funds appropriated for Eufaula Lake are designated for the routine Operations and Maintenance of the project. Use of these funds to assist private citizens with engineering support would be contrary to current laws unless specifically congressionally authorized.

Comment: With regard to the proposed Shoreline Vegetation Management Policy and Buffer Zones proposed in this study, I do not support this initiative. It is a one size fits all policy that does not directly address a multitude of issues regarding erosion and water quality. It would be implemented without addressing other alternatives such as Rip Raping or proper lawn care. In some cases even sea walls could be installed.

Response: While other alternatives that armor the shoreline, such as riprap or seawalls, may reduce erosion of the shore at the water's edge, they do not address issues related to runoff from adjacent development or reduction of nutrient inputs that also affect water quality. In addition, these types of hard structures are very expensive to install and maintain and often create issues for adjacent landowners by accelerating erosion or accretion of nearby shorelines.

Vegetated buffers protect against erosion by slowing water velocity and increasing infiltration of stormwater runoff. While the effectiveness of different vegetation types is variable, natural vegetation is preferred over non-native vegetation and may increase infiltration of stormwater runoff by 10 to 15 times compared to grass turf. The use of vegetated buffers has been proven to trap 80 to 90 percent of sediment and pollutants. When grass turf is mowed it doesn't provide the roughness needed to slow overland flow of stormwater runoff and filter out the sediments that are carried by the stormwater runoff from adjacent development. In addition, grass turf often requires the use of fertilizers and pesticides which then runoff into the lake and increase the pollutant loads in the lake and contribute to blue-green algal blooms. Native grasses and woody vegetation assist with slowing the velocity of runoff and reducing scouring.

Comment: "It is my opinion that the Corp should encourage dredging. Removing dirt from the lake will allow it to hold more water and help slow erosion."

Response: Dredging addresses the result of erosion by removing sediment from the lake bottom. However, the practice does not address the sources or the rate of erosion. Dredging may be necessary in some locations to maintain access to docks or boat ramps and would be allowed under an approved permit from USACE.

Recreation/Number of boats and boat docks

Comment: Several people expressed concerns that there are already too many boat docks on the lake and particularly at certain times and in certain places, such as Longtown Arm, the lake is overcrowded.

Response: Perception of congestion is very personal and comments included responses from people who feel that the lake is too crowded now. Using accepted standards for boat density, the EIS concludes the addition of a marina on Longtown Arm would not be a significant impact. Most likely current boating use patterns will continue to persist.

Comment: Low lake levels were identified as a factor that adversely impacts recreation and several people suggested that the lake levels should be maintained to support recreational activities. One commenter suggested that a lake level of 587 feet should be maintained for visitor safety. Another commenter notes that shorelines allocated for boat docks should be in areas with deep water so that docks don't end up on the sand in August.

Response: Under the current drought conditions, the water levels in the lake have been abnormally low for an extended period of time, which has resulted in some docks being left dry late in the season. As a reservoir, water level fluctuations may occur due to retention of flood waters to protect downstream resources and people or water releases to generate hydropower or provide downstream flows for navigation and resource protection. Eufaula Lake is one unit of several on the Arkansas River Basin and is designed to fluctuate up to 12 feet depending on current conditions. While water level fluctuations can affect recreational activities, lake level management is not within the scope of the SMP or MP revisions under consideration.

The normal pool elevation for the lake is 585 feet above mean sea level. Dock suitability is linked to this elevation. Because many areas of the lakeshore are relatively flat, a lake level that was only 2 feet higher (e.g. 587 feet) would result in many areas being permanently flooded; some areas could be flooded several hundred feet from the current shoreline, which would result in some people being cut off from their existing docks. The revised SMP does consider dock suitability in the allocation of Limited Development shorelines. Dock suitability, includes consideration of water depth, fetch, and distance to shoreline before approval of a new dock permit.

Comment: The Final EIS needs to better define what is meant by “grandfathering” dock permits, including whether such grandfathered permits would be renewable and/or transferrable.

Response: Grandfathered permits would be renewable as long as the facilities meet the criteria set forth in 36 CFR 327.30(h). All shoreline use permits are non-transferrable. Change of ownership would be allowed on grandfathered docks if it is in compliance with 36 CFR 327.30.

Comment: A few commenters felt that the need for a new marina on the lake was not supported by the analysis in the Draft EIS. They also requested clarification of the difference between the terms “public marina”, “commercial marina”, and “community marina” as used in the Draft EIS.

Response: The need for a new marina on the lake is linked to the planned development at Carlton Landing. The addition of approximately 2,500 new homes in a concentrated location over the next 25 years would support the need for a marina at that location. This marina request would need to comply with the Recreation outgrant policy.

All marinas on Eufaula Lake are in private ownership. They are authorized by USACE to operate a commercial operation on a public lake. The wording in the Final EIS has been clarified to describe these marinas as commercial operations authorized by a lease.

Comment: Some commenters expressed the view that more docks and boats could be allowed on the lake than currently exist without resulting in adverse impacts. For example: “As for overcrowding of boats, I have never felt like there were too many on the lake at any given time. Again, this is a recreational area and you anticipate a higher volume of watercraft at differing times of the day or the season. There has always seemed to be plenty of room for the fisherman, the wake boarders, the personal water craft and boaters alike.”

Response: Perception of congestion is very personal and comments included responses from people who feel that the lake is too crowded now to those who feel that there is room for many more boats. The analysis for the EIS concluded there is room for additional boat docks and boats in the reasonably foreseeable future (e.g. a 20 year planning horizon).

Comment: “I believe that new private docks should be allowed with permitting and architectural review in areas that already contain docks and have a solid history of residential development and infrastructure.”

Response: New docks would be permitted in shoreline areas allocated as Limited Development and where the shoreline characteristics of water depth, distance from shoreline, and wave exposure are suitable for docks. Docks are permitted with an approved shoreline use permit and applications are reviewed on a case-by-case basis. Permit application review includes a review of the structural features of the proposed dock. Most of the proposed Limited

Development areas in the revised SMP are located in areas that have been allocated as Limited Development in the previous SMP.

Comment: Several commenters expressed concern that if the number of boat slips or docks on the lake is limited, approval of a 300 slip marina at Carlton Landing would unfairly apportion a large number of slips to one developer.

Response: A marina, which is located on a shoreline allocated to Public Recreation would not affect or be “counted against” the total number of private boat docks that could be constructed along Limited Development shorelines. Boat docks are not equivalent to boat slips. The number of allowable boat docks is related to the miles of shoreline allocated as Limited Development rather than an absolute number. The number of boat docks that may be constructed is constrained by the regulations, which require that docks be placed a minimum of 50 feet apart and that no more than 50 percent of the shoreline allocated as Limited Development may be developed with docks. The number of docks may be further constrained by the regulation that limits the length of a dock to no more than 1/3 of the distance to the opposite shore, which often limits the number of docks in small coves. Many shorelines are also unsuitable for docks in that they may be too shallow for too great of a distance from shore or they may be too exposed to wind action that creates large waves that break docks apart in a few years. All of these factors limit the number of docks that can potentially be built along the lakeshore, so that the actual number would be less than the theoretical maximum based only on shoreline length. The theoretical maximum number of boat docks reported in the EIS is a hypothetical number based on shoreline miles that is only used for comparative purposes between the alternatives.

Comment: “I don't anticipate a problem with another marina being added on the lake. I would just ask that everyone be mindful of how many areas get designated as no wake zones because in the last 5 years around our area alone some of the best skiing/wake boarding water has been designated "no wake" because of new boat docks and the cove by Carlton Landing is one of those "best" areas.”

Response: USACE and the State of Oklahoma Department of Public Safety continually monitor navigational safety on the lake and may identify the need for no wake zones through that monitoring process.

Comment: Some people commented that they did not want any changes to the current restrictions on dock size and spacing.

Response: The current SMP requires a minimum of 50 feet between docks and limits the amount of shoreline that can be developed with docks to no more than 50 percent of the total shoreline allocated as Limited Development. The regulations also limit the length of a dock to

no more than 1/3 of the distance to the opposite shore. The new SMP would increase the minimum spacing to 75 feet between docks.

Comment: Some commenters suggested that USACE should encourage the use of community docks and one person even suggested that new housing developments should be required to only provide community docks, prohibiting individual docks associated with subdivisions.

Response: The current SMP encourages the use of community docks to insure the availability of shoreline space for more docks and to include non-adjacent landowners in the benefits of shoreline use. Community docks are subject to the same shoreline allocation requirements and fees as stipulated for individual facilities. The new SMP removed community dock language but still allows for the construction of docks with up to 20 slips. However, the choice of whether to provide one multi-slip dock or to allow a smaller number of individual lot owners to construct individual docks is left to the developer.

Comment: "Please reconsider your discriminatory rules against mooring buoys versus boat docks, or at the very least, grandfather in the rights of the people with mooring buoy permits that were in place in 2000 as part of this process."

Response: Mooring buoys are authorized by a letter permit only at no cost to the applicant. Additionally, there is no date of expiration for mooring buoys under the letter-permit format. Mooring buoys may remain in the approved location until such a time as an application to place a floating facility on that site is made. In that case, the floating facility will take precedence and the mooring buoy must be moved to another suitable location or be removed from the lake. All existing mooring buoys on the lake that are authorized by Shoreline Use Permit may remain until the expiration of the permit. Upon expiration of the permit, a letter of authorization will be issued and the new conditions will be in effect. The new SMP would not change these practices.

Comment: "Please revise your regulations to clarify that the 500-foot access language is only to be used in highly unusual circumstances as an "exception" and that in most instances the boat dock and its respective walkway must be placed on, or as near to the applicant's property line as possible." The commenter is concerned that private floating facilities could be placed on waterfront directly in front of their residence simply because it is within 500 feet of someone else's access point.

Response: The new SMP would change the 500-foot access requirement. The new SMP proposes to require access to be measured from the center of the lot to the closest point on the shoreline. A dock could be approved there or within 125 feet either side of that location, if something restricts placement of the dock at the center point.

Comment: "There definitely needs to be a public marina added to the lake south of Highway 9."

Response: Several comments were received both in support of and in opposition to a new marina on Eufaula Lake. It is unclear from this comment whether it is in reference to the proposed marina at Carlton Landing or whether the commenter feels that there is a need for a new marina.

Carlton Landing

Comment: Many people expressed the concern that the purpose of the EIS and the revisions to the SMP and MP are solely to accommodate the Carlton Landing proposal. Several people felt that the Carlton Landing proposal should be evaluated separately from the SMP and MP revisions.

Response: USACE has needed to update the Eufaula Lake SMP since 2003. Because the environmental impacts of shoreline zoning and lakeshore land allocations have not been assessed under the NEPA since the mid-1970s, USACE chose not to revise the SMP until an EIS could be completed. Funds did not become available for this work until 2011. The EIS is not being conducted to specifically to accommodate Carlton Landing. During scoping for the EIS, USACE requested proposals for specific rezones to update the SMP and MP. The Carlton Landing proposal was one the most complex of these. Due to the size of the proposal and the complexity of the issues related to it, the Carlton Landing proposal may appear to have received extra attention in the analysis.

Comment: Many people expressed concern that approval of the Carlton Landing proposal would restrict public access and use of that part of the lake and shoreline.

Response: The Carlton Landing proposal includes a change in shoreline allocation under the SMP from Protected to Public Recreation. The land use classification of 258 acres would remain High Density Recreation as it currently is classified under the MP and an additional 43 acres would change from Low Density Recreation to High Density Recreation for a total of 301 acres. If approved, this land would be leased to the Carlton Landing developers for the construction of a variety of public recreational facilities. It would be a condition of the lease that the area remains open to public access and use. The addition of new public facilities may result in some changes in how that portion of the lake is managed relative to past conditions; for example, no wake zones around the proposed marina would be a prudent safety measure that may be applied.

Comment: Many people expressed concern that adding a new marina at Carlton Landing would add to overcrowding of Longtown Arm and degrade the recreational experience in that part of the lake.

Response: There are a number of metrics that provide insight into the potential for boat congestion. One of these measures is "Boats at One Time" or BAOT. BAOT is the total number

of boats on the water surface, actively being used for recreational purposes, at any given time. This number is less than the total number of boats that can be moored or stored at an approved moorage facility, such as a marina or boat dock, plus the total number of boats that can be placed on the water surface using an approved boat ramp or launch facility. The number of boats on the water actively being used for recreational purposes would be those that would contribute to a perception of congestion. The addition of a marina at Carlton Landing would likely only generate an additional 66 to 72 BAOT. Compared to the optimal BAOT for the lake of 3,500 BAOT, a new marina would only generate about 2 percent of the optimal BAOT.

Comment: Many people expressed support for or opposition to the Carlton Landing proposal. Approximately 12 respondents expressed opposition to Carlton Landing specifically, while 8 commenters expressed support for Carlton Landing.

Those in opposition provided the following reasons: no reason given (1), if developed for private purposes and then later abandoned, would overburden Corps, no special considerations should be given to private developer of Carlton Landing (3), Corps land should be open to all and should not be privatized (3), “changing rules” for Carlton Landing would affect the ability of others to develop (exceed capacity of lake for new docks), environmental impacts too great and should not be approved for economic gain of private individuals (3)

Those in support provided the following reasons: new facilities would offer tourist amenities (vacation lodging) and destinations (nature center), no objection to proposal, but with caveats – mitigation needed for impacts, marina needs extra study on issue of size, approval should not set precedent for clearing standing timber in other parts of lake, economic benefits from construction jobs and new residents, new mix of resort amenities not currently available (5), can't deny marina because there are other marinas on lake.

Response: Approval of the rezone and lease for Carlton Landing would not privatize that portion of the shoreline. The facilities proposed would be required to be open to the public. Potential environmental impacts would need to be mitigated or avoided. Development of a marina at Carlton Landing would not affect the potential for other landowners to construct private docks.

Home construction does generate jobs and provide for increases in local tax revenues. However, the proposed growth at Carlton Landing is within the projected growth rates for the region that have been observed historically and which are projected to occur in the near future; therefore, there would not be a significant effect on the local economy from this particular development.

Economic Effects

Comment: Some people expressed concern that a new marina at Carlton Landing would negatively affect existing marina operators.

Response: According to the data presented in the Recreation Study Report in Appendix E of the EIS, the existing marinas are currently about 85 percent occupied. This is a relatively high rate for marina occupancy and may actually be a bit lower than normal due to the recent recession. Slips in a marina at Carlton Landing would be expected to be most attractive to residents of the Carlton Landing development and secondarily to residents in the nearby region. At full build out of Carlton Landing it might be expected that the slips in the proposed marina would be entirely occupied by boats owned by residents of the development. With a projected 2,500 home lots associated with a marina with only 300 slips, it may be expected that over time, some Carlton Landing residents may look to other marinas for opportunities to moor boats. In the short term it is possible that some local residents who currently moor boats at existing marinas may find the Carlton Landing location to be an option.

Comment: Some people expressed concern that community docks could impact existing marina operators.

Response: According to the data presented in the Recreation Study Report in Appendix E of the EIS, the existing marinas are currently about 85 percent occupied. This is a relatively high rate for marina occupancy and may actually be a bit lower than normal due to the recent recession. Community docks provide limited opportunities for communities to construct docks with up to 20 slips to insure the availability of shoreline space for more docks and to include non-adjacent landowners in the benefits of shoreline use. Community docks may reduce overall environmental impacts by reducing the number of docks that are constructed.

Comment: Some people expressed concern that any proposals that would change Limited Development shorelines to Protected shorelines would negatively affect property values with corresponding impacts on individuals and the local economy. One commenter specifically identified any change that would reduce the number of Limited Development shoreline miles below the current level of 271 miles as an action that would have significant adverse economic impacts that would not be offset by improvements in the environment.

Response: Private dock permits are approved on a case-by-case basis and are subject to the regulations found in 36 CFR 327.30 and the SMP. A shoreline allocation of "Limited Development" does not guarantee an adjacent landowner the ability to construct a private dock. The property values of lots that are adjacent to government lands around the lakeshore are influenced by a wide variety of factors including views of the water, beach conditions, proximity to highways and/or towns, and the condition of neighboring properties. The new SMP maintains a ratio of Limited Development to Protected shorelines that is similar to the

existing condition. Minor changes in shoreline allocations in specific locations are unlikely to significantly affect property values when averaged over the lake.

Comment: Several commenters stated that Carlton Landing would provide economic benefits from construction jobs, increased property values and local tax base that would support local schools and roads. Carlton Landing would provide a mix of resort amenities not currently available at Eufaula Lake potentially resulting in greater tourism benefits.

Response: Carlton Landing proposes to construct approximately 2,500 homes over the next 30 years. If demand is constant, this would be the equivalent of approximately 80 homes per year. The National Association of Home Builders estimated in 2008 that construction of an average home generates about 3 jobs. Therefore, it could be expected that development at Carlton Landing could generate 240 jobs each year with an associated effect on local tax revenues. The resort and lake home amenities proposed at Carlton Landing could provide additional benefits to the local economy by attracting additional tourism and recreational users to the area. However, these effects are expected to be within the average growth rates observed in the past and would not necessarily represent a significant effect of the development.

Fish and Wildlife

Comment: Several people expressed concern that it would be important to protect natural areas for wildlife and for hunting and fishing opportunities in the revised SMP and MP. In particular, commenters noted that decisions should be focused on decreasing (or avoiding increasing) habit fragmentation, and also trying to preserve some travel corridors for fish and wildlife.

Response: Fish and wildlife habitat protection are important goals of USACE management of government lands around Eufaula Lake. Almost 30,000 acres are leased to ODWC or otherwise specifically managed for fish and wildlife habitat. In addition, USACE regulates vegetation modification on lakeshores through the review and approval of shoreline use permits for mowing and other vegetation modification. The new SMP would apply a 45-foot vegetated buffer along the shoreline in areas allocated as Limited Development. Buffer strips are a linear band of permanent vegetation adjacent to an aquatic ecosystem intended to provide water quality benefits but they may also provide habitat for a variety of plants and animals if sufficient land area is retained to meet the life history needs of those species. Buffer strips may also function as movement corridors if they provide suitable connections between larger blocks of habitat.

Comment: Several people noted that construction of a marina and other facilities at Carlton Landing would require the removal of trees that could result in impacts on wildlife habitat. Some commenters noted that a decision to allow Carlton Landing to construct facilities on

government lands would appear to be inconsistent with other policies that prohibit tree removal.

Response: Modification of vegetation by private individuals is generally not allowed in the Public Recreation shoreline allocation; however, such modifications may be considered and approved under the terms of a lease agreement after consideration of environmental and physical effects of such actions (Section 5(e)(2) of ER 1130-2-406). If approved, construction of public shoreline facilities and a marina at Carlton Landing would be conducted under the terms of a lease. Potential impacts to wildlife habitat would be required to be mitigated as part of the lease terms.

Comment: Some people suggested that water level fluctuations in the lake should be restricted to less than one foot to encourage the growth of aquatic vegetation with associated benefits for the environment.

Response: As a reservoir, water level fluctuations may occur due to retention of flood waters to protect downstream resources and people or water releases to generate hydropower or provide downstream flows for navigation and resource protection. Eufaula Lake is one unit of several on the Arkansas River Basin and is designed to fluctuate up to 12 feet depending on current conditions. While water level fluctuations can adversely affect aquatic vegetation in nearshore areas, lake level management is not within the scope of the SMP or MP revisions under consideration.

Comment: Several commenters expressed opposition to the proposal to remove standing timber in the lake at Carlton Landing. Some identified that this action would adversely impact fish habitat while others expressed concern that it would set a precedent for lakefront property owners in other parts of the lake to request permission for similar removal projects.

Response: The proposed Carlton Landing would require a lease. If issued, it would have conditions requiring mitigation. Mitigation requirements would be:

- Selective timber removal – creation of access lanes in Areas B, K, D, and E
- Use barge-based tree removal operations rather than land-based operations
- Establish speed and wake limits to protect remaining standing timber and other aquatic habitat structures
- Plant native aquatic vegetation along the shoreline
- Install shallow water nest boxes and nest platforms for birds
- Install natural or artificial submerged aquatic habitat structures for fish

Comment: “I believe fishing and water sports should be allowed on all areas of the lake with supervision provided by the lake patrol.”

Response: Fishing and water sports are currently allowed on all areas of the lake where it is safe to conduct such activities. Enforcement is provided by the Marine Division of the Oklahoma Highway Patrol.

Comment: “I would like to see the approval to remove all cedar trees on Corps land.”

Response: The rapid westward spread of eastern red-cedar into previously uninhabited ecosystems has raised concerns with habitat managers in the state. This encroachment is evident within the Eufaula Lake study area as red-cedar was observed within crosstimbers, oak-hickory forest, oak-pine forest, and prairie habitat transects, with it being dominant in oak-pine and crosstimbers habitats.” The spread of eastern red cedar is a symptom of changed land management practices that are resulting in the conversion of natural prairies to more forested habitat types. Tree removal may be approved on a case-by-case basis with the approval of a shoreline use permit.

Water Quality

Comment: A few people identified water quality as an important element in attracting development to the lake and supporting the local economy, although development also has the potential to negatively impact water quality. Some suggested potential mitigation measures such as the use of hay bales or plastic to reduce the potential impacts of development on water quality.

Response: Unfortunately, USACE is limited in its ability to apply mitigation measures to developments on private lands adjacent to government lands. Sediment, erosion, stormwater runoff, application of pesticides and fertilizers on adjacent private lands can all impact the water quality of the lake. Maintenance of vegetated buffers along the lakeshore is the best protection that USACE can provide on government lands for the protection of lake water quality.

Comment: Blue green algae was identified as a new problem at the lake that is potentially caused by low lake levels.

Response: Algal blooms are caused by an increase in nutrients in the water that results in an overgrowth of algae. There may be a number of different factors that are contributing to this increase in nutrients. Low lake levels may be resulting in areas of shallower water that allow light to reach the bottom of the water column and also contribute to algae growth; however, Eufaula Lake is a generally shallow lake overall and it is unlikely that low water levels are a significant contributor to the increase in blue-green algal blooms. USACE will continue to

monitor recreational beaches for the presence of blue green algae at levels that may pose health risks from water contact.

Comment: “One great concern is the impact all the house boats are having on our water quality of the lake. I know for fact that house boat owners are dumping their raw sewage into the water. With this going on plus the sewage from upstream cities and the local septic that run into the rivers and into the lake the water is being impacted greatly.”

Response: State law prohibits vessels from discharging any sewage, treated or untreated, into the fresh waters of Oklahoma. All vessels with installed toilet facilities are required to have an operable marina sanitation device on board. All devices must be U.S. Coast Guard-certified. More information on these requirements is included in the Handbook of Oklahoma Boating Laws and Responsibilities, available here: <http://www.boat-ed.com/ok/handbook/toc.htm>.

In regards to concerns about sewage from upstream cities, wastewater is treated before being discharged to rivers per state and federal regulations. Therefore, wastewater discharges into rivers upstream of Eufaula Lake do not have a significant impact on water quality. In addition, the SMP and MP revisions would only affect activities around the edge of Eufaula Lake and would not influence conditions upstream in the watershed.

Individual Zoning Requests

Comment: Stone Ridge Estates Zoning Request #11 – requested during scoping and mistakenly overlooked.

Comment: Breckenridge Estates Zoning Request #12 – new request

Comment: Fame Creek Zoning Request #13 – new request

Comment: Falcon Tree Zoning Request #8 – support for Zoning Request #8. One commenter lists a number of potential mitigation measures to reduce erosion including a request to rock line ditches that run from the government boundary to the water’s edge.

Comment: Support for Lake Eufaula Association’s Zoning Request #3.

Comment: Support for zoning requests #2 through 10.

Comment: Support for Zoning Request #9

Comment: Support for Zoning Request #1; request review of ODWC lease as hunting in the area endangers residents.

Response: Please see Table 8.1 in Chapter 8 for detailed responses to these requests.

Additional Specific Comments:

Comment: Several commenters suggested that USACE create a citizen board to help review development proposals. Suggestions included that the board be comprised of 15 to 20 residents from all areas of Eufaula Lake to help prevent misinformation or miscommunication about how decisions are made. The commenters suggested that this board review all proposals for more than 2 new houses.

Response: USACE does not make decisions about new residential developments on private lands adjacent to the government lands around the lake. Those decisions are made by the local county and city planning departments. USACE does not allow new residences to be constructed on government lands. Citizen review boards are commonly used by local jurisdictions to review development proposals and to help local governments make land use decisions. However, this type of review would not apply to USACE authority or decisions.

Comment: Some commenters questioned why the existing amount of Limited Development allocated shoreline is being reviewed as they felt the existing amount is adequate. Some questioned whether the current review was being conducted to benefit those who have requested a change for commercial reasons.

Response: USACE has needed to update the Eufaula Lake SMP since 2003. Because the environmental impacts of shoreline zoning and lakeshore land allocations have not been assessed under the NEPA since the mid-1970s, USACE chose not to revise the SMP until an EIS could be completed. Funds did not become available for this work until 2011. As part of the SMP update process the Corps seeks public input as to any proposed changes. That gives the public opportunities to suggest changes in general. These suggestions can be to add or remove areas of Limited Development. Our decision is based on the comments received and the review of the proposed changes. USACE goal is to balance public use, required lake operations and the environment in our final determination. The new SMP described in the Final EIS maintains a ratio of Limited Development to Protected shorelines that is similar to the existing condition.

Comment: "At a minimum keep the limited development areas intact and keep the language for the limited development areas as currently defined in the SMP. If nothing else, any area already declared limited development under the SMP should remain that way due to all the property transactions that have occurred over the years under those conditions. Many people on the lake have purchased property, constructed homes, and installed docks based on the ability to do so knowing the shoreline was limited development. Those limited development areas should remain open to the existing language under the current SMP. The ability to apply and obtain the permits for docks and mowing should remain intact. Ideally it would be beneficial if the limited development areas remained in full effect with the ability to apply for permits during the EIS and only the other areas outside of the limited development became part of the study."

Response: USACE has needed to update the Eufaula Lake SMP since 2003. Because the environmental impacts of shoreline zoning and lakeshore land allocations have not been assessed under the NEPA since the mid-1970s, USACE chose not to revise the SMP until an EIS could be completed. Funds did not become available for this work until 2011. It was important for study purposes that development be suspended for a time to allow a baseline for effects to be established. As part of the SMP update process USACE sought public input as to any proposed changes. That gives the public opportunities to suggest changes in general. These suggestions can be to add or remove areas of Limited Development. Our decision is based on the comments received and the review of the proposed changes. USACE goal is to balance public use, required lake operations and the environment in our final determination. The new SMP described in the Final EIS maintains a ratio of Limited Development to Protected shorelines that is similar to the existing condition.

The most significant change proposed under the new SMP would be the implementation of vegetative buffer strips along the shoreline. Buffer strips are a linear band of permanent vegetation adjacent to an aquatic ecosystem intended to maintain or improve water quality by trapping and removing various nonpoint source pollutants (e.g., contaminants from herbicides and pesticides; nutrients from fertilizers; and sediment from upland soils) from both overland and shallow subsurface flow. Buffer strips may occur in a variety of forms, including herbaceous or grassy buffers, grassed waterways, or forested riparian buffer strips. A buffer strip may provide habitat for a variety of plants and animals if sufficient land area is retained to meet the life history needs of those species. Buffer strips may also function as movement corridors if they provide suitable connections between larger blocks of habitat. The evaluation done by the EIS indicated that a buffer would help water quality. However it is apparent that having a sliding buffer zone width based on natural settings would be difficult to manage. Therefore, a minimum 45-foot buffer is included in the new SMP as the only one necessary to be utilized lake wide.

Comment: Language to allow private community docks to be more than 20 slips and multiple docks connected from a single point off shore. I see this done on many lakes. Stone Ridge Estates has had a domestic water line engineered for 100 homes and there are ways to expand even beyond this point. The electrical service is also sufficient to support many homes with Canadian Valley recently investing to upgrade their infrastructure in the Eufaula area. To support my development, I added a 6-inch water line and built a pump station for the City of Eufaula and gave it to them. Eventually the infrastructure most lacking for me could be boat slips. Although there may be people who do not want a slip, there will come a time when I may not have enough slips even with the existing dock concept discussed. To allow for the best dock configuration and to maximize the benefit by providing the most access and benefit to the people within these developments,

I would like to see consideration given to;

- Community docks with more than 20 slips.
- Various configurations best suited for the application.
- Multiple connected docks from a single bridge to shore.

Response: The current SMP encourages the use of community docks and there are no proposals to change the current limit of 20 slips at this time. A large residential community may construct multiple community docks with an approved shoreline use permit if the conditions for floating facilities are met at a specific location.

