Southern Company Generation
241 Ralph McGill Boulevard, NE
BIN 10193
Atlanta, GA 30308-3374
404 506 7219 tel

September 29, 2023

FERC Project No. 2177
Middle Chattahoochee Project Non-Capacity Related License Amendment

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C.

Dear Secretary Bose:

Georgia Power Company (Georgia Power) is the Federal Energy Regulatory Commission (FERC) licensee for the Middle Chattahoochee Project (FERC No. 2177). Pursuant to the requirements of 18 CFR Section 4.201, Southern Company on behalf of Georgia Power, files the attached Application for a Non-Capacity Related Amendment for the Middle Chattahoochee Project (Project). The Project consists of three separate developments: Goat Rock, Oliver and North Highlands, all on the Chattahoochee River near Columbus, Georgia.

Georgia Power's application for amendment includes a proposal to replace and upgrade the four (4) generating units in the Oliver powerhouse by replacing the turbine runners and refurbishing Unit 3 and 4 generators.

The proposal does not change any of the Project features or operations and will not impact water control capabilities of the Oliver powerhouse. The unit modifications are expected to increase each unit's efficiency. Although the rated capacities of Units 1 and 2 turbines are expected to increase from 18 MW to 19.9 MW, the rated capacity of the generators will remain 18 MW each. Therefore, the rated generating capacity of Units 1 and 2 is expected to be generator-limited and remain unchanged. The rated capacity of Unit 3 is expected to increase from 18 MW to 19.9 MW and the rated capacity of Unit 4 is expected to decrease from 6 MW to 4.2 MW. The total installed generating capacity of the Oliver development is expected to increase from 60 MW to 60.1 MW.

The full gate hydraulic capacity of Unit 1 is 3,640 cubic feet per second (cfs), Unit 2 is 3,708 cfs, Unit 3 is 3,775 cfs, and Unit 4 is 1,373 cfs. The full gate unit hydraulic capacities are expected to increase to 4,183 cfs for Units 1 through 3, and expected to decrease to 884 cfs for Unit 4. The total full gate discharge from the powerhouse will increase from 12,496 cfs to 13,433 cfs. The flow change is below the 15 percent FERC criterion for a capacity related amendment. The change in hydraulic capacity will have an insignificant effect on water quality, including dissolved oxygen and temperature.

The Project will continue to operate under the terms of its current FERC license and applicable Water Quality Certification. No environmental resources are adversely affected by the proposed upgrade, and all existing protection, mitigation, and enhancement measures required by the Project license will not change.

Pursuant to the consultation requirements in 18 CFR 4.38(a)(7), Georgia Power consulted with the following

entities on this non-capacity amendment from July 2023 through September 2023: U.S. Fish and Wildlife Service; Georgia Department of Natural Resources - Environmental Protection Division; Georgia Department of Natural Resources -Wildlife Resources Division; and Alabama Department of Conservation and Natural Resources. Georgia Power provided the Draft Non-Capacity Related Amendment Application and Draft Applicant Prepared Environmental Assessment for agency review and comment on September 14, 2023. A new assessment of the historic architecture of the Oliver Powerhouse was conducted in August 2023 with a report proposing a new recommendation for NRHP eligibility and contributing and exclusionary elements. Georgia Power is consulting with HPD on the August 2023 assessment and proposed work and will file documentation of HPD consultation as a supplement to the license amendment application. All comments from consultation have been included in the documents that are being submitted with this license amendment application. Additionally, Georgia Power is submitting a revised Exhibit A. There are no proposed changes to operations (Exhibit B) or the project boundary (Exhibit G).

Attachments submitted with this letter include the following:
Attachment A – Initial Statement and Application
Attachment B – Applicant Prepared Environmental Assessment (includes Documentation of Agency Consultation in Appendix A)
Attachment C – Revised Exhibit A – Track Change Version
Attachment D – Revised Exhibit A – Clean Version

If you have any questions about the Non-Capacity Related Amendment Application, or if you require additional information, please contact me at 404-797-9432 or by email at cromara@southernco.com.

Sincerely,

Courtenay R. O'Mara

Courtenay R. O'Mara, P.E.
Hydro Licensing & Compliance Supervisor

cc: Will Brown – FERC, Atlanta Regional Office
Kelly Houff – FERC, DHAC
Jennifer Polardino – FERC, DHAC

ATTACHMENT A

INITIAL STATEMENT
AND
APPLICATION FOR NON-CAPACITY RELATED AMENDMENT OF LICENSE

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Georgia Power Company **FERC Project No. 2177**

APPLICATION FOR NON-CAPACITY RELATED AMENDMENT OF LICENSE

Pursuant to Section 4.200 of the Federal Energy Regulatory Commission's (Commission or FERC) regulations,[1] Georgia Power Company (Georgia Power), hereby submits this Application for Non-Capacity Related Amendment of License (Amendment Application) for the Middle Chattahoochee Hydro Project, FERC Project No. 2177 (Project). In filing this Application, Georgia Power seeks to amend the license[2] by upgrading the four generating units at the Oliver Development, which includes replacing the turbine runners on all units and refurbishing generators for Units 3 and 4.

INITIAL STATEMENT

1. Georgia Power applies to (FERC, under 18 CFR § 4.201, for a non-capacity amendment of the Middle Chattahoochee Project (Project) license, a major existing waterpower project over 5 megawatts (MW), as described in the attached Exhibit A. This application is for a non-capacity amendment to upgrade the generating units at the Oliver Development by replacing the turbine runners on all units and refurbishing generators for Units 3 and 4.

2. The exact name and business address and telephone number of the applicant are:

   Georgia Power Company
   241 Ralph McGill Boulevard, NE
   BIN 10193
   Atlanta, Georgia 30308-3374

[1] 18 C.F.R. § 4.200.

[2] Accession Number 20041227-3016.

Communication and correspondence pertaining to this application should be addressed to:

Courtenay O'Mara
241 Ralph McGill Boulevard, NE
BIN 10193
Atlanta, Georgia 30308-3374
404-506-7219

3. Georgia Power is a domestic corporation and is licensee for the waterpower project, designated as Project No. 2177 in the records of the Federal Energy Regulatory Commission, issued on the 27th day of December 2004.

4. The amendments of license proposed and the reason(s) why the proposed changes are necessary, are:

    a. CURRENT CONDITIONS

    The Middle Chattahoochee Project consists of three hydropower developments (Goat Rock, Oliver, and North Highlands) on the Chattahoochee River near Columbus, Georgia, and Phenix City, Alabama. The Oliver Development is located downstream of the Goat Rock Development at river mile (RM) 163.5 on the Chattahoochee River north of Columbus, Georgia.

    The Oliver Development consists of the Oliver Dam with a spillway and an integral powerhouse located in Georgia and a reservoir (Lake Oliver). Lake Oliver is a 9-mile-long, 2,280-acre reservoir with a gross storage capacity of 32,000 acre-feet at elevation 337 plant datum (PD)[3], and a storage capacity of 6,100 acre-feet between elevations 337 to 334 PD.

    The Oliver Development consists of: 1) a 284-foot-long west non-overflow structure; 2) a 198-foot-long combined powerhouse and intake section; 3) a 1,324-foot-long gated spillway section containing 33 radial arm Tainter gates, each 35 feet long, and 16 feet high, and an 11-foot-long, 16-foot-high trash gate; and 4) a 215-foot-long east non-overflow section. The crest elevation of the non-overflow sections is at elevation 350 PD and the top is 12-feet wide. The dam is of concrete construction and has a maximum height of approximately 70 feet. The powerhouse contains four vertically oriented generating units. The hydraulic capacity of Unit 1 is 3,640 cubic feet per second (cfs), Unit 2 is 3,708 cfs, Unit 3 is 3,775 cfs, and Unit 4 is 1,373 cfs. Units 1, 2, and 3 are rated at 18 MW each, and Unit 4 is rated at 6 MW. Total generating capacity of the powerhouse is 60 MW and total hydraulic capacity is

[3] Plant datum = mean sea level (MSL) + 0.84 feet

approximately 12,496 cfs.

Georgia Power operates the Middle Chattahoochee Project in a run-of-river-with-pondage mode to follow daily or weekly load demand patterns to the greatest extent practical after meeting flow and reservoir elevation environmental constraints. The Middle Chattahoochee Project operates to provide an instantaneous target minimum flow release of 800 cfs, or inflow, whichever is less, downstream of each project dam; a daily average target minimum flow of 1,350 cfs, or inflow, whichever is less, downstream of the project; and a weekly average target minimum flow of 1,850 cfs, or inflow, whichever is less, downstream of the project.

The Oliver Development is operated within the license elevation range of 334 to 337 feet PD. The Oliver tailrace is 100 feet wide and extends 1,500 feet downstream into the North Highlands impoundment. The tailrace channel is influenced by the impounded backwaters of the North Highlands impoundment.

b. PROPOSAL

The proposed scope of work for the Oliver Development includes the following.

1) Georgia Power proposes to upgrade the four generating units at the Oliver Development of the Middle Chattahoochee Project by replacing the turbine runners on all units and refurbishing generators for Units 3 and 4 (Proposed Action). Upgrading the generating units will allow the Oliver Development to continue to meet the operational requirements of its existing license. The upgrade is scheduled to begin in 2025, with a unit upgrade starting at the beginning of each year in 2025, 2026, 2027, and 2028, pending approval of the Amendment Application. Table 1-1 provides the rated generating and maximum hydraulic capacities of the existing units with the expected performance of the upgraded units. Performance of the upgraded units may vary slightly based on final design, headwater conditions, and fabrication.

TABLE 1-1 OLIVER DEVELOPMENT POWERHOUSE EXISTING AND PROPOSED HYDRAULIC CAPACITIES AND RATED CAPACITY[4]

Unit	Existing Rated (Best Gate/Most Efficient) Capacity (MW)	Existing Max Hydraulic Capacity (CFS)	Proposed Rated (Best Gate/Most Efficient) Capacity (MW)	Proposed Max Hydraulic Capacity (CFS) after Upgrade
1	18	3,640	18	4,183
2	18	3,708	18	4,183
3	18	3,775	19.9	4,183
4	6	1,373	4.2	884

The Proposed Action does not require a reservoir drawdown and Lake Oliver will operate under the existing license conditions, within the elevation range of 334 to 337 feet PD (excluding fall maintenance and system emergency drawdowns). In addition, the Proposed Action will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project.

The Work Areas associated with the Proposed Action at the Oliver Development are located on previously disturbed land.

2) Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of their designated critical habitat. The Georgia Department of Natural Resources (Georgia DNR) is authorized by O.C.G.A. Title 27 Chapter 3 Article 3 (§ 27-3-132) as well as Rule 391-4-10 and the Endangered Wildlife Act of 1973 to make decisions, approve permits and determine potential impacts to any resident species as endangered, threatened, rare or unusual species. The Alabama Department of Conservation and Natural Resources (ADCNR) is authorized by Alabama Code Section 9-2-2 to "protect, conserve, and increase the wildlife of the state" and under Alabama Administrative. Code r. 220-2-.92 to protect nongame species. Information on state and federal threatened and endangered species known to occur within the Middle Chattahoochee Project is discussed in Section 9 of the Applicant Prepared Environmental

[4] The Proposed Action results in a less than 15 percent change in maximum hydraulic capacity and less than a 2 MW change qualifying for a non-capacity amendment pursuant to 18 CFR § 4.201(b).

Assessment (APEA) (Attachment B).

3) Section 106 of the National Historic Preservation Act (NHPA) requires FERC to consider potential adverse effects to historic properties prior to issuing the Order approving a license amendment. The "Programmatic Agreement Among the Federal Energy Regulatory Commission and the State Historic Preservation Officers of the States of Georgia and Alabama for Managing Historic Properties That May Be Affected by Issuing a License to Georgia Power Company for the Continued Operation and Maintenance of the Middle Chattahoochee Project in Lee and Russell Counties, Alabama and Harris and Muscogee Counties, Georgia" (PA) as implemented by Article 411 of the Middle Chattahoochee license provides for the protection and management of historic properties at the Middle Chattahoochee Project. The October 2002 Middle Chattahoochee Project HPMP noted the Oliver powerhouse maintained a high degree of integrity and was potentially significant for its innovative design. However, at the time, the plant was of relatively recent construction and was recommended not eligible for NRHP due to its less than 50 year age. The Oliver powerhouse was completed in 1959 and therefore is now 64 years old. A new assessment of the Oliver Powerhouse was conducted in August 2023 with a report proposing a new recommendation for NRHP eligibility and contributing and exclusionary elements. Georgia Power is consulting with HPD on the August 2023 assessment and proposed work and will file documentation of HPD consultation as a supplement to the license amendment application.

5. (i) The statutory or regulatory requirements of the state(s) in which the project would be located that affect the project as proposed with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes are as follows:

Section 401(a) of the Clean Water Act (CWA) of 1977 requires that an applicant for a federal license to construct or operate facilities, which may result in any discharge into navigable waters, must seek a certificate from the state in which the discharge originates or from the appropriate interstate water pollution control agency. In Georgia, Water Quality Certifications (WQC) are issued by the Georgia Environmental Protection Division (Georgia EPD) as part of the Georgia Department of Natural Resources wetland regulatory program via O.C.G.A. Title 12 Chapter 5-21.

(ii) The steps which the Applicant has taken, or plans to take to comply with each of the laws cited above, are:

The existing license for the Middle Chattahoochee Project includes a 401 WQC issued by Georgia EPD on September 9, 2002. The powerhouse and the proposed action that is the subject of this Amendment Application is located in the state of Georgia. Georgia Power has confirmed with Georgia EPD that a 401 WQC is not required for this license amendment. Consultation is provided in Appendix A of the APEA (Attachment B).

REQUIRED EXHIBITS

In accordance with 18 CFR §4.201(c), only the following applicable exhibit(s) that require revision are made part of this Application:

- Exhibit A – Project Description

Exhibit A (Project Description) requires an update; therefore, Georgia Power is attaching a revised Exhibit A in track change (Attachment C) and a clean version (Attachment D). Exhibit F drawings will not need to be revised for the Proposed Action.

CONSULTATION

Commission regulations under 18 CFR §4.38(a)(7) require Georgia Power to consult with resource agencies and Indian tribes, to the extent that the proposed amendment would affect their interests. Georgia Power has contacted the following agencies:

a. U.S. Fish and Wildlife Service
b. Georgia Department of Natural Resources - Environmental Protection Division
c. Georgia Department of Natural Resources - Wildlife Resources Division
d. Georgia Department of Community Affairs - Historic Preservation Division
e. Alabama Department of Conservation and Natural Resources

Georgia Power submitted a summary of the upgrade to the aforementioned agencies and provided an opportunity to meet and discuss the proposed upgrade beginning in July 2023. Georgia Power also provided the agencies with a draft of the Amendment Application, including the initial statement, revised Exhibit A, and a draft APEA for review and comment in September 2023. Consulted agencies did not raise objections to the Proposed Action and the consultation record is provided in Appendix A of the accompanying APEA (Attachment B).

ATTACHMENT B

APPLICANT PREPARED ENVIRONMENTAL ASSESSMENT

Applicant Prepared Environmental Assessment for Non-Capacity Amendment Application

Middle Chattahoochee Project
Oliver Development

FERC No. 2177

Prepared for:
Georgia Power Company

Prepared by:
Kleinschmidt Associates

September 2023

TABLE OF CONTENTS

1.0 INTRODUCTION 1-1
1.1 Statutory and Regulatory Requirements 1-3
1.1.1 Section 401 of Clean Water Act 1-3
1.1.2 Endangered Species Act 1-3
1.1.3 Magnuson-Stevens Fishery Conservation and Management Act 1-4
1.1.4 Coastal Zone Management Act 1-4
1.1.5 National Historic Preservation Act 1-4

2.0 PROPOSED ACTION & ALTERNATIVES 2-5
2.1 No Action Alternative 2-5
2.1.1 Existing Project Facilities and Operations 2-5
2.2 Proposed Action 2-6
2.2.1 Proposed Project Facilities and Operations 2-6

3.0 CUMULATIVE EFFECTS ANALYSIS 3-1

4.0 GENERAL DESCRIPTION OF THE RIVER BASIN 4-1
4.1 Topography 4-1
4.2 Climate 4-1
4.3 References 4-3

5.0 GEOLOGICAL AND SOIL RESOURCES 5-1
5.1 Affected Environment 5-1
5.2 Environmental Analysis 5-4
5.3 Protection, Mitigation, and Enhancement Measures 5-4
5.4 Unavoidable Adverse Effects 5-5
5.5 References 5-5

6.0 WATER RESOURCES 6-1
6.1 Affected Environment 6-1
6.1.1 Water Quantity 6-1
6.1.2 Water Quality 6-2
6.2 Environmental Analysis 6-3
6.2.1 Water Quantity 6-3
6.2.2 Water Quality 6-3
6.3 Protection, Mitigation, and Enhancement Measures 6-4
6.4 Unavoidable Adverse Effects 6-4
6.5 References 6-4

7.0 FISH AND AQUATIC RESOURCES 7-1
7.1 Affected Environment 7-1
7.1.1 Freshwater Mussels and Benthic Macroinvertebrates 7-2
7.2 Environmental Analysis 7-2
7.3 Protection, Mitigation, and Enhancement Measures 7-2
7.4 Unavoidable Adverse Effects 7-2
7.5 References 7-2

8.0 WILDLIFE AND TERRESTRIAL RESOURCES 8-5
8.1 Affected Environment 8-5
8.1.1 Wildlife Resources 8-5
8.1.2 Terrestrial Resources 8-6
8.1.3 Wetlands 8-6
8.2 Environmental Analysis 8-8
8.3 Protection, Mitigation, and Enhancement Measures 8-8
8.4 Unavoidable Adverse Effects 8-9
8.5 References 8-9

9.0 RARE, THREATENED, AND ENDANGERED SPECIES 9-1
9.1 Affected Environment 9-1
9.1.1 Threatened and Endangered Species 9-1
9.1.2 USFWS Birds of Conservation Concern 9-3
9.2 Environmental Analysis 9-4
9.3 Protection, Mitigation, and Enhancement Measures 9-5
9.4 Unavoidable Adverse Effects 9-5
9.5 References 9-5

10.0 RECREATION RESOURCES 10-1
10.1 Affected Environment 10-1
10.2 Environmental Analysis 10-1
10.3 Protection, Mitigation, and Enhancement Measures 10-1
10.4 Unavoidable Adverse Effects 10-2
10.5 References 10-2

11.0 LAND USE AND AESTHETIC RESOURCES 11-1
11.1 Affected Environment 11-1
11.1.1 Land Use 11-1
11.1.2 Aesthetic Resources 11-1
11.2 Environmental Analysis 11-2
11.2.1 Land Use 11-2
11.2.2 Aesthetic Resources 11-2
11.3 Protection, Mitigation, and Enhancement Measures 11-2

11.4 Unavoidable Adverse Effects 11-2
11.5 References 11-2

12.0 CULTURAL (HISTORIC AND ARCHAEOLOGICAL) RESOURCES 12-4
12.1 Affected Environment 12-4
12.2 Environmental Analysis 12-5
12.3 Protection, Mitigation, and Enhancement Measures 12-6
12.4 Unavoidable Adverse Effects 12-6
12.5 References 12-6

13.0 SOCIOECONOMIC RESOURCES 13-1
13.1 Affected Environment 13-1
13.2 Environmental Analysis 13-4
13.3 Protection, Mitigation, and Enhancement Measures 13-4
13.4 Unavoidable Adverse Effects 13-4
13.5 References 13-4

LIST OF TABLES

Table 2-1 Oliver Development Powerhouse Existing and Proposed Hydraulic Capacities and Rated Capacity 2-6
Table 5-1 Soils and Associated Characteristics at the Oliver Development 5-3
Table 6-1 Mean Monthly Discharge at Oliver Dam Based on 2008 – 2022 Data from USGS Station No. 02341460 6-2
Table 8-1 Wetlands within a Quarter Mile Buffer of the Oliver Development 8-8
Table 9-1 Potentially Occurring Federally Listed Species Near the Action Area 9-1
Table 9-2 Potentially occurring Birds of Conservation Concern in the Action Area 9-3
Table 13-1 Estimated Population of Lee and Russell Counties, Alabama and Muscogee County, Georgia and the States of Alabama and Georgia 13-1
Table 13-2 Household Incomes and Distributions for Lee and Russell Counties, Alabama and Muscogee County, Georgia 13-2
Table 13-3 2020 Population Statistics for Cities Near the Oliver Dam 13-3
Table 13-4 2020 Employment Statistics for Cities Near the Oliver Dam 13-3

LIST OF FIGURES

Figure 1-1 Oliver Development Location 1-2
Figure 2-1 Work Areas 2-8

Figure 4-1 Dams within the Middle Chattahoochee River Basin..... 4-2
Figure 5-1 Soil Types at the Oliver Development..... 5-2
Figure 8-1 Wetlands within a Quarter Mile Buffer Around Oliver Development..... 8-7

LIST OF APPENDICES

Appendix A: Consultation on Amendment Application
Appendix B: Georgia Coastal Resources Division's CZMA Notification
Appendix C: Information and Planning for Consultation (IPaC) Report

ACRONYMS, ABBREVIATIONS AND DEFINITION OF TERMS

A	
ACF Basin	Apalachicola-Chattahoochee-Flint Basin
ADCNR	Alabama Department of Conservation and Natural Resources
ADEM	Alabama Department of Environmental Management
AHC	Alabama Historical Commission
Amendment Application	Application for Non-Capacity Amendment
APE	Area of Potential Effect
APEA	Applicant Prepared Environmental Assessment
B	
Oliver Hydroelectric Project	Oliver Project
Oliver Reservoir	Lake Oliver
BCC	Birds of Conservation Concern
BCRs	Bird Conservation Regions
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
C	
C.F.R.	Code of Federal Regulations
cfs	cubic feet per second
CSOs	combined sewer outflows
CZMA	Coastal Zone Management Act
CWA	Clean Water Act
D	
DO	Dissolved Oxygen
E	
EFH	Essential Fish Habitat
ESA	Endangered Species Act
F	
°F	Fahrenheit
fps	feet per second
F&W	Fish and Wildlife
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
G	
Georgia DNR	Georgia Department of Natural Resources
Georgia EPD	Georgia Environmental Protection Division
Georgia HPD	Georgia Historic Preservation Division
Georgia Power	Georgia Power Company
Goat Rock Reservoir	Goat Rock Lake

H	
HPMP	Historic Properties Management Plan
I	
IPaC	Information Planning and Conservation
L	
Lake Oliver	Oliver Reservoir
M	
MCWPR	Middle Chattahoochee Water Planning Region
mgd	million gallons per day
mg/l	milligrams per liter
MLRA	Major Land Resource Area
msl	mean sea level
MW	Megawatt
N	
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
P	
PA	Programmatic Agreement
PD	Plant datum
PME	Protection, Mitigation, and Enhancement Measures
PWS	Public Water Supply
S	
SEPA	Southeastern Power Administration
SHPO	State Historic Preservation Office
U	
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
U.S.C	U.S. Code
W	
WPCP	Water Pollution Control Plant
WQC	Water Quality Certification

1.0 INTRODUCTION

Georgia Power Company (Georgia Power) owns and operates the Middle Chattahoochee Hydroelectric Project (Middle Chattahoochee Project) licensed by the Federal Energy Regulatory Commission (FERC), Project No. 2177. The existing Middle Chattahoochee Project license expires December 31, 2034. The Middle Chattahoochee Project consists of three hydropower developments (Goat Rock, Oliver, and North Highlands) on the Chattahoochee River near Columbus, Georgia, and Phenix City, Alabama. The Oliver Development of the Middle Chattahoochee Project is the subject of this Applicant Prepared Environmental Assessment (APEA). The Oliver Development is located downstream of the Goat Rock Development at river mile (RM) 163.5 on the Chattahoochee River north of Columbus, Georgia (Figure 1-1).