Comment: A placeholder for community docks on planned developments. In an effort to again maximize the available slips for the most people within a development, language to allow a placeholder for community docks within planned subdivisions would be beneficial to the SMP. The current dock permit application lasts 1-year with a 1-year extension if the dock is not constructed. For all practical purposes, the same timeframe applies to a single slip or a 20-slip community dock. For the installation of the first community dock within a development this process may be fine, however some subdivisions need multiple docks. Language for allowing community dock placeholders through filing the concept with the USACOE showing the long-term expansion of the planned docks within the subdivision would be beneficial for the permitting of docks and developers who have established plans for long-term developments with growth over time. The process of approving the concept and assigning a placeholder for all the community docks within the subdivision allows the developer to plan and build out the docks in the development as needed verses trying to build too much infrastructure too early. The existing procedure used to expand the dock or add new docks, (i.e. the plan submittal, approval, and inspection) could remain intact with some modification to allow for this. This again locks in the maximum number of slips on the smallest footprint but locking up the area for community docks. I believe the community dock concept is one the Corp endorses and supports.

Response: The current SMP encourages the use of community docks. If multiple docks are desired over time, but it is not feasible to construct them all at one time, then the developer has tools available to place covenants on the lakefront lots that prevent individual owners from constructing private docks that might preempt a planned build out of multiple community docks.

Comment: Language for wave attenuation. There are many places on the lake that might benefit from the installation of wave attenuation. I don't see where the existing SMP addresses this, but wave attenuation might be beneficial for the lake and it should be considered. Not only would this allow for dock protection in some difficult areas on the lake by allowing docks where previously they would not be feasible but this also helps with erosion by minimizing the wave action against the shoreline.

Response: The current SMP would allow the installation of wave attenuation structures if they meet the requirements of the shoreline management plan, Section 10 of the Rivers and Harbors Act, and Section 404 of the Clean Water Act. Such structures would need to be constructed and maintained at the proponent's expense. There are no plans to change these provisions in the revised SMP.

Comment: "I believe trash removal and general debris pickup by residents should be allowed with permitting that is easily obtained."

Response: USACE does not prohibit residents from removing man-made trash from shoreline areas. Removal of natural debris such as down wood would require a shoreline use permit. There are no proposals to change this provision of the SMP.

Comment: "Shoreline Use: It is my opinion should have restrictions, but should have provision for any new addition as needed to improve quality and protection of the lake."

Response: The new SMP and MP contain a number of provisions that will protect natural and recreational resources at the lake and help to improve water quality.

Comment: "Corps & State & Private Usage: State and Corps areas are pretty good, but some of the private areas need improvement or closed."

Response: Privately-managed recreation areas are authorized under a real estate lease and issues need to be managed through that process. Improving management criterium within these areas is under consideration.

Comment: "The thing the Corps should do is give the land owner control the erosion of his lake lot which the lake is continually doing. They need an engineer assigned to help individuals to control the vegetation buffer."

Response: The current SMP already allows lakefront property owners the opportunity to install shoreline erosion control structures if they meet the requirements of the shoreline management plan, Section 10 of the Rivers and Harbors Act, and Section 404 of the Clean Water Act. Such structures would need to be constructed and maintained at the proponent's expense. There are no plans to change these provisions in the revised SMP. USACE is unable to provide engineering help to individuals because funds appropriated for Eufaula Lake are designated for the routine Operations and Maintenance of the project. Use of these funds to assist private citizens with engineering support would be contrary to current laws unless specifically congressionally authorized. The proposed vegetation buffers do not need maintenance to provide the full water quality and erosion control benefits.

Comment: “I want everyone involved in the SMP update to support whole-heartedly the purpose quoted at the beginning of this response. Balancing recreational needs, economic development and good stewardship cannot be mere words. We have to mean it and fight hard to ensure that this balance happens. The ultimate goal should be the sustainability of the lake—a Shoreline Management Plan that balances environmental, social and economic benefits, and ensures this lake will be here for others to enjoy long after we are gone.”

Response: USACE believes the new SMP and MP provide a reasonable balance between continued recreational development opportunities and natural resource protection at Eufaula Lake.

Comment: “The justification and need for the moratorium during the environmental Impact study was weak initially, too broad in scope, and especially inappropriate in light of the study results. For instance, the correlation between not allowing private boat dock applications in zones where docks already exist seems too restrictive.”

Response: A moratorium is required for the process to update an SMP. It is necessary to establish a baseline. Once the SMP is revised following the issuance of the Record of Decision, USACE will again accept and review applications for dock permits in suitable locations. It is anticipated that this will occur in the summer of 2013.

Comment: Two commenters raised concerns about private investors leasing public shoreline and facilities and then being able to charge the public additional fees for use of the facilities while USACE does not have funds for maintenance. The commenters felt that the fees paid by investors should fund USACE maintenance activities at the lake.

Response: Any funds USACE receives from leases for commercial activities go back to the US Treasury and not to the lake project. The real estate license issued to lease holders by USACE allows the outgrantee to recuperate some of their operating costs by charging the public to utilize the recreational facilities that they maintain.

Comment: Are there exceptions for persons with disabilities on dock size and design regulations? Commenter is legally blind and has a T-dock that is 16 feet wide. It is difficult to maneuver in an out of the dock and he would like to rebuild to a stall-type dock that is as wide, but a little longer.

Response: Any request for people with special needs can be reviewed on a case-by-case basis. Applicants with special needs should coordinate the requirements for their special needs with the lake office. These docks are considered an exception and when sold to a new owner would need to be changed to meet existing requirements.

APPENDIX #
Applicable Federal Statutes

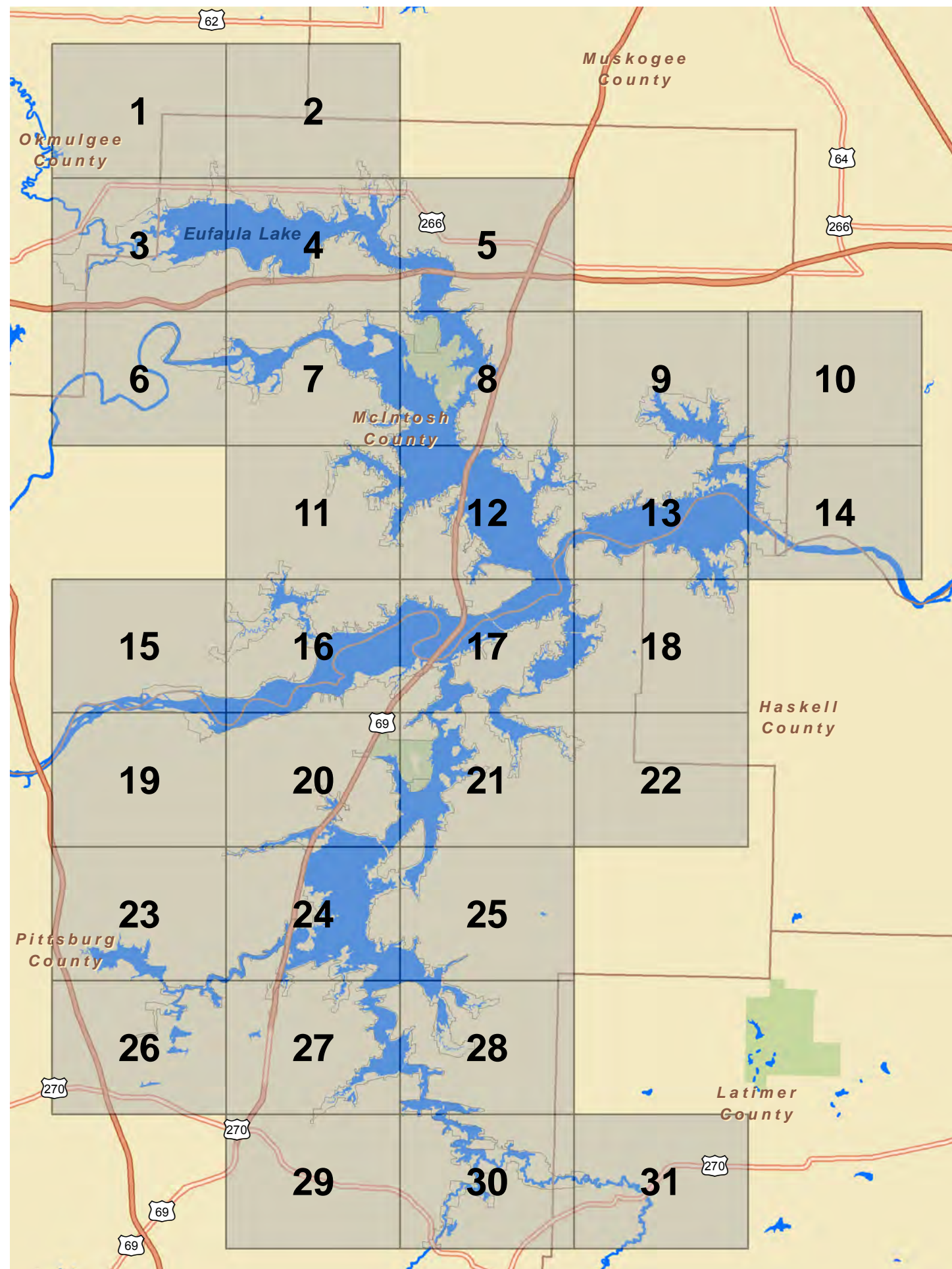
This Master Plan has been reviewed and determined to be in compliance with the statutes listed in this master plan.

- ✓ 16 USC 460d, Flood Control Act of 1944; Title 10 USC 2667; and 16 USC 4601-13. Leases: non excess property.
- ✓ 16 USC 470, PL 89-665, 80 Stat. 915, National Historic Preservation Act of 1966, as amended.
- ✓ 16 USC 469, PL 93-291, 88 Stat. 174, Archaeological and Historical Preservation Act of 1973.
- ✓ 16 USC. 470aa - 470mm, PL 100-588; 102 Stat. 2983, Archaeological Resources Protection Act (ARPA) of 1979, as amended.
- ✓ PL 46 (Chapter 105) S.1006 69 Stat 66. Authority to enter into reciprocal agreements; waiver of claims; reimbursement; ratification of prior agreements.
- ✓ PL 85-624, Fish and Wildlife Coordination Act, (72 Stat. 563, 16 U.S.C. 661).
- ✓ PL 86-532, Reservoir Salvage Act of 1960, as amended.
- ✓ PL 86-717, Forest Cover Act, (74 Stat. 817, 16 U.S.C. 580m et seq.), 6 September 1960.
- ✓ PL 89-72, as amended, Federal Water Project Recreation Act of 1965.
- ✓ PL 91-190, National Environmental Policy Act of 1969, as amended (42 USC 4231,et seq.), 1 January 1970.
- ✓ PL 92-516, Federal Insecticide, Fungicide, and Rodenticide Act of 1972, (86 Stat. 973), as amended.
- ✓ PL 93-205, Endangered Species Act of 1973, as amended (87 Stat 884, 16 USC 1531(b)).
- ✓ PL 95-313. Cooperative Forestry Assistance Act of 1978 (92 Stat. 365, 16 U.S.C. 2101), as amended by PL 101-624, the Food, Agriculture, Conservation and Trade Act of 1990.
- ✓ PL 95-341, American Indian Religious Freedom Act.

- ✓ PL 98-63. Supplemental Appropriations Act of 1983, ref. volunteers.
- ✓ PL 99-662, Water Resources Development Act (WRDA) of 1986, Section 1134, ref: Private Use Facilities; Section 1135, ref: Project Modification for Improvement of the Environment.
- ✓ PL 101-601, Native American Graves Protection and Repatriation Act (NAGPRA).
- ✓ PL 101-640, Water Resources Development Act (WRDA) of 1990, Section 307(a).
- ✓ PL 103-141, Religious Freedom Restoration Act of 1993.
- ✓ 33 CFR Part 328.3(b) U.S. Army Corps of Engineers 1987 Manual for Identifying and Delineating Jurisdictional Wetlands.
- ✓ 33 USC Part 408, Taking possession of, use of, or injury to harbor or river improvements.
- ✓ 36 CFR Part 60. National Register of Historic Places.
- ✓ 36 CFR Part 79, Curation of Federally-Owned and Administered Archaeological Collections.
- ✓ 36 CFR Part 327, Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers.
- ✓ 36 CFR Part 800, Advisory Council on Historic Preservation, Protection of Historic Properties.
- ✓ 40 CFR Parts 150-189, reference to Pesticides.
- ✓ 40 CFR Parts 1500-1508. Council on Environmental Quality Procedures for Implementing the National Environmental Policy Act (42 U.S.C. 4331 et seq.)
- ✓ 41 CFR Part 101 - 47.103-12, Federal Property Management Regulations.
- ✓ 42 CFR 76.1 - 76.9, Performance Standards and Techniques of Measurement;" issued by the Department of Health and Human Services, to supplement Executive Order 11282.
- ✓ EO 11990, Protection of Wetlands, 24 May 1977.
- ✓ EO 12512, Utilization Surveys.

- ✓ DOD 4150.7-M, Plan for Certification of Pesticide Applicators of Restricted-Use Pesticides, Armed Forces Pest Management Board, Defense Pest Management Analysis Center, Forest Glen Section, WRAMC, Washington, D.C. 20307-5001.
- ✓ Technical Information Manuals (TIM)21, "Pesticide Disposal Guide for Pest Control Shops," Armed Forces Pest Management Board (AFPMB), Aberdeen Proving Ground, MD 21010-5422, Tel. (301) 671-3773. U.S. Army Environmental Hygiene Agency, Guide for Medical Surveillance of Pest Controllers.
- ✓ ER 190-1-50, Law Enforcement Policy, U.S. Army Corps of Engineers.
- ✓ ER 200-2-2, Procedures for Implementing the National Environmental Policy Act.
- ✓ ER 200-2-3, Environmental Compliance Operations and Maintenance Policies.
- ✓ ER 385-1-90. Respiratory Prevention Program.
- ✓ ER 405-1-12, Real Estate Handbook.
- ✓ ER 1105-2-100, Policy and Planning, Guidance for Conducting Civil Works Planning Studies.
- ✓ ER 1130-2-500, Work Management Policies.
- ✓ ER 1130-2-550, Recreation Operations and Maintenance Policies.
- ✓ ER 1165-2-131, Water Resources Policies and Authorities: Local Cooperation Agreements for New Start Construction Projects.
- ✓ EP 1130-2-540, Environmental Stewardship Procedures.
- ✓ EM 385-1-1, Safety and Health Requirements Manual.
- ✓ Multi-agency Memorandum of Understanding on Implementing the Endangered Species Act, dated 29 September 1994.
- ✓ Forest Service Form FS-3400-2, "Forest Pest Management Project Proposal."
- ✓ Policy Statement Regarding Treatment of Human Remains and Grave Goods, Advisory Council on Historic Preservation, 27 September 1988.

- ✓ Memorandum of Agreement between the U.S. Department of Agriculture and the U.S. Department of Defense for the Conduct of Forest Insect and Disease Suppression on Lands Administered by the Department of Defense, 11 December 1990.
- ✓ North American Waterfowl Management Plan, developed by the U.S. Fish and Wildlife Service and Canada in 1986.
- ✓ Multi-Agency Memorandum of Understanding on Watchable Wildlife Program, dated Dec. 1990 (extended through Dec. 1998).



INDEX TO DRAWINGS

GENERAL

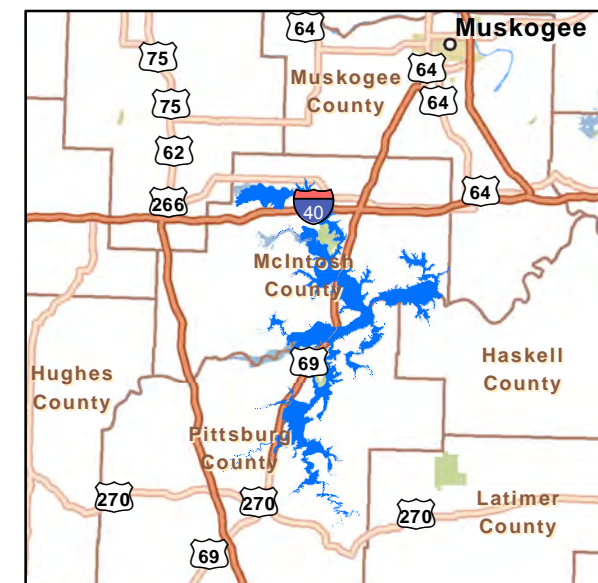
DRAWING NO.	TITLE
EUFA13MP-OI-00	PROJECT LOCATION & INDEX TO PLATES
EUFA13MP-OA-01	LAND ALLOCATIONS
EUFA13MP-OM-01	LAND MANAGING AGENCIES
EUFA13MP-OP-01	SEAPLANE GUIDE


LAND CLASSIFICATION

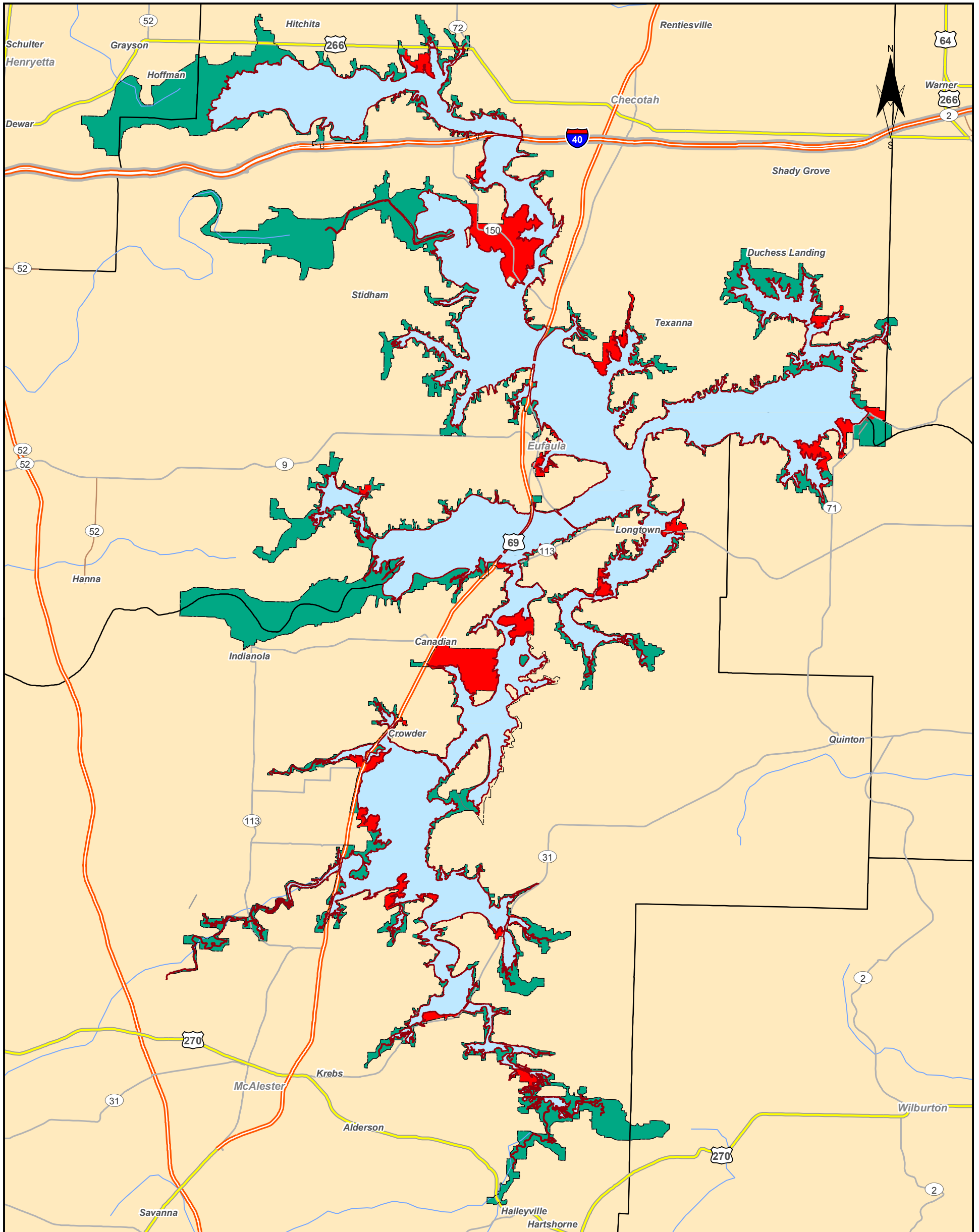
DRAWING NO.	TITLE
EUFA13MP-OC-01	LAND CLASSIFICATION (SHEET 01)
EUFA13MP-OC-02	LAND CLASSIFICATION (SHEET 02)
EUFA13MP-OC-03	LAND CLASSIFICATION (SHEET 03)
EUFA13MP-OC-04	LAND CLASSIFICATION (SHEET 04)
EUFA13MP-OC-05	LAND CLASSIFICATION (SHEET 05)
EUFA13MP-OC-06	LAND CLASSIFICATION (SHEET 06)
EUFA13MP-OC-07	LAND CLASSIFICATION (SHEET 07)
EUFA13MP-OC-08	LAND CLASSIFICATION (SHEET 08)
EUFA13MP-OC-09	LAND CLASSIFICATION (SHEET 09)
EUFA13MP-OC-10	LAND CLASSIFICATION (SHEET 10)
EUFA13MP-OC-11	LAND CLASSIFICATION (SHEET 11)
EUFA13MP-OC-12	LAND CLASSIFICATION (SHEET 12)
EUFA13MP-OC-13	LAND CLASSIFICATION (SHEET 13)
EUFA13MP-OC-14	LAND CLASSIFICATION (SHEET 14)
EUFA13MP-OC-15	LAND CLASSIFICATION (SHEET 15)
EUFA13MP-OC-16	LAND CLASSIFICATION (SHEET 16)
EUFA13MP-OC-17	LAND CLASSIFICATION (SHEET 17)
EUFA13MP-OC-18	LAND CLASSIFICATION (SHEET 18)
EUFA13MP-OC-19	LAND CLASSIFICATION (SHEET 19)
EUFA13MP-OC-20	LAND CLASSIFICATION (SHEET 20)
EUFA13MP-OC-21	LAND CLASSIFICATION (SHEET 21)
EUFA13MP-OC-22	LAND CLASSIFICATION (SHEET 22)
EUFA13MP-OC-23	LAND CLASSIFICATION (SHEET 23)
EUFA13MP-OC-24	LAND CLASSIFICATION (SHEET 24)
EUFA13MP-OC-25	LAND CLASSIFICATION (SHEET 25)
EUFA13MP-OC-26	LAND CLASSIFICATION (SHEET 26)
EUFA13MP-OC-27	LAND CLASSIFICATION (SHEET 27)
EUFA13MP-OC-28	LAND CLASSIFICATION (SHEET 28)
EUFA13MP-OC-29	LAND CLASSIFICATION (SHEET 29)
EUFA13MP-OC-30	LAND CLASSIFICATION (SHEET 30)
EUFA13MP-OC-31	LAND CLASSIFICATION (SHEET 31)

RECREATION AREAS

DRAWING NO.	TITLE
EUFA13MP-OR-00	INDEX TO PLATES
EUFA13MP-OR-01	GENTRY CREEK
EUFA13MP-OR-02	HOLIDAY COVE
EUFA13MP-OR-03	PORUM LANDING
EUFA13MP-OR-04	BELLE STARR (SOUTH)
EUFA13MP-OR-05	DAM SITE (EAST)
EUFA13MP-OR-06	DAM SITE (SOUTH) & BEN O'CARROLL OVERLOOK
EUFA13MP-OR-07	BROOKEN COVE NORTH
EUFA13MP-OR-08	MILL CREEK BAY
EUFA13MP-OR-09	HIGHWAY 9 LANDING
EUFA13MP-OR-10	OAK RIDGE
EUFA13MP-OR-11	CARDINAL POINT
EUFA13MP-OR-12	ELM POINT
EUFA13MP-OR-13	HIGHWAY 31 LANDING
EUFA13MP-OR-14	HICKORY POINT

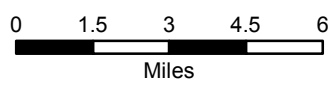


	U. S. Army Corps of Engineers Tulsa District
EUFAULA DAM AND RESERVOIR	CANADIAN RIVER, OKLAHOMA
LAKE EUFAULA	
EUFAULA MASTER PLAN	
PROJECT LOCATION & INDEX	
DATE:	PLATE NO.
MARCH 2013	EUFA13MP-OI-00

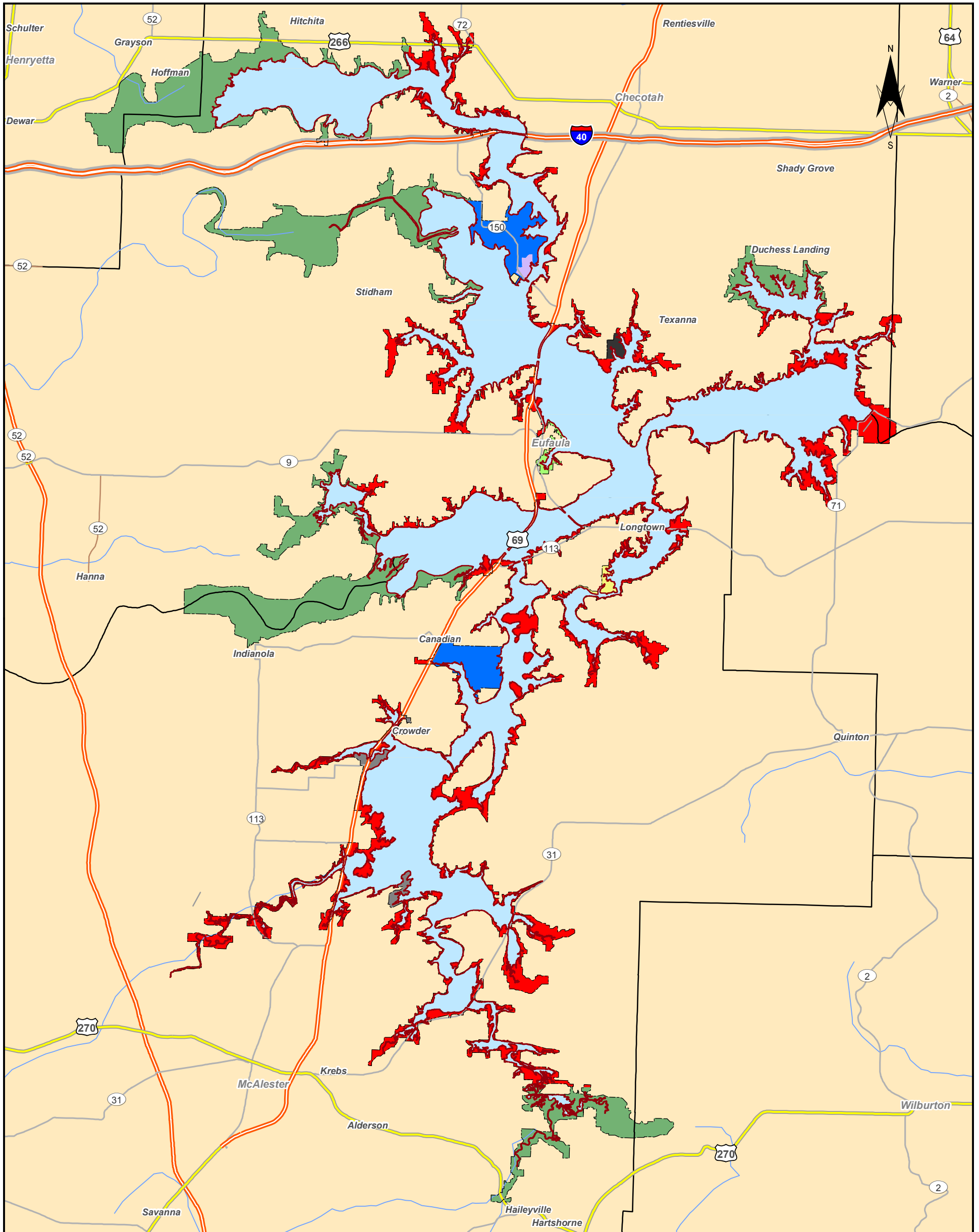


Legend

- Project Operations
- Recreation

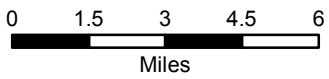


U. S. Army Corps of Engineers Tulsa District	
EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA	
LAKE EUFAULA EUFAULA MASTER PLAN LAND ALLOCATIONS	
DATE:	PLATE NO.
JUNE 2013	EUF13MP-OA-01

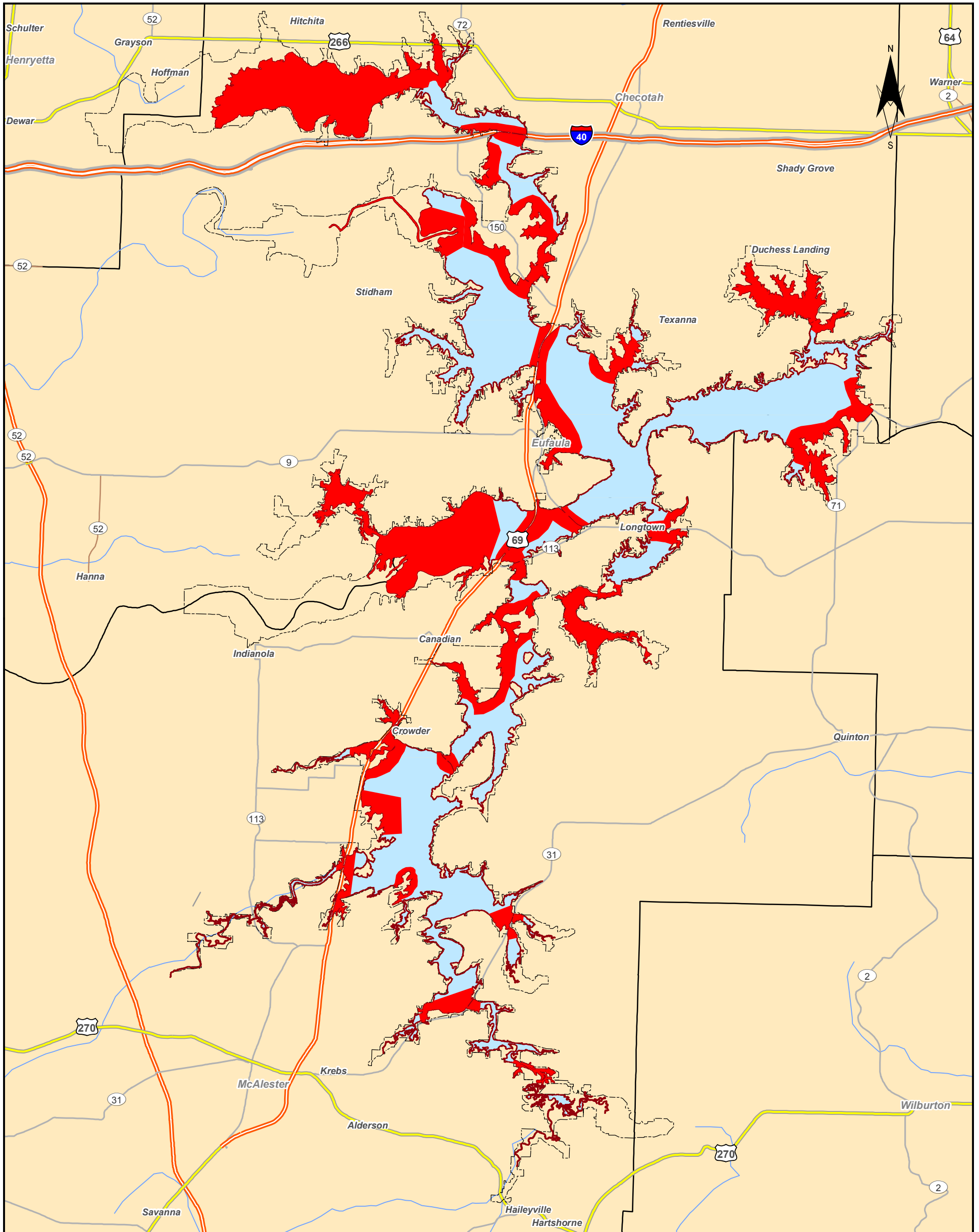


Legend

- Belle Starr Marina
- Carlton Landing
- City of Crowder
- City of Eufaula
- Muscogee Creek Nation
- Oklahoma Department of Tourism
- Oklahoma Department of Wildlife Conservation
- US Army Corps of Engineers

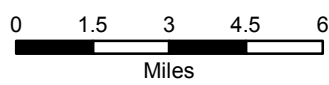



	<p>U. S. Army Corps of Engineers Tulsa District</p>
EUFALA DAM AND RESERVOIR	CANADIAN RIVER, OKLAHOMA
<p>LAKE EUFAULA</p> <p>EUFAULA MASTER PLAN</p> <p>LAND MANAGING AGENCIES</p>	
DATE:	PLATE NO.
JUNE 2013	EUF13MP-OM-01

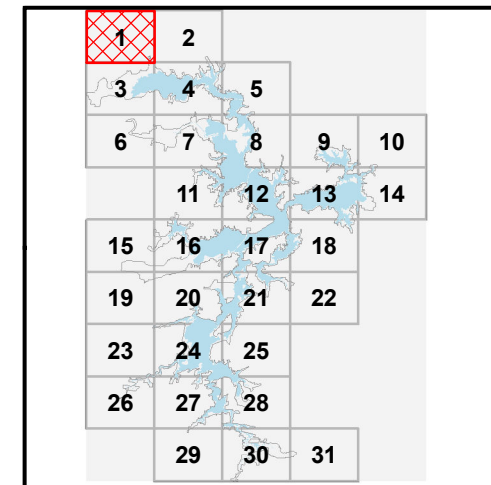
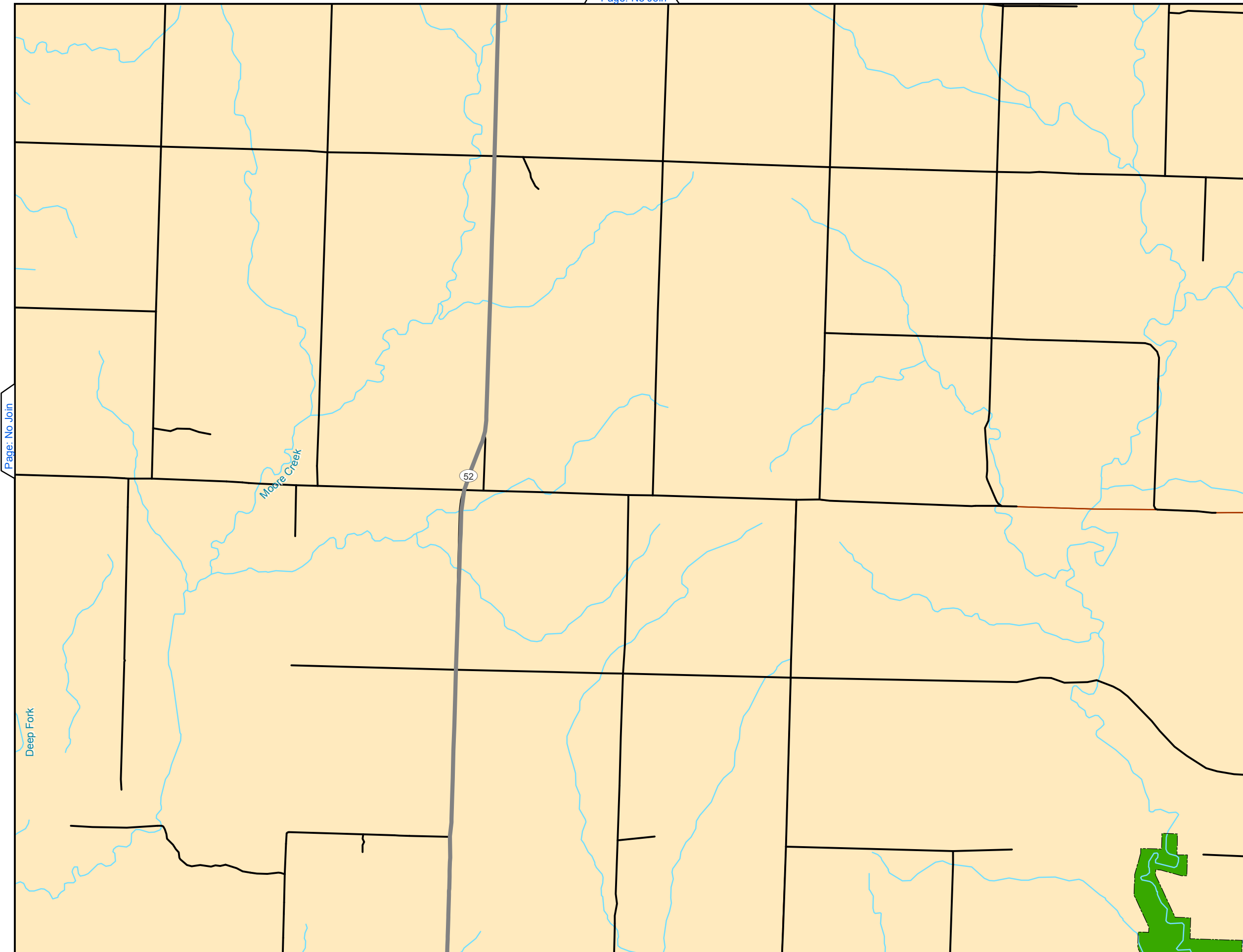


Legend

RESTRICTED AREAS

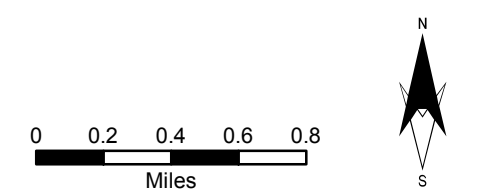



 U. S. Army Corps of Engineers Tulsa District	
<small>EUFALA DAM AND RESERVOIR</small> <small>CANADIAN RIVER, OKLAHOMA</small> LAKE EUFAULA EUFAULA MASTER PLAN SEAPLANE GUIDE	
<small>DATE:</small> JUNE 2013	<small>PLATE NO.</small> EUF13MP-OM-01



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

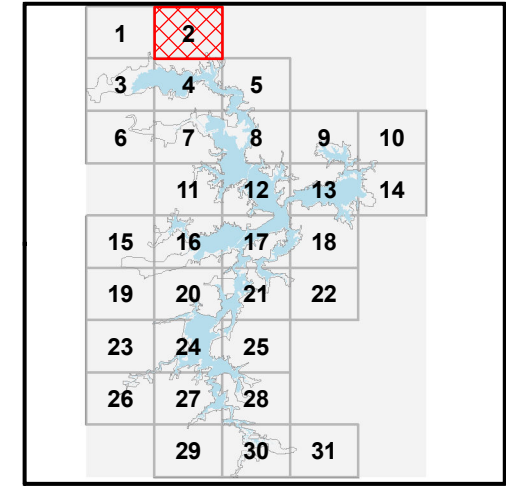
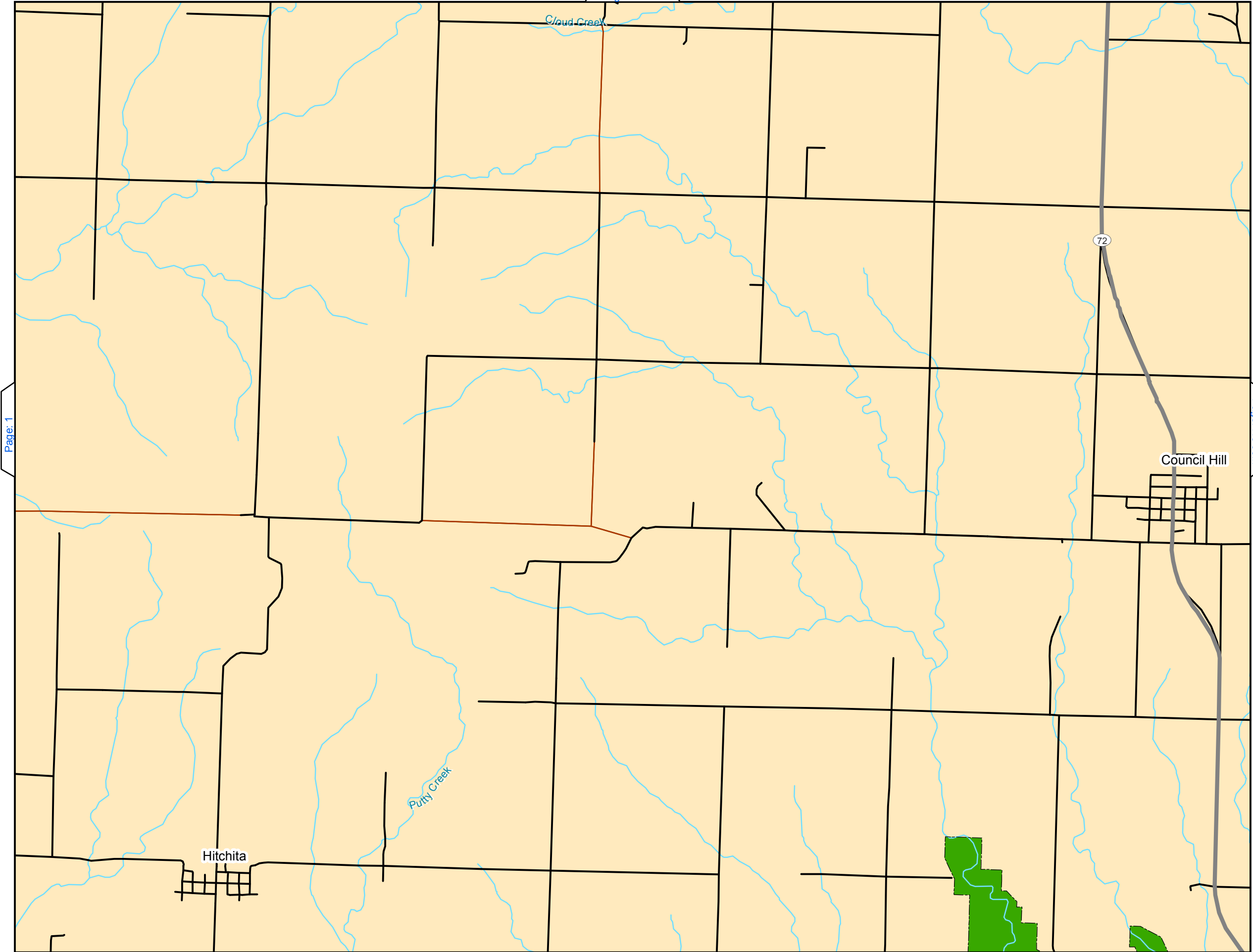



U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

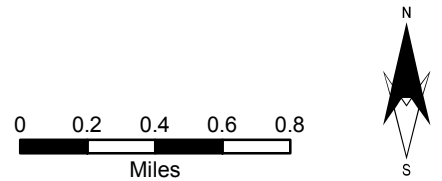
LAKE EUFAULA
EUFAULA MASTER PLAN
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-1
--------------------	---------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

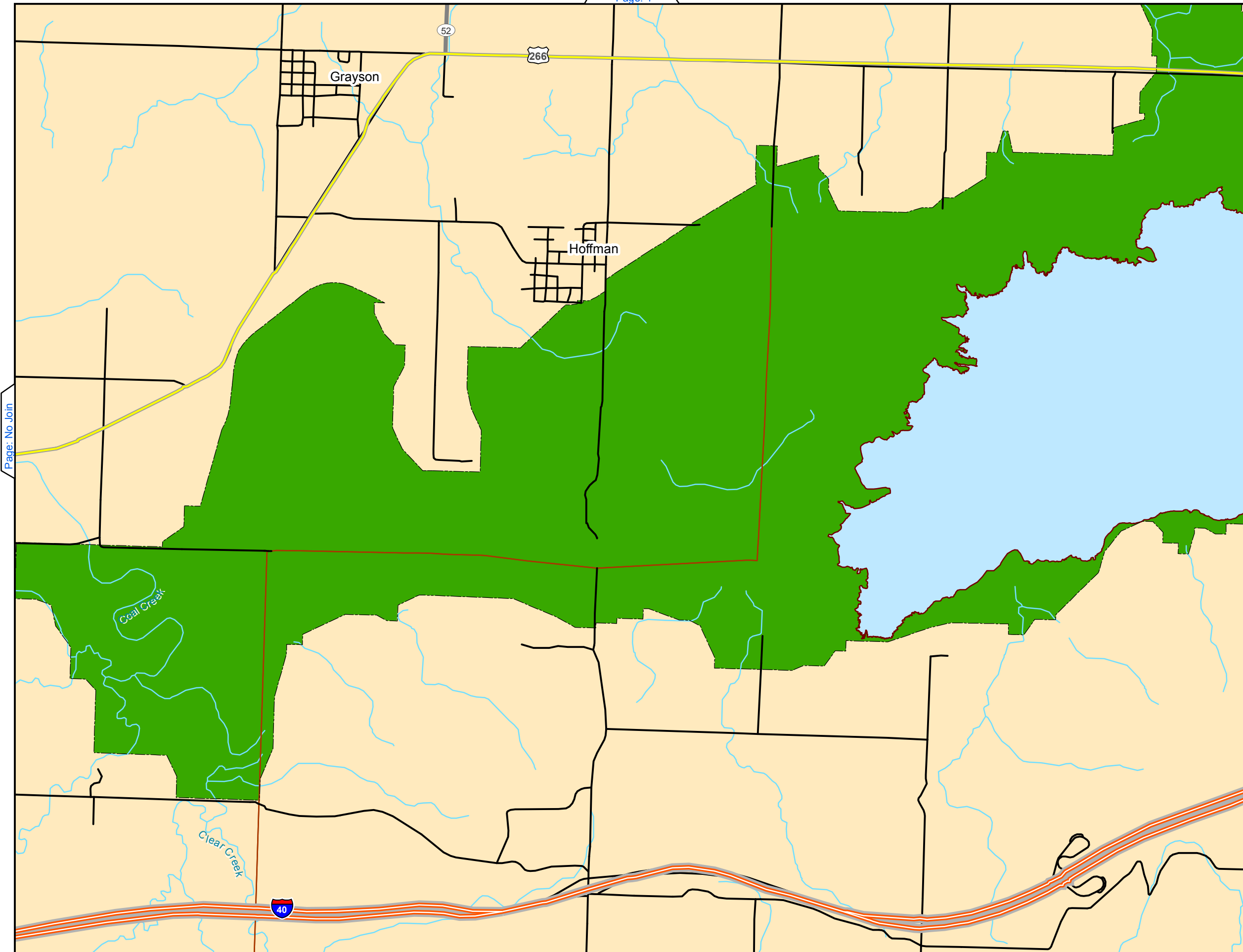


U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA
EUFALA MASTER PLAN
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-2
--------------------	---------------------------

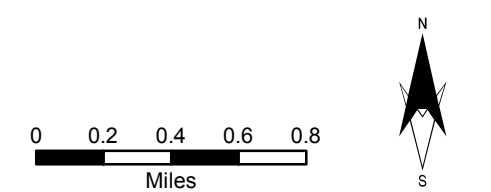


1	2			
3	4	5		
6	7	8	9	10
	11	12	13	14
15	16	17	18	
19	20	21	22	
23	24	25		
26	27	28		
	29	30	31	

Legend

Eufaula_Cities

- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

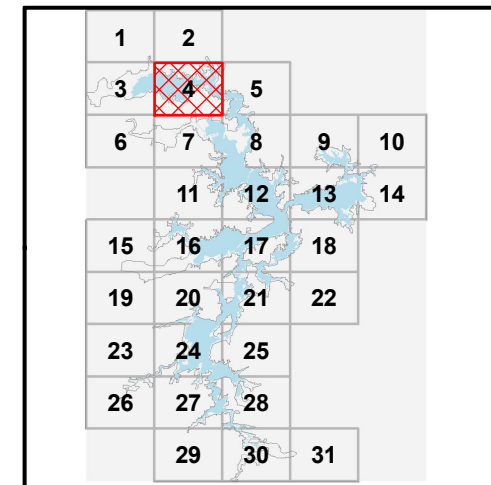
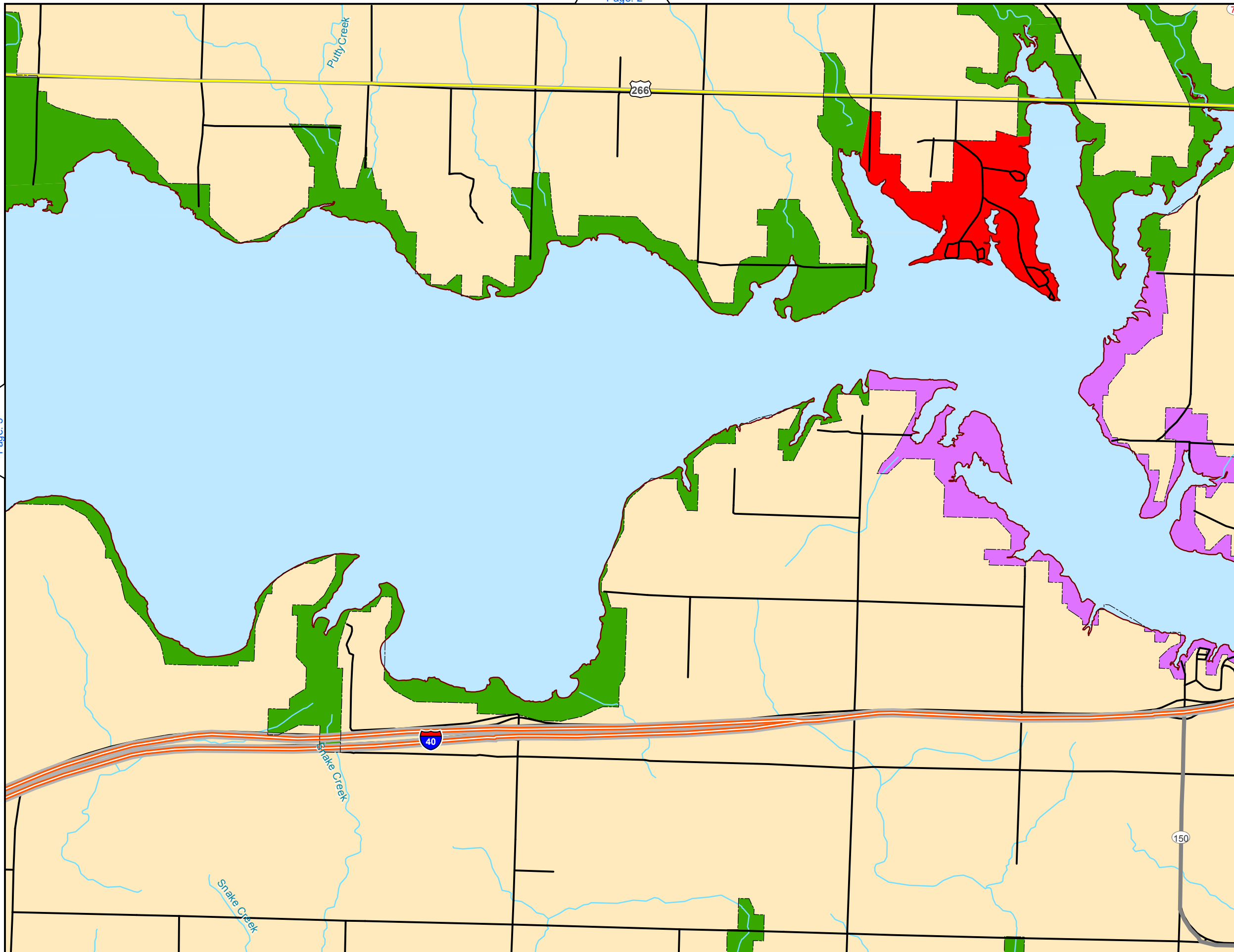
EUFAULA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-3
--------------------	---------------------------

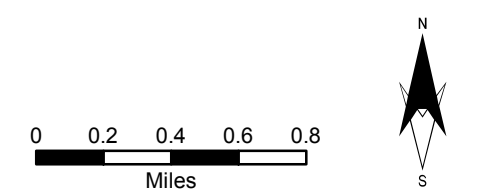
Page: No Join

Page: 4



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

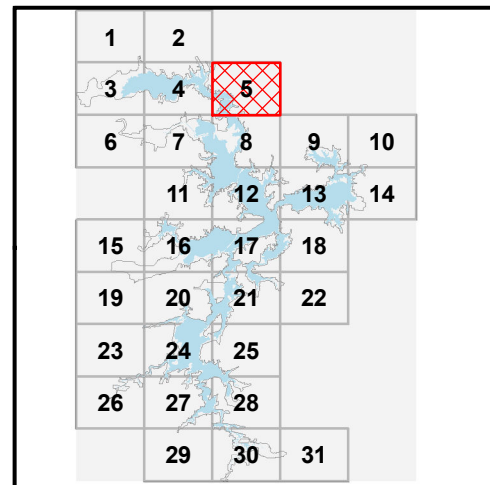
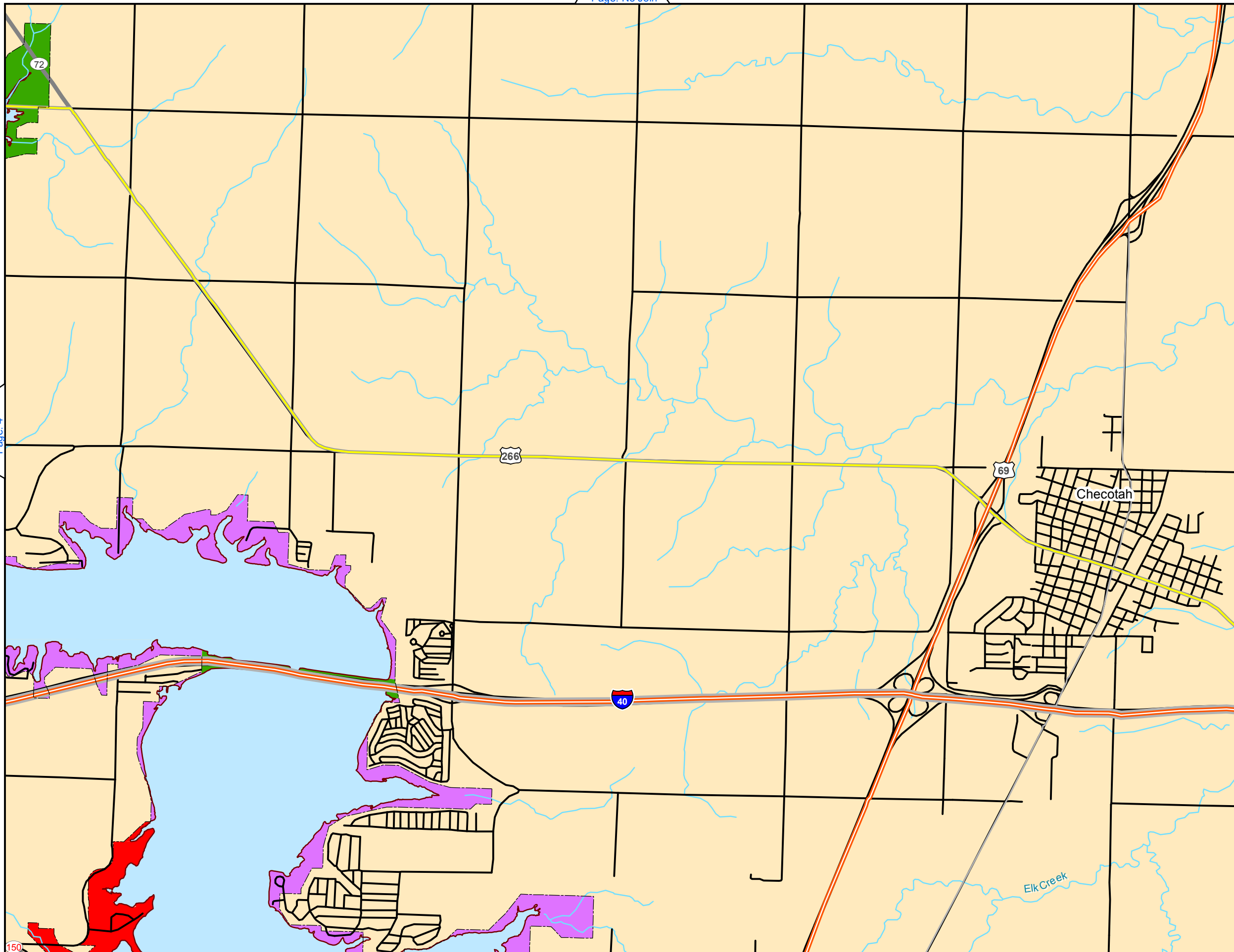
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

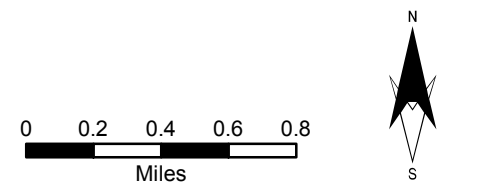
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-4
--------------------	---------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