The Oliver Development consists of the Oliver Dam with a spillway and an integral powerhouse located in Georgia and a reservoir (Lake Oliver). Lake Oliver is a 9-mile-long, 2,280-acre reservoir with a gross storage capacity of 32,000 acre-feet at elevation 337 plant datum (PD)[1], and a storage capacity of 6,100 acre-feet between elevations 337 to 334 PD.

Georgia Power proposes to upgrade the Oliver Development's four generating units, which includes replacing the turbine runners on all units and refurbishing generators for Units 3 and 4 (Proposed Action). Upgrading the generating units will allow the Oliver Development to continue to meet the operational requirements of the existing Middle Chattahoochee Project license. This modification requires an Application for Non-Capacity Amendment (Amendment Application) to FERC license No. 2177. Georgia Power consulted with appropriate agencies on the Proposed Action and documentation of consultation is provided in Appendix A. In addition to this APEA, the application to amend the Project license consists of an initial statement and an updated Exhibit A. The APEA analyzes the effects of Georgia Power's Proposed Action on environmental, recreation, socioeconomic, and cultural resources at the Oliver Development.

[1] Plant datum = mean sea level (MSL) + 0.84 feet

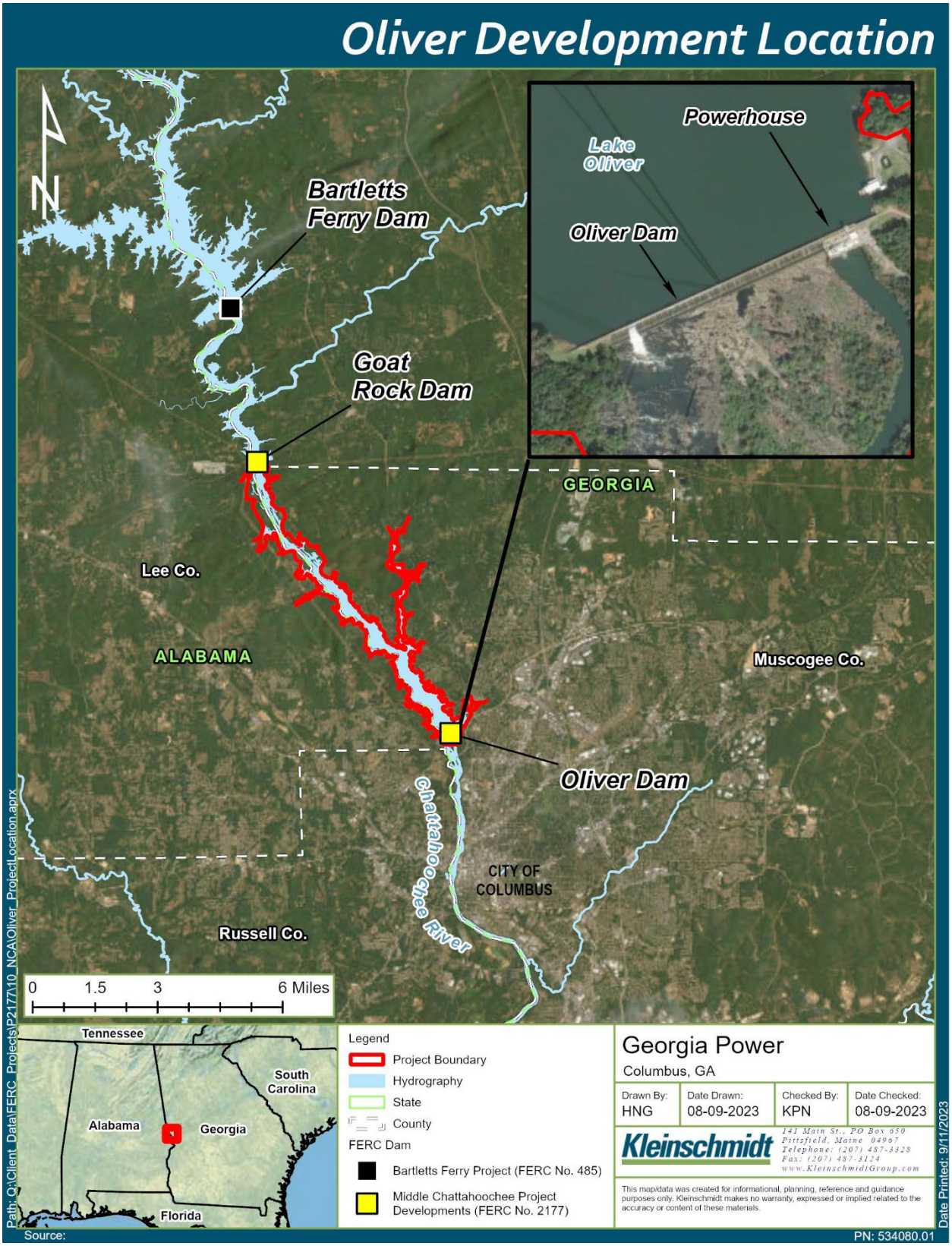


Figure 1-1 Oliver Development Location

1.1 Statutory and Regulatory Requirements

Georgia Power, as licensee for the Middle Chattahoochee Project, is subject to the requirements of the Federal Power Act (FPA) and other statutes that may be applicable in the FERC license amendment process. The potentially applicable statutory requirements are summarized below.

1.1.1 Section 401 of Clean Water Act

Under Section 401(a)(1) of the Clean Water Act (CWA), an applicant for a federal license or permit to conduct an activity that may result in discharge into waters of the United States must provide the licensing or permitting agency with a water quality certification (WQC) that the discharge would not violate water quality standards from the applicable state. In Georgia, Water Quality Certifications (WQC) are issued by the Georgia Environmental Protection Division (Georgia EPD) as part of the Georgia Department of Natural Resources wetland regulatory program via O.C.G.A. Title 12 Chapter 5-21. The existing license for the Middle Chattahoochee Project includes a 401 WQC issued by Georgia EPD on September 9, 2002.

The powerhouse and the proposed action that is the subject of this license amendment application is located in the state of Georgia. Georgia Power has confirmed with Georgia EPD that a 401 WQC is not required for this license amendment (Appendix A).

1.1.2 Endangered Species Act

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of their designated critical habitat. The Georgia Department of Natural Resources (Georgia DNR) is authorized by O.C.G.A. Title 27 Chapter 3 Article 3 (§ 27-3-132) as well as Rule 391-4-10 and the Endangered Wildlife Act of 1973 to make decisions, approve permits and determine potential impacts to any resident species as endangered, threatened, rare or unusual species. The Alabama Department of Conservation and Natural Resources (ADCNR) is authorized by Alabama Code Section 9-2-2 to "protect, conserve, and increase the wildlife of the state" and under Alabama Administrative Code r. 220-2-.92 to protect nongame species. Information on state and federal threatened and endangered species known to occur within the Middle Chattahoochee Project is discussed in Section 9.0.

1.1.3 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act, first passed in 1976, fosters long-term biological and economic sustainability of the nation's marine fisheries extending to 200 nautical miles from shore. This act is the primary law governing marine fisheries management in United States federal waters. The Magnuson-Stevens Act requires the eight regional Fishery Management Councils, in collaboration with National Oceanic and Atmospheric Administration (NOAA), to consider essential fish habitat (EFH) in resource management decisions. Congress defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth and maturity." The designation and consideration of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. There is no EFH located in the Middle Chattahoochee Project and therefore, EFH consultation pursuant to Section 305(b) of the Magnuson-Stevens Act is not required.

1.1.4 Coastal Zone Management Act

Pursuant to Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 16 United States Code (U.S.C.) Section 1456(3)(A), FERC must receive concurrence from the state CZMA agency that the project is not within or affecting the state's coastal zone prior to issuing a license. The Middle Chattahoochee Project is not located in the coastal zones of Georgia[2] or Alabama[3]. The powerhouse and the proposed action that is the subject of this Amendment Application is located in the state of Georgia. The Georgia Department of Natural Resources Coastal Resources Division (CRD) August 1, 2021 notification (Appendix B) states that projects outside of the eleven coastal counties are not subject to CZMA provisions and do not require certification from CRD.

1.1.5 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires FERC to consider potential adverse effects to historic properties prior to issuing the Order approving a license amendment. The "Programmatic Agreement Among the Federal Energy Regulatory Commission and the State Historic Preservation Officers of the States of Georgia and Alabama for Managing Historic Properties That May Be Affected by Issuing a License to Georgia Power Company for the Continued Operation and Maintenance of

[2] The Georgia Coastal Management Program service area includes the eleven coastal counties of Brantley, Bryan, Camden, Charlton, Chatham, Effingham, Glynn, Liberty, Long, McIntosh, and Wayne.

[3] The State of Alabama's coastal zone extends inland to the continuous 10-ft elevation contour in Baldwin and Mobile Counties.

the Middle Chattahoochee Project in Lee and Russell Counties, Alabama and Harris and Muscogee Counties, Georgia" (PA) as implemented by Article 411 of the Middle Chattahoochee license provides for the protection and management of historic properties at the Middle Chattahoochee Project. Georgia Power is consulting with the Georgia State Historic Preservation Office (SHPO) per requirements of the PA on this Amendment Application (see Section 12.0).

2.0 PROPOSED ACTION & ALTERNATIVES

This section describes Georgia Power's Proposed Action and the no-action alternative for the Oliver Development of the Middle Chattahoochee Project.

2.1 No Action Alternative

Under the no-action alternative, the Oliver Development would remain unimproved aside from routine maintenance and aging equipment (i.e., turbine runners and generators) would not be replaced or refurbished.

2.1.1 Existing Project Facilities and Operations

The Oliver Development consists of the following components: 1) a 284-foot-long west non-overflow structure; 2) a 198-foot-long combined powerhouse and intake section; 3) a 1,324-foot-long gated spillway section containing 33 radial arm Tainter gates, each 35 feet long, and 16 feet high, and an 11-foot-long, 16-foot-high trash gate; and 4) a 215-foot-long east non-overflow section. The crest elevation of the non-overflow sections is at elevation 350 PD and the top is 12-feet wide. The dam is of concrete construction and has a maximum height of approximately 70 feet. The powerhouse contains four vertically oriented generating units. The hydraulic capacity of Unit 1 is 3,640 cubic feet per second (cfs), Unit 2 is 3,708 cfs, Unit 3 is 3,775 cfs, and Unit 4 is 1,373 cfs. Units 1, 2, and 3 are rated at 18 MW each, and Unit 4 is rated at 6 MW. Total generating capacity of the powerhouse is 60 MW and total hydraulic capacity is approximately 12,496 cfs.

Georgia Power operates the Middle Chattahoochee Project in a run-of-river-with-pondage mode to follow daily or weekly load demand patterns to the greatest extent practical after meeting flow and reservoir elevation environmental constraints. The Middle Chattahoochee Project operates to provide an instantaneous target minimum flow release of 800 cfs, or inflow, whichever is less, downstream of each project dam; a daily average target minimum flow of 1,350 cfs, or inflow, whichever is less, downstream of the project; and a weekly average target minimum flow of 1,850 cfs, or inflow, whichever is less, downstream of the project.

The Oliver Development is operated within the license elevation range of 334 to 337 feet PD. The Oliver tailrace is 100 feet wide and extends 1,500 feet downstream into the North Highlands impoundment. The tailrace channel is influenced by the impounded backwaters of the North Highlands impoundment.

2.2 Proposed Action

2.2.1 Proposed Project Facilities and Operations

Georgia Power proposes to upgrade the four generating units in the powerhouse by replacing the turbine runners on all units and refurbishing generators for Units 3 and 4. Upgrading the generating units will allow the Oliver Development to continue to meet the operational requirements of its existing license. The upgrade is scheduled to begin in 2025, with a unit upgrade starting at the beginning of each year in 2025, 2026, 2027, and 2028, pending approval of the Amendment Application. Table 2-1 provides the rated generating and maximum hydraulic capacities of the existing powerhouse units with the expected performance of the upgraded units. Performance of the upgraded units may vary slightly based on final design, head conditions, and fabrication.

Table 2-1 Oliver Development Powerhouse Existing and Proposed Hydraulic Capacities and Rated Capacity[4]

Unit	Existing Rated (Best Gate/Most Efficient) Capacity (MW)	Existing Max Hydraulic Capacity (cfs)	Proposed Rated (Best Gate/Most Efficient) Capacity (MW)	Proposed Max Hydraulic Capacity (cfs) after Upgrade
1	18	3,640	18	4,183
2	18	3,708	18	4,183
3	18	3,775	19.9	4,183
4	6	1,373	4.2	884

The Proposed Action does not require a reservoir drawdown and Lake Oliver will operate under the existing license conditions within the elevation range of 334 to 337 feet PD (excluding fall maintenance and system emergency drawdowns). In addition, the Proposed Action will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project.

Figure 2-1 depicts the Work Areas associated with the Proposed Action at the Oliver Development. Additional laydown and parking areas will be located outside of the Project Boundary on Georgia Power-owned land and are mentioned as the total land disturbance

[4] The Proposed Action results in a less than 15 percent change in maximum hydraulic capacity and less than a 2 MW change qualifying for a non-capacity amendment pursuant to 18 CFR § 4.201(b).

requires a National Pollutant Discharge Elimination System (NPDES) Permit. However, only Work Areas within the Project Boundary are further discussed in applicable sections of this APEA.

- Trailer Area 1: Temporary area for trailers for modernization work at Units 1-4 powerhouse. Permanent improvements include minimal grading to remove topsoil, laying geofabric, and covering with gravel. Trailers will be utilized by the contractor and by Southern Company construction management personnel.
- Trailer Area 2: Temporary area for trailers for modernization work at Units 1-4 powerhouse. Permanent improvements include minimal grading to remove topsoil, laying geofabric, and covering with gravel. Trailers will be utilized by the contractor and by Southern Company construction management personnel.
- Small Laydown Area: Temporary material laydown area for modernization work at Unit 1-4 powerhouse. Permanent improvements include minimal grading to remove topsoil, laying geofabric, and covering with gravel.

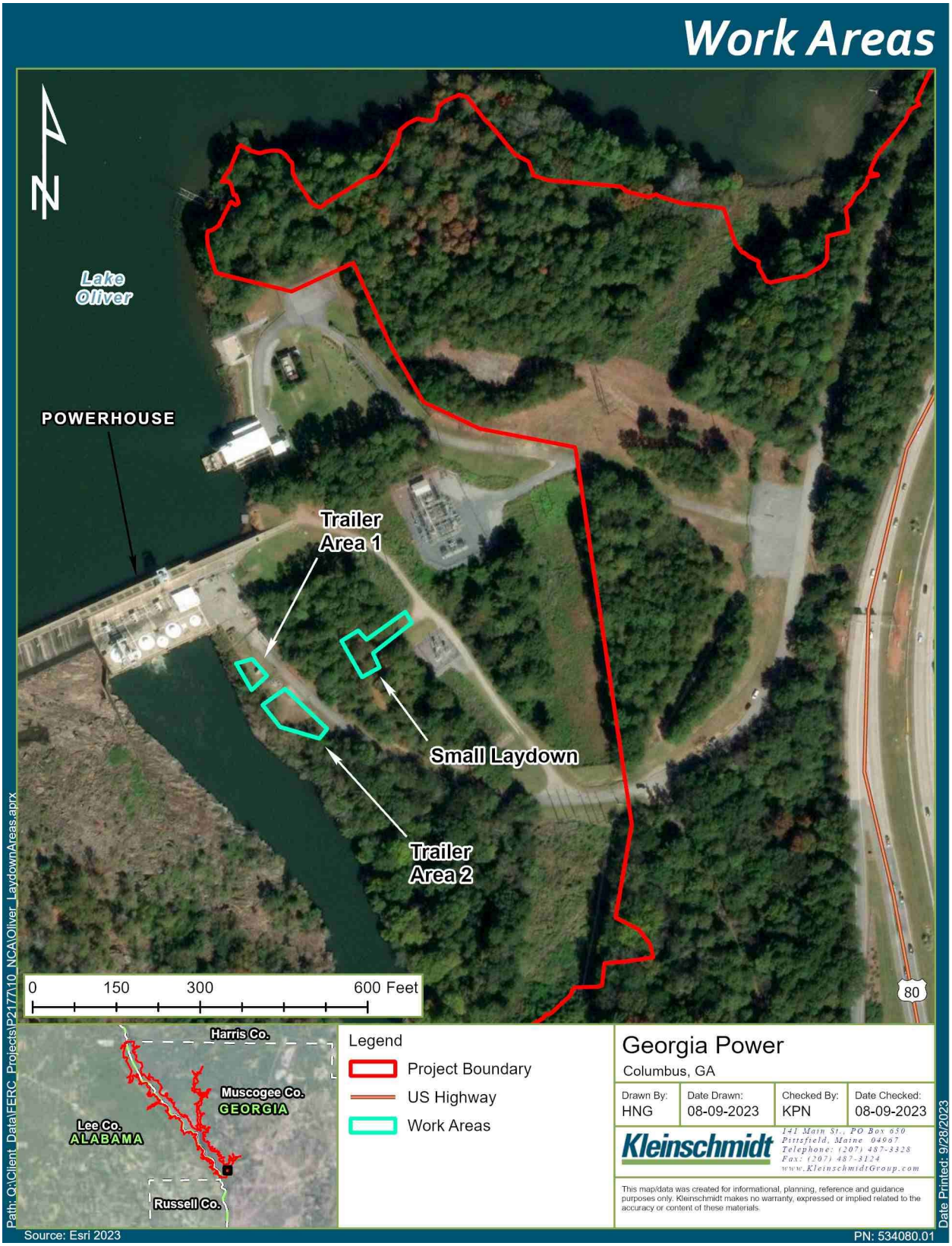


Figure 2-1 Work Areas

3.0 CUMULATIVE EFFECTS ANALYSIS

According to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) (40 C.F.R. § 1508.7), a cumulative effect is an impact on the environment resulting from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities. Based on information in this APEA and consultation to date, no resources have the potential to be cumulatively affected by the Proposed Action at the Oliver Development of the Middle Chattahoochee Project.

4.0 GENERAL DESCRIPTION OF THE RIVER BASIN

The Chattahoochee River has a drainage area of 8,770 square miles and flows 430 miles from the Blue Ridge Mountains in the Chattahoochee National Forest in Georgia to its confluence with the Flint River. The Chattahoochee River includes five federal projects operated by USACE: Buford Dam (Lake Lanier), West Point Dam, Walter F. George Lock and Dam (Lake Eufaula), George W. Andrews Lock and Dam, and Jim Woodruff Lock and Dam (Lake Seminole). Georgia Power owns seven projects on the Chattahoochee River. One is north of Atlanta, Georgia and the remaining six are located along the Fall Line near Columbus, Georgia. These projects are Morgan Falls Dam, Langdale Dam, Riverview Dam, Bartletts Ferry Dam, Goat Rock Dam, Oliver Dam, and North Highlands Dam (Figure 4-1). Water use and returns in the Apalachicola-Chattahoochee-Flint (ACF) basin include public supply, self-supplied domestic, self-supplied commercial, industrial, mining, agricultural (crop irrigation, livestock, and aquaculture), and thermoelectric-power generation (Lawrence 2016).

4.1 Topography

The Middle Chattahoochee Project is located on the Chattahoochee River in the Southern Piedmont Major Land Resource Area (MLRA) (SCS 1983). The area's general topography is characterized by rolling hills and ridges (Marbut 1913). The region is dissected by an intricate system of perennial streams and intermittent drainageways (Marbut 1913). Nearly level alluvial plains are found along the river channel and many of its tributaries (SCS 1983).

4.2 Climate

The climate in the Middle Chattahoochee Project area is known for long, hot summers, due to moist tropical air from the Gulf of Mexico that persistently covers the region. Winters are typically cool and short, with an occasional cold wave that moderates in 1 or 2 days. Average annual rainfall for the region is 47 inches, as measured in Columbus, Georgia, approximately 2 miles south of the Oliver Development. Annual temperatures average 65.6 degrees Fahrenheit (°F) with an average low temperature of 55°F and an average high temperature of 76°F (U.S. Climate Data 2023).