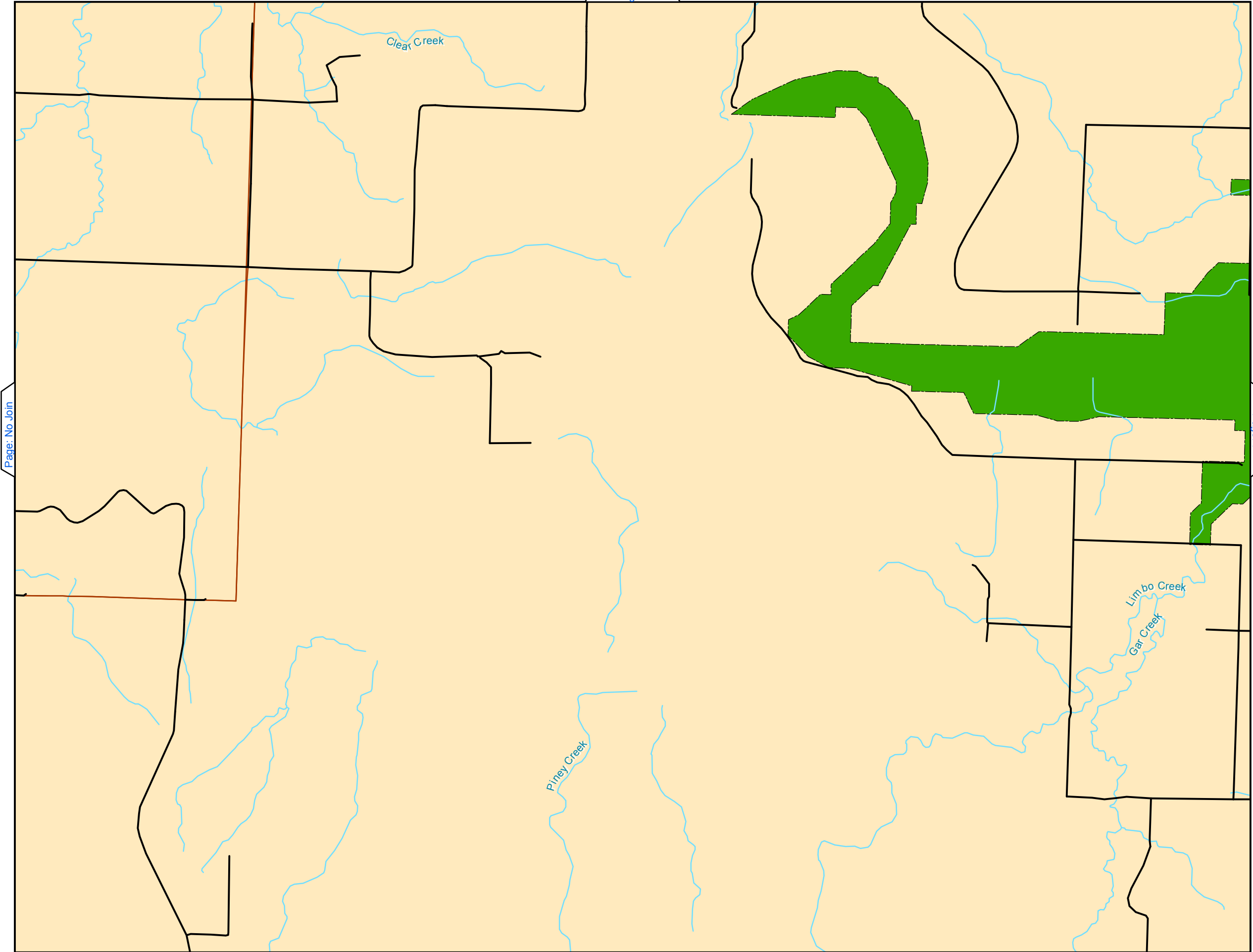
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

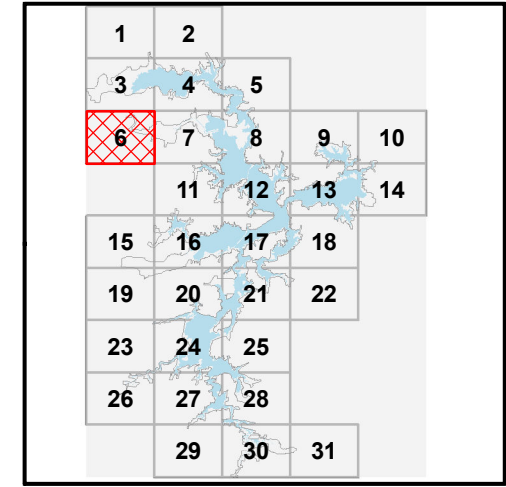
EUFALA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-5
--------------------	---------------------------

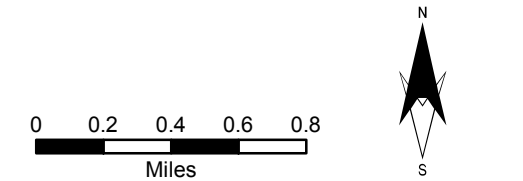


Page: No Join



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

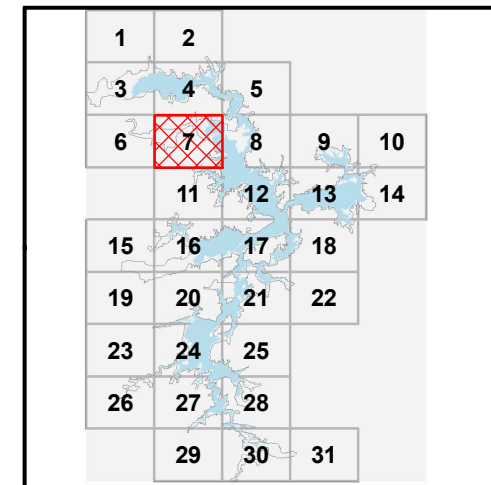
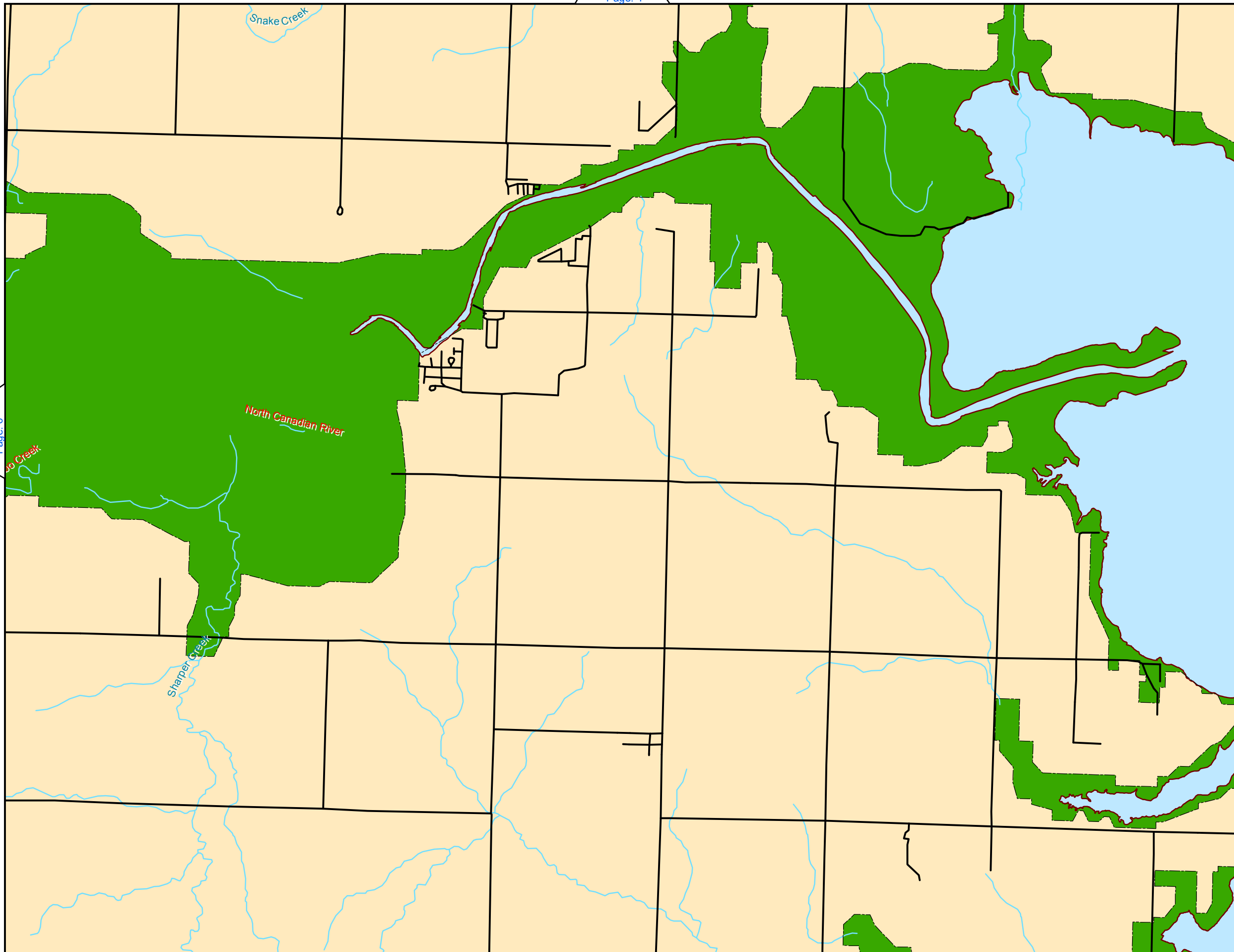
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

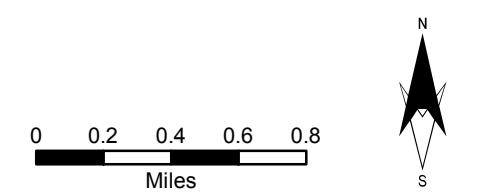
LAND CLASSIFICATION


DATE:	PLATE NO.
JUNE 2013	EUF13MP-OC-6



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

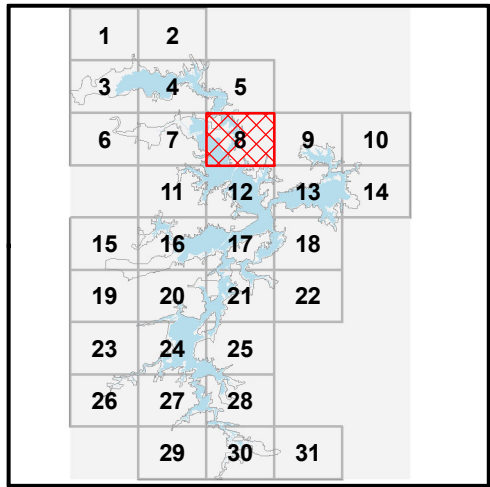
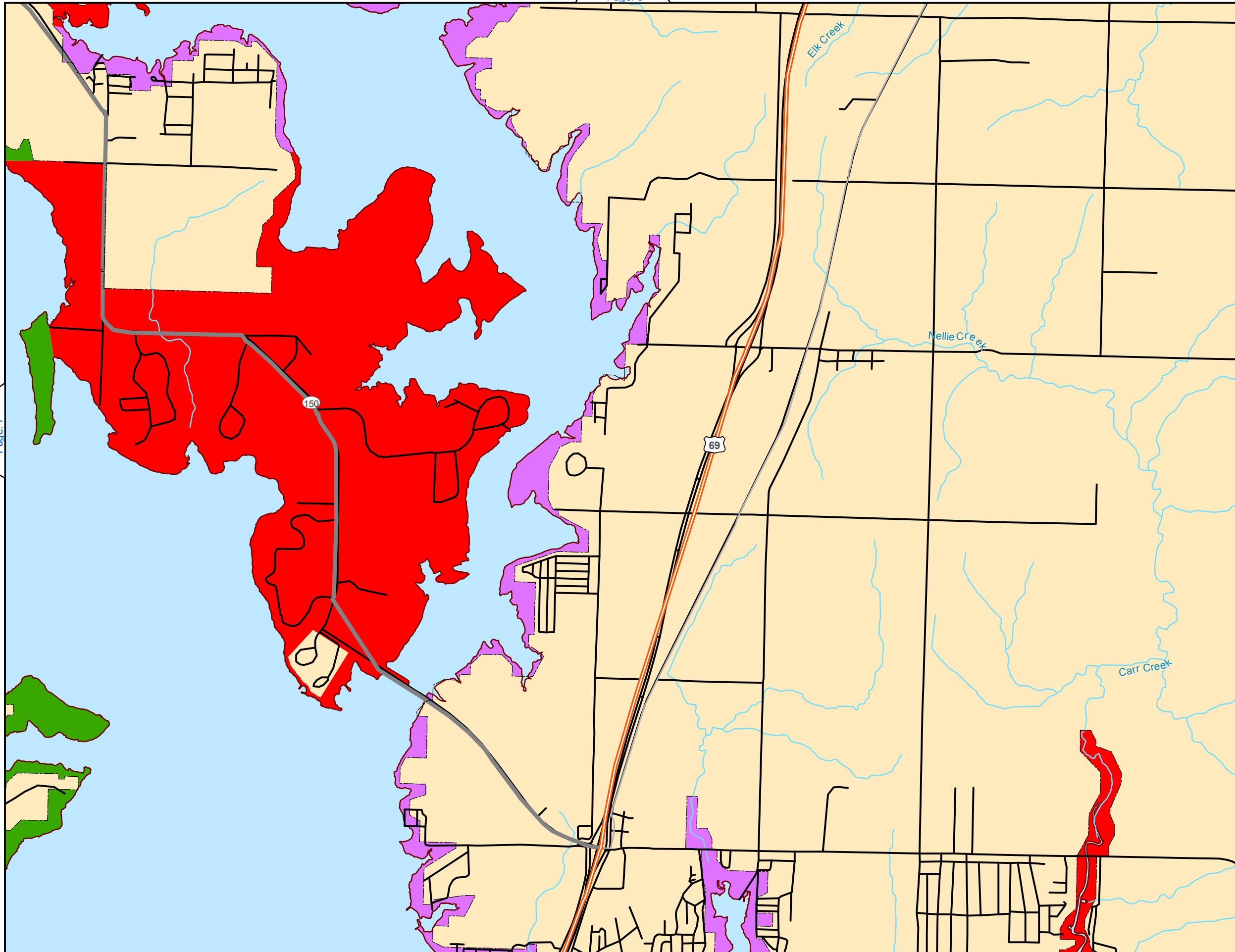



 U. S. Army Corps of Engineers
 Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

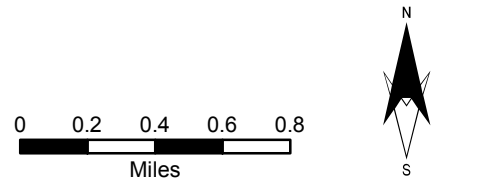
LAKE EUFAULA
EUFALA MASTER PLAN
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-7
--------------------	---------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

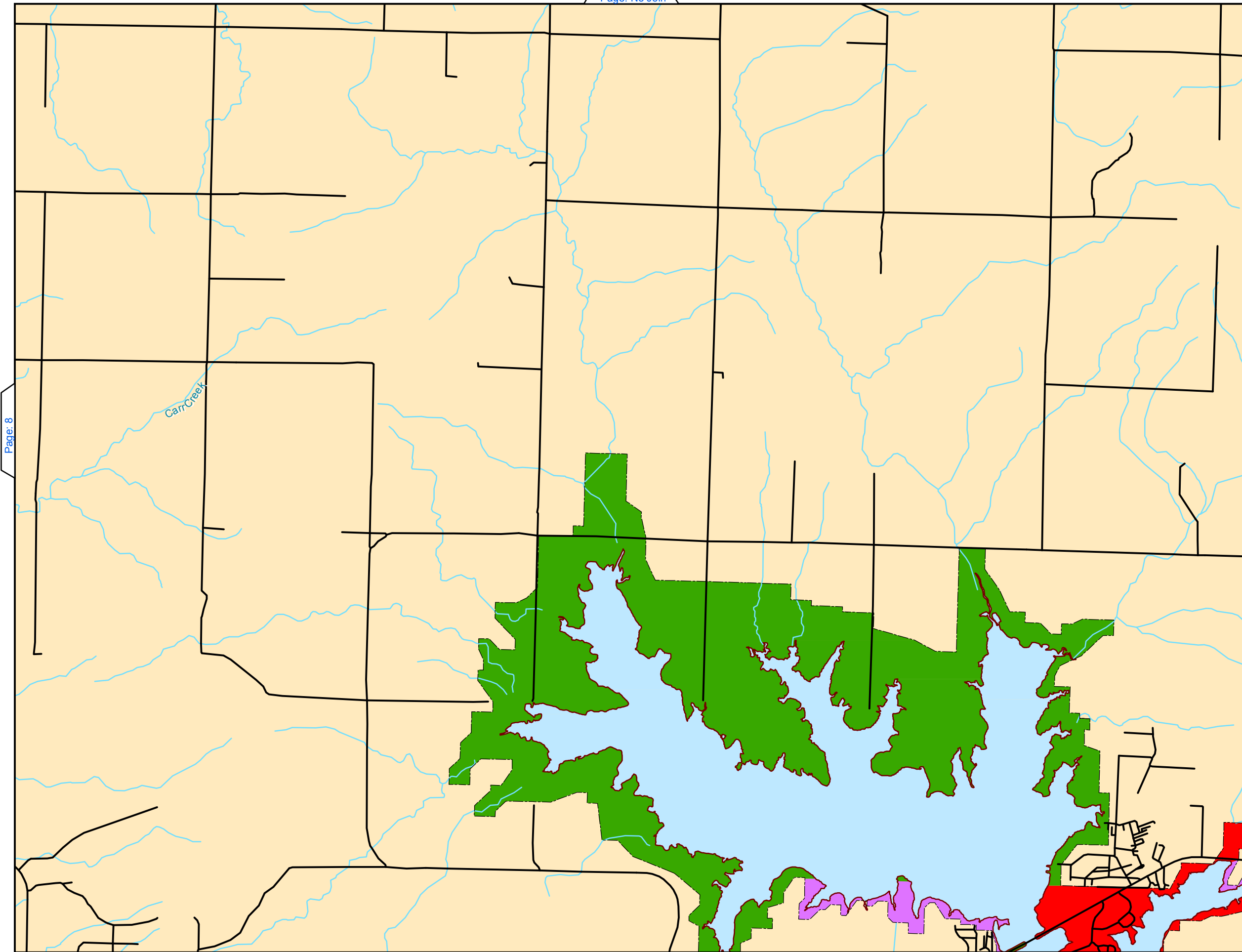
EUFULA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC- 8
--------------------	----------------------------

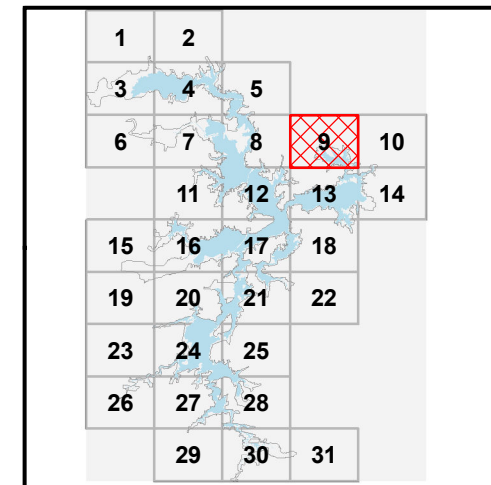
Page: 7

Page: 9



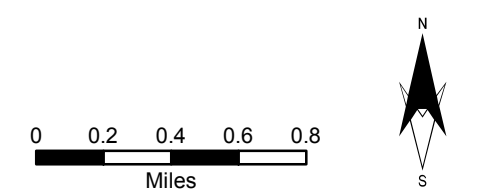
Page: 8

Page: 10



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

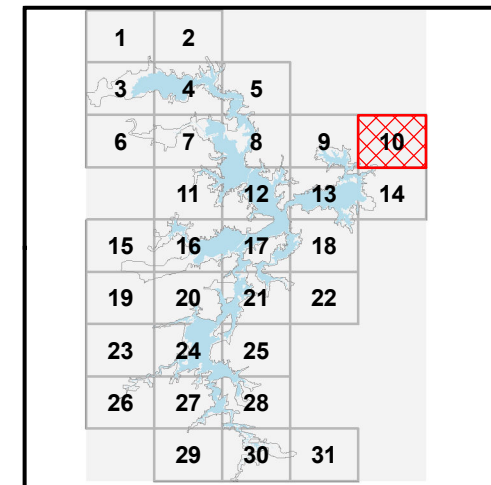
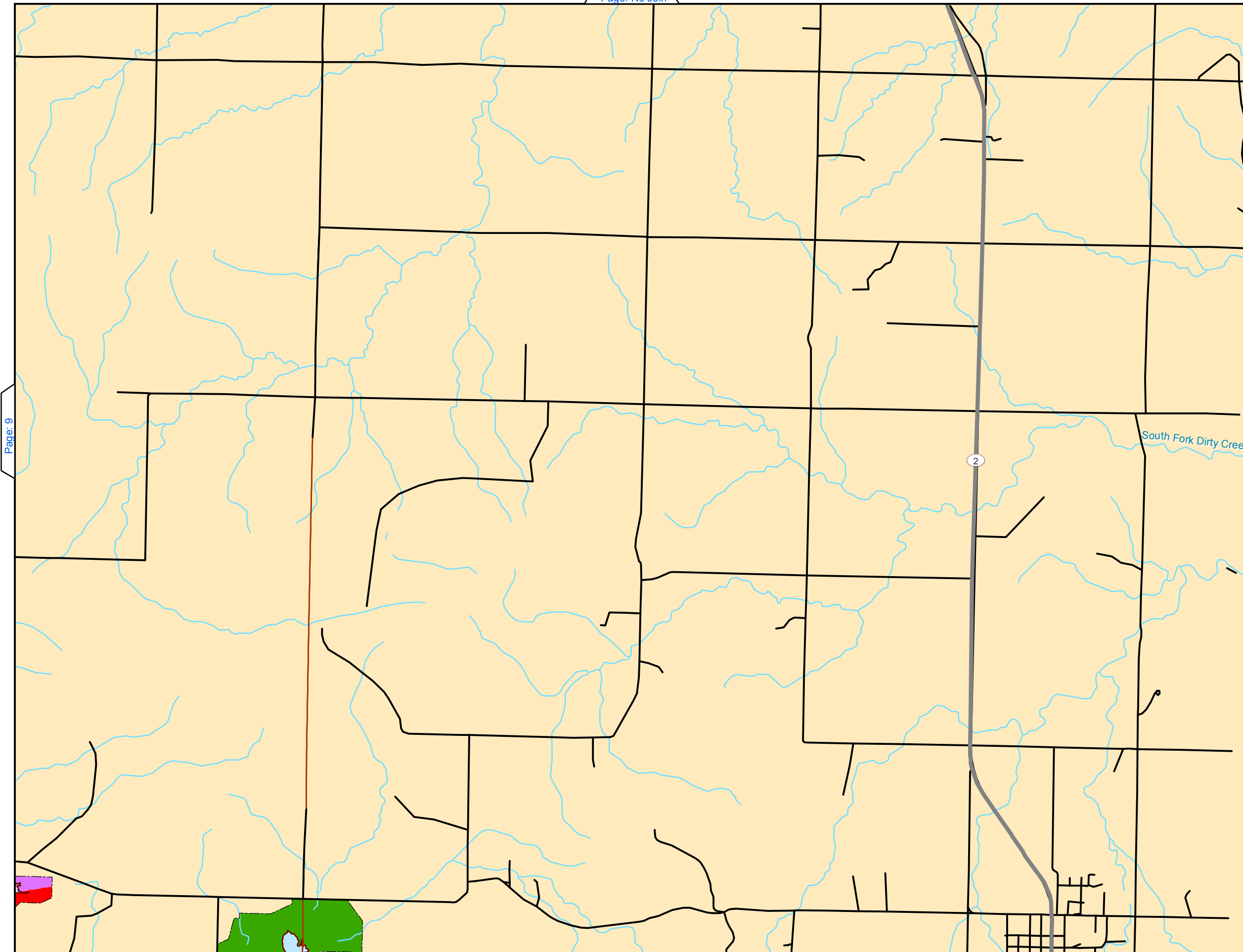
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

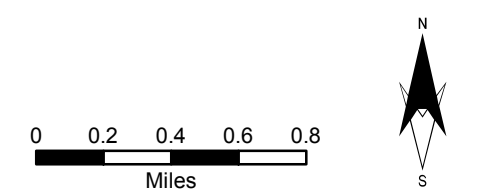
LAND CLASSIFICATION

DATE:	PLATE NO.
JUNE 2013	EUF13MP-OC-9



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

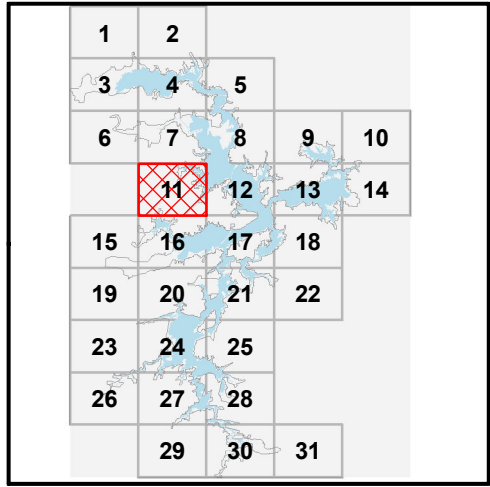
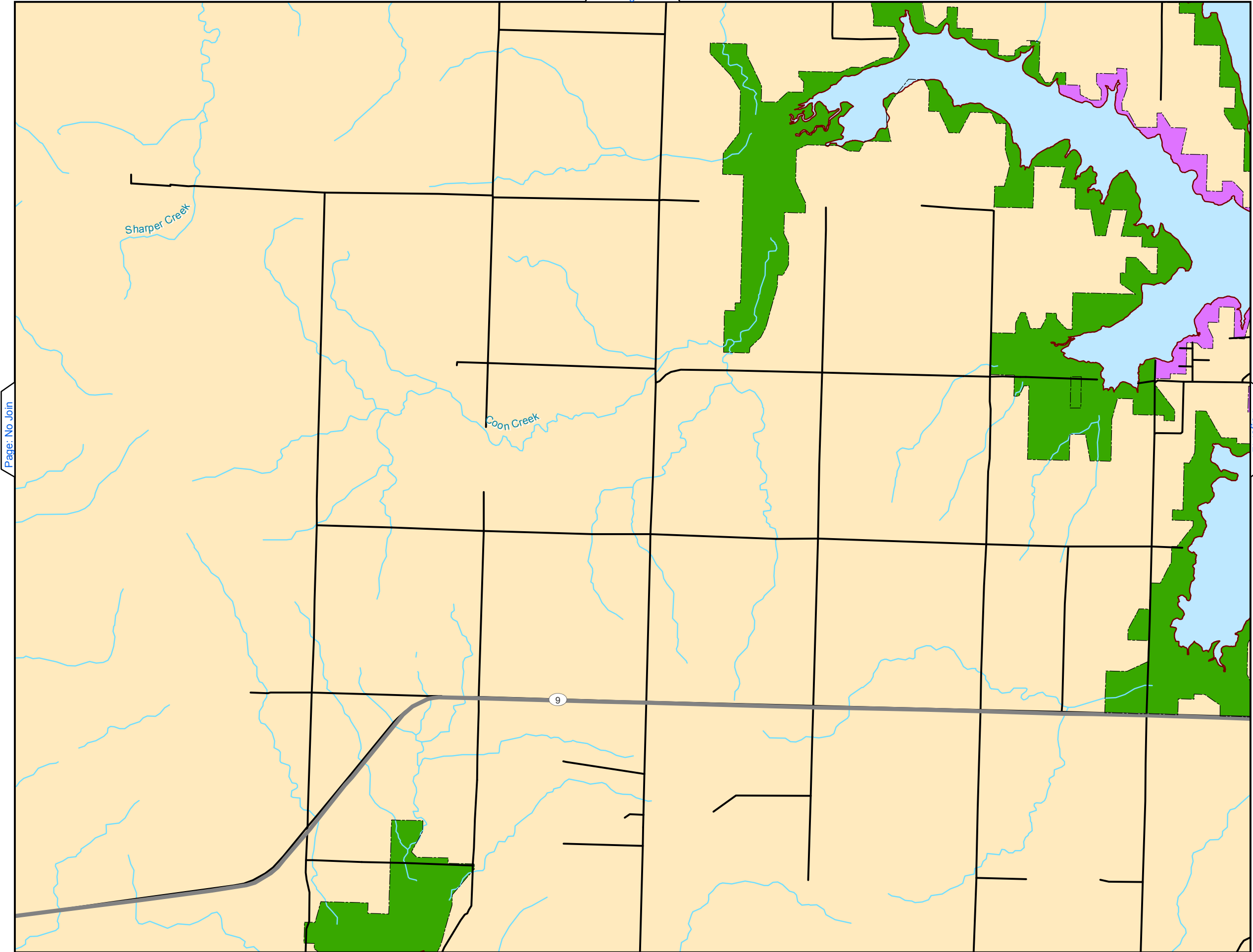
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFAULA MASTER PLAN