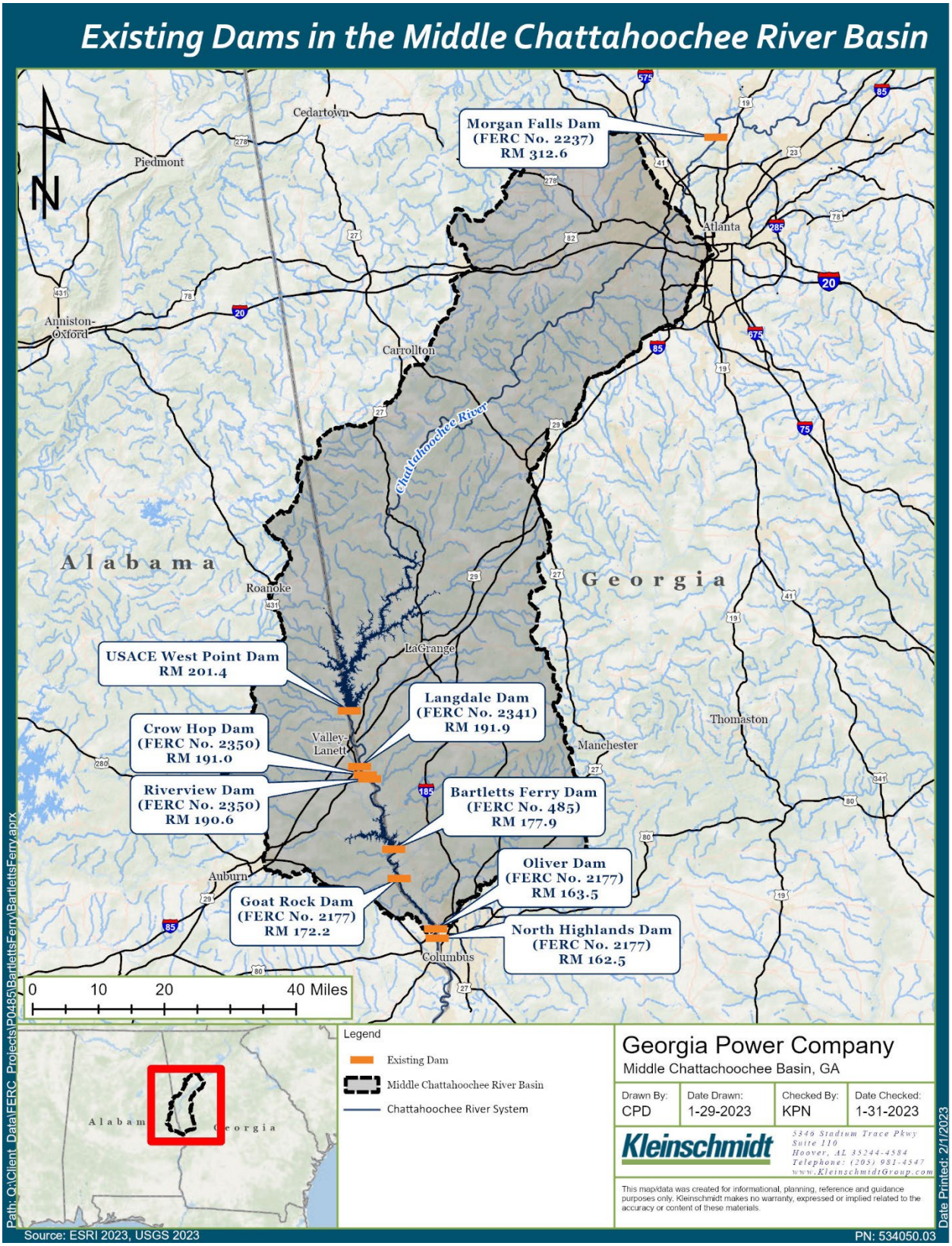


Figure 4-1 Dams within the Middle Chattahoochee River Basin

4.3 References

Lawrence, S.J. 2016. Water use in the Apalachicola-Chattahoochee-Flint River Basin, Alabama, Florida, and Georgia, 2010, and water-use trends, 1985–2010: U.S. Geological Survey Scientific Investigations Report 2016–5007. Available online at https://pubs.usgs.gov/sir/2016/5007/sir20165007.pdf. Accessed January 2023.

Marbut, Curtis Fletcher. 1913. Soils of the United States. 1913 Edition.

Soil Conservation Service (SCS). 1983. U.S. Department of Agriculture. Soil Survey for Muscogee County, Georgia. Athens, Georgia: College of Agriculture.

U.S. Climate Data. 2023. Monthly Climate Columbus-Fort Benning, Georgia. URL: https://www.usclimatedata.com/climate/columbus-fort-benning/georgia/unitedstates/usga0133. Accessed August 2023.

5.0 GEOLOGICAL AND SOIL RESOURCES

5.1 Affected Environment

There are three level III ecoregions in the Chattahoochee River Basin in the states of Georgia and Alabama: Blue Ridge, Piedmont, and Southeastern Plains (USEPA 2011). The head waters of the Chattahoochee River originate in the Blue Ridge ecosystem, where it briefly flows through an area defined by a geological history of mountains. A sharp change in altitude carries the Chattahoochee River into the lower relief Piedmont ecosystem characterized by rolling hills (Georgia DNR 1997). From the Piedmont ecosystem, the Chattahoochee River is guided northeast to southwest by a narrow zone of intensely sheared rocks known as the Brevard Fault Zone. The river eventually cuts across a less resistant portion of the fault zone and veers south along the Alabama/Georgia border to the Oliver Development location. Approximately 1.6 RMs south of the Oliver Development is the Fall Line, which marks the transition between the Piedmont ecoregion and the Southeastern Plains. This area is underlain with Precambrian and Paleozoic crystalline rocks (predominantly gneiss and schists with lesser amounts of metamorphosed volcanic rocks, metamorphosed sedimentary rocks, and granites) and the unconsolidated Pliocene, Cretaceous, and Tertiary sands of the Southeastern Plains (Georgia DNR 1997).

The Piedmont ecoregion can be further divided into two level IV ecoregions: Southern Inner Piedmont, located north of the Brevard Fault Zone, and the Southern Outer Piedmont, located south of the Brevard Fault Zone. The Oliver Development is located within the Southern Outer Piedmont, which is dominated by gneiss, schist, and granite (USEPA 2022).

The soil composite at the Oliver Development generally consists of varying sandy loams (Figure 5-1) (Table 5-1).

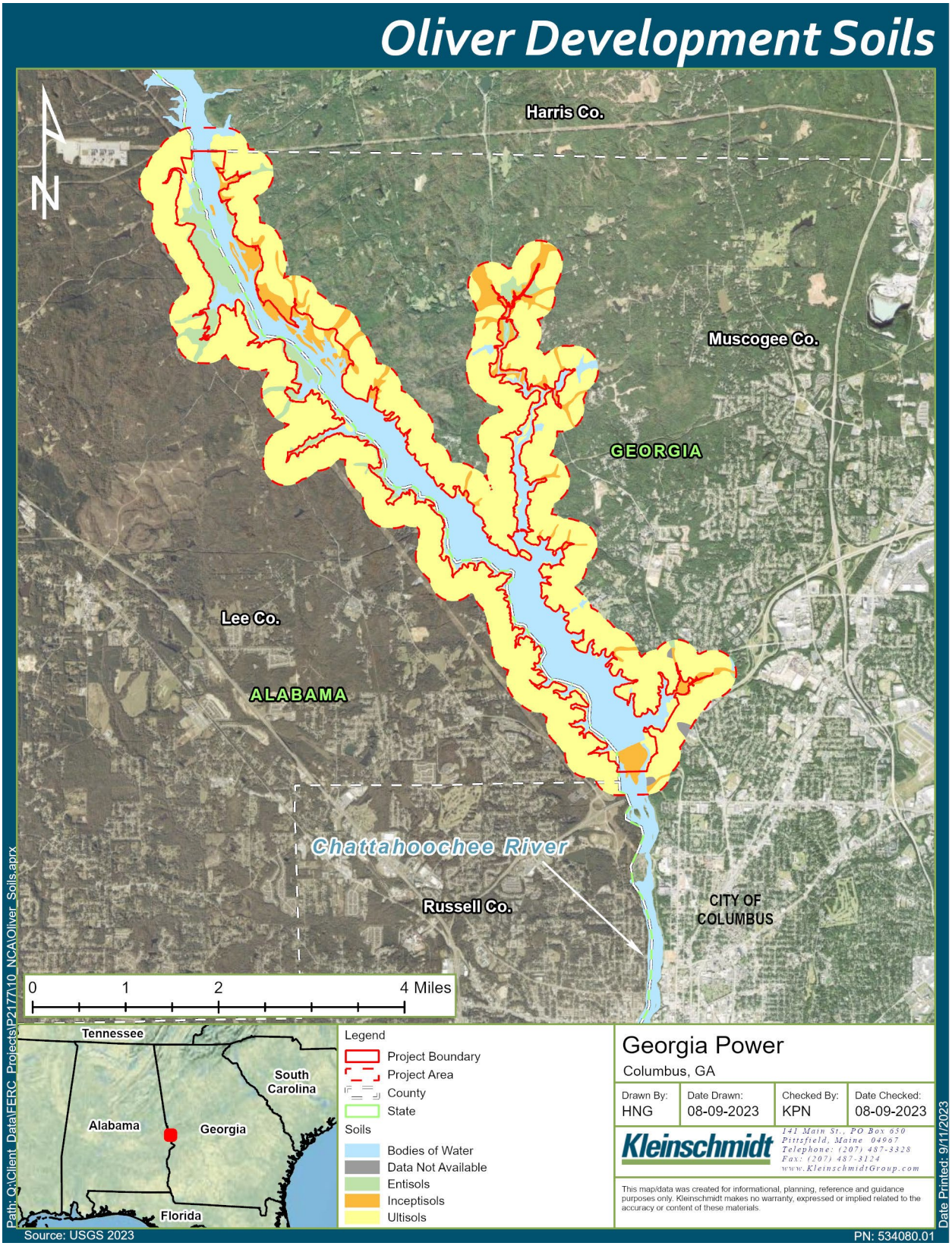


Figure 5-1 Soil Types at the Oliver Development

Table 5-1 Soils and Associated Characteristics at the Oliver Development

Soil Order	Map Unit Name	Area (Acres)	Percent Total
Ultisols	Appling sandy loam, 6 to 10 percent slopes	0.1	0.00%
Entisols	Cartecay silt loam, 0 to 1 percent slopes	190.0	2.12%
Ultisols	Cecil sandy clay loam, 6 to 10 percent slopes, moderately eroded	49.0	0.55%
Ultisols	Cecil sandy loam, 10 to 15 percent slopes	596.7	6.65%
Ultisols	Cecil sandy loam, 2 to 6 percent slopes	2.2	0.03%
Ultisols	Cecil sandy loam, 2 to 6 percent slopes	54.9	0.61%
Ultisols	Cecil sandy loam, 6 to 10 percent slopes	162.1	1.81%
Inceptisols	Chastain loam	9.1	0.10%
Inceptisols	Chewacla loam, 0 to 2 percent slopes, frequently flooded	614.5	6.85%
Ultisols	Dothan-Urban land complex, 2 to 5 percent slopes	5.1	0.06%
Ultisols	Louisburg-Wateree complex, 10 to 25 percent slopes	692.8	7.72%
Ultisols	Marvyn loamy sand, 6 to 10 percent slopes	2.2	0.02%
Ultisols	Orangeburg complex, 10 to 20 percent slopes	157.1	1.75%
Ultisols	Pacolet-Urban land complex, 2 to 10 percent slopes	133.5	1.49%
Ultisols	Pacolet sandy clay loam, 10 to 15 percent slopes, moderately eroded	697.3	7.77%
Ultisols	Pacolet sandy clay loam, 6 to 10 percent slopes, moderately eroded	250.9	2.80%
Ultisols	Pacolet sandy loam, 10 to 15 percent slopes	672.8	7.50%
Ultisols	Pacolet sandy loam, 10 to 15 percent slopes, moderately eroded	10.7	0.12%
Ultisols	Pacolet sandy loam, 15 to 25 percent slopes	14.0	0.16%
Ultisols	Pacolet sandy loam, 15 to 25 percent slopes	670.7	7.47%
Ultisols	Pacolet sandy loam, 15 to 25 percent slopes, moderately eroded	26.9	0.30%
Ultisols	Pacolet sandy loam, 6 to 10 percent slopes	27.7	0.31%
Ultisols	Pacolet sandy loam, 6 to 10 percent slopes, moderately eroded	5.7	0.06%
Entisols	Toccoa sandy loam	67.1	0.75%
Entisols	Toccoa sandy loam, 0 to 2 percent slopes, frequently flooded	173.0	1.93%
Ultisols	Troup-Springhill-Luverne complex, 10 to 30 percent slopes	3.6	0.04%
Ultisols	Uchee loamy sand, 6 to 10 percent slopes	4.4	0.05%
Data Not Available	Urban land	17.6	0.20%
Ultisols	Vance sandy clay loam, 10 to 15 percent slopes, eroded	11.3	0.13%
Ultisols	Vance sandy clay loam, 6 to 10 percent slopes, eroded	23.0	0.26%
Ultisols	Vance sandy loam, 2 to 6 percent slopes	4.2	0.05%
Bodies of Water	Water	2011.4	22.42%
Ultisols	Wedowee sandy loam, 10 to 35 percent slopes	1471.4	16.40%
Ultisols	Wedowee sandy loam, 6 to 10 percent slopes	73.7	0.82%
Ultisols	Wickham fine sandy loam, 0 to 2 percent slopes	66.3	0.74%
Total		***8973.09***	***100%***

Source: USGS 2023

5.2 Environmental Analysis

Land disturbing activities within the Project are limited to the three Work Areas (two trailer areas and one small laydown) located on the Georgia side of the Oliver Development associated with the Proposed Action. The proposed Work Areas have a history of heavy disturbance and consist mostly of frequently mowed grass, improved driving and parking facilities, and previously used gravel laydown areas and roadways. These previously disturbed areas are flat in elevation, requiring minimal grading to remove topsoil and cover with geofabric and gravel. The total land disturbance (including the disturbance on adjacent Georgia Power-owned land outside of the Project Boundary) exceeds one-acre and therefore requires a NPDES permit, which Georgia Power will obtain directly from Georgia EPD.

During construction and movement of equipment, there may be an increased risk of erosion. Georgia's Erosion and Sedimentation Act of 1975, as amended, O.C.G.A. 12-7-6(b)(15)), mandates a 25-foot buffer along the banks of all state waters. If land disturbance exceeds one-acre and work is proposed in the 25-foot buffer, the Georgia EPD requires an application for a stream buffer variance. The steep embankment between the Work Areas and the shoreline comprises the 25-foot buffer; therefore, a Georgia EPD stream buffer variance is not required for the Work Areas which are located outside of the buffer.

The Proposed Action does not require a drawdown of Lake Oliver; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Therefore, there are no anticipated impacts such as erosion on the Lake Oliver shorelines.

Impacts to geological and soil resources at the Oliver Development will be temporary and minimal, limited to the construction and movement of equipment associated with the Proposed Action.

5.3 Protection, Mitigation, and Enhancement Measures

Georgia Power will implement construction best management practices (BMPs). BMPs are vegetative measures and structural practices that control the erosion of soil and the resulting sedimentation. The three Work Areas are located within Georgia, therefore Georgia Power will apply the Georgia Soil and Water Conservation Commission Manual for Erosion and Sediment Control guidelines to lands affected by the project work.

Construction BMPs include silt fencing and gravel topping, at a minimum. Georgia Power will follow the most up to date guidelines to minimize erosion in the Work Areas.

5.4 Unavoidable Adverse Effects

Short-term unavoidable adverse impacts associated with minor grading include a potential increase in erosion at the Work Areas, which are mitigated through the use of BMPs. These impacts are temporary during construction periods and would not impact the Oliver Development post-construction.

5.5 References

Georgia Department of Natural Resources, Environmental Protection Division (Georgia DNR). 1997. Chattahoochee River Basin Management Plan 1997. Accessed January 2023.

U.S. Environmental Protection Agency (USEPA). 2022. Characteristics of Ecoregions of Alabama and Georgia. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fgaftp.epa.gov%2FEPADataCommons%2FORD%2FEcoregions%2Fal%2Falga_eco_table.doc&wdOrigin=BROWSELINK. Accessed August 2023.

United Stated Geological Survey (USGS). 2023. Soil and geographic database. Soils of the United States and associated territories. Available online at https://www.arcgis.com/home/item.html?id=06e5fd61bdb6453fb16534c676e1c9b9. Accessed August 8, 2023.

6.0 WATER RESOURCES

6.1 Affected Environment

6.1.1 Water Quantity

The Middle Chattahoochee River Basin (HUC 03130002) has a drainage area of 4,514-square-miles (USGS 2023a). West Point Dam controls about 75 percent of the inflow into the Middle Chattahoochee Project, with local tributary inflows comprising the remaining 25 percent. The nearest USGS gages on the Chattahoochee River are the West Point gage (No. 02339500) upstream of Project and the Columbus gage (No. 02341500) downstream of the Project. Hourly flows at each Project dam vary substantially within a day based on inflow received from the West Point Dam (via Bartlett's Ferry Dam) and Georgia Power's operation of the Project developments.

The West Point Dam typically peaks Monday through Friday with only minimum flow (670 cfs through their minimum flow unit) being released Saturday and Sunday, and Monday through Friday when not peaking. When peak generating, the USACE uses either 1 or 2 units. West Point Dam discharges 8,275 cfs and 15,875 cfs (including the minimum flow discharge) for generation with 1 and 2 generating units, respectively. The USACE generates during peak demand periods as scheduled by the Southeastern Power Administration (SEPA).

The drainage area of the Chattahoochee River at Oliver Dam is approximately 4,626 square miles (USGS 2023a). A USGS gauge (No. 02341460), located approximately 3 river miles downstream of Oliver Dam, has a drainage area of 4,630 square miles. Based on USGS gauge data from 2008 to 2022, discharges at Oliver ranged from a monthly average of 3,730 cfs in August to 9,690 cfs in February (Table 6-1) (USGS 2023b). Because of their proximity and the negligible difference between the Oliver Dam and USGS gauge drainage areas, discharge data were not prorated.

Table 6-1 Mean Monthly Discharge at Oliver Dam Based on 2008 – 2022 Data from USGS Station No. 02341460

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Discharge (cfs)	8,850	9,690	9,150	8,360	5,640	4,190	3,790	3,730	3,970	4,330	5,200	8,450

Source: USGS 2023b

The Oliver Development of the Middle Chattahoochee Project lies within the state of Georgia's Middle Chattahoochee Water Planning Region (MCWPR). According to the MCWPR 2023 Regional Water Plan, water withdrawals in the basin are primarily used for industrial purposes (28.95 million gallons per day [mgd]), irrigation (10.63 mgd), and public supply (10.33 mgd), with residential, aquaculture, livestock, and mining uses making up less than 1.0 mgd each (MCWPC 2023).

Surface water withdrawals supply 95 to 99 percent of all water used in the Project region, including two withdrawals from Lake Oliver. Columbus Water Works is permitted to withdraw up to 90 mgd providing the main water supply for the City of Columbus, Muscogee County, and certain other surrounding areas. The Smiths Water and Sewer Authority in Lee County is authorized to withdraw 8 mgd for residential and commercial water supply (Georgia Power 2002).

6.1.2 Water Quality

Designated water uses are assigned by the state of Georgia to all surface waters. These classifications are determined to be the best utilization of the surface water from an environmental and economic standpoint. Georgia's use classification for Lake Oliver is "Recreation" and "Drinking Water," and the reach downstream as "Fishing" waters. The state of Alabama use classifications for the Chattahoochee River in Lake Oliver are "Public Water Supply," Swimming and Other Whole Body Water-Contact Sports," and "Fish and Wildlife" (PWS/S/F&W) (Georgia Power 2002).

Wastewater facilities in Atlanta, approximately 100 miles upstream of the Middle Chattahoochee Project, treat over 400 mgd of wastewater, and discharges most of its treated wastewater into the Chattahoochee River Basin (CWI 2000). Wastewater discharges, sanitary and combined sewer overflows (CSOs), and urban non-point source runoff from Atlanta are the main sources of contaminant and nutrient loading in the Chattahoochee River (Frick et al. 1998; Couch et al. 1996; CWI 2000). Several municipal and industrial water users discharge treated wastewater to the Chattahoochee River

between West Point Dam and Columbus, including an authorized 18.4 mgd to the Goat Rock tailrace just upstream of the Oliver reservoir from Plant Franklin (Georgia Power 2002).

Previous quarterly vertical profile monitoring in Lake Oliver shows weak to moderate thermal stratification in the summer months and maximum temperature differentials between surface and benthic waters ranging from 0.1 to 6.6 °C (CH2M HILL 2001b). Maximum dissolved oxygen (DO) concentration differentials between surface and benthic waters ranged from 0.3 to 4.6 milligrams per liter (mg/L) (Georgia Power 2002). By late fall or early winter, the water column in the reservoir mixes completely and stays well mixed into the spring (Georgia Power 2002).

6.2 Environmental Analysis

6.2.1 Water Quantity

The Proposed Action does not require a drawdown of Lake Oliver and will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Supporting these requirements would continue to enhance water quantity in the Chattahoochee River downstream by maintaining adequate flow regimes and moderating fluctuations downstream. Therefore, there are no anticipated impacts to water quantity by the Proposed Action at the Oliver Development.

6.2.2 Water Quality

The Proposed Action does not require a drawdown of Lake Oliver; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Therefore, there are no anticipated impacts to water quality by the Proposed Action at the Oliver Development.

Land disturbing activities associated with the Proposed Action are limited to the Work Areas. Georgia Power proposes to perform all construction associated with these enhancements in such a manner as to minimize impacts on shoreline vegetation, bank stability, and water quality. Proper erosion control and restoration practices during and immediately following all construction activities would minimize impacts.

6.3 Protection, Mitigation, and Enhancement Measures

Georgia Power will implement construction BMPs, which include vegetative measures and structural practices that control the erosion of soil and the resulting sedimentation. Construction BMPs include silt fence and gravel topping, at minimum, and Georgia Power will follow the most up to date Georgia Soil and Water Conservation Commission Manual for Erosion and Sediment Control to address potential sedimentation and water turbidity.

6.4 Unavoidable Adverse Effects

Short-term unavoidable adverse impacts associated with minor grading include a potential increase in erosion at the Work Areas, which will be mitigated by the BMPs. These impacts are temporary during construction periods and would not impact the Oliver Development post-construction.

6.5 References

Clean Water Initiative (CWI). 2000. Final report of the Clean Water Initiative. A project of the Metro Atlanta Chamber of Commerce and the Regional Business Coalition, Inc. November 2000.

Couch, C. A., E. H. Hopkins, and P. S. Hardy. 1996. Influences of environmental settings on aquatic ecosystems in the Apalachicola-Chattahoochee-Flint River basin. U.S. Geological Survey National Water-Quality Assessment Program. Water-Resources Investigations Report 95-4278.

Frick, E. A., D. J. Hippe, G. R. Buell, C. A. Couch, E. H. Hopkins, D. J. Wangsness, and J. W. Garrett. 1998. Water quality in the Apalachicola-Chattahoochee-Flint River basin, Georgia, Alabama, and Florida, 1992-95. U.S. Geological Survey Circular 1164.

Middle Chattahoochee Water Planning Council (MCWPC). 2023. Middle Chattahoochee Regional Water Plan. Available online at: https://waterplanning.georgia.gov/water-planning-regions/middle-chattahoochee-water-planning-region/middle-chattahoochee-regional. Accessed August 2023.

Georgia Power Company (Georgia Power 2002). 2002. Applicant-Prepared Environmental Assessment for Hydropower License. Middle Chattahoochee Hydroelectric Project (FERC Project No. 2177).

United States Geological Survey (USGS). 2023a. The StreamStats program, online at https://streamstats.usgs.gov/ss/, accessed on August 23, 2023.

United States Geological Survey (USGS). 2023b. National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed August 23, 2023, at URL https://waterdata.usgs.gov/nwis/.

United States Geological Survey (USGS). 2023c. USGS 02341400 Chattahoochee River Oliver Reservoir NR Columbus, GA. https://waterdata.usgs.gov/nwis/inventory?site_no=02341400&agency_cd=USGS. Accessed August 2023.

7.0 FISH AND AQUATIC RESOURCES

7.1 Affected Environment

Lake Oliver consists of 40 miles of shoreline and is predominantly composed of substrates that include sand, silt, and scattered woody debris and snags. The upstream extent of the Lake Oliver is generally shallow and rocky with a swift current produced by generation and spillway releases at the upstream Goat Rock Development. Impounded waters dominate aquatic habitats in the Oliver Development vicinity and, therefore, the principal fisheries inhabiting the project waters are reservoir fisheries. Riverine flow characteristics and rocky substrates are limited mainly to the tailrace segments below each impoundment of the Middle Chattahoochee Project, and are between 1,000 and 1,500 feet in length, before flowing into the next downstream reservoir (Georgia Power 2002).

The Chattahoochee River and its tributaries in the vicinity of the Middle Chattahoochee Project support about 52 species of warmwater fish in 12 families, mostly sunfishes, minnows, and bullhead catfishes. The species found in Lake Oliver are typical of species found in southeastern reservoirs and support a variety of sport fishing opportunities (Georgia Power 2002).

Georgia Department of Natural Resource (Georgia DNR) and Alabama Department of Conservation and Natural Resources (ADCNR) have conducted standardized fishery surveys from the 1970's to 1998 in Lake Oliver. The surveys documented the occurrence of over 25 species of fish within the Oliver Development boundary. Within the shoreline and littoral zone habitats the most abundant game fishes inhabiting Lake Oliver include redbreast sunfish (*Lepomis auritus*), redear sunfish (*Lepomis microlophus*), largemouth bass (*Micropterus salmoides*), spotted bass (*Micropterus punctulatus*), and bluegill (*Lepomis macrochirus).* Other common game species include, white catfish (*Ameiurus catus*), black crappie (*Pomoxis nigromaculatus*), hybrid bass (*Morone chrysops X Morone saxatilis*), and yellow perch (*Perca flavescens*). The forage species gizzard shad (*Dorosoma cepedianum*) and threadfin shad (*Dorosoma petenense*) also occur in abundance in Lake Oliver (Georgia Power 2002).

Shoal bass are occasionally found in the tailwater below Goat Rock Dam, the next upstream dam from Oliver (Georgia Power 2002). Shoal Bass are endemic to the ACF basin (Williams and Burgess 1999) and is a species of concern.

Georgia DNR manages the hybrid bass fishery in Lake Oliver by stocking fingerlings in most years as part of a collaborative basin-wide program with ADCNR (Georgia Power 2002).

7.1.1 Freshwater Mussels and Benthic Macroinvertebrates

Georgia Power conducted surveys for freshwater mussels in 14 areas of Lake Oliver as part of a project-wide mussel survey that included shorelines, sand/gravel bars, island habitats, and lower free-flowing reaches of larger tributaries (BHE 1999; CH2M HILL 2000). The invasive species Asian clam was common during the survey, however no native species were found in the impoundment or tributaries. Based on habitat observations at the time of the survey, potentially suitable habitat may exist in the upper extent of Lake Oliver for some of the more commonly occurring and relatively tolerant native species such as paper pondshell (*Utterbackia imbecilis*), washboard (*Megalonaias nervosa*), or giant floater (*Pyganodon grandis*) (BHE, 1999).

7.2 Environmental Analysis

The Proposed Action does not require a drawdown of Lake Oliver and will not interfere with Georgia Power's ability to operate the project to manage reservoir elevations, or minimum flow requirements of Article 402 of the Project license; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Therefore, there are no anticipated impacts to fish and aquatic resources related to the Proposed Action.

7.3 Protection, Mitigation, and Enhancement Measures

Georgia does not propose any PME measures for fish and aquatic resources.

7.4 Unavoidable Adverse Effects

The Proposed Action at the Oliver Development would have no expected impact on fish or mussel populations compared to existing conditions and therefore, no unavoidable adverse effects.

7.5 References

BHE Environmental, Inc. 1999. Final report on the Middle Chattahoochee Hydroelectric Project, bluestripe shiner and native freshwater mussel surveys, and the North Highlands fisheries survey, Harris and Muscogee Counties, Georgia, Lee and Russell Counties, Alabama. Prepared for CH2M HILL and Georgia Power. November 12, 1999.

CH2M HILL. 2000. Fisheries, Middle Chattahoochee Project (FERC No. 2177). Resource Study Report prepared for Georgia Power. March 2000.

Georgia Power Company (Georgia Power). 2002. Applicant-Prepared Environmental Assessment for Hydropower License. Middle Chattahoochee Hydroelectric Project (FERC Project No. 2177).

Williams, J. D., and G. H. Burgess. 1999. A new species of bass, Micropterus cataractae (Teleostei: Centrarchidae), from the Apalachicola River basin in Alabama, Florida, and Georgia. Bulletin of the Florida Museum of Natural History 42(2):80-114.

8.0 WILDLIFE AND TERRESTRIAL RESOURCES

8.1 Affected Environment

8.1.1 Wildlife Resources

The undeveloped shorelines and adjoining mixed forests and wetlands of the impoundments of the Middle Chattahoochee Project provide high-quality habitat for many wildlife species occurring in the project area. Common terrestrial mammals include white-tailed deer (*Odocoileus virginianus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), Virginia opossum (*Didelphis virginiana*), and gray squirrel (*Sciurus carolinensis*). Beaver (*Castor canadensis),* muskrat (*Ondatra zibethicus*), and river otter (*Lontra canadensis*) inhabit wetlands and other aquatic habitats (Georgia Power 2002).

Common reptile and amphibian species in the Middle Chattahoochee Project area include marbled salamander (*Ambystoma opacum*), easter (red-spotted) newt (*Notophthalmus viridescens*), common kingsnake (*Lampropeltis getula*), scarlet kingsnake (*Lampropeltis elapsoides*), black rat snake (*Pantherophis obsoletus*), corn snake (*Pantherophis guttatus*), common garter snake (*Thamnophis sirtalis*), southern hognose snake (*Heterodon simus)*, copperhead (*Agkistrodon contortrix*), and canebrake rattlesnake (*Crotalus horridus*). Other reptile and amphibian species include snapping turtle (*Chelydra serpentina*), eastern box turtle (*Terrapene carolina*), water snakes (*Nerodia spp.*), eastern fence lizard (*Sceloporus undulatus*), Carolina anole (*Anolis carolinensis*), spring peeper (*Pseudacris crucifer*), upland chorus frog (*Pseudacris feriarum*), bullfrog (*Lithobates catesbeianus*), eastern leopard frog (*Lithobates pipiens*), and northern cricket frog (*Acris crepitans*) (Georgia Power 2002).

The bird community is likely diverse based on the diversity of aquatic, wetland, and terrestrial habitats within the Middle Chattahoochee Project area, which is located along the flyway used by many neotropical, migratory bird species. Of 237 bird species listed for west-central Georgia (Craighton 1996), some of the more common species include Carolina wren (*Thryothorus ludovicianus*), tufted titmouse (*Baeolophus bicolor*), Carolina chickadee (*Poecile carolinensis*), blue jay (*Cyanocitta cristata*), northern mockingbird (*Mimus* polyglottus, and brown thrasher (*Toxostoma rufum*) (Georgia Power 2002).

8.1.2 Terrestrial Resources

Mixed pine/hardwood forest dominates vegetative cover within the Middle Chattahoochee Project Boundary, followed by wetlands and low-density urban (i.e., residential) cover (CH2M HILL 2000). Terrestrial vegetation associations include ravine forest, planted loblolly pine (*Pinus teada*), mixed pine/hardwood forest on dry ridges and slopes, early successional and secondary growth forest, and pastures. Hardwood forests mainly occur as inclusions in the larger mixed forest community. Many shoreline areas around the impoundments are relatively steep and are forested to the edge of the bank. Rock outcrops occur along a few steep slopes and provide unique habitats supporting occurrences of at least two rare plant species, Georgia rockcress (*Arabis georgiana*) (further discussed in Section 9.0) and Nevius' stonecrop (*Sevum nevii*). Georgia Power implements a Sensitive Plant Management Plan under Article 408, and monitors known populations of Shoals Spider lily and Nevius' Stonecrop annually and re-evaluates progress/project need every five years.

Vegetative cover extending to 2,000 ft beyond the Middle Chattahoochee Project boundary, which reflects broader land use patterns in the project area, consists primarily of mixed forest, followed by low-density urban areas, planted pine, and high-density urban areas. Planted pine is most prevalent around the Goat Rock development, covering nearly the same acreage as mixed forest, and decreases in area in the downstream direction (Georgia Power 2002).

The dominant upland vegetation around the Oliver Development reservoir shoreline consists of mixed forest and maintained grasses in residential areas. Urban development, including homes, marinas, and a golf course, has become more prevalent along the eastern shoreline nearing Columbus. Much of the natural forest in the area surrounding the Lake Oliver has been removed or converted to lawns. The lower western shoreline is also developed, though to a lesser extent (Georgia Power 2002).

8.1.3 Wetlands

There are 253.9 acres consisting of principal wetland types within the Oliver Development boundary (Georgia Power 2002), and 2,775.67 acres of wetlands within a quarter-mile buffer around the Oliver Development, including Lake and Riverine Designations (USFWS 2019) (Table 8-1; Figure 8-1).

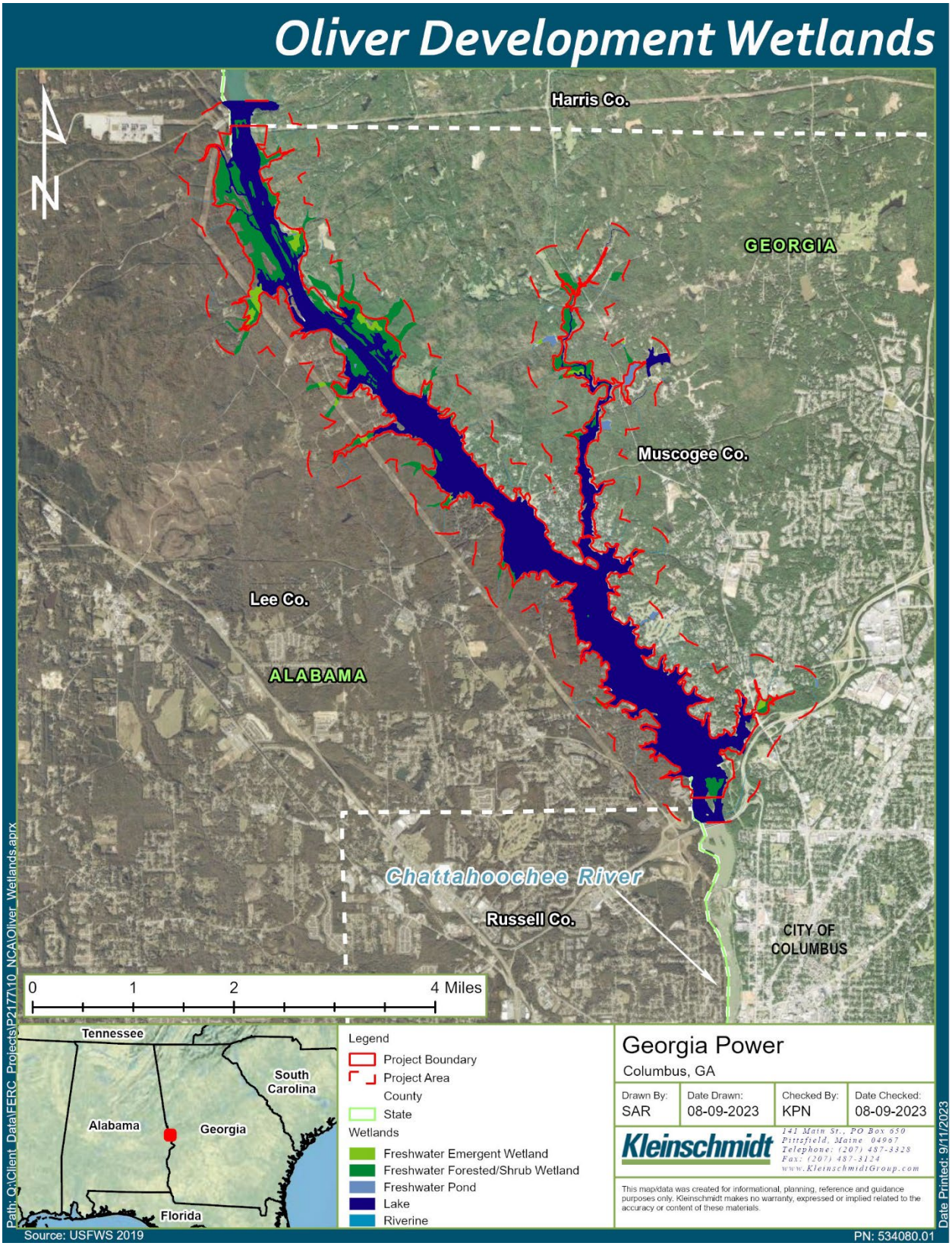


Figure 8-1 Wetlands within a Quarter Mile Buffer Around Oliver Development

Table 8-1 Wetlands within a Quarter Mile Buffer of the Oliver Development

Wetland Type	Acres within Project Area	Percent Total
Lake	2,079.10	74.90%
Freshwater Forested/Shrub Wetland	576.40	20.77%
Freshwater Emergent Wetland	50.9	1.83%
Riverine	38.3	1.38%
Freshwater Pond	31.0	1.12%
Total	2,775.67	100.00%

Source: USFWS 2019

8.2 Environmental Analysis

The Proposed Action does not require a drawdown of Lake Oliver and will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Minimum flow requirements will continue to be met, supporting and enhancing wildlife and terrestrial resources (including wetlands) in the Chattahoochee River downstream by maintaining adequate flow regimes. Therefore, there are no anticipated impacts to wildlife, terrestrial, and wetland habitat related to the Proposed Action.

Impacts to wildlife and terrestrial resources at the Oliver Development, if any, will be temporary, minimal, and limited to the Work Areas associated with the Proposed Action. The proposed Work Areas have a history of heavy disturbance and consist mostly of frequently mowed grass, improved driving and parking facilities, and previously used gravel laydown areas and roadways. Land disturbing activities associated with the Proposed Action will be located in previously disturbed areas with limited wildlife habitat. Noise from the construction activities may cause minor temporary disturbance to wildlife and terrestrial resources during construction activities.

8.3 Protection, Mitigation, and Enhancement Measures

Short-term unavoidable adverse impacts to wildlife associated with the Proposed Action include an increase in noise around the Oliver dam due to construction equipment and activity. These impacts are temporary during construction periods and would not impact wildlife at the Oliver Development post-construction.

8.4 Unavoidable Adverse Effects

No unavoidable adverse effects are anticipated as a result of implementing the Proposed Action.

8.5 References

CH2M HILL. 2000. Botanical and wildlife resources, Middle Chattahoochee Project (FERC No. 2177). Resource Study Report prepared for Georgia Power. July 2000.

Craighton, L. S. 1996. Callaway Gardens field checklist of west central Georgia birds. Callaway Gardens, Education Department, Pine Mountain, Georgia.

Georgia Power Company (Georgia Power). 2002. Applicant-Prepared Environmental Assessment for Hydropower License. Middle Chattahoochee Hydroelectric Project (FERC Project No. 2177).

United States Fish and Wildlife Service (USFWS). 2019. Classification of wetlands and deepwater habitats of the United States. Washington, DC. FWS/OBS-79/31.

9.0 RARE, THREATENED, AND ENDANGERED SPECIES

9.1 Affected Environment

9.1.1 Threatened and Endangered Species

A USFWS Information Planning and Conservation (IPaC) report related to the Proposed Action at the Middle Chattahoochee Project (Project Code: 2023-0111217, generated on July 31, 2023) listed 7 threatened, endangered, or candidate species potentially occurring in the IPaC Action Area (the Action Area associated with the Proposed Action identified for the IPaC report, and includes the Work Areas) (Table 9-1; Appendix C). There is no designated Critical Habitat for any species within the Action Area.

Table 9-1 Potentially Occurring Federally Listed Species Near the Action Area

Common Name	Scientific Name	Status	Critical Habitat?
Birds			
Whooping Crane	*Grus americana*	Experimental Population, Non-essential	No
Reptiles			
Alligator Snapping Turtle	*Macrochelys temminckii*	Proposed Threatened	No
Insects			
Monarch Butterfly	*Danaus plexippus*	Candidate	No
Flowering Plants			
Fringed Campion	*Silene polypetala*	Endangered	No
Georgia Rockcress	*Arabis georgiana*	Threatened	No
Michaux's Sumac (Dwarf Sumac)	*Rhus michauxii*	Endangered	No
Relict Trillium	*Trillium reliquum*	Endangered	No

Whooping Crane (G1, S1) is a large black and white wading bird that very nearly went extinct just a few decades ago. Through protection and intensive management, the population has grown but is still federally Endangered in the central U.S. Whooping cranes were introduced in the eastern U.S. several years ago in an attempt to establish a second migratory flock that nests primarily in Wisconsin. Members of this flock are considered to be part of a nonessential experimental population and are therefore not listed for protection under the ESA; they occasionally visit Georgia during the winter.

Alligator Snapping Turtle (G3, S3 Alabama, S3 Georgia) occupies deep, slow-moving reaches of rivers and larger streams of the southeastern U.S.; individuals can live for several decades and commonly weigh in excess of 100 lbs. Males do not leave the water, and females leave the water by a few feet only to lay eggs. Populations declined in recent history primarily as a result of overharvest for the commercial soup industry; continuing threats include deliberate and incidental capture and habitat alteration. Recovery is likely hampered by a low reproductive rate. This species was proposed for listing as threatened in 2021; therefore, no targeted surveys were conducted during the previous relicensing process. The nearest recorded occurrence was several miles downstream and many years ago (Georgia DNR 2023a).

Monarch Butterfly (G4, S5 Alabama, S4 Georgia) has a complex life history involving an annual cycle of multiple short-lived generations and long-distance migration; most of the entire population winters on a few forested acres in Mexico. Though they are still found widespread across the country, numbers have dropped dramatically in recent years primarily from habitat loss. This species lays its eggs only on milkweeds; the foliage is consumed by the larvae and the assimilated toxins help provide protection from predators. Adults feed on nectar from a variety of flowering plants.

Fringed Campion (G2, S2 Georgia) is a highly endangered perennial herb found on stream slopes and terraces in mature hardwood forests on low-acid soils. Declines are attributed to habitat alteration and competition from exotic species. The species is no longer known to occur in Alabama, and the nearest Georgia record is about 21 miles to the east in Talbot County (Georgia DNR 2023b).

Georgia Rockcress (G1, S1 Alabama, S1 Georgia) is a perennial herb that occurs on certain rocky bluffs in Georgia and Alabama. Populations appear to have declined because of habitat alteration and competition from exotic plants. The nearest known population occurs about 8 miles upstream in Georgia near Goat Rock Dam; this area is designated as Critical Habitat (Georgia DNR 2023c). Georgia Power implements a Sensitive Plant Management Plan under Article 408, and monitors known populations of Georgia Rockcress annually and re-evaluates progress/project need every five years. The last re-evaluation occurred in 2020. Data from monitoring efforts is shared with the USFWS Athens office and the Georgia DNR annually.

Michaux's Sumac (G2G3, S1 Georgia) is a dioecious colonial shrub that requires dry, open woodlands over mafic bedrock, usually on a ridge or river bluff. There are only 2 remaining extant populations in Georgia (Newton and Elbert counties); additional populations have

been established through planting. It was once found within 1-2 miles downstream of the project activity but is likely extirpated from that site (Georgia DNR 2023d).

Relict Trillium (G3, S3 Georgia) is a perennial herb found in some mature ravine forests over calcium-rich bedrock. Individual plants might live hundreds of years as the rhizome continues to extend and sprout. Seeds are attractive to insects, which help disperse them. Forest clearing, competition from exotic plants, excessive deer browsing, and hog rooting are all threats. The nearest known occurrence is at least 3 miles to the north of the project site (Georgia DNR 2023e).

9.1.2 USFWS Birds of Conservation Concern

There are 9 migratory Birds of Conservation Concern (BCC) potentially occurring in the Oliver Development Area (Table 9-2). Most of these species are designated as a BCC throughout their range in the United States, with four exceptions detailed in Table 9-2 (USFWS 2023).

Table 9-2 Potentially occurring Birds of Conservation Concern in the Action Area

Common Name	Scientific Name	Status
American Kestrel	*Falco sparverius paulus*	BCC only in particular Bird Conservation Regions
Brown-headed Nuthatch	*Sitta pusilla*	BCC only in particular Bird Conservation Regions
Chimney Swift	*Chaetura pelagica*	BCC throughout its range in the United States
Lesser Yellowlegs	*Tringa flavipes*	BCC throughout its range in the United States
Prairie Warbler	*Dendroica discolor*	BCC throughout its range in the United States
Red-headed Woodpecker	*Melanerpes erythrocephalus*	BCC throughout its range in the United States
Rusty Blackbird	*Euphagus carolinus*	BCC only in particular Bird Conservation Regions
Willet	*Tringa semipalmata*	BCC throughout its range in the United States
Wood Thrush	*Hylocichla mustelina*	BCC throughout its range in the United States

The Bald Eagle (*Haliaeetus leucocephalus*) is a non-BCC designated bird but is protected under the Bald and Golden Protection Act (USFWS 2023). Georgia Power implements a Bald Eagle Management Plan under Article 408 of the Middle Chattahoochee Project license that includes protection of eagle nest sites as per the federal guidelines. Bald eagles commonly nest near Georgia Power reservoirs. Shoreline managers are watchful for bald eagle nests within the Middle Chattahoochee Project boundary as they routinely travel the reservoirs by boat and Georgia DNR conducts aerial eagle nesting surveys of the area (along with the rest of the state) every two years. Survey results are shared between Georgia Power and Georgia DNR. The nearest known eagle nest is 5.5 miles northwest of the Work Areas.