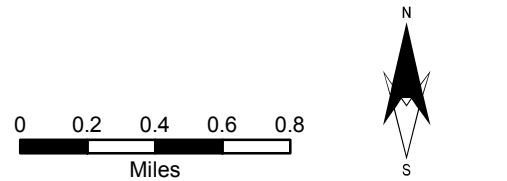

LAND CLASSIFICATION

DATE:	PLATE NO.
JUNE 2013	EUF13MP-OC-10



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

U. S. Army Corps of Engineers
Tulsa District

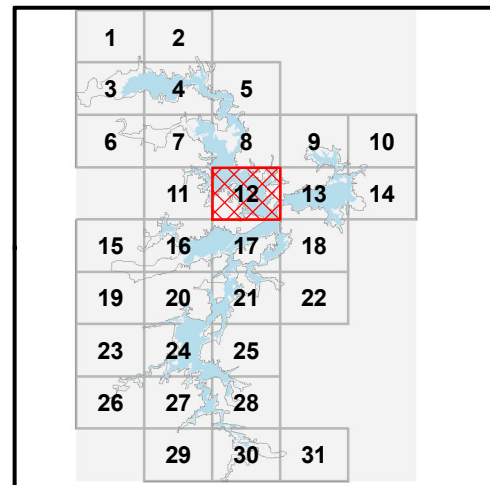
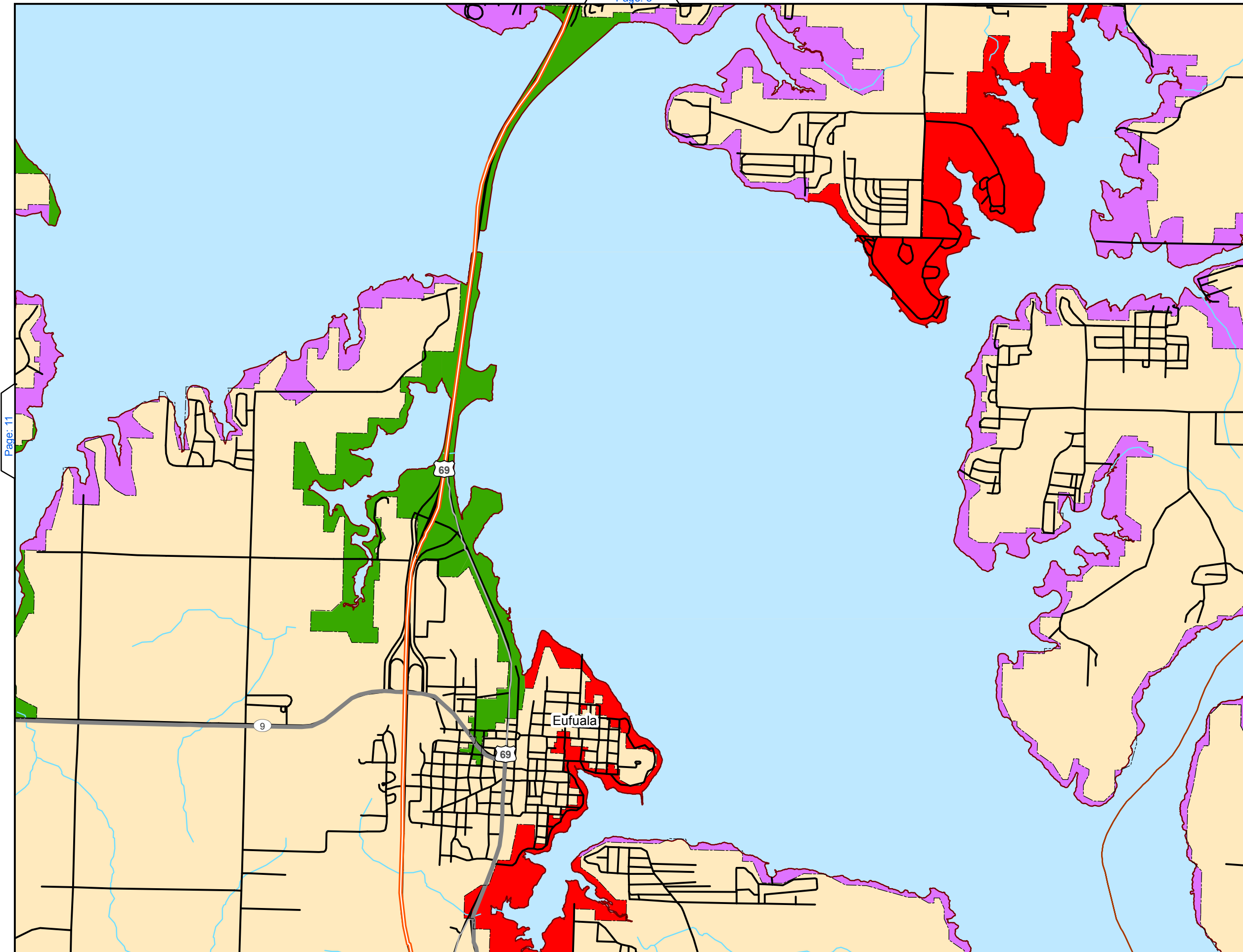
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

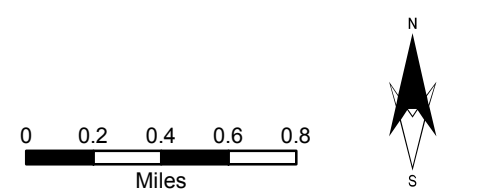
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-11
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

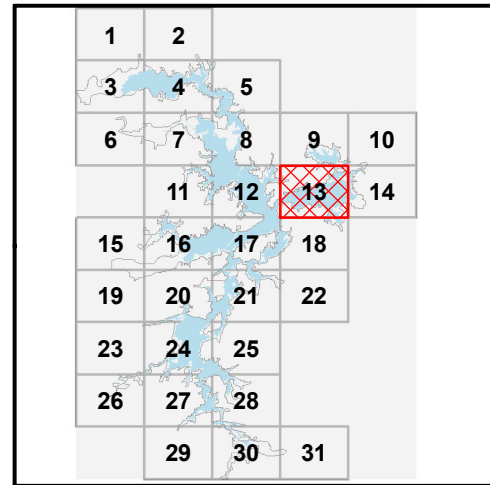
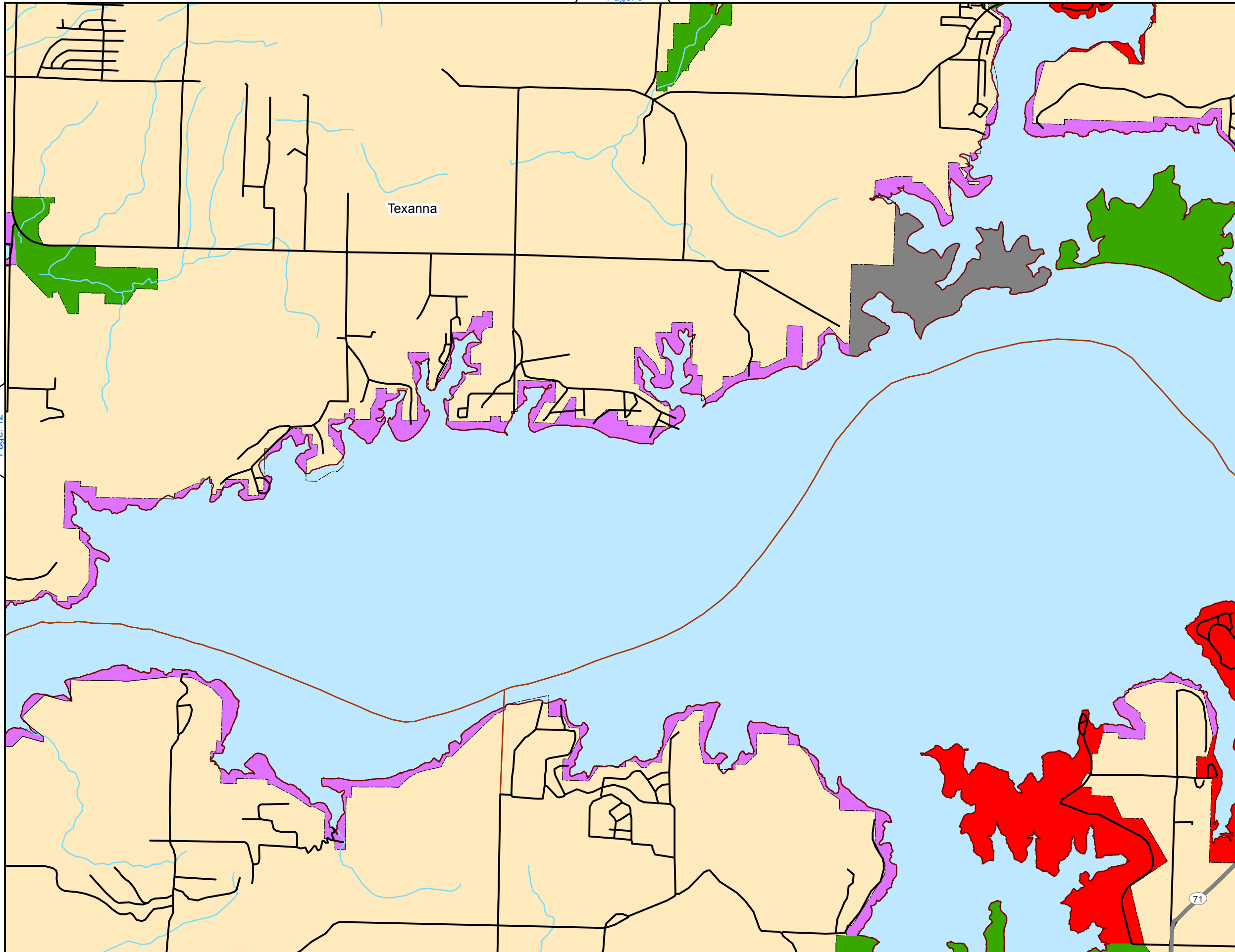
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

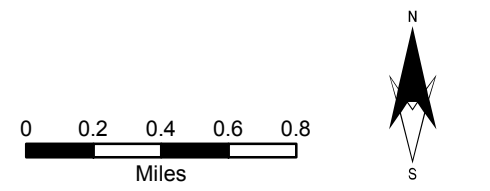
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-12
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

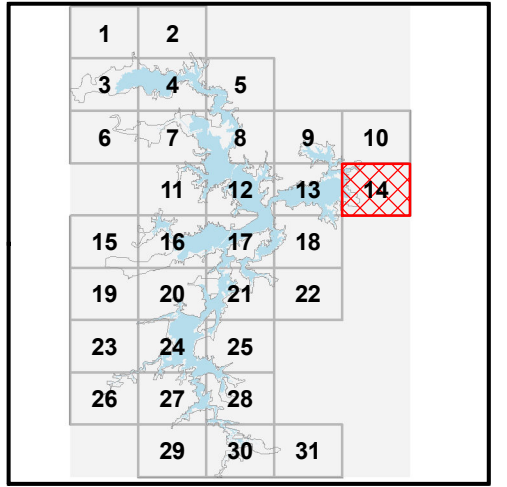
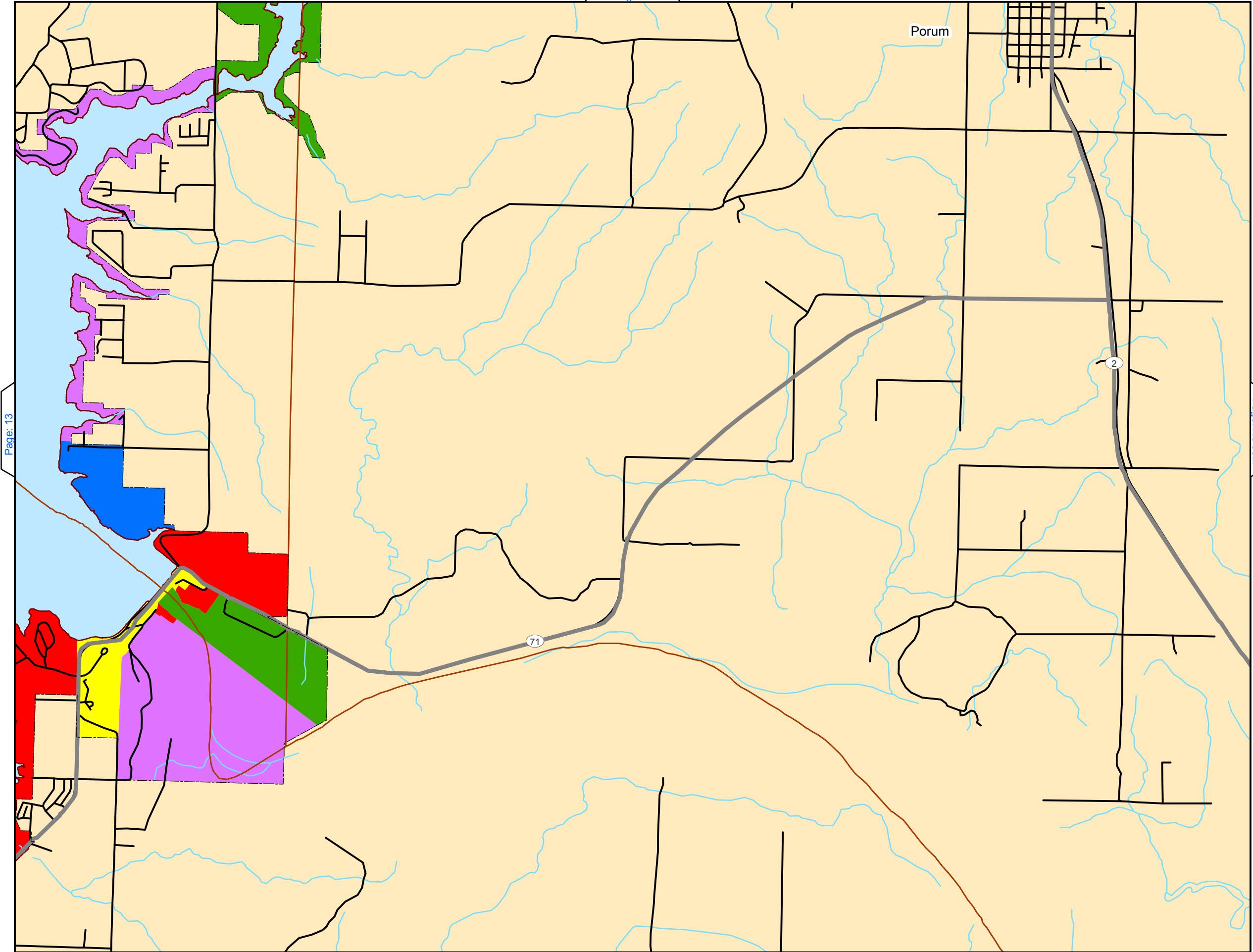
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-13
--------------------	----------------------------



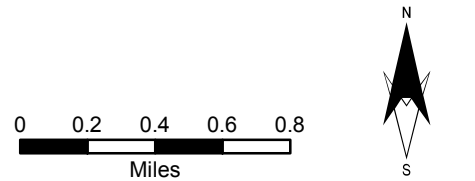
Page: 13

Page: No Join

Page: No Join

Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

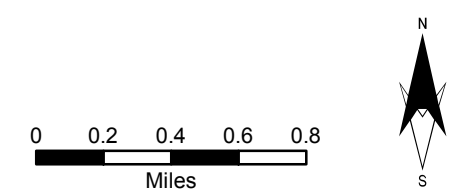
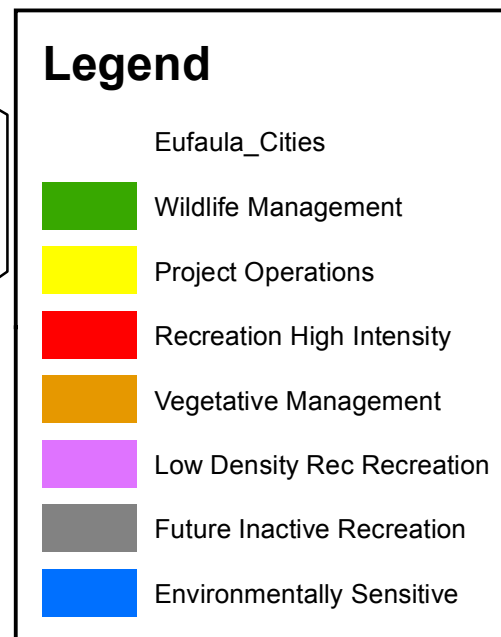
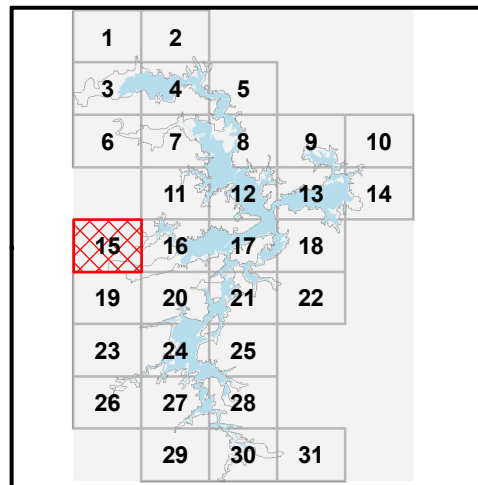
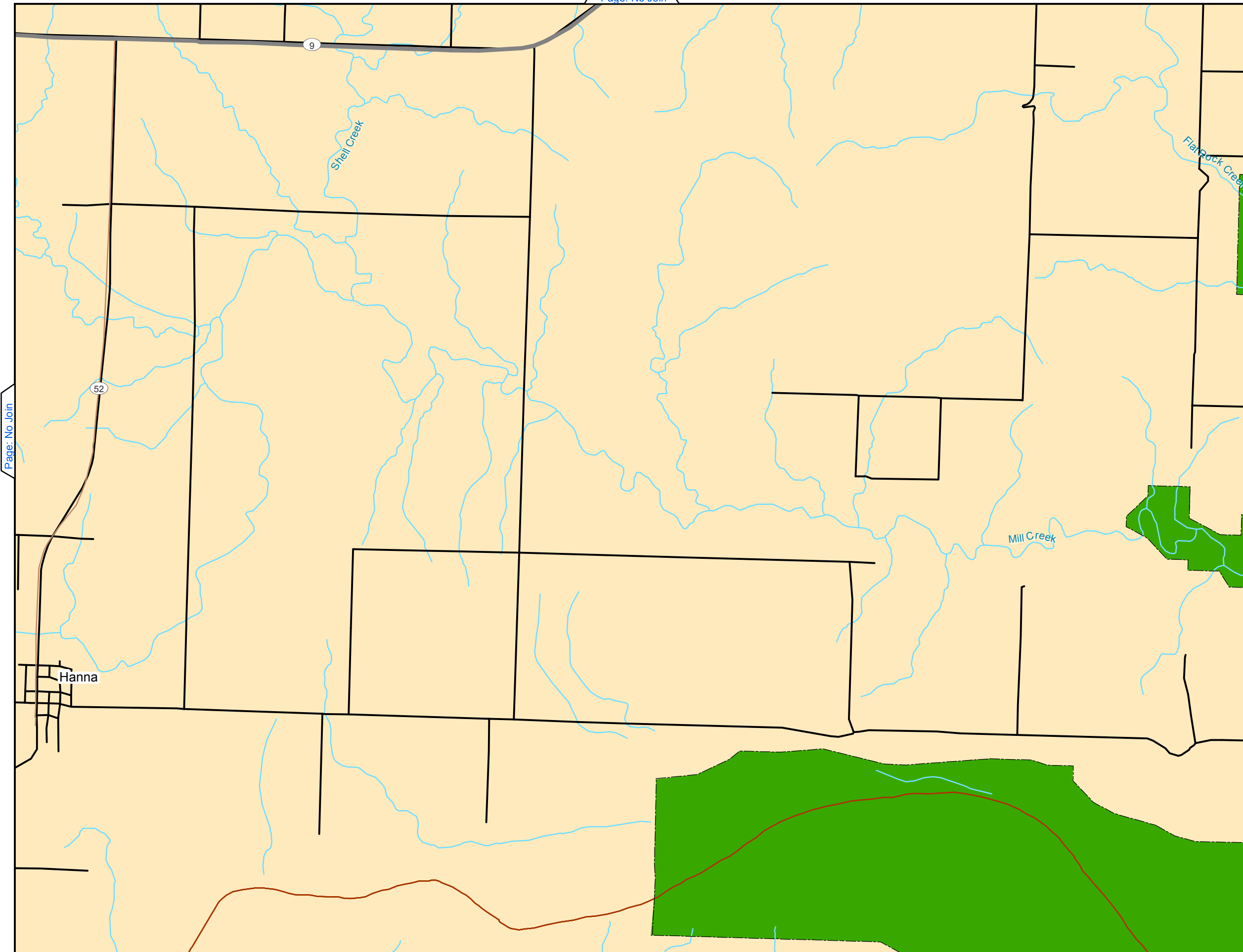
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA


LAKE EUFAULA

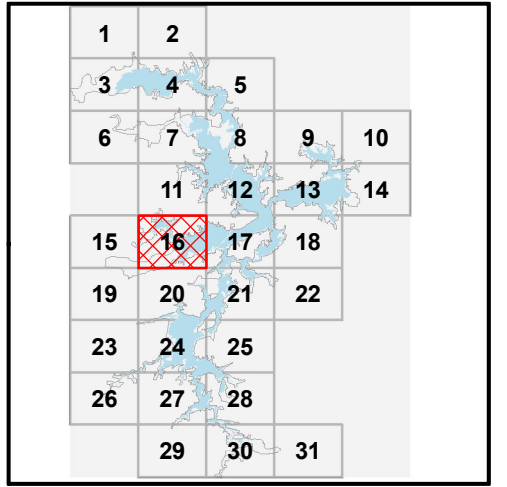
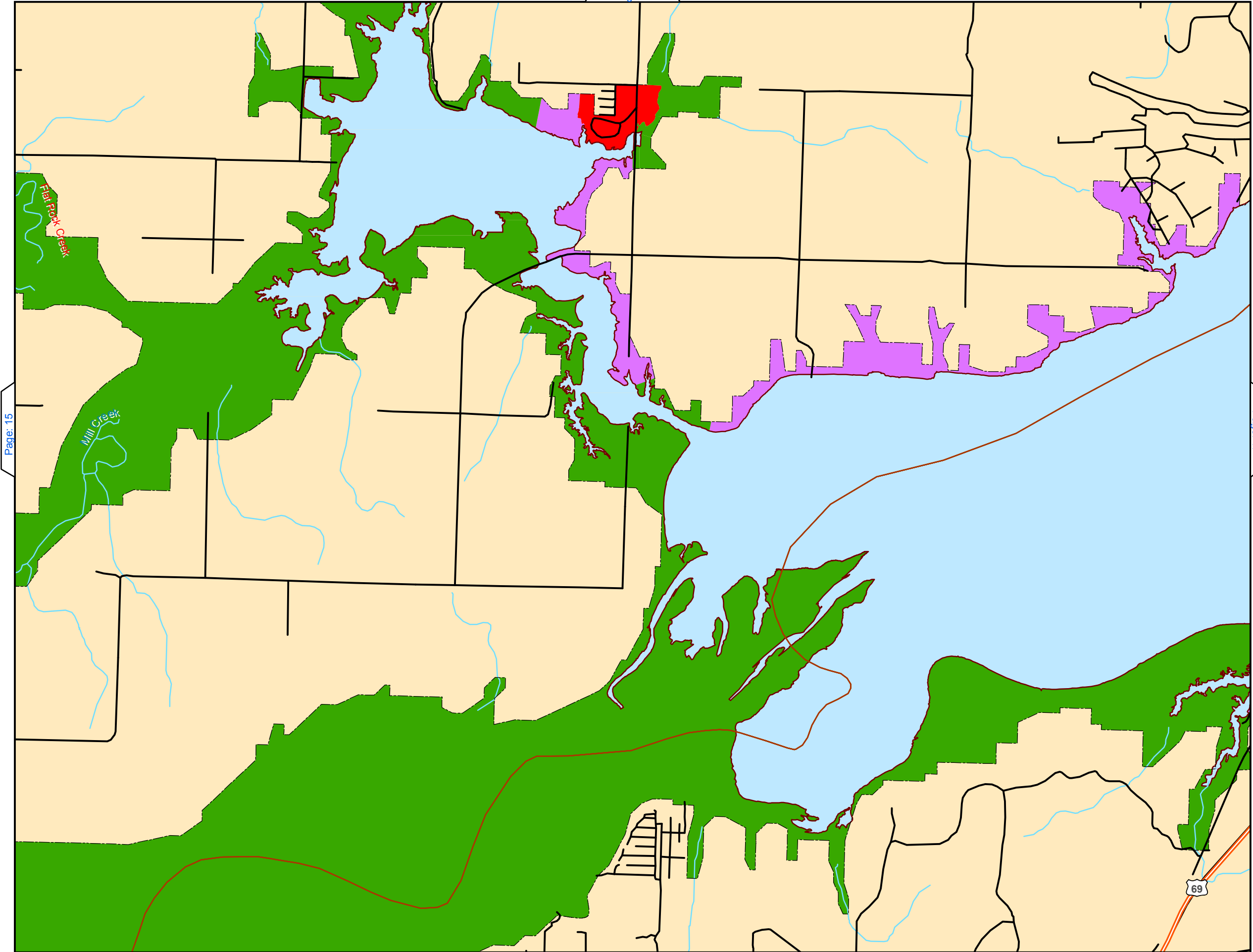
EUFULA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-14
--------------------	----------------------------



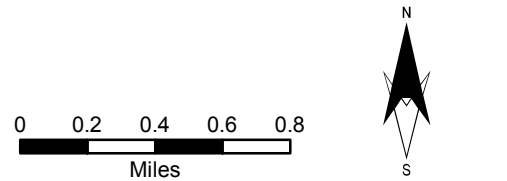

 U. S. Army Corps of Engineers
 Tulsa District
EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA
LAKE EUFAULA
 EUFAULA MASTER PLAN
 LAND CLASSIFICATION
 DATE: JUNE 2013 PLATE NO. EUF13MP-OC-15



Legend

Eufaula_Cities

- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

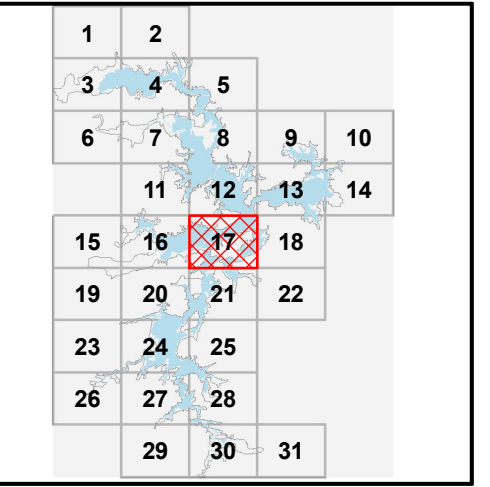
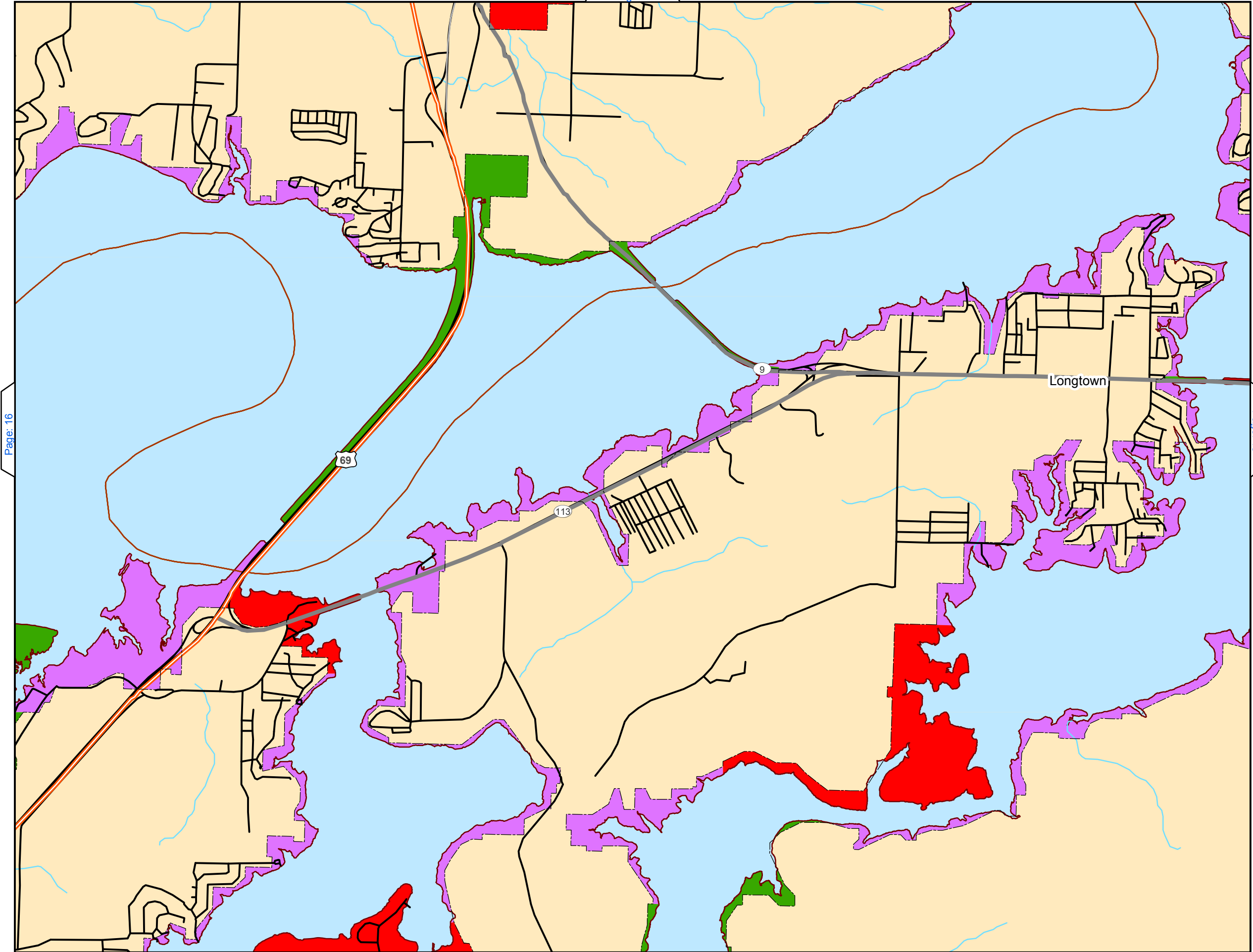
EUFALA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-16
--------------------	----------------------------