9.2 Environmental Analysis

The Proposed Action does not require a drawdown of Lake Oliver and will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1.

On August 9, 2023, a Georgia Power biologist conducted a site reconnaissance survey of the proposed Work Areas. Site reconnaissance observations noted Work Areas as having a history of heavy disturbance and consist mostly of frequently mowed grass, improved driving and parking facilities, and previously used gravel laydown areas and roadways. Vegetation consists mainly of bahia grass, centipede grass, and Japanese lespedeza. No suitable habitat for any of the potentially occurring federally listed plants occurs in the Action Area, therefore the Proposed Action will have no impact on listed flowering plants.

Members of the eastern Whooping Crane population sometimes migrate to or through Georgia for the winter but there is no suitable habitat at the Action Area to attract them, therefore the Proposed Action will have no impact on this species.

The Alligator Snapping Turtle could occur in the river and reservoir but would but would not be expected within the terrestrial Action Area. Therefore, the Proposed Action should have no impact on this aquatic species.

Monarch Butterfly habitat will not be impacted because the work occurs within the powerhouse and at the previously disturbed Work Areas. No milkweeds or significant potential foraging habitat were observed in the Action Area.

The nearest known bald eagle nest is located 5.5 miles northwest of the Action Area and is not anticipated to be impacted by the Proposed Action. No impacts to nesting behavior or nest success are anticipated. Bald eagles likely forage for fish, waterbirds, and carrion in the vicinity of the dam but food resources and availability would not likely be impacted by the Proposed Action because Bald eagles are accustomed to human and mechanical activity.

The Southeastern American Kestrel is an uncommon year-round resident that nests in tree cavities and structures and prefers open country. They are not known to occur in the vicinity of the Action Area and would not be impacted.

Brown-headed Nuthatches and Red-headed Woodpeckers are relatively common year-round residents that likely occur in the vicinity of the Action Area. However, no suitable habitat will be impacted.

Chimney Swifts, Wood Thrushes, and Prairie Warblers are relatively common nesting migrants in the vicinity of the Action Area. However, no suitable habitat will be impacted.

Rusty Blackbirds likely pass through the vicinity of the Action Area during winter. However, no suitable habitat will be impacted.

Lesser Yellowlegs and Willets are shorebirds that might pass through the vicinity of the Action Area during migration. However, no suitable habitat will be impacted.

9.3 Protection, Mitigation, and Enhancement Measures

There are no additional PME measures proposed for Rare, Threatened, and Endangered species or for Birds of Conservation Concern.

9.4 Unavoidable Adverse Effects

There are no unavoidable adverse effects identified for rare, threatened, and endangered species.

9.5 References

Georgia Department of Natural Resources (Georgia DNR). 2023a. Species Account for the Alligator Snapping Turtle (Macrochelys temminckii). Available online at: Georgiabiodiversity.org.

Georgia Department of Natural Resources (Georgia DNR). 2023b. Species Account for the Fringed Campion (Silene polypetala). Available online at: Georgiabiodiversity.org.

Georgia Department of Natural Resources (Georgia DNR). 2023c. Species Account for the Georgia Rockcress (Arabis georgiana). Available online at: Georgiabiodiversity.org.

Georgia Department of Natural Resources (Georgia DNR). 2023d. Species Account for the Micheaux' Sumac (Rhus michauxii). Available online at: Georgiabiodiversity.org.

Georgia Department of Natural Resources (Georgia DNR). 2023e. Species Account for the Relict Trillium (Trillium reliquum). Available online at: Georgiabiodiversity.org.

U.S. Fish and Wildlife Service (USFWS). 2007. National Bald Eagle Management Guidelines.

U.S. Fish and Wildlife Service (USFWS). 2023. IPaC Report. Oliver Development. Project Code: 2023-0112255 generated on August 2, 2023.

Zuiderveen, J.A. and R.C. Stringfellow. 2002. Survey for the Purple Bankclimber (*Elliptoideus sloatianus*) and other Native Mussels in the Upper Reach of the Goat Rock Impoundment. Prepared for Georgia Power Company by Columbus State University, Columbus, GA.

10.0 RECREATION RESOURCES

10.1 Affected Environment

Approximately 56,000 acres of regional recreation facilities are located within a one-hour drive (i.e., 60-mile radius) of the Middle Chattahoochee Project, including 19 locally and state-operated parks and resource protection areas. These facilities include four national parks and historic sites, eight state parks, and seven wildlife management areas. Additional regional recreational facilities are provided by two USACE impoundments: West Point Lake and Walter F. George Lake. Other large reservoirs within a one-hour drive of the Middle Chattahoochee Project include Lake Martin in Tallapoosa County and R.L. Harris Reservoir in Randolph County, Alabama, located approximately 50 miles west and northwest of the Middle Chattahoochee Project, respectively (Georgia Power 2002).

Two project recreation facilities are located near the Oliver Development and Proposed Action construction area: the Oliver Public Access Area (located in the tailrace below the upstream Goat Rock Dam) and the North Highlands Development Angler Access Area (located in the Oliver tailrace).

Facilities at the Oliver Public Access Area include a two-lane launching boat ramp with an adjacent courtesy dock, platform and safety railing for angler use, parking, restroom, and trail access to the Goat Rock tailrace. North Highlands Development Angler Access offers access to a secluded angling site with safety railings on the North Highlands impoundment shoreline.

10.2 Environmental Analysis

The Proposed Action does not require a drawdown of Lake Oliver and will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Because there is no proposed drawdown, water levels on Lake Oliver will not be affected by the proposed action and Project recreation facilities at the Oliver Development will be available during unit upgrades. Therefore, there are no anticipated impacts to recreation resources related to the Proposed Action.

10.3 Protection, Mitigation, and Enhancement Measures

There are no PME measures associated with recreation resources.

10.4 Unavoidable Adverse Effects

Short-term unavoidable adverse impacts associated with the Proposed Action include potential undesirable views to recreation users around the Oliver dam due to construction equipment and activity. These impacts are temporary during construction periods and would not impact the Oliver Development post-construction.

10.5 References

Georgia Power Company (Georgia Power). 2002. Applicant-Prepared Environmental Assessment for Hydropower License. Middle Chattahoochee Hydroelectric Project (FERC Project No. 2177). Land Use and Aesthetic Resources.

11.0 LAND USE AND AESTHETIC RESOURCES

11.1 Affected Environment

11.1.1 Land Use

The predominant land uses within the Middle Chattahoochee Project Boundary (other than open water) are forest/undeveloped areas, wetlands, low-density urban areas, and agriculture (CH2M HILL 2000). Agricultural lands consist mainly of clear-cut/young pine stands and mature pine stands managed for commercial harvest (Georgia Power 2002).

Land use extending to 2,000 ft beyond the Project Boundary, which reflects the broader pattern of urban development in the Project Area, consists primarily of forest/ undeveloped, followed by low-density urban and agriculture. Combined low- and high-density urban land uses increase in area and intensity in the downstream direction from the Oliver development to the North Highlands development, especially in Georgia (Georgia Power 2002).

Residential development continues around the lower portion of Lake Oliver in Georgia and Alabama, and the extension of the Riverwalk in Columbus is generating residential and commercial development interests along the east shore between the North Highlands and Oliver dams. Growth of urban land uses is expected to continue within the lower portion of the Middle Chattahoochee Project Area. Urban growth beyond the Project Area also may continue to affect the Middle Chattahoochee Project impoundments as a result of stormwater runoff and sedimentation entering tributaries from upstream land-disturbing activities (Georgia Power 2002).

11.1.2 Aesthetic Resources

Public access points offer diverse views of the Middle Chattahoochee Project impoundments, shorelines, and tailrace areas. The narrow portions of Goat Rock Lake and upper portion of Oliver Lake provide the most natural views of undeveloped forested shorelines, wetlands, and waters with visible current from upstream dam releases. The Oliver Public Access Area (upper reach of Lake Oliver) is located in a natural setting (Georgia Power 2002). Viewsheds along the lower portion of Lake Oliver (near the North Highlands Development Angler Access Area) contain man-made features of the surrounding urban environment and project facilities, parking lots, recreation facilities,

shoreline residential properties to the north, and the U.S. Highway 80 berm to the south (Georgia Power 2002).

11.2 Environmental Analysis

11.2.1 Land Use

There are no impacts to land use associated with the Proposed Action as the Work Areas are located on lands that were previously disturbed.

11.2.2 Aesthetic Resources

The Proposed Action does not require a drawdown of Lake Oliver and will not interfere with Georgia Power's ability to meet minimum flow requirements of the Project; therefore, Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Supporting these requirements would continue to enhance aesthetic resources in the Chattahoochee River downstream by maintaining adequate flow regimes.

Because there is no proposed drawdown, views of the water levels on Lake Oliver will not be affected by the Proposed Action. Impacts to aesthetic resources will be temporary and minimal, limited to the construction associated with the Proposed Action. Construction activities may cause minor temporary impacts to aesthetic resources (visual and auditory) while activities associated with the Proposed Action are completed.

11.3 Protection, Mitigation, and Enhancement Measures

Georgia Power does not propose any PME measures for land use or aesthetic resources.

11.4 Unavoidable Adverse Effects

Short-term unavoidable adverse impacts associated with the Proposed Action include an increase in noise and undesirable views around the Oliver dam due to construction equipment and activity. These impacts are temporary during construction periods and would not impact the Oliver Development post-construction.

11.5 References

CH2M HILL. 2000. Land management and aesthetics, Middle Chattahoochee Project (FERC No. 2177). Resource Study Report prepared for Georgia Power. July 2000.

Georgia Power Company (Georgia Power). 2002. Applicant-Prepared Environmental Assessment for Hydropower License. Middle Chattahoochee Hydroelectric Project (FERC Project No. 2177).

12.0 CULTURAL (HISTORIC AND ARCHAEOLOGICAL) RESOURCES

12.1 Affected Environment

The Area of Potential Affect (APE) refers to the geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist. The Middle Chattahoochee Project's APE includes flood rights and land held in fee simple by Georgia Power. Along the impoundment shorelines, the APE is defined by the project boundary. At the Oliver Development, the Project Boundary is defined by the 342-ft contour.

Georgia Power evaluated all of the powerhouses in the Middle Chattahoochee Project's APE, which include the Goat Rock, Oliver, and North Highlands developments, and recommended that none were historic properties (BAI 2000a). The Oliver Development has maintained a higher degree of physical integrity than either the Goat Rock or North Highlands developments; however, its design innovations are not considered exceptional, and therefore is not eligible for the National Register of Historic Places (NRHP) (BAI 2000a).

Georgia Power conducted historical research, archaeological reconnaissance, and shoreline surveys within the Middle Chattahoochee Project Boundary in 1999 to identify archaeological historic properties in the project's APE (BAI 2000b). Background literature searches and examination of site files of both the states of Georgia and Alabama found no historic properties within the project's APE. The investigations identified 38 archaeological sites within the APE, all surrounding or presently inundated by the Oliver impoundment (BAI, 2000b). Of these, 30 were recommended potentially eligible and one (1LE1) was recommended eligible. Shoreline surveys in 1999 also identified areas along the Oliver impoundment exhibiting moderate to high potential for the presence of previously unidentified archaeological sites (BAI 2000b). These areas included several small islands in the upper end of the Oliver impoundment. Although the survey objectives did not include assessing NRHP eligibility, no intact archaeological deposits or features were found on shoreline areas at the Oliver Development.

Phase II archeological testing was conducted at seven of the 30 potentially eligible Lake Oliver shoreline sites in 2001 based on their reported locations at or above normal pool elevation. It was determined that one site (9ME200) was not eligible (BAI 2001).

Based on the results of these investigations and consultation with the Alabama Historical Commission (AHC) and Georgia DNR HPD during the early 2000s relicensing, one historic property (archaeological site 1LE1) is found in the Middle Chattahoochee Project's APE adjacent to the upper reach of Lake Oliver in Alabama. Twenty-nine other archaeological sites present in the APE in Alabama and Georgia may be eligible for the NRHP, but no definitive eligibility determinations have been made for these sites. Most are inundated by the Oliver impoundment and others extend into private properties adjacent to the APE where Georgia Power could not gain access permission for testing (BAI 2001). These 30 sites are monitored in accordance with license article 411 programmatic agreement and the Historic Properties Management Plan (HPMP). None of these sites will be affected. The October 2002 Middle Chattahoochee Project HPMP noted the Oliver powerhouse maintained a high degree of integrity and was potentially significant for its innovative design. However, at the time, the plant was of relatively recent construction and was recommended not eligible for NRHP due to its less than 50 year age. The Oliver powerhouse was completed in 1959 and therefore is now 64 years old. A new assessment of the Oliver Powerhouse was conducted in August 2023 with a report proposing a new recommendation for NRHP eligibility and contributing and exclusionary elements. Georgia Power is consulting with HPD on the August 2023 assessment and proposed work and will file documentation of HPD consultation as a supplement to the license amendment application.

12.2 Environmental Analysis

The Proposed Action does not require a drawdown of Lake Oliver and Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1 which will continue to be protective of cultural resources. With the absence of a reservoir drawdown, additional shoreline would not be exposed compared to baseline conditions, reducing the potential for cultural resources to be exposed, and potentially looted. The potentially eligible archeological sites located in Lake Oliver are not within the Work Areas and will not be affected by construction activities related to the Proposed Action.

In addition, the Proposed Action includes upgrading the four generating units in the non-NRHP-eligible powerhouse. Therefore, there are no anticipated adverse impacts to cultural (archaeological and architectural) resources.

12.3 Protection, Mitigation, and Enhancement Measures

Georgia Power does not propose any PME measures for cultural resources.

12.4 Unavoidable Adverse Effects

There are no unavoidable adverse effects identified for cultural resources.

12.5 References

Brockington and Associates, Inc. (BAI). 2000a. Historic hydro-engineering report: Middle Chattahoochee Project (FERC #2177), Muscogee and Harris Counties, Georgia, and Lee County, Alabama. Prepared for Georgia Power Company. May 2000.

Brockington and Associates, Inc. (BAI). 2000b. Archaeological and historical study report: Middle Chattahoochee Project (FERC #2177), Muscogee and Harris Counties, Georgia, and Lee and Russell Counties, Alabama. Prepared for Georgia Power Company. September 2000.

Brockington and Associates, Inc. (BAI). 2001. Phase II investigations at seven sites on Lake Oliver, Middle Chattahoochee Project (FERC #2177), Lee County, Alabama and Muscogee County, Georgia. Prepared for Georgia Power Company. October 2001.

13.0 SOCIOECONOMIC RESOURCES

13.1 Affected Environment

Located on the border between Alabama and Georgia, the Middle Chattahoochee Project is located within four counties: Harris and Muscogee Counties, Georgia, and Lee and Russell Counties, Alabama. The Oliver Development project boundary includes land within Lee and Russell Counties, Alabama, and Muscogee County in Georgia. Ladonia and Phenix City, Alabama, and Columbus, Georgia are within 5-miles of the Oliver Dam. The following is a summary of socioeconomic data for these three counties and three nearby cities (including population patterns, average household income, and employment sectors).

Based on the April 1, 2020 census, the population of Lee County, Alabama was 174,241, representing a 24.2 percent increase from the April 1, 2010 census (U.S. Census Bureau 2023). The population of Russell County, Alabama was 59,183, representing an 11.8 percent increase from the April 1, 2010 census. The population of Muscogee County, Georgia, was 206,922, representing a 9.0 percent increase from the April 1, 2010 census (U.S. Census Bureau 2023). Table 13-1 summarizes the population estimates for these three counties and for the states of Alabama and Georgia as reported in the 2010 and 2020 U.S. Census, as estimated by the U.S. Census Bureau for 2022.

Table 13-1 Estimated Population of Lee and Russell Counties, Alabama and Muscogee County, Georgia and the States of Alabama and Georgia

County/ State	2010 Census	2020 Census	Percent Change 2010-2020	2022 Estimates	Percent Change 2020-2022
Lee County, AL	140,247	174,241	24.2%	180,773	3.7%
Russell County, AL	52,947	59,183	11.8%	58,555	-1.1%
Muscogee County, GA	189,885	206,922	9.0%	202,616	-2.1%
Alabama	4,779,736	5,024,279	5.1%	5,074,296	1.0%
Georgia	9,687,653	10,711,908	10.6%	10,912,876	1.9%

Source: U.S. Census Bureau 2023

Lee County, Alabama is approximately 607.54-square-miles, Russell County, Alabama is approximately 641.18-square-miles, and Muscogee County, Georgia is approximately 216.5-square-miles. Based on population estimates for 2020, Lee County, Alabama had a population density of 286.8 people per square-mile, which was higher than the state average density of 99.2 people per square-mile. Russell County, Alabama had a population density of 92.3 people per square-mile, which was lower than the state average density. The population density for Muscogee County, Georgia was 955.8 people per square-mile, higher than the state average of 185.6 people per square-mile (U.S. Census Bureau 2023).

The 2017-2021 estimated median household income for Lee County, Alabama, Russell County, Alabama, and Muscogee County, Georgia was $57,191, $44,065, and $50,542, respectively. The 2021 poverty rate was 18.0 percent in Lee County and 21.7 percent in Russell County, compared to 16.1 percent in Alabama. The poverty rate was 20.4 percent in Muscogee County, compared to 14.0 percent in Georgia (U.S. Census Bureau 2023). Table 13-2 provides the household and family distribution and income for Lee and Russell Counties, Alabama and Muscogee County, Georgia.

Table 13-2 Household Incomes and Distributions for Lee and Russell Counties, Alabama and Muscogee County, Georgia

	Lee County, Alabama	Russell County, Alabama	Muscogee County, Georgia
2017-2021 Households	63,122[1]	23,141[1]	78,491[1]
2017-2021 Approximate Number of Persons per Household	2.63[1]	2.51[1]	2.52[1]
2017-2021 Percentage of Population in Civilian Labor Force	59.4%[1]	52.9%[1]	56.9%[1]
2017-2021 Median Household Income	$57,191[1]	$44, 065[1]	$50,542[1]
2021 Population Below Poverty Level	18.0%[1]	21.7%[1]	20.4%[1]
June 2023 Unemployment Rate	2.6%[2]	2.7%[3]	4.1%[4]

Source: U.S. Census Bureau 2023[1]; FRED 2023a[2]; FRED 2023b[3]; FRED 2023c[4]

Three cities near the Oliver Dam were reviewed for socioeconomic data, including Ladonia and Phenix City, Alabama, and Columbus, Georgia (Table 13-3).

Table 13-3 2020 Population Statistics for Cities Near the Oliver Dam

	Ladonia, AL[1]	Phenix City, AL[2]	Columbus, GA[3]
Population	3,609	36,461	195,418
Population increase/decrease (from 2019 to 2020)	6.43%	-0.2%	-0.16%
Median Household Income	$39,569	$41,842	$47,418
Poverty Rate	26.1%	24.7%	20%

Source: Data USA 2020a[1]; 2020b[2]; 2020c[3]

Table 13-4 provides data on employment industry distribution in Ladonia and Phenix City, Alabama and Columbus, Georgia. In Ladonia, Alabama, the largest industries are accommodation and food services, construction, and health care and social assistance (Data USA 2020a). In Phenix City, Alabama, the largest industries are retail trade, health care and social assistance, and manufacturing (Data USA 2020b). The largest industries in Columbus, Georgia are health care and social assistance, retail trade, and accommodation and food service (Data USA 2020c).

Table 13-4 2020 Employment Statistics for Cities Near the Oliver Dam

	Ladonia, AL[1]	Phenix City, AL[2]	Columbus, GA[3]
Public Administration	1.36%	6.67%	6.23%
Manufacturing	7.1%	13.1%	9.8%
Retail Trade	10%	15.5%	11.6%
Healthcare and Social Assistance	15.7%	15.4%	14.4%
Educational Services	5.23%	6.76%	9.43%
Construction	16.1%	4.79%	4.58%
Transportation and Warehousing	1.79%	4.0%	3.94%
Administration Support and Waste Management Services	5.38%	4.53%	4.35%
Other Services, Except Public Administration	14.8%	2.71%	4.5%
Accommodation and Food Services	17.3%	8.36%	9.97%

Source: Data USA 2020a[1]; 2020b[2]; 2020c[3]

13.2 Environmental Analysis

Georgia Power will continue operating the Oliver Development under the current license conditions described in Section 2.1.1. Therefore, there are no anticipated impacts to socioeconomic resources.

13.3 Protection, Mitigation, and Enhancement Measures

Georgia Power does not propose any PME measures for socioeconomic resources.

13.4 Unavoidable Adverse Effects

There are no unavoidable adverse effects identified for socioeconomic resources.

13.5 References

Data USA. 2020a. Ladonia, AL. Available online at: https://datausa.io/profile/geo/ladonia-al/. Accessed August 2023.

Data USA. 2020b. Phenix City, AL. Available online at: https://datausa.io/profile/geo/phenix-city-al/. Accessed August 2023.

Data USA. 2020c. Columbus, GA. Available online at: https://datausa.io/profile/geo/columbus-ga. Accessed August 2023.

FRED Economic Research (FRED). 2023a. Unemployment Rate in Lee County, AL. Available online at: https://fred.stlouisfed.org/series/ALLEEC5URN. Accessed August 2023.

FRED Economic Research (FRED). 2023b. Unemployment Rate in Russell County, AL. Available online at: https://fred.stlouisfed.org/series/ALRUSS3URN. Accessed August 2023.

FRED Economic Research (FRED). 2023c. Unemployment Rate in Muscogee County, GA. Available online at: https://fred.stlouisfed.org/series/LAUCN132150000000003A. Accessed August 2023.