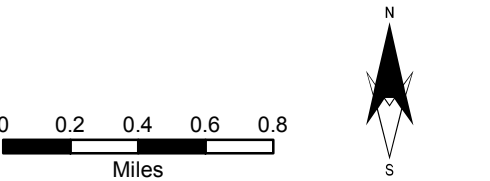
Page: 15

Page: 17



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

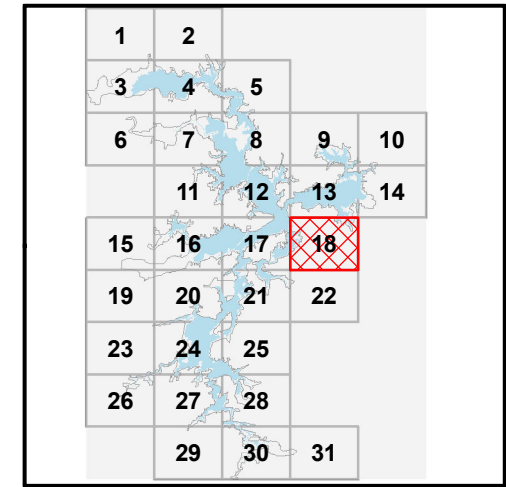
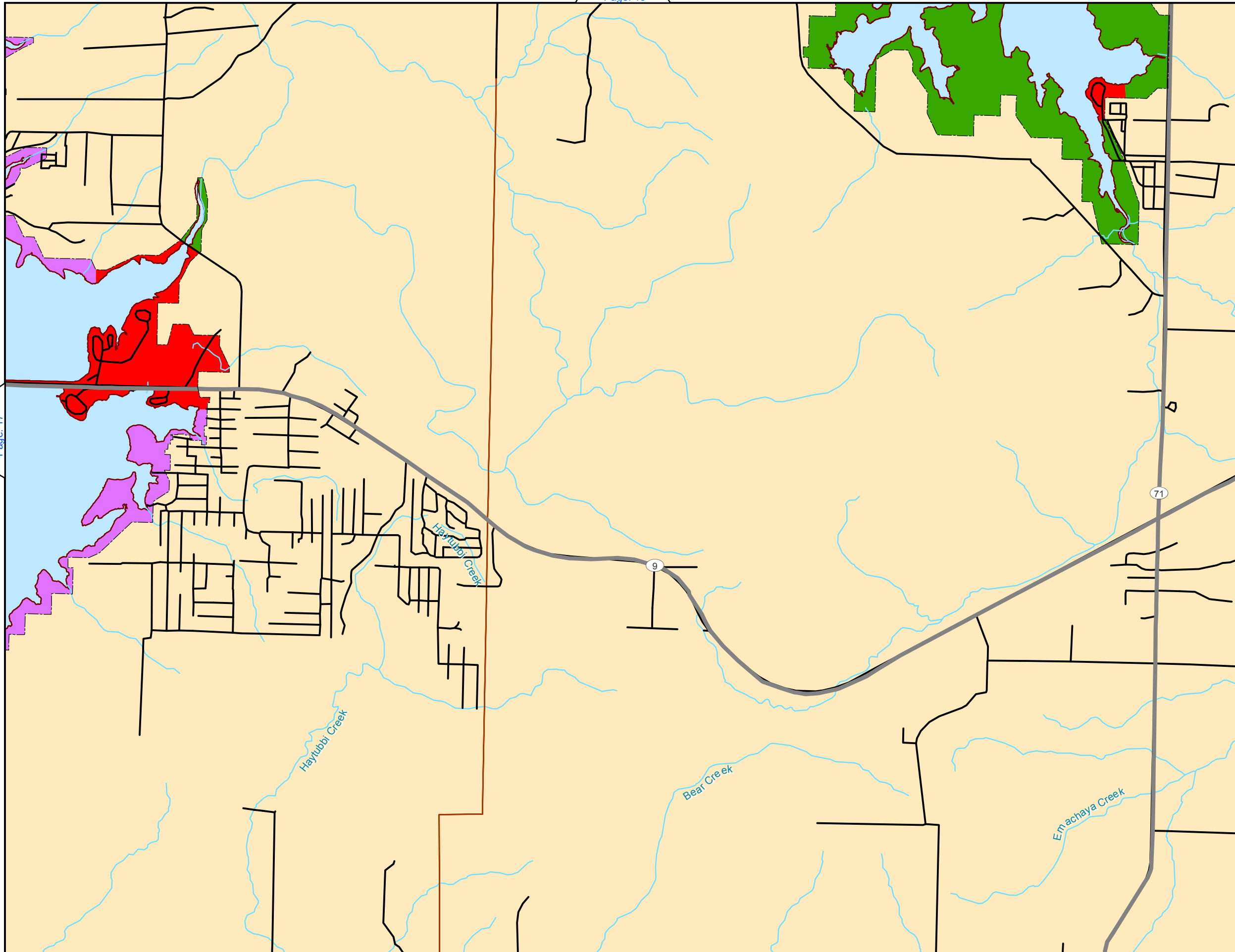
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

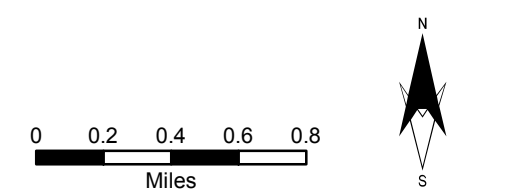
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-17
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

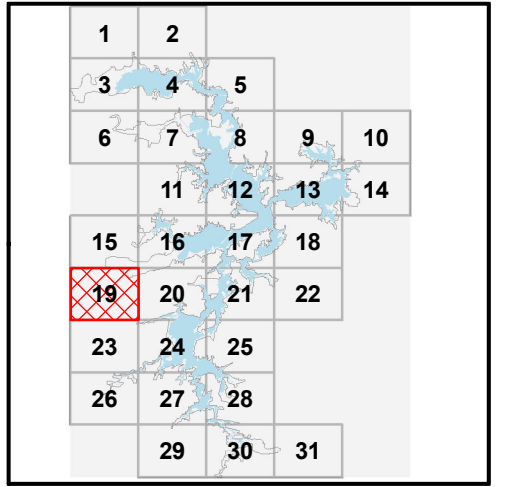
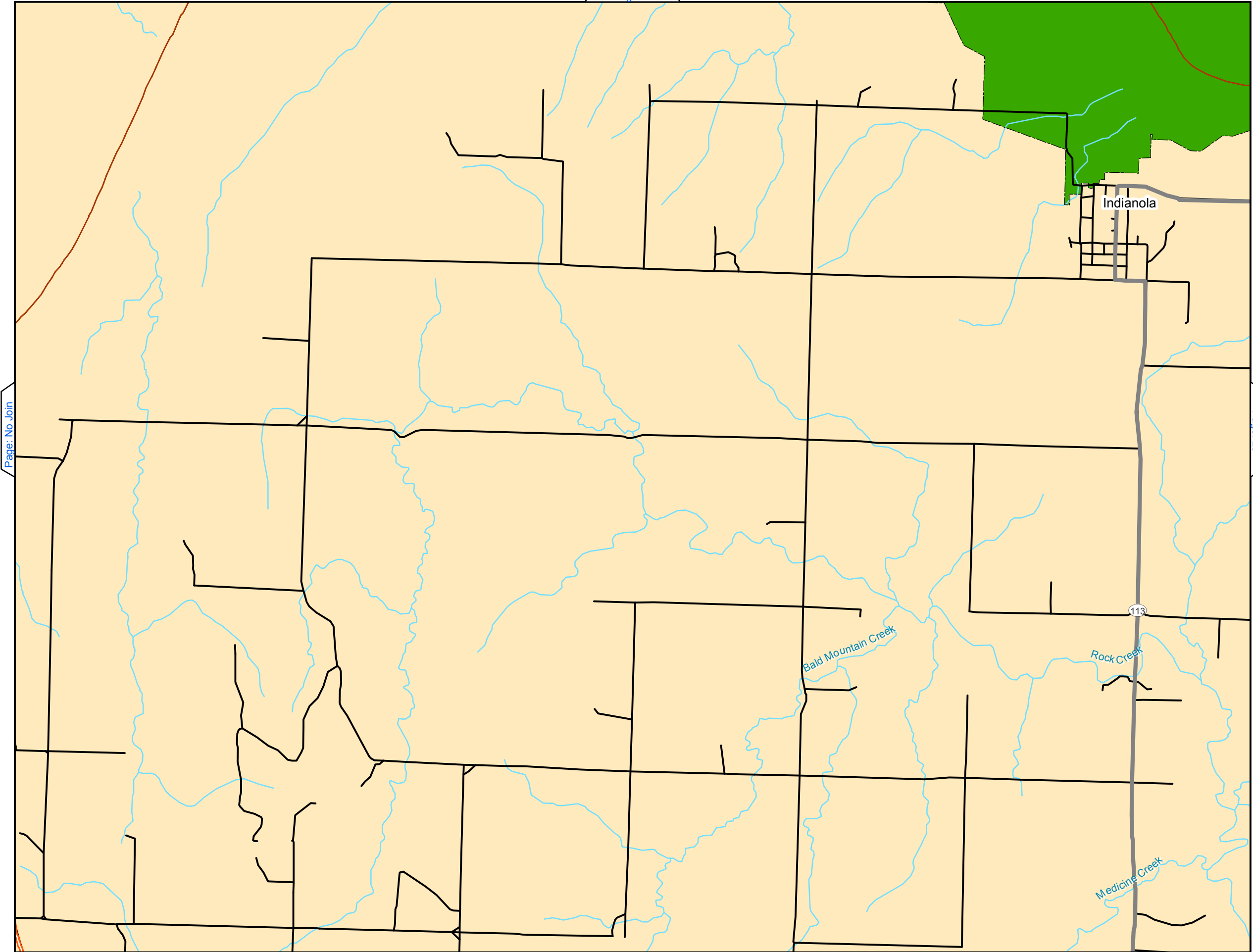
EUFALA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-18
--------------------	----------------------------

Page: 17

Page: No Join

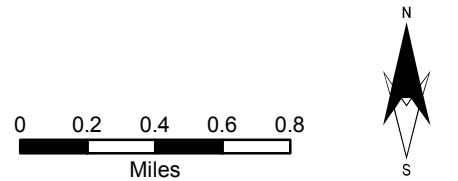



Page: No Join

Page: 20

Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

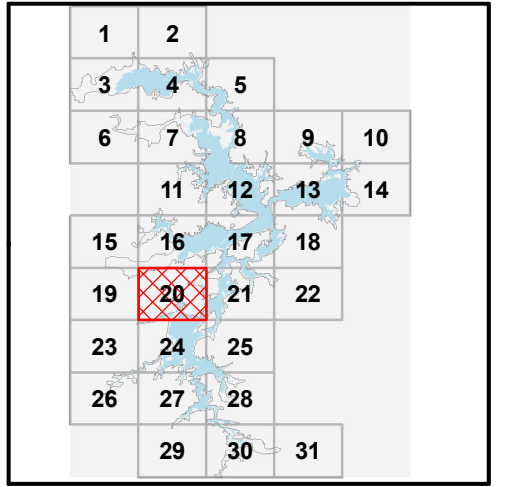
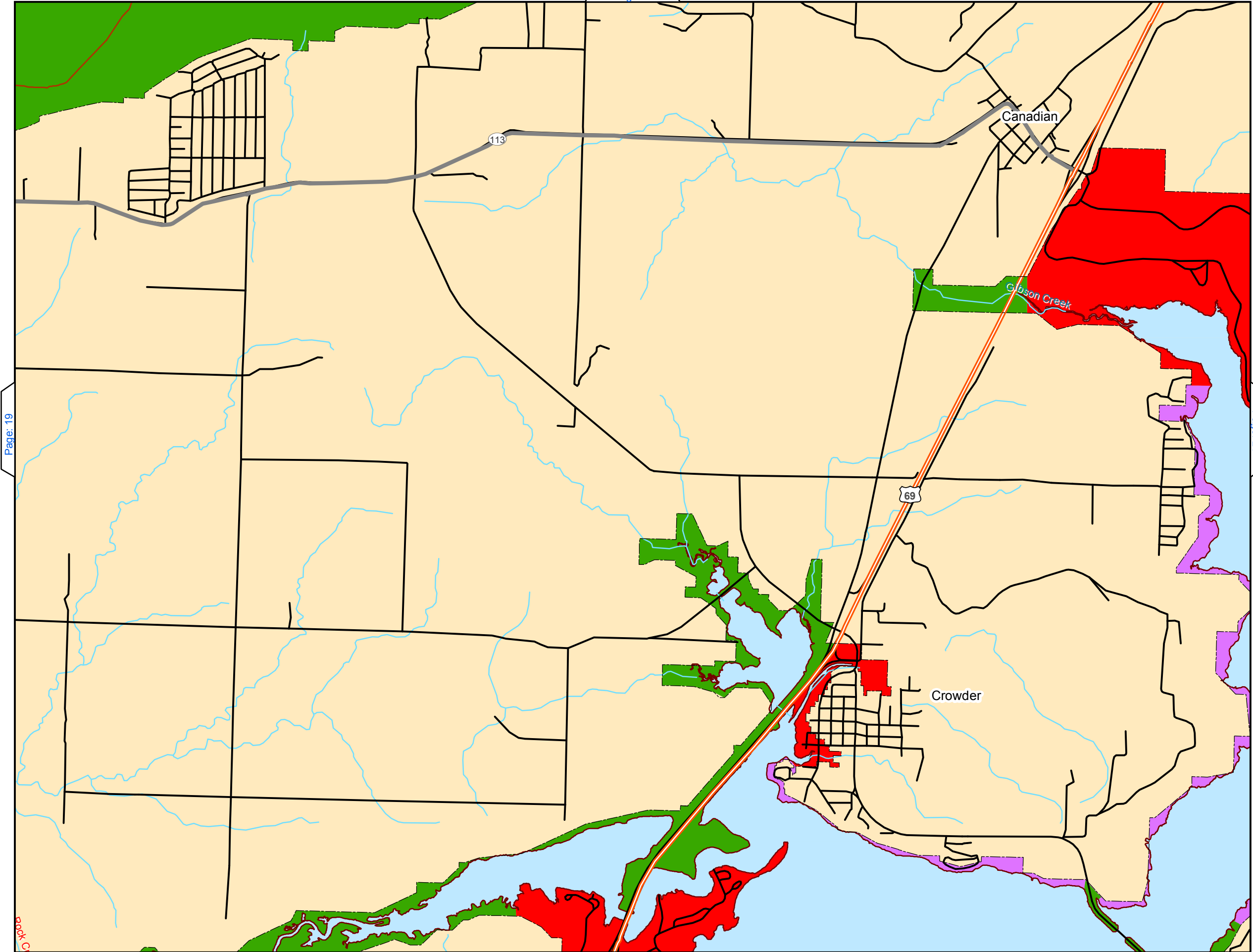



U. S. Army Corps of Engineers
Tulsa District

EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

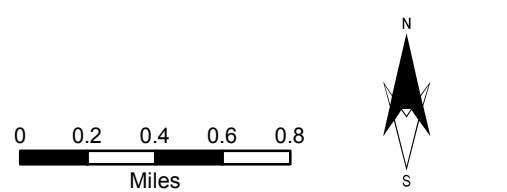
LAKE EUFAULA
EUFAULA MASTER PLAN
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-19
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

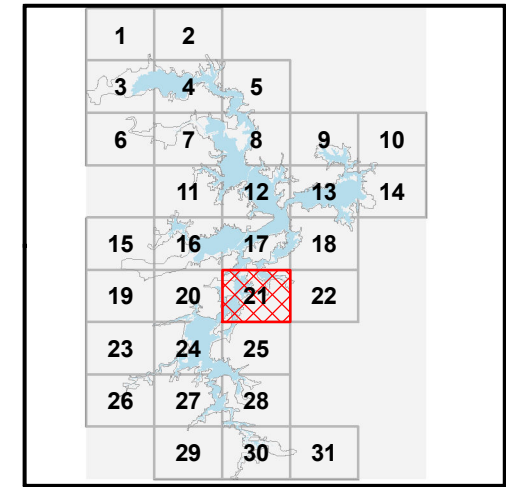
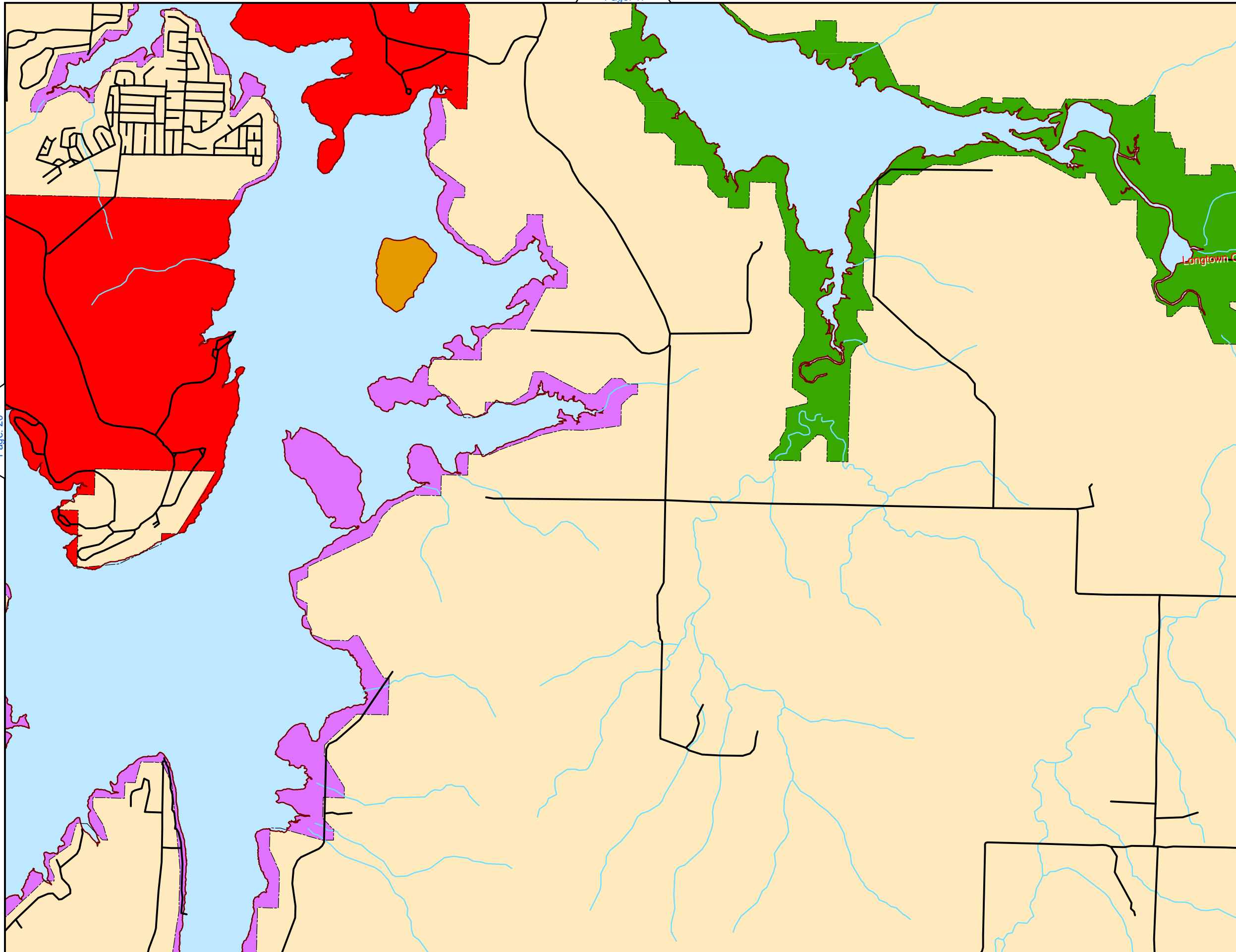
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

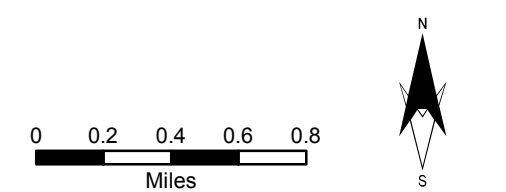
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-20
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

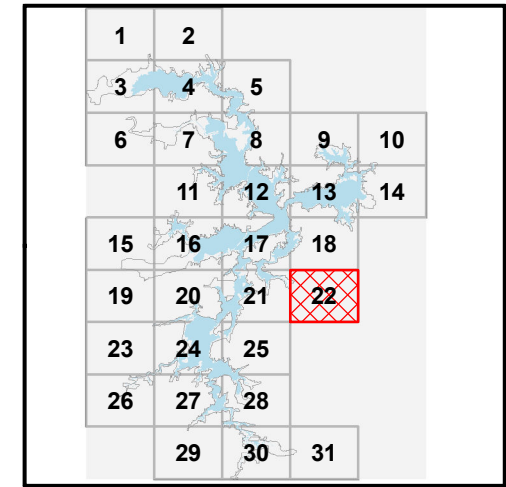
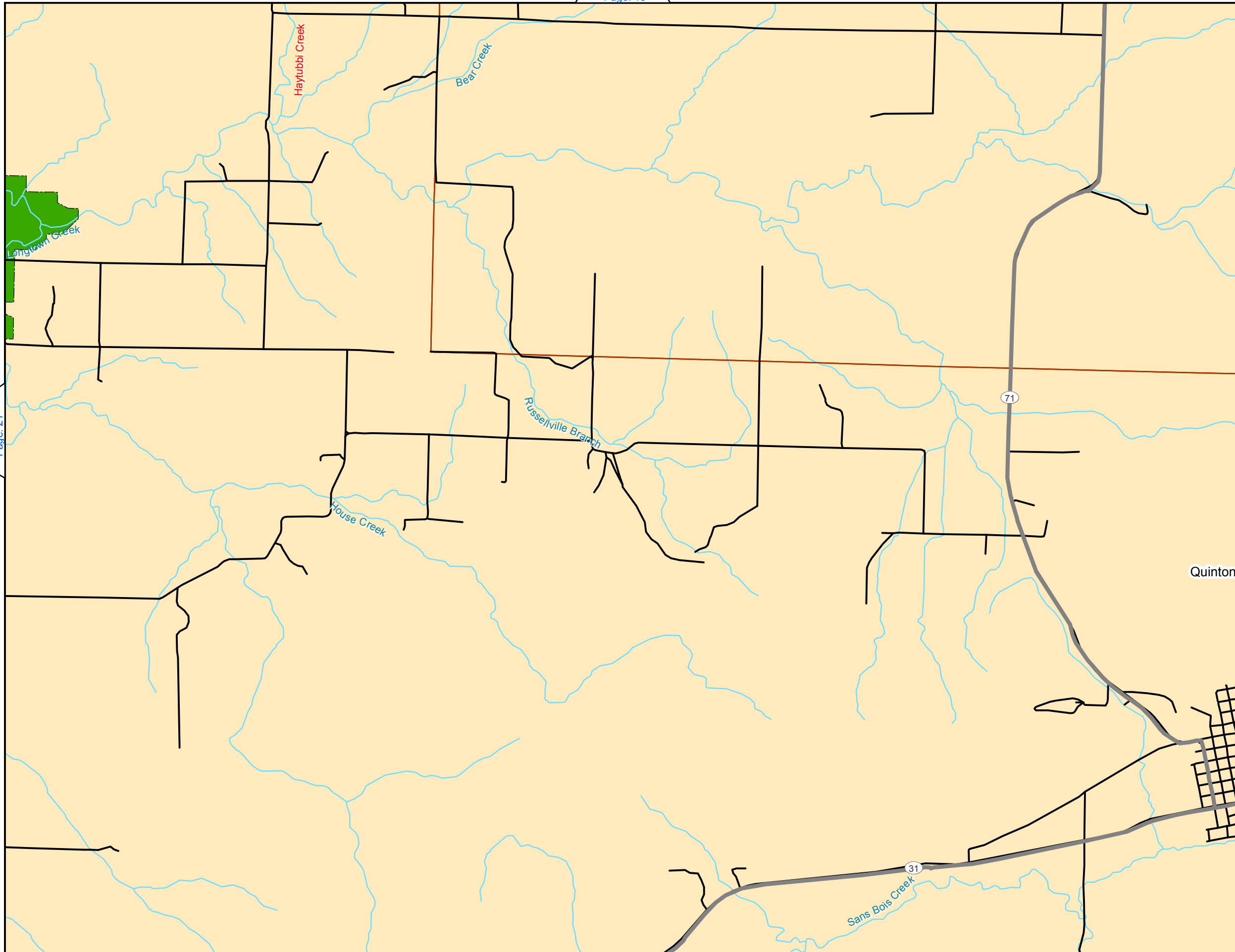


U. S. Army Corps of Engineers
Tulsa District

EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

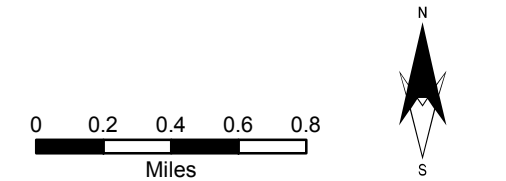
LAKE EUFAULA
EUFULA MASTER PLAN
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-21
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

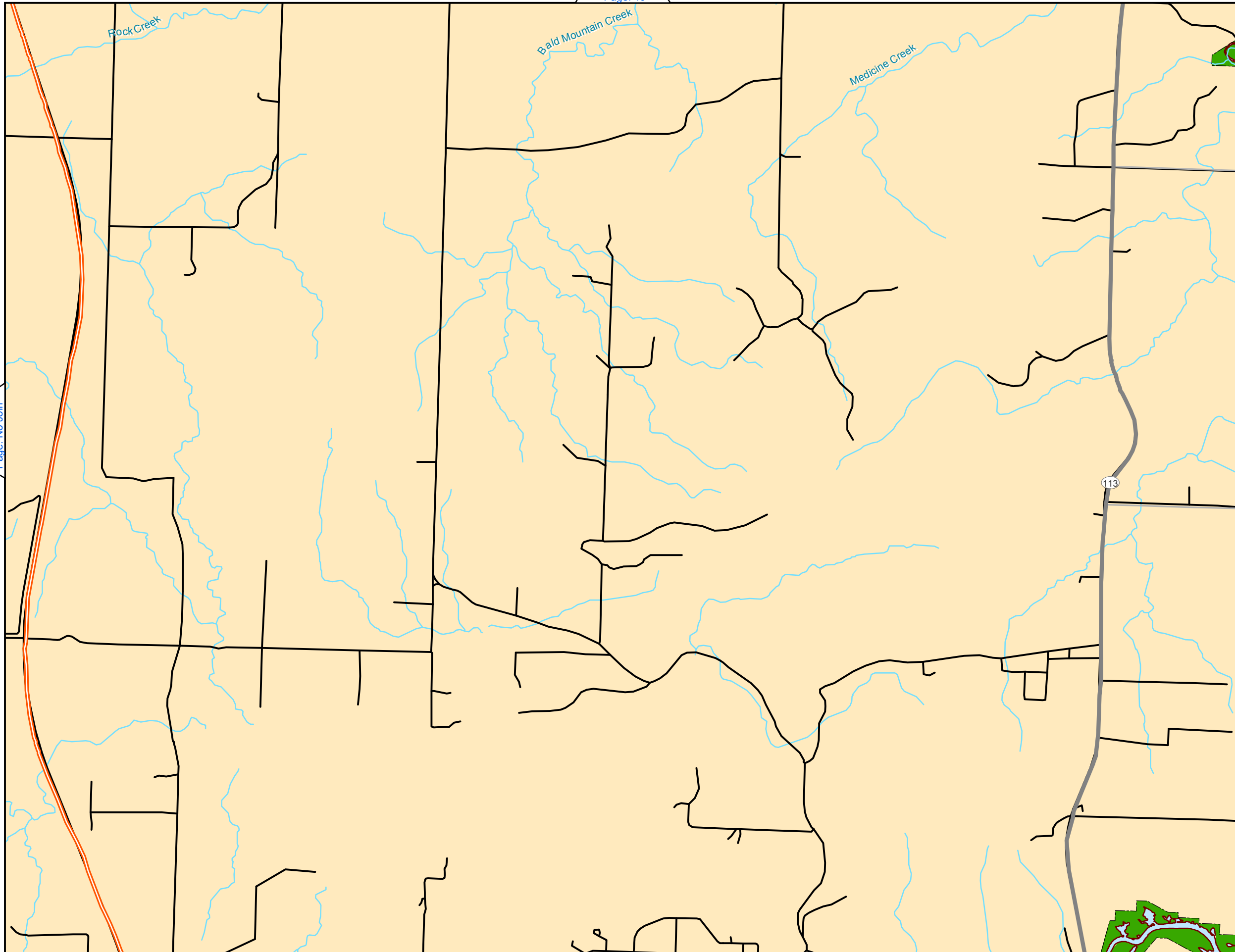
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