U.S. Census Bureau. 2023. QuickFacts for Muscogee County, Georgia; Russell County, Alabama; Lee County, Alabama; Georgia; Alabama. Available online at: https://www.census.gov/quickfacts/fact/table/muscogeecountygeorgia,russellcountyalabama,leecountyalabama,GA,AL/PST045222. Accessed August 2023.

APPENDIX A

CONSULTATION ON AMENDMENT APPLICATION

Consultation on Draft Amendment Application

Crabbe, Melissa C.

From: Crabbe, Melissa C.
Sent: Thursday, September 14, 2023 4:14 PM
To: Hess, Brent; Bauer, Eric F; david.hedeen@dnr.ga.gov; Booth, Elizabeth; Zeng, Wei; graves.lovell@dcnr.alabama.gov
Cc: O'Mara, Courtenay R.; O'Rouke, Patrick Michael; Dodd, Anthony Ray; Charles, Joseph D.
Subject: Request for Review of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development
Attachments: 2023-09-14 Oliver Development_Draft Application for Agency Review.pdf

Good afternoon!

Our team is very close to submitting a license amendment application to Federal Energy Regulatory Commission (FERC) for the proposed modernization of the Middle Chattahoochee Project's (FERC Project Number P-2177) Oliver development. Thank you for the time you already spent in July and August consulting with Georgia Power on the proposed modernization. As a reminder, the proposal includes replacement of turbine runners and refurbishment of generators, and we expect to complete one unit per year from 2025 through 2028.

I am reaching out to initiate the next phase of consultation to provide your agency an opportunity to review our proposal in the same format that FERC will review it. We request your review of the attached draft license amendment application package, which includes the Initial Statement and Application (Attachment A), an Applicant Prepared Environmental Assessment (APEA) (Attachment B), including documentation of initial consultation with resource agencies in Appendix A, a marked-up version of the existing Exhibit A (Attachment C), showing changes that would be required by the proposal to this part of our existing FERC license, and a clean version of the revised Exhibit A with changes accepted. The proposed site improvements (construction trailer and laydown areas) for the modernization, which you did not see during initial consultation, are included in this proposal on pages 2-6 through 2-8 of the APEA and will be permitted under the State's NPDES permit program.

Please let me know by COB on Tuesday, September 26, 2023, if you have any comments or concerns on the attached. Comments provided by email are sufficient, will be included as an additional appendix to the APEA, and filed with FERC in the application package. We appreciate your participation in Georgia Power's ongoing Hydro Modernization projects.

Melissa Crabbe, PE
SCG Hydro Services
404-506-7273



Georgia Department of Natural Resources
Environmental Protection Division

Written Correspondence with Georgia EPD

Crabbe, Melissa C.

From: Hedeen, David <david.hedeen@dnr.ga.gov>
Sent: Monday, September 25, 2023 2:56 PM
To: Crabbe, Melissa C.
Cc: O'Mara, Courtenay R.; Dodd, Anthony Ray; Charles, Joseph D.; Hess, Brent; Bauer, Eric F; Booth, Elizabeth; Zeng, Wei; graves.lovell@dcnr.alabama.gov
Subject: RE: Request for ReviewCharles, Joseph D. <JCHARLES@southernco.com> of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Hi Melissa – Georgia EPD has no comments on the draft license amendment application. Thank you,

David Hedeen
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive SW, Suite 450
Atlanta, GA 30334

david.hedeen@dnr.ga.gov
470-427-2730 (office)
678-483-2287 (cell)

From: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Sent: Thursday, September 14, 2023 4:14 PM
To: Hess, Brent <Brent.Hess@dnr.ga.gov>; Bauer, Eric F <eric_bauer@fws.gov>; Hedeen, David <david.hedeen@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Zeng, Wei <Wei.Zeng@dnr.ga.gov>; graves.lovell@dcnr.alabama.gov
Cc: O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>; O'Rouke, Patrick Michael <PMOROUKE@southernco.com>; Dodd, Anthony Ray <ardodd@southernco.com>; Charles, Joseph D. <JCHARLES@southernco.com>
Subject: Request for Review of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon!

Our team is very close to submitting a license amendment application to Federal Energy Regulatory Commission (FERC) for the proposed modernization of the Middle Chattahoochee Project's (FERC Project Number P-2177) Oliver development. Thank you for the time you already spent in July and August consulting with Georgia Power on the

proposed modernization. As a reminder, the proposal includes replacement of turbine runners and refurbishment of generators, and we expect to complete one unit per year from 2025 through 2028.

I am reaching out to initiate the next phase of consultation to provide your agency an opportunity to review our proposal in the same format that FERC will review it. We request your review of the attached draft license amendment application package, which includes the Initial Statement and Application (Attachment A), an Applicant Prepared Environmental Assessment (APEA) (Attachment B), including documentation of initial consultation with resource agencies in Appendix A, a marked-up version of the existing Exhibit A (Attachment C), showing changes that would be required by the proposal to this part of our existing FERC license, and a clean version of the revised Exhibit A with changes accepted. The proposed site improvements (construction trailer and laydown areas) for the modernization, which you did not see during initial consultation, are included in this proposal on pages 2-6 through 2-8 of the APEA and will be permitted under the State's NPDES permit program.

Please let me know by COB on Tuesday, September 26, 2023, if you have any comments or concerns on the attached. Comments provided by email are sufficient, will be included as an additional appendix to the APEA, and filed with FERC in the application package. We appreciate your participation in Georgia Power's ongoing Hydro Modernization projects.

Melissa Crabbe, PE
SCG Hydro Services
404-506-7273



Georgia Department of Natural Resources
Wildlife Resources Division

Written Correspondence with Georgia WRD

Crabbe, Melissa C.

From: Hess, Brent <Brent.Hess@dnr.ga.gov>
Sent: Monday, September 25, 2023 2:37 PM
To: Crabbe, Melissa C.
Cc: Hakala, Jim; Peacock, Clint
Subject: Request for Review of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Melissa Crabbe,

Thank you for the opportunity to consult with Georgia Power on the Middle Chattahoochee FERC License Amendment Application for the Modernization on the Oliver Development . The Georgia Department of Natural Resources, Wildlife Resources Division does not have any comments or concerns based on the documentation provided at this time. We look forward to continuing working with Georgia Power on the modernization process.

Please feel free to contact me if you have any questions.

Thank you.

Brent Hess
Fisheries Biologist, Fisheries Management

Wildlife Resources Division [georgiawildlife.com]
(706) 845-4180

Facebook [facebook.com] • Twitter [twitter.com] • Instagram [instagram.com]
Buy a hunting or fishing license today! [georgiawildlife.com]

A division of the
GEORGIA DEPARTMENT OF NATURAL RESOURCES

From: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Sent: Thursday, September 14, 2023 4:14 PM
To: Hess, Brent <Brent.Hess@dnr.ga.gov>; Bauer, Eric F <eric_bauer@fws.gov>; Hedeen, David <david.hedeen@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Zeng, Wei <Wei.Zeng@dnr.ga.gov>; graves.lovell@dcnr.alabama.gov
Cc: O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>; O'Rouke, Patrick Michael <PMOROUKE@southernco.com>; Dodd, Anthony Ray <ardodd@southernco.com>; Charles, Joseph D. <JCHARLES@southernco.com>
Subject: Request for Review of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon!

Our team is very close to submitting a license amendment application to Federal Energy Regulatory Commission (FERC) for the proposed modernization of the Middle Chattahoochee Project's (FERC Project Number P-2177) Oliver development. Thank you for the time you already spent in July and August consulting with Georgia Power on the proposed modernization. As a reminder, the proposal includes replacement of turbine runners and refurbishment of generators, and we expect to complete one unit per year from 2025 through 2028.

I am reaching out to initiate the next phase of consultation to provide your agency an opportunity to review our proposal in the same format that FERC will review it. We request your review of the attached draft license amendment application package, which includes the Initial Statement and Application (Attachment A), an Applicant Prepared Environmental Assessment (APEA) (Attachment B), including documentation of initial consultation with resource agencies in Appendix A, a marked-up version of the existing Exhibit A (Attachment C), showing changes that would be required by the proposal to this part of our existing FERC license, and a clean version of the revised Exhibit A with changes accepted. The proposed site improvements (construction trailer and laydown areas) for the modernization, which you did not see during initial consultation, are included in this proposal on pages 2-6 through 2-8 of the APEA and will be permitted under the State's NPDES permit program.

Please let me know by COB on Tuesday, September 26, 2023, if you have any comments or concerns on the attached. Comments provided by email are sufficient, will be included as an additional appendix to the APEA, and filed with FERC in the application package. We appreciate your participation in Georgia Power's ongoing Hydro Modernization projects.

Melissa Crabbe, PE
SCG Hydro Services
404-506-7273

Southern Company

U.S. Fish and Wildlife Service

Crabbe, Melissa C.

From: Bauer, Eric F <eric_bauer@fws.gov>
Sent: Wednesday, September 20, 2023 2:51 PM
To: Crabbe, Melissa C.; Hess, Brent; david.hedeen@dnr.ga.gov; Booth, Elizabeth; Zeng, Wei; graves.lovell@dcnr.alabama.gov
Cc: O'Mara, Courtenay R.; O'Rouke, Patrick Michael; Dodd, Anthony Ray; Charles, Joseph D.
Subject: Re: [EXTERNAL] Request for Review of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Thanks Melissa, I don't have any comments or concerns. Based on the information provided I don't anticipate any impacts to our trust resources.

-Eric

Eric Bauer (he/him)
Fish and Wildlife Biologist
Georgia Ecological Services
US Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, GA 30601
Office: 706-535-2103

Teams: eric_bauer@fws.gov (preferred)

http://www.fws.gov/athens [fws.gov]
Follow us on Facebook! https://www.facebook.com/GeorgiaFieldOffice [facebook.com]

From: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Sent: Thursday, September 14, 2023 4:13 PM
To: Hess, Brent <Brent.Hess@dnr.ga.gov>; Bauer, Eric F <eric_bauer@fws.gov>; david.hedeen@dnr.ga.gov <david.hedeen@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Zeng, Wei <Wei.Zeng@dnr.ga.gov>; graves.lovell@dcnr.alabama.gov <graves.lovell@dcnr.alabama.gov>
Cc: O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>; O'Rouke, Patrick Michael <PMOROUKE@southernco.com>; Dodd, Anthony Ray <ARDODD@southernco.com>; Charles, Joseph D. <JCHARLES@southernco.com>
Subject: [EXTERNAL] Request for Review of Georgia Power's Draft License Amendment Application for the Modernization of the Oliver Development

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good afternoon!

Our team is very close to submitting a license amendment application to Federal Energy Regulatory Commission (FERC) for the proposed modernization of the Middle Chattahoochee Project's (FERC Project Number P-2177) Oliver development. Thank you for the time you already spent in July and August consulting with Georgia Power on the proposed modernization. As a reminder, the proposal includes replacement of turbine runners and refurbishment of generators, and we expect to complete one unit per year from 2025 through 2028.

I am reaching out to initiate the next phase of consultation to provide your agency an opportunity to review our proposal in the same format that FERC will review it. We request your review of the attached draft license amendment application package, which includes the Initial Statement and Application (Attachment A), an Applicant Prepared Environmental Assessment (APEA) (Attachment B), including documentation of initial consultation with resource agencies in Appendix A, a marked-up version of the existing Exhibit A (Attachment C), showing changes that would be required by the proposal to this part of our existing FERC license, and a clean version of the revised Exhibit A with changes accepted. The proposed site improvements (construction trailer and laydown areas) for the modernization, which you did not see during initial consultation, are included in this proposal on pages 2-6 through 2-8 of the APEA and will be permitted under the State's NPDES permit program.

Please let me know by COB on Tuesday, September 26, 2023, if you have any comments or concerns on the attached. Comments provided by email are sufficient, will be included as an additional appendix to the APEA, and filed with FERC in the application package. We appreciate your participation in Georgia Power's ongoing Hydro Modernization projects.

Melissa Crabbe, PE
SCG Hydro Services
404-506-7273

Southern Company

Initial Consultation

U.S. Fish and Wildlife Service

Crabbe, Melissa C.

From: Bauer, Eric F <eric_bauer@fws.gov>
Sent: Thursday, August 24, 2023 1:08 PM
To: Crabbe, Melissa C.; O'Rouke, Patrick Michael
Subject: Re: [EXTERNAL] Lake Oliver Hydro Modernization

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Thanks Melissa. I don't have any concerns. The actions as described are unlikely to impact any listed species on your official species list.

-Eric

Eric Bauer (he/him)
Fish and Wildlife Biologist
Georgia Ecological Services
US Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, GA 30601
Office: 706-535-2103

Teams: eric_bauer@fws.gov (preferred)

http://www.fws.gov/athens [fws.gov]
Follow us on Facebook! https://www.facebook.com/GeorgiaFieldOffice [facebook.com]

From: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Sent: Thursday, August 24, 2023 9:21 AM
To: Bauer, Eric F <eric_bauer@fws.gov>; O'Rouke, Patrick Michael <PMOROUKE@southernco.com>
Subject: RE: [EXTERNAL] Lake Oliver Hydro Modernization

Good morning, Eric.

I created an iPaC Project for the Oliver Modernization and the Project Code is 2023-0111217.

Thanks much,
Melissa

From: Bauer, Eric F <eric_bauer@fws.gov>
Sent: Thursday, August 24, 2023 8:43 AM
To: O'Rouke, Patrick Michael <PMOROUKE@southernco.com>
Cc: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: Re: [EXTERNAL] Lake Oliver Hydro Modernization

Hey Patrick,

Would you mind putting this project into the IPaC system for documentation purposes? We're requesting that all project proponents do this to help our data collection efforts on consultations. Once you have, just send me the Project Code. Thanks in advance.

-Eric

Eric Bauer (he/him)
Fish and Wildlife Biologist
Georgia Ecological Services
US Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, GA 30601
Office: 706-535-2103

Teams: eric_bauer@fws.gov (preferred)

http://www.fws.gov/athens [fws.gov]
Follow us on Facebook! https://www.facebook.com/GeorgiaFieldOffice [facebook.com]

From: O'Rouke, Patrick Michael <PMOROUKE@southernco.com>
Sent: Wednesday, August 23, 2023 4:30 PM
To: Bauer, Eric F <eric_bauer@fws.gov>
Cc: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: [EXTERNAL] Lake Oliver Hydro Modernization

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Eric,

I'm coming back to you with another hydro modernization project, this time at Lake Oliver. This one should be pretty straightforward, but please let me know whether or not you have any questions or would like to schedule a call to go into more detail. This is only a unit upgrade, there is no gate work and drawdowns are not anticipated to be necessary to complete the work.

There will be an additional opportunity to comment as well prior to our filing this non-capacity amendment with FERC.

Thank you,
Patrick

Patrick O'Rouke
Fisheries Biologist
Georgia Power

pmorouke@southernco.com
241 Ralph McGill Blvd.
Atlanta, GA 30308
(404) 506-5025 (Office)
(470) 426-5322 (Cell)

Georgia Department of Natural Resources
Environmental Protection Division

Crabbe, Melissa C.

From: Dodd, Anthony Ray
Sent: Friday, August 11, 2023 3:32 PM
To: Crabbe, Melissa C.; Munn, Laura S.
Subject: Fwd: Georgia Power's Hydro Modernization Project - Oliver Dam

Follow Up Flag: Follow up
Flag Status: Flagged

Here's EPD's reply on our briefing for Oliver Dam modernization.
It seems they have no concerns about our proposed maintenance activities.
Tony

Get Outlook for iOS

From: Hedeen, David <david.hedeen@dnr.ga.gov>
Sent: Friday, August 11, 2023 3:29 PM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Subject: RE: Georgia Power's Hydro Modernization Project - Oliver Dam

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Hi Tony – Sorry I didn't get to respond to this email sooner. There are no new questions form EPD about it. Thank you for checking.

David Hedeen
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive SW, Suite 450
Atlanta, GA 30334

david.hedeen@dnr.ga.gov
470-427-2730 (office)
678-483-2287 (cell)

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Wednesday, August 9, 2023 11:17 AM
To: Hedeen, David <david.hedeen@dnr.ga.gov>
Subject: Re: Georgia Power's Hydro Modernization Project - Oliver Dam

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi David,
I hope all is well with you.
I'm following up to learn if y'all had an opportunity to review the planned maintenance work for Oliver Dam and whether you have any particular questions that need answers to aid your review.

Our internal team is going to touch on this project schedule tomorrow… and I will pass along any available news/questions from EPD about this project.

I look forward to hearing from you. Thank you and please email or call if you have any questions.

Sincerely,
Tony Dodd
GPC Natural Resources
404-434-9412

Get Outlook for iOS

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Wednesday, July 26, 2023 9:19 AM
To: Hedeen, David <david.hedeen@dnr.ga.gov>; Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>
Cc: Zeng, Wei <Wei.Zeng@dnr.ga.gov>
Subject: Re: Georgia Power's Hydro Modernization Project - Oliver Dam

Thank you, David.
Please let me know any questions you might have following your review- and of course I would be happy to set up a meeting with our project team for discussion if you wish.

Sincerely,
Tony

Get Outlook for iOS

From: Hedeen, David <david.hedeen@dnr.ga.gov>
Sent: Wednesday, July 26, 2023 9:16:35 AM
To: Dodd, Anthony Ray <ARDODD@southernco.com>; Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>
Cc: Zeng, Wei <Wei.Zeng@dnr.ga.gov>
Subject: RE: Georgia Power's Hydro Modernization Project - Oliver Dam

EXTERNAL MAIL: Caution Opening Links or Files

Stephen -- Thank you. Will do.

Anthony – Assuming this project will follow a trajectory similar to the previous hydro modernization projects, the information required by EPD is likely to be familiar to you. It is not yet familiar to me, but I will reach out with any particular requests once I have reviewed the project files Stephen mentioned later this week. Thank you,

David Hedeen
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive SW, Suite 450
Atlanta, GA 30334

david.hedeen@dnr.ga.gov
470-427-2730 (office)
678-483-2287 (cell)

From: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Sent: Tuesday, July 25, 2023 10:50 AM
To: Zeng, Wei <Wei.Zeng@dnr.ga.gov>; Dodd, Anthony Ray <ardodd@southernco.com>
Cc: Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Hedeen, David <david.hedeen@dnr.ga.gov>
Subject: RE: Georgia Power's Hydro Modernization Project - Oliver Dam

David/All:

This Oliver Dam project seems like it will be pretty straightforward, a low-level exercise. Perhaps quite similar to the previous modernizations for the Tallulah Falls Spillway and Terror Hydro Plant.

David,

I would direct your attention to the files for those two particular projects; folders located within the FERC folder of the Wetlands Mgt Unit on S-Drive.

Best wishes to all.

Stephen C. Wiedl, PWS
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive, Suite 450
Atlanta, GA 30334

404-452-5060
Stephen.Wiedl@dnr.ga.gov

From: Zeng, Wei <Wei.Zeng@dnr.ga.gov>
Sent: Tuesday, July 25, 2023 8:56 AM
To: Dodd, Anthony Ray <ardodd@southernco.com>
Cc: Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Hedeen, David <david.hedeen@dnr.ga.gov>; Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Subject: Re: Georgia Power's Hydro Modernization Project - Oliver Dam

Tony,

David Hedeen was hired two months ago as Steve's successor. Steve is still under EPD employment at this time to (1) finish two EPA grant reports, and (2) provide assistance needed to facilitate the Wetlands Unit's leadership succession.

I am copying David with the information provided. As was done in the past, it may be helpful for us to hop on a Teams call to go through your proposed processes. I will leave the details to the capable hands of yours and David's.

Thanks.

Wei

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Monday, July 24, 2023 5:55 PM
To: Zeng, Wei <Wei.Zeng@dnr.ga.gov>
Cc: Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>
Subject: Georgia Power's Hydro Modernization Project - Oliver Dam

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Georgia Power's Hydro Modernization Project continues, and similar to our recent consultation reach-outs to EPD, this message announces our next project in the maintenance queue as Lake Oliver Dam (in GPC's Middle Chattahoochee Hydro Group). Georgia Power is proposing to amend the Middle Chattahoochee Project license to upgrade the four generating units in the Oliver powerhouse. The upgrade includes replacing turbine runners and generators. Powerhouse work will begin in 2025. Spillways gates are not being replaced.

Please find the attached briefing card details for Oliver Dam. We do not expect water quality effects due to the planned maintenance activities.
We appreciate EPD's participation in the ongoing steps in GPC's Hydro Modernization project. Having anticipated Steve Wiedl's succession, please let me know who else in EPD to include on this consultation and for future communications on this project.

Please review the Oliver Dam maintenance briefing card details and let us know if you have any questions or concerns about potential impacts to water quality.

Thank you and Best Regards,

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGill Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026
Email: ardodd@southernco.com



This e-mail and any of its attachments may contain proprietary Southern Company and/or affiliate information that is privileged, confidential, or protected by copyright belonging to Southern Company and/or its affiliates. This e-mail is intended solely for the use of the individual or entity for which it is intended. If you are not the intended recipient of this e-mail, any dissemination, distribution,

copying, or action taken in relation to the contents of and attachments to this e-mail is contrary to the rights of Southern Company and/or its affiliates and is prohibited. If you are not the intended recipient of this e-mail, please notify the sender immediately by return e-mail and permanently delete the original and any copy or printout of this e-mail and any attachments. Thank you.

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGil Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026

Georgia Power

Written Correspondence with Georgia EPD

Middle Chattahoochee (FERC No. 2177) License Amendment
Oliver Unit Upgrade

- The Middle Chattahoochee Project consists of three separate developments: Goat Rock Dam, Oliver Dam, and North Highlands Dam. The Oliver Dam is the second in the series of dams at the Middle Chattahoochee Project.

- Georgia Power is proposing to amend the Middle Chattahoochee Project license to upgrade the four generating units in the Oliver powerhouse. This upgrade includes replacing the turbine runners and generators. Powerhouse work will begin in 2025. Spillways gates are not being replaced.

- The table below compares the rated generating and maximum hydraulic capacities of the existing units with the expected performance of the upgraded units.

UNIT	Existing Rated (Best Gate/Most Efficient) Capacity (MW)	Existing Max Hydraulic Capacity (CFS)	Proposed Rated (Best Gate/Most Efficient) Capacity (MW)	Proposed Max Hydraulic Capacity (CFS) after Upgrade
1	18	3640	19.9	4,183
2	18	3708	19.9	4,183
3	18	3775	19.9	4,183
4	6	1373	4.2	884

- Following the upgrade, Georgia Power will operate the Oliver powerhouse with no change to existing lake levels.

- By design, the expected range of temperature change in the tailrace due to the upgraded turbine coolers will be 0.1° C in summer months to 0.2° C in winter months.

- Georgia Power is preparing a non-capacity license amendment application to file with FERC. The application will conform with 18 C.F.R. §4.201 (c). Georgia Power will consult with state and federal agencies prior to filing. Non-capacity amendment applications typically have few, if any, effects on environmental, recreational, and cultural resources; however, any potential issues would be disclosed in the application to FERC and in the pre-filing consultation.

- Georgia Power is consulting with the following agencies on this license amendment application:
    - Georgia Wildlife Resources Division – lake levels and species affects
    - US Fish and Wildlife Service – lake levels and species affects
    - GA Environmental Protection Division – lake levels and affects to existing the 401 water quality certificate
    - Alabama Department of Conservation and Natural Resources – lake levels and species affects
    - Georgia State Historic Preservation Office – generator replacement and crane refurbishment

- FERC typically issues a notice of the application receipt and may ask Georgia Power for additional information prior to its analysis of the proposed upgrade. Georgia Power may request FERC to conduct an expedited review to facilitate equipment procurement and work at the Oliver powerhouse.

Crabbe, Melissa C.

From: Dodd, Anthony Ray
Sent: Friday, September 8, 2023 3:49 PM
To: Crabbe, Melissa C.
Cc: O'Mara, Courtenay R.; Meushaw, Hallie M.
Subject: Fwd: Georgia Power's Hydro Modernization Project - Oliver Dam - EPD Comments
Attachments: Middle Chattahoochee_Oliver.pdf

FYI

Get Outlook for iOS

From: Hedeen, David <david.hedeen@dnr.ga.gov>
Sent: Friday, September 8, 2023 1:35 PM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Cc: Zeng, Wei <Wei.Zeng@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Subject: Georgia Power's Hydro Modernization Project - Oliver Dam - EPD Comments

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Mr. Dodd -- Based on project information conveyed in July by Southern Company/Georgia Power Company via email (below) and electronic document (attached), the Georgia Environmental Protection Division's Wetlands Unit has concluded the activities proposed at Oliver Dam would have no material adverse effect on water quality. Therefore, no new 401 Water Quality Certification will be necessary for the proposed non-capacity license amendment. Thank you for the information you have provided and for your coordination efforts on this project. If you have any questions, please let me know. Thank you,

David Hedeen
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive SW, Suite 450
Atlanta, GA 30334

david.hedeen@dnr.ga.gov
470-427-2730 (office)
678-483-2287 (cell)

From: Zeng, Wei <Wei.Zeng@dnr.ga.gov>
Sent: Tuesday, July 25, 2023 8:56 AM
To: Dodd, Anthony Ray <ardodd@southernco.com>
Cc: Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Hedeen, David <david.hedeen@dnr.ga.gov>; Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Subject: Re: Georgia Power's Hydro Modernization Project - Oliver Dam

Tony,

David Hedeen was hired two months ago as Steve's successor. Steve is still under EPD employment at this time to (1) finish two EPA grant reports, and (2) provide assistance needed to facilitate the Wetlands Unit's leadership succession.

I am copying David with the information provided. As was done in the past, it may be helpful for us to hop on a Teams call to go through your proposed processes. I will leave the details to the capable hands of yours and David's.

Thanks.

Wei

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Monday, July 24, 2023 5:55 PM
To: Zeng, Wei <Wei.Zeng@dnr.ga.gov>
Cc: Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>
Subject: Georgia Power's Hydro Modernization Project - Oliver Dam

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Georgia Power's Hydro Modernization Project continues, and similar to our recent consultation reach-outs to EPD, this message announces our next project in the maintenance queue as Lake Oliver Dam (in GPC's Middle Chattahoochee Hydro Group). Georgia Power is proposing to amend the Middle Chattahoochee Project license to upgrade the four generating units in the Oliver powerhouse. The upgrade includes replacing turbine runners and generators. Powerhouse work will begin in 2025. Spillways gates are not being replaced.

Please find the attached briefing card details for Oliver Dam. We do not expect water quality effects due to the planned maintenance activities.
We appreciate EPD's participation in the ongoing steps in GPC's Hydro Modernization project. Having anticipated Steve Wiedl's succession, please let me know who else in EPD to include on this consultation and for future communications on this project.

Please review the Oliver Dam maintenance briefing card details and let us know if you have any questions or concerns about potential impacts to water quality.

Thank you and Best Regards,

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGill Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026
Email: ardodd@southernco.com



This e-mail and any of its attachments may contain proprietary Southern Company and/or affiliate information that is privileged, confidential, or protected by copyright belonging to Southern Company and/or its affiliates. This e-mail is intended solely for the use of the individual or entity for which it is intended. If you are not the intended recipient of this e-mail, any dissemination, distribution, copying, or action taken in relation to the contents of and attachments to this e-mail is contrary to the rights of Southern Company and/or its affiliates and is prohibited. If you are not the intended recipient of this e-mail, please notify the sender immediately by return e-mail and permanently delete the original and any copy or printout of this e-mail and any attachments. Thank you.

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGil Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026

Written Correspondence with Georgia EPD

Middle Chattahoochee (FERC No. 2177) License Amendment
Oliver Unit Upgrade

- The Middle Chattahoochee Project consists of three separate developments: Goat Rock Dam, Oliver Dam, and North Highlands Dam. The Oliver Dam is the second in the series of dams at the Middle Chattahoochee Project.

- Georgia Power is proposing to amend the Middle Chattahoochee Project license to upgrade the four generating units in the Oliver powerhouse. This upgrade includes replacing the turbine runners and generators. Powerhouse work will begin in 2025. Spillways gates are not being replaced.

- The table below compares the rated generating and maximum hydraulic capacities of the existing units with the expected performance of the upgraded units.

UNIT	Existing Rated (Best Gate/Most Efficient) Capacity (MW)	Existing Max Hydraulic Capacity (CFS)	Proposed Rated (Best Gate/Most Efficient) Capacity (MW)	Proposed Max Hydraulic Capacity (CFS) after Upgrade
1	18	3640	19.9	4,183
2	18	3708	19.9	4,183
3	18	3775	19.9	4,183
4	6	1373	4.2	884

- Following the upgrade, Georgia Power will operate the Oliver powerhouse with no change to existing lake levels.

- By design, the expected range of temperature change in the tailrace due to the upgraded turbine coolers will be 0.1° C in summer months to 0.2° C in winter months.

- Georgia Power is preparing a non-capacity license amendment application to file with FERC. The application will conform with 18 C.F.R. §4.201 (c). Georgia Power will consult with state and federal agencies prior to filing. Non-capacity amendment applications typically have few, if any, effects on environmental, recreational, and cultural resources; however, any potential issues would be disclosed in the application to FERC and in the pre-filing consultation.

    - Georgia Power is consulting with the following agencies on this license amendment application:
    - Georgia Wildlife Resources Division – lake levels and species affects
    - US Fish and Wildlife Service – lake levels and species affects
    - GA Environmental Protection Division – lake levels and affects to existing the 401 water quality certificate
    - Alabama Department of Conservation and Natural Resources – lake levels and species affects
    - Georgia State Historic Preservation Office – generator replacement and crane refurbishment

- FERC typically issues a notice of the application receipt and may ask Georgia Power for additional information prior to its analysis of the proposed upgrade. Georgia Power may request FERC to conduct an expedited review to facilitate equipment procurement and work at the Oliver powerhouse.

Alabama Department of Conservation and Natural Resources

Written Correspondence with ADCNR

Crabbe, Melissa C.

From: Lovell, Graves <Graves.Lovell@dcnr.alabama.gov>
Sent: Wednesday, September 6, 2023 11:08 AM
To: O'Rouke, Patrick Michael; Fobian, Todd
Cc: Crabbe, Melissa C.
Subject: RE: Lake Oliver Hydro Modernization

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

I have nothing to add. Thanks for including us.

R. Graves Lovell
District Fisheries Biologist
Alabama Wildlife and Freshwater Fisheries
c/o Fisheries Dept. Auburn University
203 Swingle Hall
Auburn, AL 36849
334-844-8959

From: O'Rouke, Patrick Michael <PMOROUKE@southernco.com>
Sent: Wednesday, September 6, 2023 9:37 AM
To: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>; Lovell, Graves <Graves.Lovell@dcnr.alabama.gov>
Cc: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: RE: Lake Oliver Hydro Modernization

Gentlemen, just checking back in to see if y'all anticipated having any comments at this time before we file.

Thank you,
Patrick

Patrick O'Rouke
Fisheries Biologist
Georgia Power

pmorouke@southernco.com
241 Ralph McGill Blvd.
Atlanta, GA 30308
(404) 506-5025 (Office)
(470) 426-5322 (Cell)

From: O'Rouke, Patrick Michael
Sent: Wednesday, August 23, 2023 4:30 PM
To: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>; Lovell, Graves <Graves.Lovell@dcnr.alabama.gov>
Cc: Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: Lake Oliver Hydro Modernization

Todd and Graves,

I'm coming back to you with another hydro modernization project, this time at Lake Oliver. This one should be pretty straightforward, but please let me know whether or not you have any questions or would like to schedule a call to go into more detail. This is only a unit upgrade, there is no gate work and drawdowns are not anticipated to be necessary to complete the work.

There will be an additional opportunity to comment as well prior to our filing this non-capacity amendment with FERC.

Thank you,
Patrick

Patrick O'Rouke
Fisheries Biologist
Georgia Power

pmorouke@southernco.com
241 Ralph McGill Blvd.
Atlanta, GA 30308
(404) 506-5025 (Office)
(470) 426-5322 (Cell)

Georgia Department of Natural Resources
Wildlife Resources Division

Crabbe, Melissa C.

From: O'Rouke, Patrick Michael
Sent: Monday, August 28, 2023 9:39 AM
To: Crabbe, Melissa C.
Subject: FW: Lake Oliver Hydro Modernization

From: Hess, Brent <Brent.Hess@dnr.ga.gov>
Sent: Friday, August 25, 2023 9:32 AM
To: O'Rouke, Patrick Michael <PMOROUKE@southernco.com>
Cc: Hakala, Jim <Jim.Hakala@dnr.ga.gov>; Peacock, Clint <Clint.Peacock@dnr.ga.gov>
Subject: Lake Oliver Hydro Modernization

CAUTION: This email originated from the Internet. Do not click links or open attachments unless you trust the sender and know the content is safe. If in doubt, report this email using the PhishAlarm button.

Patrick,

Thank you for the opportunity to consult with Georgia Power on the Middle Chattahoochee FERC License Amendment Application on the Oliver unit upgrades. The initial agency brief for the Lake Oliver unit upgrade should have minimal effects on the aquatic and recreational resources at the project. The Georgia Department of Natural Resources, Wildlife Resources Division requests to be consulted on any changes to the proposed plans outlined in the agency brief, including construction scheduling.

Thank you.

Brent Hess
Fisheries Biologist, Fisheries Management

Wildlife Resources Division [georgiawildlife.com]
(706) 845-4180

Facebook [facebook.com] • Twitter [twitter.com] • Instagram [instagram.com]
Buy a hunting or fishing license today! [georgiawildlife.com]

A division of the
GEORGIA DEPARTMENT OF NATURAL RESOURCES

From: O'Rouke, Patrick Michael <PMOROUKE@southernco.com>
Sent: Wednesday, August 23, 2023 4:31 PM
To: Hess, Brent <Brent.Hess@dnr.ga.gov>
Cc: Peacock, Clint <Clint.Peacock@dnr.ga.gov>; Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: Lake Oliver Hydro Modernization

Brent,

I'm coming back to you with another hydro modernization project, this time at Lake Oliver. This one should be pretty straightforward, but please let me know whether or not you have any questions or would like to schedule a call to go into more detail. This is only a unit upgrade, there is no gate work and drawdowns are not anticipated to be necessary to complete the work.

There will be an additional opportunity to comment as well prior to our filing this non-capacity amendment with FERC.

Thank you,
Patrick

Patrick O'Rouke
Fisheries Biologist
Georgia Power

pmorouke@southernco.com
241 Ralph McGill Blvd.
Atlanta, GA 30308
(404) 506-5025 (Office)
(470) 426-5322 (Cell)

APPENDIX B

GEORGIA COASTAL RESOURCES DIVISION'S CZMA NOTIFICATION

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION
ONE CONSERVATION WAY • BRUNSWICK, GA 31520 • 912.264.7218
COASTALGADNR.ORG

MARK WILLIAMS
COMMISSIONER

DOUG HAYMANS
DIRECTOR

NOTIFICATION

Effective August 1, 2021

To: Interested Applicants/Sponsors/General Public

From: Jill Andrews, Coastal Resources Division, Coastal Management Program Section Chief

RE: Executive Order 12372 Intergovernmental Coordination & Environmental Review

The Coastal Zone Management Act (CZMA, 15 CFR 930) includes provisions that are intended to ensure that federal assistance to applicant agencies for activities affecting any coastal use or resource is granted only when such activities are consistent with approved coastal management programs. Georgia's Coastal Management Program (GCMP) area encompasses eleven coastal counties: Brantley, Bryan, Camden, Charlton, Chatham, Effingham, Glynn, Liberty, Long, McIntosh, and Wayne. For assistance within these counties please contact our Federal Consistency Coordinator (Kelie.Moore@dnr.ga.gov)

Assistance programs and intergovernmental reviews **outside** of these eleven (11) counties are not subject to the CZMA provisions and do not require approval from Coastal Resources Division.

Coastal Barrier Resources Act (CRBA) areas do not extend outside these eleven (11) coastal counties and do not require approval from Coastal Resources Division.

Housing and Urban Development (HUD) federal assistance projects proposed **anywhere** within Georgia, including within the eleven (11) coastal counties, do not require approval from Coastal Resources Division.

Please use this Notification as an official document to send when submitting your application to a funding agency or for other intergovernmental review verification needs. This letter is also available on the Georgia State Clearinghouse website: http://www.opb.georgia.gov/state-clearinghouse and on the Georgia Department of Natural Resources Coastal Resources Division website: https://www.coastalgadnr.org/MarshShore

APPENDIX C

INFORMATION FOR PLANNING AND CONSULTATION (IPAC REPORT)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601-2523
Phone: (706) 613-9493 Fax: (706) 613-6059

In Reply Refer To:
Project Code: 2023-0112255
Project Name: Oliver Development

August 02, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design if you determine those species or designated critical habitat may be affected by your proposed project.

FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency, project proponent, or their designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make “no effect” determinations. If you determine that your proposed action will have “no effect” on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally listed threatened or endangered fish or wildlife species without the appropriate permit. If you need additional information to assist in your effect determination, please contact the Service.

If you determine that your proposed action may affect federally listed species, please consult with the Service. Through the consultation process, we will analyze information contained in a biological assessment or equivalent document that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a Habitat Conservation Plan) may be necessary to exempt harm or harass federally listed threatened or endangered fish or wildlife species. For more information regarding formal consultation and HCPs, please see the Service's Section 7 Consultation Library and Habitat Conservation Plans Library Collections.

Action Area. The scope of federally listed species compliance not only includes direct effects, but also any indirect effects of project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations). The action area is the spatial extent of an action's direct and indirect modifications or impacts to the land, water, or air (50 CFR 402.02). Large projects may have effects to land, water, or air outside the immediate footprint of the project, and these areas should be included as part of the action area. Effects to land, water, or air outside of a project footprint could include things like lighting, dust, smoke, and noise. To obtain a complete list of species, the action area should be uploaded or drawn in IPaC rather than just the project footprint.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. An updated list may be requested through IPaC.

How to Submit a Project Review Package. If you determine that your action may affect any federally listed species and would like technical assistance from our office, please send us a complete project review package. A step by step guide is available at the Georgia Ecological Services Project Planning and Review page (https://www.fws.gov/office/georgia-ecological-services/project-planning-review).

Beginning April 1, 2023, requests for threatened and endangered species project reviews must be submitted to our office using the process described below. (If you are not emailing us to submit a project for review, your email will be forwarded to the appropriate staff.) This is a three-step process. All steps must be completed to ensure your project is reviewed by a biologist in our office and you receive a timely response. In brief the steps are:
Step 1. Request an official species list for your project through IPaC (Done!)
Step 2. Complete applicable Determination Keys
Step 3. Send your complete project project review package to **GAES_Assistance@FWS.gov** for review if no dKey is applicable or all aspects of the project are not addressed by dKeys, i.e. a species returned by IPaC does not have a dKey to address impacts to it. A complete project review package should include:

1. A description of the proposed action, including any measures intended to avoid, minimize, or offset effects of the action. The description shall provide sufficient detail to assess the effects of the action on listed species and critical habitat, such as the purpose of the action; duration and timing of the action; location (latitude and longitude); specific activities involving disturbance to land, water, and air, and how they will be carried out; current description of areas to be affected directly or indirectly by the action; and maps, drawings, or similar schematics of the action.
2. An updated Official Species List and dKey results
3. Biological Assessments (may include habitat assessments and information on the presence of listed species in the action area);
4. Description of effects of the action on species in the action area and, if relevant, effect determinations for species and critical habitat;
5. Conservation measures and any other available information related to the nature and scope of the proposed action relevant to its effects on listed species or designated critical habitat (e.g., management plans related to stormwater, vegetation, erosion and sediment plans). Visit the Georgia Conservation Planning Toolbox (https://www.fws.gov/story/conservation-tools-georgia) for information about conservation measures.
6. In the email subject line, use the following format to include the Project Code from your IPaC species list and the county in which the project is located (Example: Project Code: 2023-0049730 Gwinnett Co.). For Georgia Department of Transportation related projects, please work with the Office of Environmental Services ecologist to determine the appropriate USFWS transportation liaison.

The Georgia Ecological Services Field Office will send a response email within approximately 30 days of receipt with technical assistance or further recommendations for specific species.

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value. We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website (https://www.fws.gov/program/national-wetlands-inventory) integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

The MBTA prohibits the taking of migratory birds, nests, and eggs, except as permitted by the Service's Migratory Birds Program (https://fws.gov/program/migratory-birds). To minimize the likelihood of adverse impacts to migratory birds, we recommend construction activities occur outside the general bird nesting season from March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

We recommend review of Birds of Conservation Concern to fully evaluate the effects to the birds at your site. This list identifies birds that are potentially threatened by disturbance and construction. It can be found at the Service's Migratory Birds Conservation Library Collection (https://fws.gov/library/collections/migratory-bird-conservation-documents).

Information related to best practices and migratory birds can be found at the Service's Avoiding and Minimizing Incidental Take of Migratory Birds Library Collection (https://fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds).

BALD AND GOLDEN EAGLES

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the ESA on August 9, 2007. Both the bald eagle and golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For information on bald and golden eagle management guidelines, we recommend you review information provided at the Service's Bald and Golden Eagle Management Library Collection (https://fws.gov/library/collections/bald-and-golden-eagle-management).

NATIVE BATS

If your species list includes Indiana bat (*Myotis sodalis*) or northern long-eared bat (*M. septentrionalis*) and the project is expected to impact forested habitat that is appropriate for maternity colonies of these species, forest clearing should occur outside of the period when bats may be present. Federally listed bats could be actively present in forested landscapes from April

1 to October 15 of any year and have non-volant pups from May 15 to July 31 in any year. Non-volant pups are incapable of flight and are vulnerable to disturbance during that time.

Indiana, northern long-eared, and gray (*M. grisescens*) bats are all known to utilize bridges and culverts in Georgia. If your project includes maintenance, construction, or any other modification or demolition to transportation structures, a qualified individual should complete a survey of these structures for bats and submit your findings via the Georgia Bats in Bridges cell phone application, free on Apple and Android devices. Please include these findings in any biological assessment(s) or other documentation that is submitted to our office for technical assistance or consultation.

Additional information can be found at Georgia Ecological Services' Conservation Planning Toolbox and Bat Conservation in Georgia pages.

MONARCH BUTTERFLY

On December 20, 2020, the Service determined that listing the Monarch butterfly (*Danaus plexippus*) under the Endangered Species Act is warranted but precluded at this time by higher priority listing actions. With this finding, the monarch butterfly becomes a candidate for listing. The Service will review its status each year until we are able to begin developing a proposal to list the monarch.

As it is a candidate for listing, the Service welcomes conservation measures for this species. Recommended, and voluntary, conservation measures for projects in Georgia can be found at our Monarch Conservation in Georgia (https://www.fws.gov/project/monarch-conservation-georgia) page.

EASTERN INDIGO SNAKE

Our office has published guidance documents to assist project proponents in avoiding and minimizing potential impact to the eastern indigo snake. The Visual Encounter Survey Protocol for the Eastern Indigo Snake (*Drymarchon couperi*) in Georgia is recommended for project proponents or their designees to evaluate the possible presence of the Eastern indigo snake at a proposed project site. The Standard Protection Measures for the Eastern Indigo Snake (*Drymarchon couperi*) include educational materials and training that can help protect the species by making staff working on a project site aware of their presence and traits. In Georgia, indigo snakes are closely associated with the state-listed gopher tortoise (*Gopherus polyphemus*), a reptile that excavates extensive underground burrows that provide the snake shelter from winter cold and summer desiccation.

SOLAR ENERGY DEVELOPMENT

The Georgia Low Impact Solar Siting Tool (LISST) is available as a map layer in IPaC (Find it in the “Layers” Box > “Environmental Data”) and as a web application to provide project managers with the data to identify areas that may be preferred for low impact development. The tool seeks to support the acceleration of large-scale solar development in areas with less impact to the environment.

STATE AGENCY COORDINATION

Additional information that addresses at-risk or high priority natural resources can be found in the State Wildlife Action Plan (https://georgiawildlife.com/WildlifeActionPlan), at Georgia Department of Natural Resources, Wildlife Resources Division Biodiversity Portal (https://georgiawildlife.com/conservation/species-of-concern), Georgia's Natural, Archaeological, and Historic Resources GIS portal (https://www.gnahrgis.org/gnahrgis/index.do), and the Georgia Ecological Services HUC10 Watershed Guidance page.

Thank you for your concern for endangered and threatened species. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. For further consultation on your proposed activity, please email gaes_assistance@fws.gov and reference the project county and your Service Project Tracking Number.