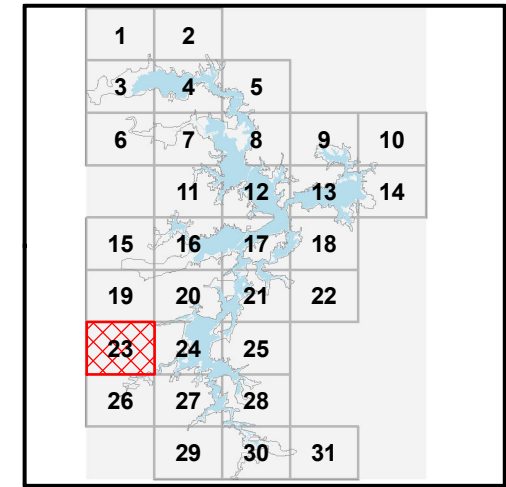
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-22
--------------------	----------------------------



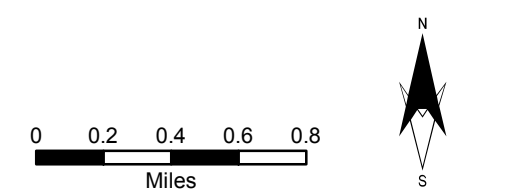
Page: No Join

Page: 24



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

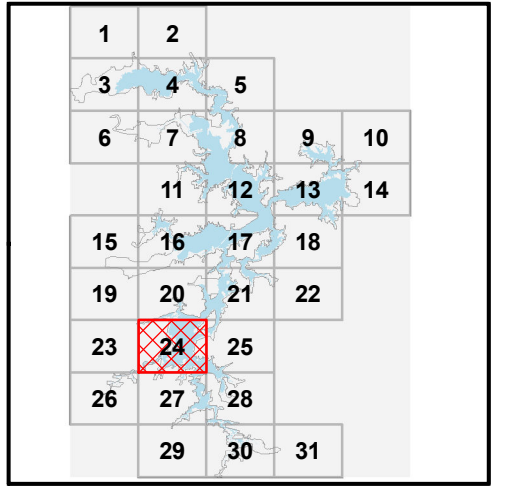
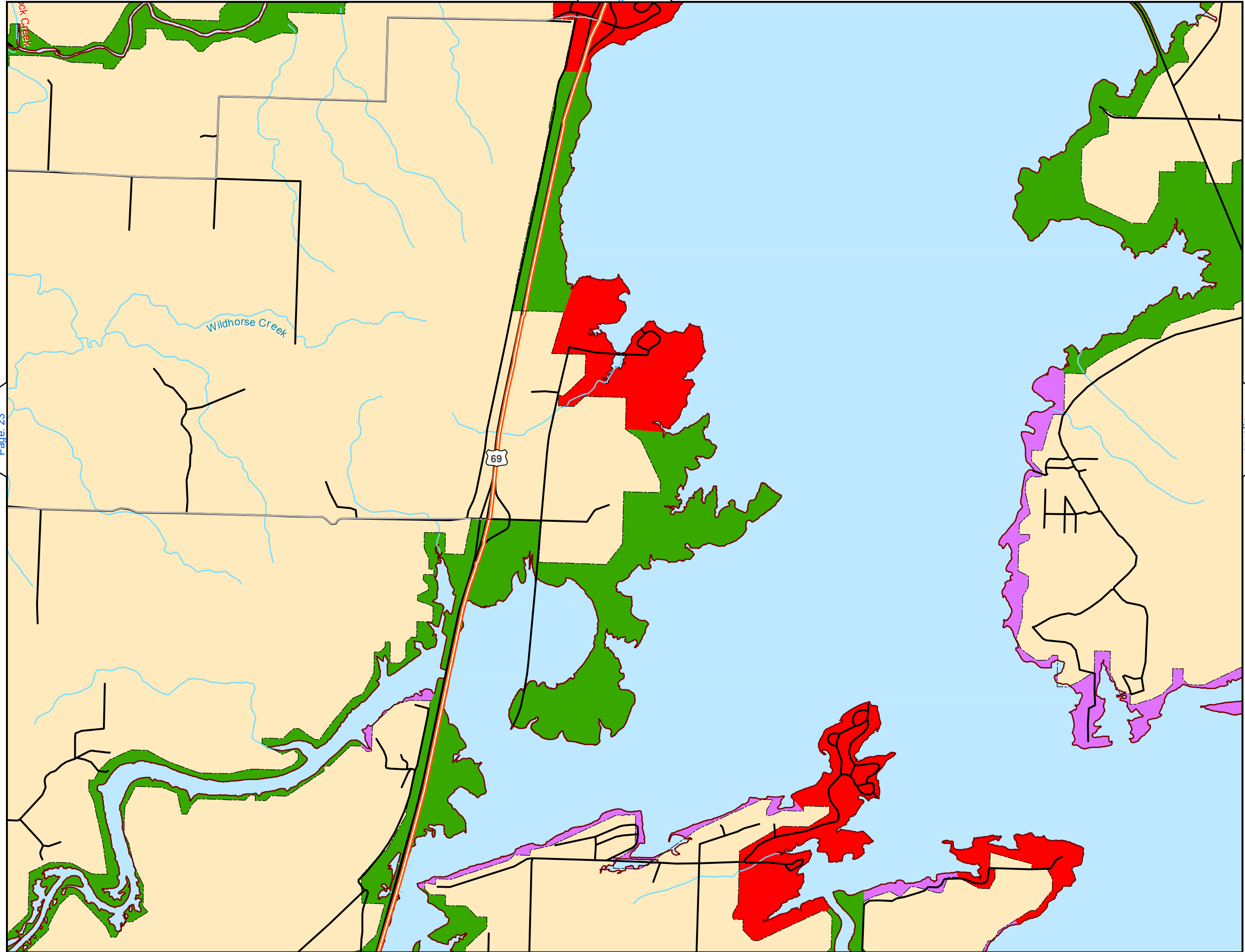
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

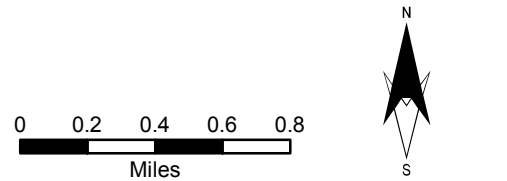
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-23
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

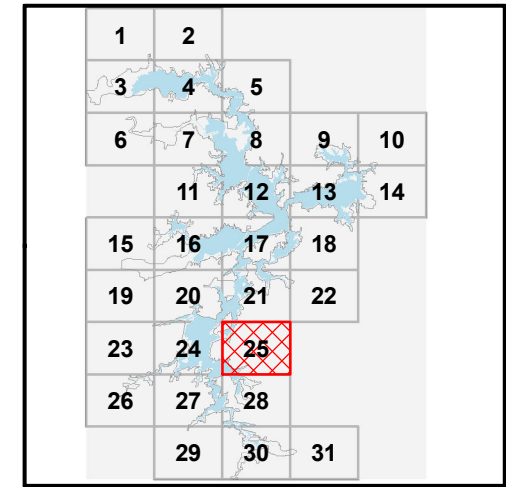
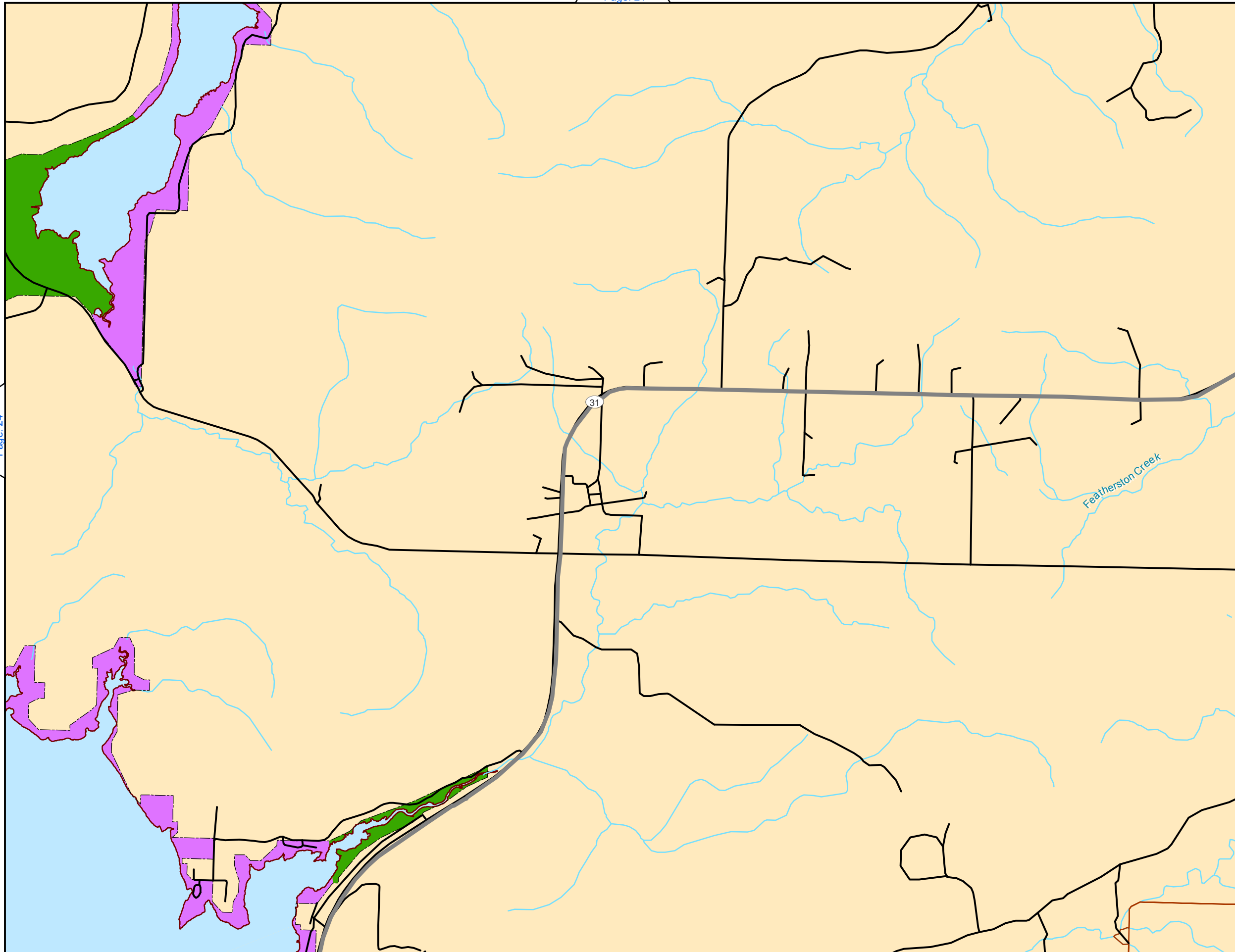
EUFALA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-24
--------------------	----------------------------

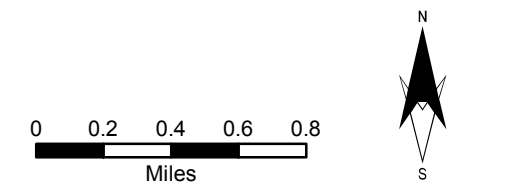
Page: 23

Page: 25



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

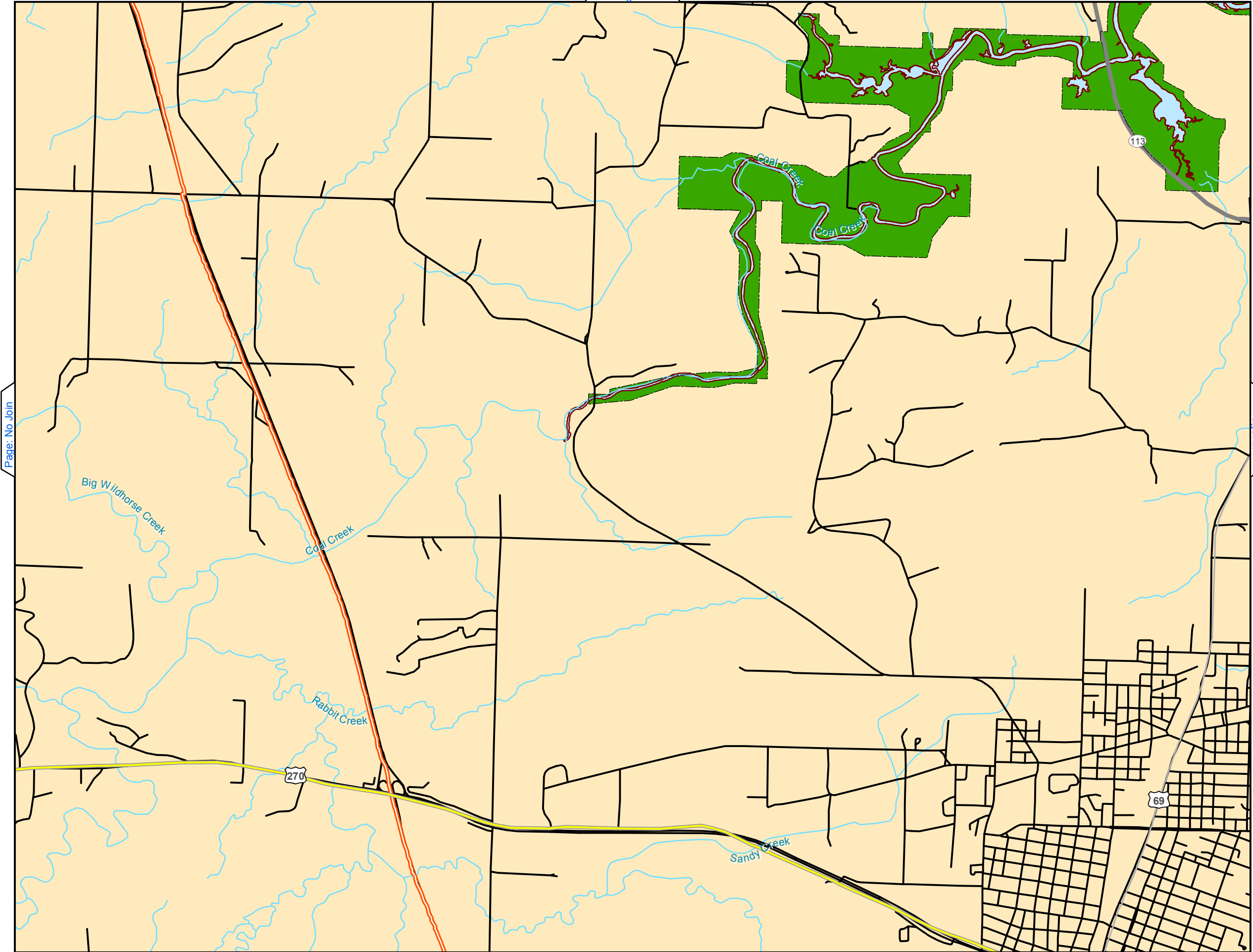
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

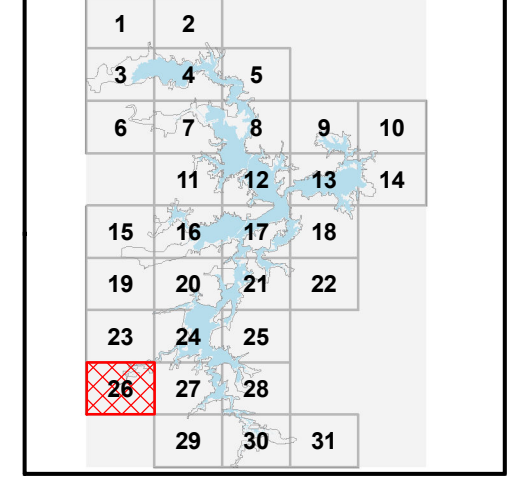
EUFALA MASTER PLAN

LAND CLASSIFICATION

DATE:	PLATE NO.
JUNE 2013	EUF13MP-OC-25

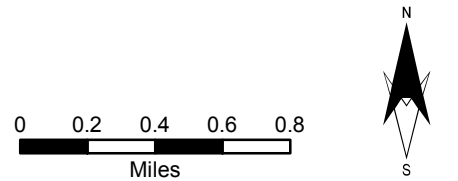



Page: No Join



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive

U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

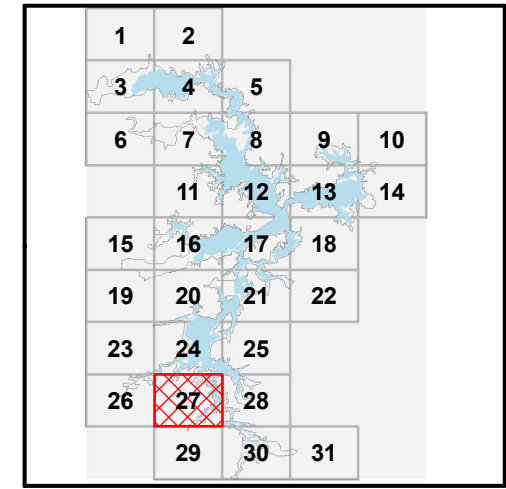
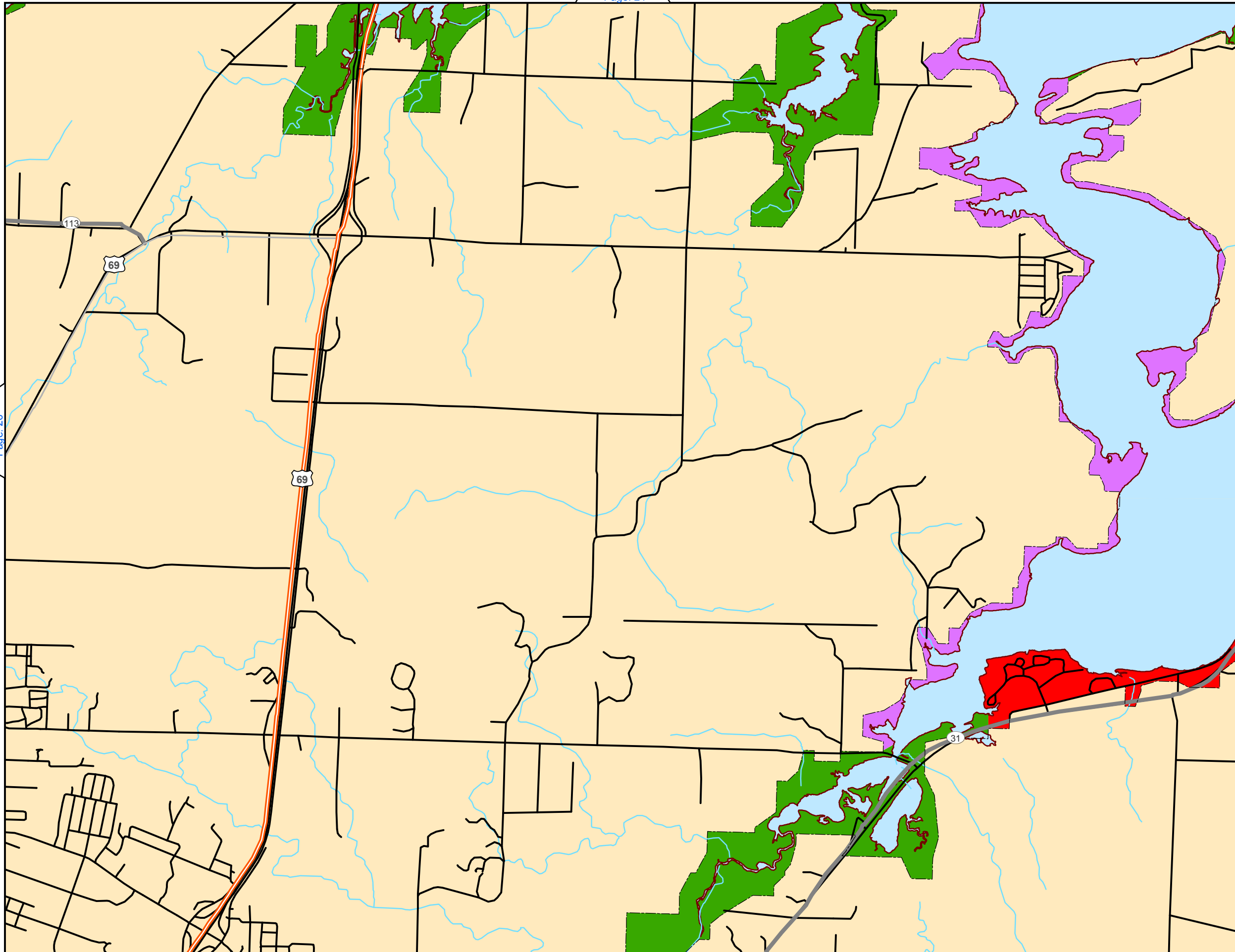
LAKE EUFAULA

EUFALA MASTER PLAN

LAND CLASSIFICATION

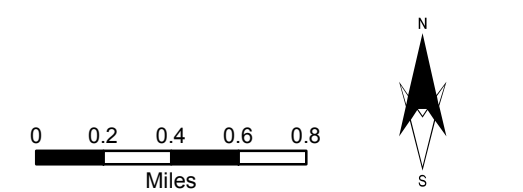
DATE: JUNE 2013

PLATE NO. EUF13MP-OC-26



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

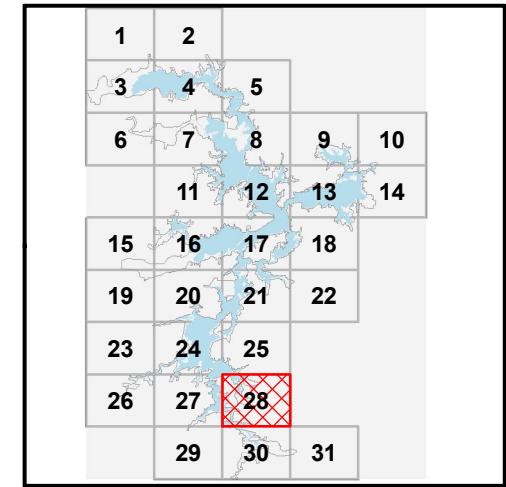
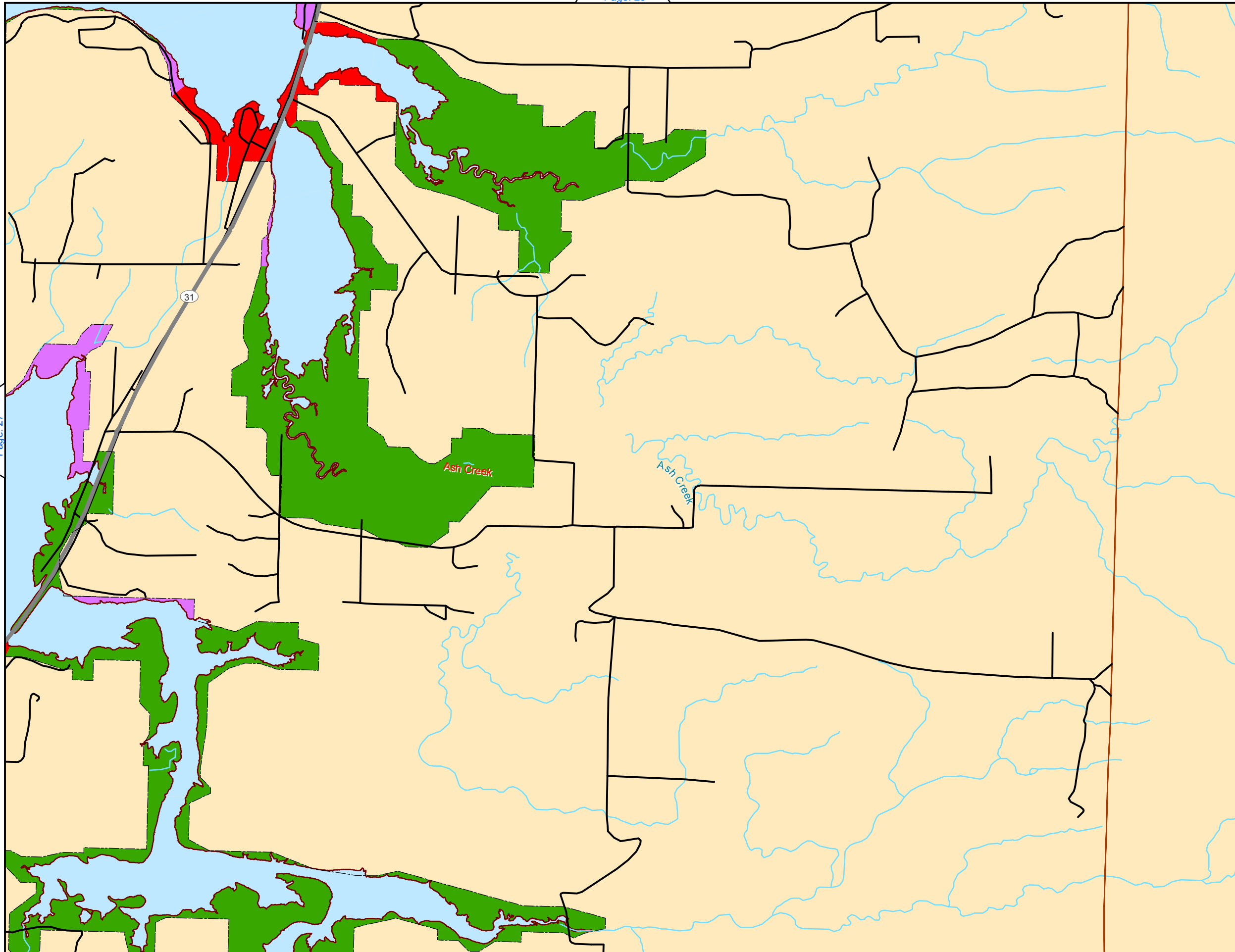
EUFALA MASTER PLAN

LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-27
--------------------	----------------------------

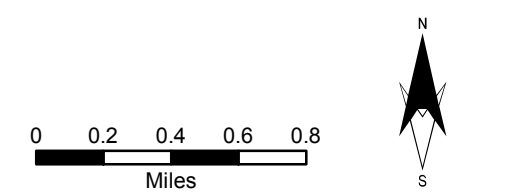
Page: 26

Page: 28



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

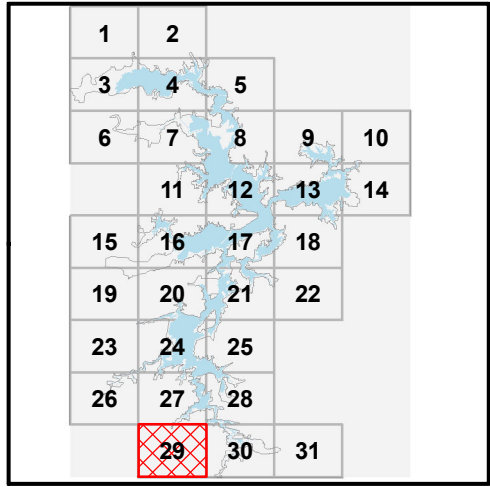
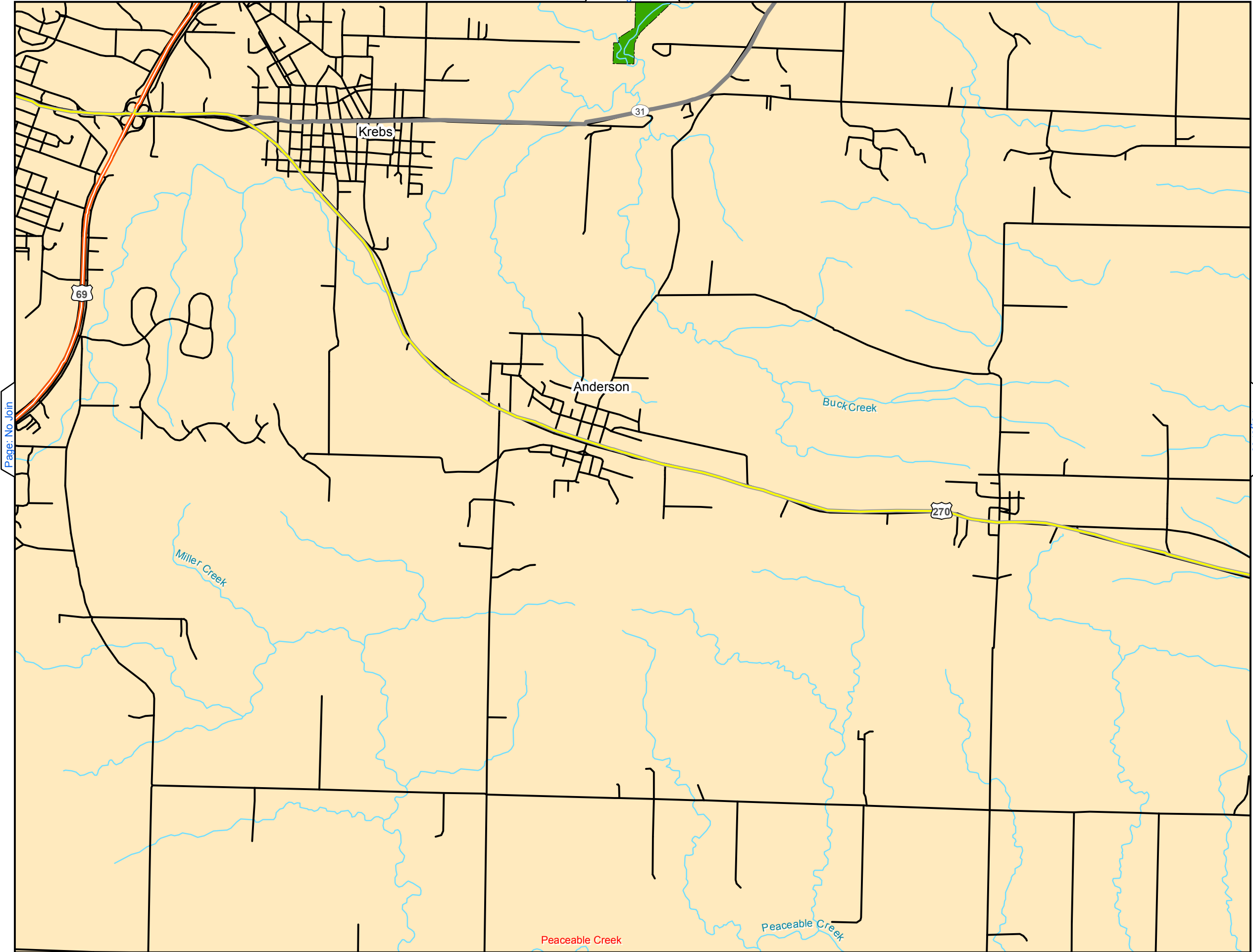
EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

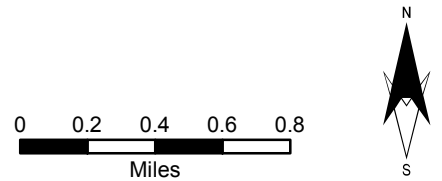
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-28
--------------------	----------------------------



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

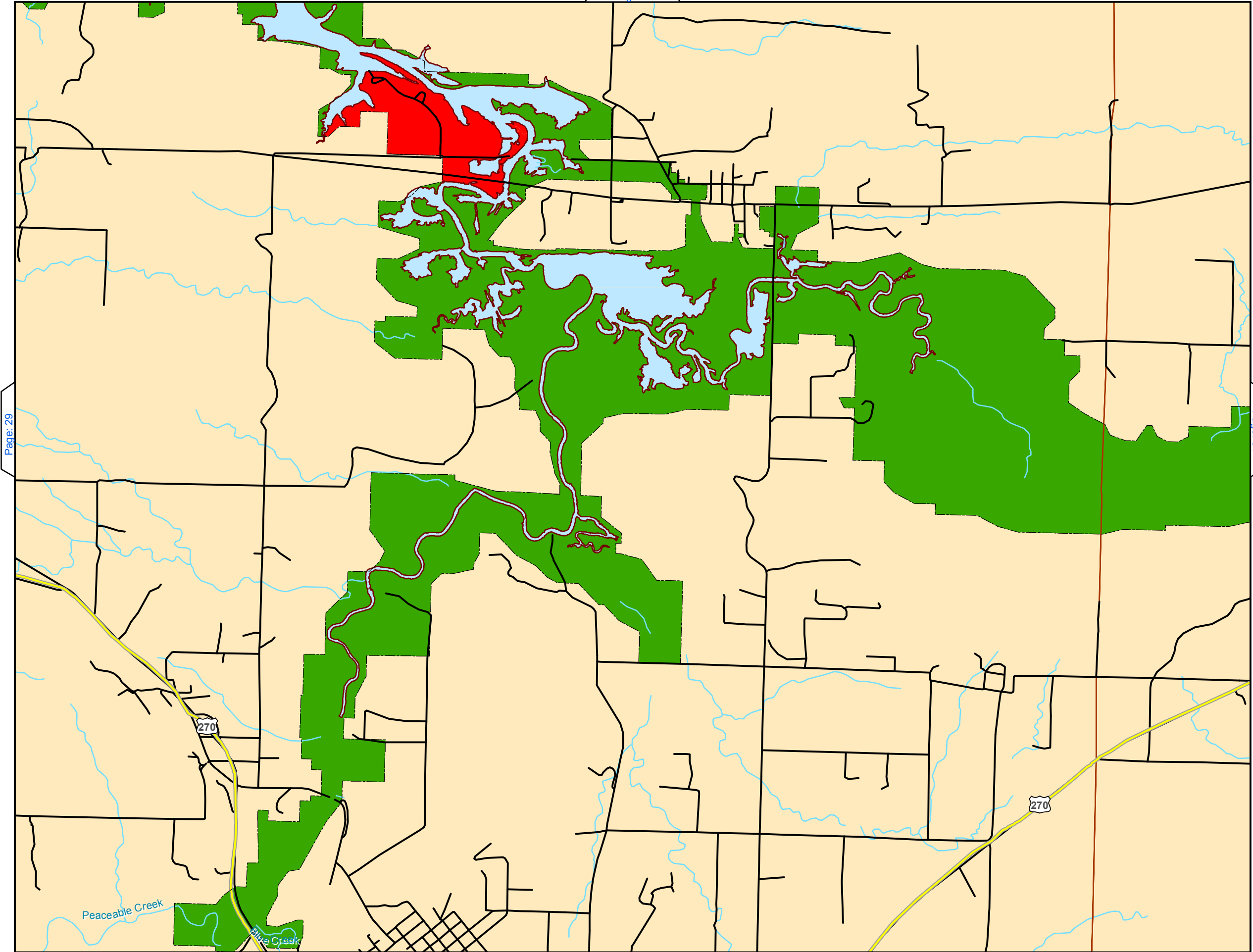
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

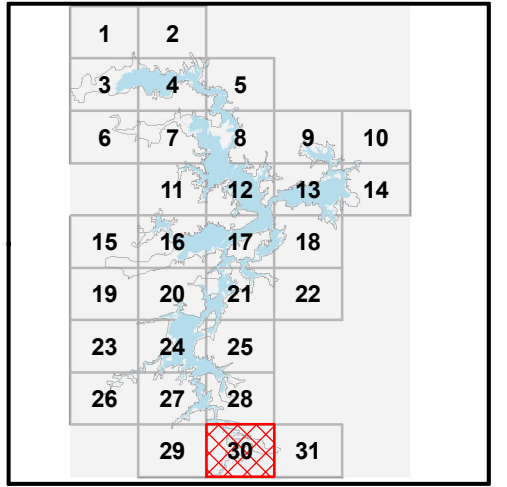
LAND CLASSIFICATION

DATE: JUNE 2013	PLATE NO. EUF13MP-OC-29
--------------------	----------------------------



Page: 29

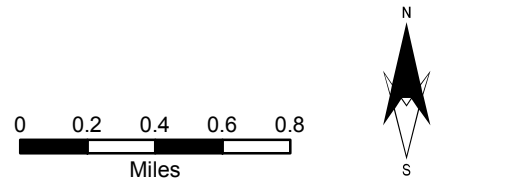
Page: 31



Legend

Eufaula_Cities

- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

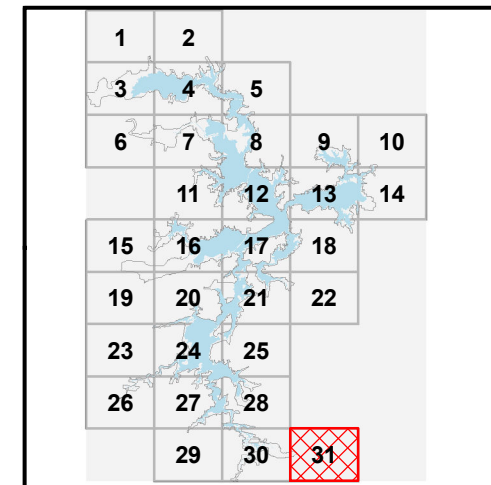
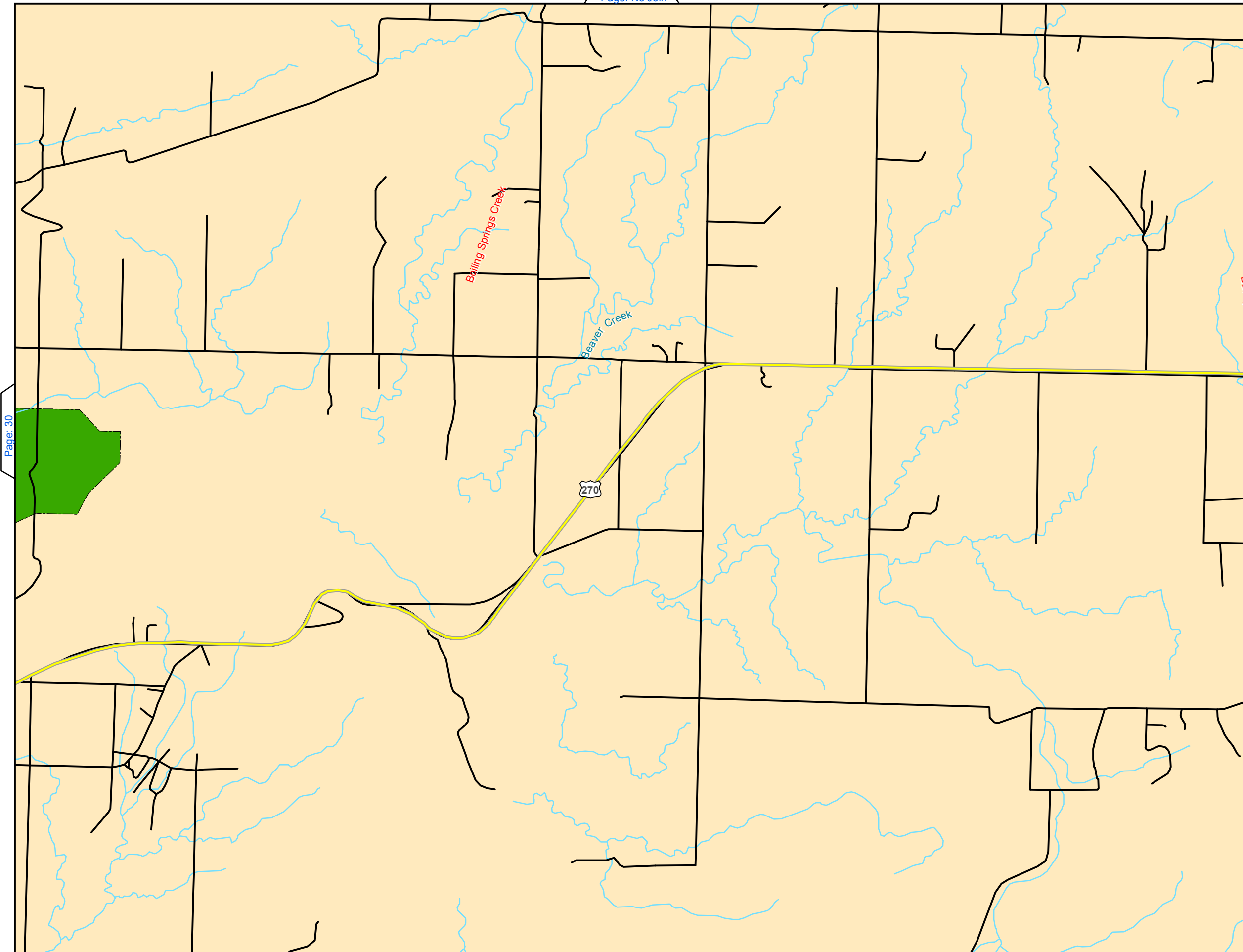
EUFALA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFALA MASTER PLAN

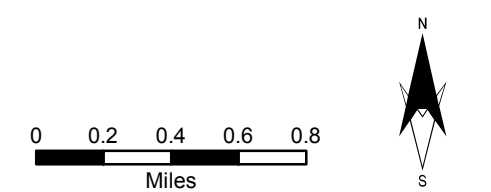
LAND CLASSIFICATION

DATE:	PLATE NO.
JUNE 2013	EUF13MP-OC-30



Legend

- Eufaula_Cities
- Wildlife Management
- Project Operations
- Recreation High Intensity
- Vegetative Management
- Low Density Rec Recreation
- Future Inactive Recreation
- Environmentally Sensitive



U. S. Army Corps of Engineers
Tulsa District

EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA

EUFULA MASTER PLAN

LAND CLASSIFICATION













DATE: JUNE 2013	PLATE NO. EUF13MP-OC-31
--------------------	----------------------------

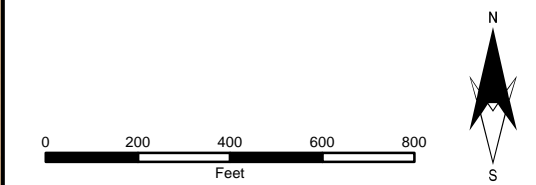
Page: 30


Page: No Join



Item	Existing	Proposed
Boat Ramp Lanes	2	
Campsites	37	
Electrical Hook-up	25	
Water Hydrant	14	10
Courtesy Dock	2	1
Dump Station	1	
Picnic Shelter		
Picnic Site		
Playground	1	
Restroom (Waterborne)	1	
Showers	1	
Vault Toilet	5	2
Trail		













-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site

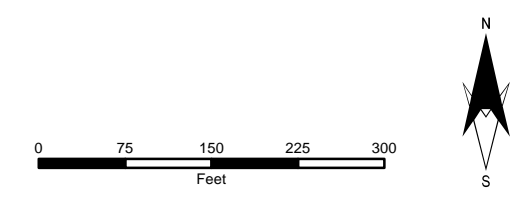



	U. S. Army Corps of Engineers Tulsa District
EUFAULA DAM AND RESERVOIR	CANADIAN RIVER, OKLAHOMA
LAKE EUFAULA	
EUFAULA MASTER PLAN	
GENTRY CREEK RECREATION AREA	
DATE:	PLATE NO.
MARCH 2013	EUF13MP-OR-1



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites		
Electrical Hook-up		
Water Hydrant		
Courtesy Dock		
Dump Station		
Picnic Shelter		
Picnic Site		
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet		
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District

EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA
EUFAULA MASTER PLAN
HOLIDAY COVE
RECREATION AREA

DATE: MARCH 2013	PLATE NO. EUF13MP-OR-2
---------------------	---------------------------















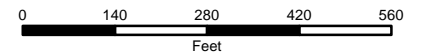
Proposed - Boat Ramp Complex
 (To Include: 3 Boat Ramps
 2 Shelters, 3 Water Hydrants
 2 Vault Toilets and 3 Courtesy Docks)


Proposed (Replacement)

Duchess Creek
 Marina

Item	Existing	Proposed
Boat Ramp Lanes	3	3
Campsites	54	
Electrical Hook-up	54	
Water Hydrant	54	3
Courtesy Dock	2	3
Dump Station	1	
Picnic Shelter	2	2
Picnic Site	5	
Playground	1	1
Restroom (Waterborne)	3	
Showers	3	
Vault Toilet	1	2
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District

EUFULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA












EUFULA MASTER PLAN

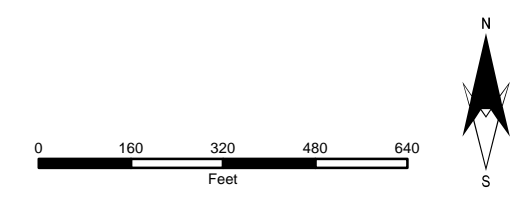
PORUM LANDING
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-3
---------------------	---------------------------



Item	Existing	Proposed
Boat Ramp Lanes	2	
Campsites	115	6
Electrical Hook-up	115	6
Water Hydrant	115	6
Courtesy Dock	1	
Dump Station	2	
Picnic Shelter	2	
Picnic Site		
Playground	2	
Restroom (Waterborne)	4	2
Showers	4	2
Vault Toilet	1	1
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA


LAKE EUFAULA
EUFAULA MASTER PLAN
BELLE STARR (SOUTH)
RECREATION AREA

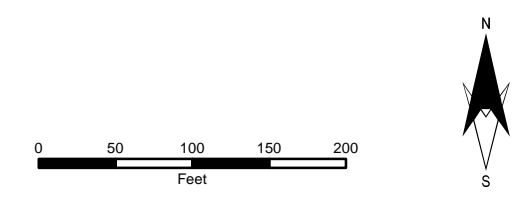
DATE: MARCH 2013	PLATE NO. EUF13MP-OR-4
---------------------	---------------------------




Item	Existing	Proposed
Boat Ramp Lanes		
Campsites	10	
Electrical Hook-up	10	
Water Hydrant	10	
Courtesy Dock		
Dump Station		
Picnic Shelter		
Picnic Site		
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet	2	
Trail	1	

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site

 Proposed (Wildlife Viewing Platform)





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

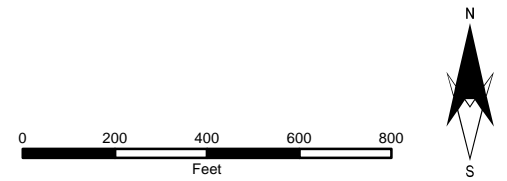
LAKE EUFAULA
EUFAULA MASTER PLAN
DAM SITE (EAST)
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-5
---------------------	---------------------------



Item	Existing	Proposed
Boat Ramp Lanes	3	
Campsites	57	
Electrical Hook-up	44	
Water Hydrant	57	
Courtesy Dock	1	
Dump Station	1	
Picnic Shelter	2	
Picnic Site		
Playground	1	1
Restroom (Waterborne)	4	1
Showers	3	1
Vault Toilet	2	
Trail	2	

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

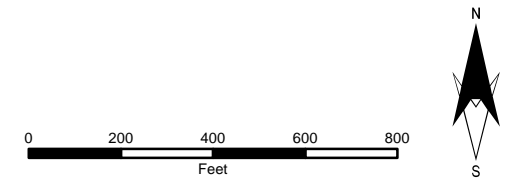
LAKE EUFAULA
EUFAULA MASTER PLAN
DAM SITE (SOUTH) & BEN O'CARROLL OVERLOOK
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-6
---------------------	---------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites	75	
Electrical Hook-up	75	
Water Hydrant	75	
Courtesy Dock	1	1
Dump Station	1	
Picnic Shelter	3	
Picnic Site		
Playground	1	2
Restroom (Waterborne)	3	1
Showers	3	1
Vault Toilet	3	1
Trail		1

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District

EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA













EUFAULA MASTER PLAN

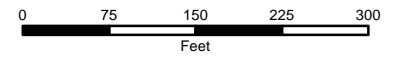
BROKEN COVE (NORTH)
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EU13MP-OR-7
---------------------	--------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	1
Campsites	16	
Electrical Hook-up		
Water Hydrant		
Courtesy Dock		1
Dump Station		
Picnic Shelter	1	
Picnic Site	1	
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet	3	1
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA
EUFAULA MASTER PLAN
MILL CREEK BAY
RECREATION AREA

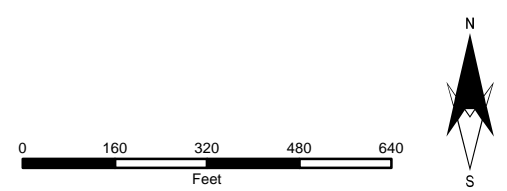
DATE: MARCH 2013	PLATE NO. EUF13MP-OR-8
---------------------	---------------------------




Item	Existing	Proposed
Boat Ramp Lanes	3	3
Campsites	80	
Electrical Hook-up	70	
Water Hydrant	60	2
Courtesy Dock	2	3
Dump Station	1	
Picnic Shelter	1	2
Picnic Site		
Playground	1	1
Restroom (Waterborne)	3	1
Showers	2	
Vault Toilet	4	2
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site

Proposed - Boat Ramp Complex
 (To Include: 3 Boat Ramps, 2 Shelters,
 3 Courtesy Docks, 2 Water Hydrants,
 1 Vault Toilet and Parking)





U. S. Army Corps of Engineers
Tulsa District

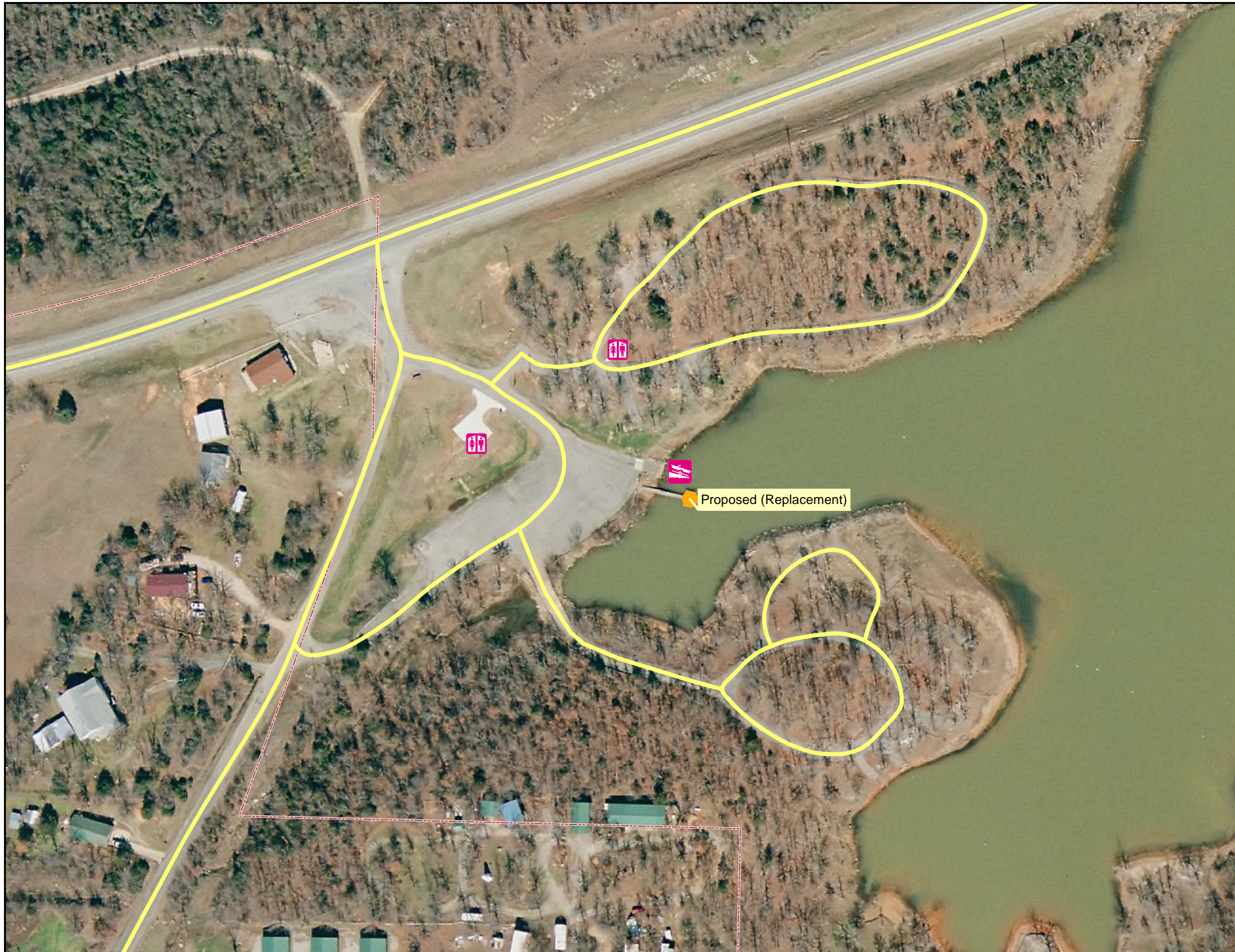
EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA













EUFAULA MASTER PLAN

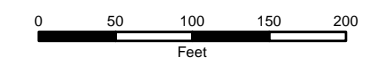
**HIGHWAY 9 LANDING
RECREATION AREA**


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-9
---------------------	---------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites	12	
Electrical Hook-up	8	
Water Hydrant		
Courtesy Dock	1	1
Dump Station		
Picnic Shelter		
Picnic Site		
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet	2	
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

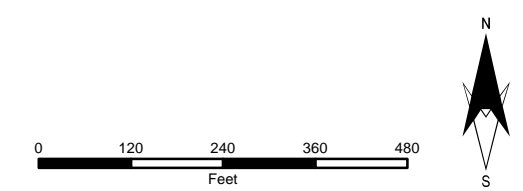
LAKE EUFAULA
EUFAULA MASTER PLAN
OAK RIDGE
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-10
---------------------	----------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites		
Electrical Hook-up		
Water Hydrant		
Courtesy Dock		
Dump Station		
Picnic Shelter		
Picnic Site	10	
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet	2	
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

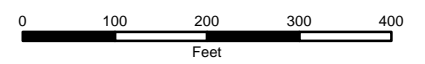
LAKE EUFAULA
EUFAULA MASTER PLAN
CARDINAL POINT
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-11
---------------------	----------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites	17	10
Electrical Hook-up	15	10
Water Hydrant	15	10
Courtesy Dock	1	
Dump Station	1	
Picnic Shelter	1	
Picnic Site		
Playground		
Restroom (Waterborne)		1
Showers		1
Vault Toilet	3	
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District

EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA













EUFAULA MASTER PLAN

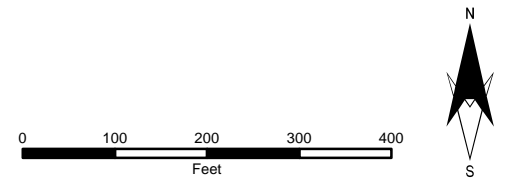
ELM POINT
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-12
---------------------	----------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites		
Electrical Hook-up		
Water Hydrant		
Courtesy Dock		
Dump Station		
Picnic Shelter		
Picnic Site		
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet		
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District













EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

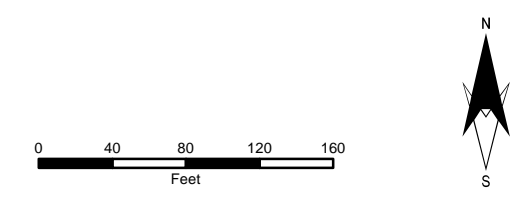
LAKE EUFAULA
EUFAULA MASTER PLAN
HIGHWAY 31 LANDING
RECREATION AREA


DATE: MARCH 2013	PLATE NO. EUF13MP-OR-13
---------------------	----------------------------



Item	Existing	Proposed
Boat Ramp Lanes	1	
Campsites		
Electrical Hook-up		
Water Hydrant		
Courtesy Dock		
Dump Station		
Picnic Shelter		
Picnic Site		
Playground		
Restroom (Waterborne)		
Showers		
Vault Toilet		
Trail		

-  Boat Ramp
-  Courtesy Dock
-  Dump Station
-  Entrance Station
-  Picnic Shelter
-  Playground
-  Restroom (Waterborne)
-  Showers
-  Swimming Beach
-  Trail
-  Vault Toilet
-  Wildlife Viewing Site





U. S. Army Corps of Engineers
Tulsa District

EUFAULA DAM AND RESERVOIR CANADIAN RIVER, OKLAHOMA

LAKE EUFAULA
EUFAULA MASTER PLAN
HICKORY POINT
RECREATION AREA

DATE:	PLATE NO.
MARCH 2013	EUF13MP-OR-14