This letter constitutes Georgia Ecological Services' general comments under the authority of the Endangered Species Act.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601-2523
(706) 613-9493

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Alabama Ecological Services Field Office
1208 B Main Street
Daphne, AL 36526-4419
(251) 441-5181

PROJECT SUMMARY

Project Code: 2023-0112255
Project Name: Oliver Development
Project Type: Dam - Maintenance/Modification
Project Description: Oliver Development of the Middle Chattahoochee Project (P-2177)
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@32.54159995,-85.02850827530892,14z



Counties: Alabama and Georgia

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

CLAMS

NAME	STATUS
Purple Bankclimber (mussel) *Elliptoideus sloatianus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7660	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Fringed Campion *Silene polypetala* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3738	Endangered
Georgia Rockcress *Arabis georgiana* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4535	Threatened
Michaux's Sumac *Rhus michauxii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5217	Endangered
Relict Trillium *Trillium reliquum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8489	Endangered

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Georgia Rockcress *Arabis georgiana* https://ecos.fws.gov/ecp/species/4535#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jul 15
Cerulean Warbler *Dendroica cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 26 to Jul 20
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the

FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look

at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be

aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1Ah
- PSS1Fb
- PSS1Cb
- PFO1A
- PFO1C
- PSS1C
- PSS1A
- PSS1Ch
- PFO1Ch
- PSS1Fh

RIVERINE

- R5UBH
- R4SBC

LAKE

- L2USCh
- L1UBHh
- L2RSCh

FRESHWATER POND

- PUBHh
- PUSCh

FRESHWATER EMERGENT WETLAND

- PEM1C
- PEM1Ah
- PEM1Fh
- PEM1Ch

- PEM1A

IPAC USER CONTACT INFORMATION

Agency: Kleinschmidt Associates
Name: Sydney Robinson
Address: 6 Fundy Road
Address Line 2: Suite 500
City: Falmouth
State: ME
Zip: 04105
Email sydney.robinson@kleinschmidtgroup.com
Phone: 2075480037

ATTACHMENT C

EXHIBIT A – AMENDED PROJECT DESCRIPTION (TRACK CHANGE)

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

18 CFR 4.51.(b) Exhibit A – Is a description of the project. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. This section has sub-~~sections~~sections which follow this introduction. Each of these subsections is keyed to the appropriate corresponding requirements of 18 CFR 4.51.

The Middle Chattahoochee Project consists of three separate developments: Goat Rock Dam, Oliver Dam, and North Highlands Dam. -The following table provides an overview of the stations and some of the salient features of each station.

Feature	Goat Rock Dam	Oliver Dam	North Highlands Dam
West~~Alabam a~~ Non-overflow	Yes	Yes	Yes
West ~~Alabama~~ Non- overflow Gallery	No	Yes	No
Spillway Type	Gated Ogee	Gated Ogee	Free Crested
Spillway Control	Obermeyer Gates	Taintc~~o~~r Gates	Flashboards
Spillway Gallery	Yes	Yes	No
Intake	Yes	Yes	Yes
Intake Gallery	Yes	Yes	No
Powerhouse	Yes	Yes	Yes
East ~~Georgia~~ Non-overflow	Yes	Yes	Yes
East ~~Georgia~~ Non- overflow Gallery	Yes	Yes	No

Pursuant to the requirements of 18 CFR 4.51, each development is described separately in the following sections.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

GOAT ROCK DAM

4.51 (b)(1) The physical composition, dimensions and general configurations of any dams, spillways, penstocks, powerhouses, tailraces or other structures whether existing or proposed to be included as part of the project;

General Description Goat Rock Dam:
The Goat Rock station is located at mile 172.2 on the Chattahoochee River approximately 10 miles upstream from Columbus, Georgia. The station is located downstream of Georgia Power Company's Bartletts Ferry Dam (FERC Project Number 485).

The Goat Rock Development consists of: (1) an approximately 1,433.5-foot-long, 75-foot-high cyclopean concrete dam composed of: (a) an approximately 200-foot-long non-overflow structure; (b) an approximately 173-foot-long, 56.33-foot-wide combined powerhouse and intake section; (c) an approximately 74-foot-long section with four trash gates; (d) an approximately 909.5-foot-long fixed-crest spillway topped that contains an Obermeyer gate system with three equal independently operated zones, each including 15 individual gate panels; and (e) an approximately 77-foot-long non-overflow section; (2) a 966-acre impoundment at a normal maximum surface elevation of 404 feet plant datum (PD) with a 8,500-acre-foot gross storage capacity and 4,833 acre-feet of usable storage capacity; (3) a powerhouse containing six horizontal turbine-generator units with a total authorized installed capacity of 40.5 megawatts (MW); (4) a 1,200-foot-long, 175 to 200-foot-wide tailrace with a concrete tailrace training wall near the dam; and (5) appurtenant facilities.

All of the structures except the powerhouse itself have been anchored to the foundation rock with post tensioned anchors.

Non-overflow Goat Rock Dam:
The non-overflow section is a massed concrete structure with its crest at elevation 415. It has a length of 200 feet. The crest is 5 feet wide. The upstream face of the non-overflow is vertical to elevation 378. At this elevation, the face assumes an upstream batter of 1 foot horizontal to 10 feet vertical. On the downstream face, the face is shaped as a vertical curve with at 10-foot radius and tangent to the downstream edge of the crest. The vertical curve extends approximately 5 feet below the crest or to elevation 410. At this point, the face is battered downstream at 6 feet horizontal to 10 feet vertical. At elevation 378 the batter flattens to 7 feet horizontal to 10 feet vertical. The non-overflow contains an internal drainage system consisting of horizontal and vertical box drains. The horizontal box drains are located at elevation 378 and 358.

Non-overflow Gallery Oliver Dam: There is no gallery at this structure.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Intake Goat Rock Dam:
The intake is a concrete gravity structure that is integral with the powerhouse. The intake measures, from its most upstream trash-rack-support haunch, downstream to its junction with the powerhouse, approximately 61.18 feet. It is approximately 173 feet long East to West. It has a foundation drainage system similar to the spillway drainage system. The intake contains trash racks, stop-log guides, and a gated penstock for each unit.

Intake Gallery Goat Rock Dam:
A gallery upstream of the turbines provides access to the upstream bearings and wicket gate mechanisms. The gallery measures 180 feet from East to West and spans almost the entire length of the powerhouse. The reason the length of the upstream bearing gallery is greater than the dimension of the Intake presented above (173 feet) is because the gallery extends to the west of the Intake at the Alabama side and to the east into the area of the trash gates. This gallery is 7.83 feet wide. It is rectangular in shape with a semicircular arch on the top. The maximum height of the tunnel is 16.21 feet. Its floor elevation is at 349.71.

Powerhouse Goat Rock Dam:
The powerhouse is a reinforced concrete structure. It contains a number of distinct floors. These include the turbine/generator deck at elevation 350.5, the Low Tension Bus Room at elevation 364.5, the Low Tension Switch Room at elevation 379.0 and the High Tension Room at elevation 395.33. The powerhouse measures approximately 56.33 feet wide from its junction with the intake to the downstream end of the structure. It measures 173 feet long from East to West.

Spillway Goat Rock Dam:
The dam is of cyclopean concrete construction and has a maximum height of approximately 75 feet. The spillway section at Goat Rock Dam is free-crested and measures approximately 909.5 feet from East to West. The crest of the spillway is at elevation 400 and the spillway is topped with Obermeyer gates whose top is at elevation 404.

The Obermeyer gates are located at the maximum elevation of the crest. On the upstream face, the face slopes away from this point upstream with a batter of 10 feet horizontal to 5 feet vertical until it reaches the upstream face of the spillway at elevation 397.5. The upstream spillway face below elevation 397.5 is vertical.

The downstream face of the spillway is ogee-shaped. At approximately elevation 390 on the downstream face, the slope of the spillway takes on a uniform downstream batter of 6.61 feet horizontal to 10 feet vertical. This extends to approximately elevation 348 where the slope transitions into a vertical curve with a radius of 35 feet.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

The spillway has five sets of box drains. Of these, 2 are horizontal and run upstream to downstream, two others are horizontal and run longitudinally along the long axis of the dam (East to West), and the final set is vertical and joins the two longitudinal horizontal drains.

The first set of horizontal box drains which run upstream to downstream, exit on the downstream face of the spillway. The upper group of this set of box drains drain the gallery and the lower group of this set drains the foundation. The upper set of box drains drain either at elevation 360 or 374 depending on the elevation of the gallery (see below). The lower set of drains for the foundation exits near elevation 336.

The second set of horizontal box drains runs along the long axis of the dam. The upper set is located at either elevation 365 or 378. This corresponds to the top of the initial construction phase of the dam. The lower set of horizontal box drains running along the long axis of the dam is located near the foundation level at elevation 336.

The final set of box drains in the spillway runs vertically and connects the two horizontal longitudinal drain sets.

Spillway Gallery Goat Rock Dam:
As previously mentioned, the spillway contains a drainage and inspection gallery at two different elevations in the spillway structure. The inspection gallery is at elevation 360.25 from where the Intake section adjoins the spillway on the Alabama side. The gallery remains essentially at this elevation to within approximately 234 feet of the junction of the spillway with the non-overflow. At this point, there are a series of stairs that transitions the gallery floor elevation from 360.25 to approximately elevation 374.25. The gallery is approximately 4 feet wide. The top of the gallery is semicircular in shape and the maximum height of the gallery is 8 feet. The upstream face of the gallery is 10.5 feet downstream of the upstream face of the non-overflow.

Non-overflow Goat Rock Dam:
The non-overflow is similar in shape to the non-overflow. It measures 77 feet from East to West. The crest of the structure is at elevation 415 and there is a 5-foot-wide walkway on the crest. The upstream face is vertical throughout its height. The downstream face has a 10-foot radius vertical curve tangent to the faces of the structure at approximately elevation 410. The downstream face is battered from this elevation on a 7-foot horizontal to 10 foot vertical slope. This section also has a box drainage system.

Non-overflow Gallery Goat Rock Dam:
The inspection and drainage gallery has a short segment in the westernmost part of the non-overflow. The floor elevation of the gallery is at elevation 374. The gallery is approximately 4 feet wide. The top of the gallery is semicircular in shape and the maximum height of the gallery is 7.75 feet. The upstream face of the gallery is 10.5 feet downstream of the upstream face of the non-overflow.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project;

The requested data is presented in the following table:

Goat Rock	
Normal Maximum Surface Area (ac)	966 ac @ elev. 404 PD
Normal Maximum Surface Elevation (Plant Datum)	404 PD (top of gates)
Normal Maximum Surface Elevation (Mean Sea Level – MSL)	403.16 (top of gates)
Gross Storage Capacity (acft)	8,500 acft @ elev. 404 PD
Useable Storage Capacity (acft)	4,833 acft elev. 404 to 398 PD

4.51(b)(3) The number, type, and rated capacity of any turbines or generators whether existing or proposed to be included as part of the project;

The station has a nameplate rating of 40.5MW[1] The average head is 65.7 feet. The powerhouse contains the six generating units. All of the units are horizontal units (the axis of the turbine and generator are parallel to the floor). Units 1 and 2 were replaced in 2004, and are rated at 9.3 MW each, Unit 3 is rated at 6.9 MW, and Units 4, 5 and 6 are rated at 5 MW each. The first two units originally went into commercial operation in 1912, but the replacement units for Units 1 and 2 began commercial operation in 2005. Unit 3 went commercial in 1915. Unit 4 went commercial in 1920. Units 5 and 6 went commercial in 1955 and 1956 respectively. In 1995, Unit 3 threw a runner bucket which destroyed the turbine. A new runner was commissioned which increased the unit's capacity from 5 to 6.9 MW. The new unit went commercial in 1996.

The details of the Goat Rock units are presented in the following table.

Item	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**
Generator Manufacturer	Ideal Electric Company	Ideal Electric Company	Allis - Chalmers	Allis - Chalmers	Allis - Chalmers	Allis - Chalmers
Name Plate Rating MW	9.3	9.3	6.9	5	5	5
Generator Voltage KV	12	12	12	12	4	4
Exciter Voltage	125	125	125	125	125	125
Turbine Manufacturer	VA Tech Bouvier	VA Tech Bouvier	American Hydro	Allis - Chalmers	Leffel	Leffel
Shaft Orientation and RPM	Horizontal 229	Horizontal 229	Horizontal 200	Horizontal 200	Horizontal 200	Horizontal 200

[1] The Goat Rock station has a total generating capacity of 40.5 MW. This was not corrected when FERC issued the March 22, 2005 Errata Notice which updated the Name Plate Rating for the replacements units of Unit 1 and Unit 2. The Errata Notice states, "Page 21. Paragraph 67 (B) (2) (a) (3) line 8. Replace "3-MW" with "9. 3-MW"." This statement changes the total generating capacity of the plant to 40.5 MW from 39.7 MW.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Initial Start Up	2005	2005	1996	1920	12/18/55	2/16/56
Commercial Operations	2005	2005	1996	1920	12/18/55	2/16/56

4.51(b)(4) The number length, voltage, and interconnections of any primary transmission lines, whether existing or proposed to be included as part of the project (see 16 U.S.C. 796(11));

No transmission lines are proposed to be included as part of the project.

4.51(b)(5) The specifications of any additional mechanical, electrical and transmission equipment appurtenant to the project; and

Dam Equipment
The only equipment that is present on the dam are the Obermeyer gates. The Obermeyer gate system is a steel gate hinged on the reservoir side that is raised or lowered by air-filled rubber bladders that are in three independently operated zones, each including 15 individual gate panels.

Intake Equipment
Each of the intakes is equipped with a steel headgate. Units 1-4 have steel slide head gates with individual motor operated rack and pinion hoists. Units 5 and 6 have steel fixed wheel headgates with individual motor operated drum and cable hoists. The two exciter penstocks also have steel slide head gates with rack and pinion hoists. The final set of gates that is present on the intake area are 4 steel slide waste gates for the 12 foot by 8 foot 6 inch openings.

Powerhouse Equipment
The powerhouse has one 35-ton bridge crane as well as auxiliary equipment such as air compressors, oil pumps, fire protection equipment, etc.

Electrical Equipment
The major electrical equipment at the station consists of generators, circuit breakers, switchboards and miscellaneous electrical equipment such as transformers, storage batteries, switchgear, lighting and telephone systems. The generators for the original Units 1 and 2 were Westinghouse horizontal shaft, 3750 kva, 3 phase, 60 cycle, 12,000 volt units. The replacement Units 1 and 2 generators are Ideal Electric Company horizontal shaft, 10,941 kva, 3 phase, 60 cycle, 12,000 volt units. The Unit 3 generator is Allis-Chalmers horizontal shaft, 6250 kva, 3 phase, 60 cycle, 12,000 volt unit. The Unit 4 generator is an Allis Chalmers horizontal shaft, 6250 kva, 3 phase, 60 cycle 12,000 volt unit. The Unit 5 and 6 generators are Allis Chalmers horizontal shaft, 6250 kva 3 phase, 60 cycle, 4160 volt units.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of lands of the United States within the project boundary.

The project boundary for the Goat Rock impoundment is predominantly the 420-foot contour. There are some isolated areas where the Goat Rock project boundary reaches to the 415, 412 or 404 foot elevations, depending on the topography. There are no lands of the United States included within the project boundary for this station.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

OLIVER DAM

4.51 (b)(1) The physical composition, dimensions and general configurations of any dams, spillways, penstocks, powerhouses, tailraces or other structures whether existing or proposed to be included as part of the project;

General Description Oliver Dam:
The Oliver station is located at mile 163.5 on the Chattahoochee River in the northern outskirts of Columbus, Georgia. The station is located downstream of Georgia Power Company's Goat Rock Dam (FERC Project Number 2177).

The Oliver Development consists of: (1) an approximately 2,021-foot-long, 70-foot-high concrete gravity dam composed of: (a) an approximately 284-foot-long west non-overflow structure; (b) an approximately 1,324-foot-long gated spillway containing 33 radial arm Taintcor gates each 35 feet long, 16 feet high, and a trash gate 11 feet long and 16 feet high; (c) an approximately 198-foot-long, 74-foot-wide combined powerhouse and intake section; and (d) an approximately 215-foot-long east non-overflow structure; (2) a 2,280-acre impoundment at a normal maximum surface elevation 337 feet PD with a 32,000-acre- foot gross storage capacity and 6,080 100 acre-feet of usable storage capacity between license elevations 337 to 334 PD; (3) a powerhouse containing four vertical turbine-generator units with a total authorized installed capacity of 60 MW; (4) a 1,500-foot-long, 100-foot-wide tailrace; and (5) appurtenant facilities.

WestAlabama Non-overflow Oliver Dam:
The West non-overflow structure is 12 foot wide at the crest which is at elevation 350.0 and . The Alabama non-overflow measures 284.375 feet from eEast to wWest. The upstream face of the non-overflows is vertical. On the The downstream face of the non-overflows is vertical from elevation 350 to elevation 329.0. At elevation 329.0, the slope becomes battered downstream on a slope of 6.7 feet horizontal to 10.0 feet vertical. This continues to elevation 289. At elevation 289 the batter flattens out to be 8.0 horizontal to 10.0 vertical.

WestAlabama Non-overflow Gallery Oliver Dam:
The non-overflows contain a portion of the drainage and inspection gallery that extends through the whole length of the spillway. The drainage and inspection gallery on the westright (Alabama) abutment has its floor at elevation 312 at station 19+45.375. A short stairway extends to station 19+01.375 where the elevation of the gallery is approximately 291.58. The inspection and drainage gallery is roughly rectangular in shape, measuring 5 feet wide by 7.5 feet high. The inspection and drainage gallery retains this shape throughout the structure. It contains grout holes as well as vertical ceiling drains and vertical floor drains.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Spillway Oliver Dam:
The spillway section has a total length of 1324.0 feet and starts at station 18+29.375 and runs to station 5+05.375. The spillway is formed of massed concrete with an ogee shape and a flip-bucket apron. The dam is a concrete gravity structure and has a maximum height of approximately 70 feet from the toe of the dam to the crest of the bridge. The spillway section is topped by a bridge deck which is 12 feet wide at elevation 350. The bridge deck is supported by two I beams which in turn are supported by concrete spillway piers. These piers are 4 feet thick (eEast to wWest). The top of the piers is at elevation 347.42. While the upstream face of the piers is flush with the face of the spillway, the downstream edge slopes downstream from elevation 347.42 to elevation 330 at a batter of 7.47 feet horizontal for 10 feet vertical. The pier then drops vertically from elevation 330 to intersect the downstream face of the spillway. The total length of the pier extends upstream-to-downstream is approximately 25 feet.

The spillway is topped by a total of 33 steel taintcor gates and one trash gate. The taintcor gates are approximately 35.67 feet long and they extend vertically 16 feet from the spillway crest at elevation 321 to elevation 337 (top of normal pool).

Spillway Gallery Oliver Dam:
In the spillway section, the gallery floor starts at elevation 291.68 at station 19+01.375 and slopes to elevation 290 at station 5+56.045. At this point, the gallery descends in two series of steps to elevation 267.5 at station 5+05.375. This is the junction of the spillway section and the intake section.

Intake Oliver Dam:
The intake section of the station measures 197.875 feet and runs from station 5+05.375 to station 3+07.500. The intake is virtually integral with the powerhouse and measures 197.875 feet from east to west. The crest of the intake is at elevation 350 and is 20.25 feet upstream-to-downstream. The upstream face of the intake is vertical. On the downstream side, the intake is vertical from elevation 350 to elevation 329. At this elevation, the face of the intake is battered at a slope of 6.7 feet horizontal to 10 feet vertical until it reaches elevation 299 which is the elevation of the top of the powerhouse. The intake measures approximately 40.33 feet from the upstream face of the intake to where the downstream face intersects the powerhouse roof elevation of 299. There is a short section measuring 13.17 feet between the end of the intake and the upstream wall of the powerhouse.

Intake Gallery Oliver Dam:
The inspection and drainage gallery has its lowest elevation where it passes below the suction for the hydraulic turbines. Station 5+05.375 is the junction of the spillway and the intake section. The floor of the gallery is elevation 267.5. The floor remains at this elevation to station 3+39.875. At this station, the gallery floor rises up, by some stairs, to elevation 275 at station 3+07.500. This station is the junction between the intake and the eastGeorgia non-overflow.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Powerhouse Oliver Dam:
The powerhouse is ~~virtually~~ integral with the intake structure. The powerhouse measures 197.83 feet from c~~E~~ast to w~~W~~est and 73.67 feet upstream to downstream. The structure is a reinforced concrete structure. The powerhouse contains the operating floor for Units 1-3 at elevation 286. There is a gallery for Units 1-3 which provides access to the draft tube man-holes. The gallery elevation is at elevation 247 and the man-holes are near the top of the stairs at elevation 250.5. This gallery also contains a stairwell that leads up to the turbine inspection manways at elevation 260.

Unit 4 (the minimum flow unit) has a slightly different configuration. A floor exists on elevation 275 and there is a passageway that leads to the turbine inspection manway and draft tube inspection manway at elevations 258.5 and 251.62 respectively.

East~~Georgia~~ Non-overflow Oliver Dam:
The east~~Georgia~~ non-overflow is similar in shape to the intake and west~~Alabama~~ non-overflow sections. It is 214.5 feet long from c~~E~~ast to w~~W~~est. The crest is at elevation 350 and is 12 feet wide. It has the same geometry as the west~~Alabama~~ non-overflow section. The upstream face of the non-overflows is vertical. On the downstream face of the non-overflows is vertical from elevation 350 to elevation 329.0. At elevation 329.0, the slope becomes battered downstream on a slope of 6.7 feet horizontal to 10.0 feet vertical. This continues to elevation 289. At elevation 289 the batter flattens out to be 8.0 horizontal to 10.0 vertical. The non-overflow contains a portion of the drainage and inspection gallery that extends through the whole length of the spillway.

East~~Georgia~~ Non-overflow Gallery Oliver Dam:
The east~~Georgia~~ non-overflow drainage and inspection gallery has three distinct elevations which are connected by stair sections. The first section is at the end of the stair connecting the i~~I~~ntake and the east~~Georgia~~ non-overflow section. It is at elevation 287.5 and extends to station 2+71.500. The second section is at elevation 299.375 and extends to station 2+35.500. The last section of the inspection and drainage gallery is at elevation
312.5 and extends to station 1+86.500 where the inspection and drainage gallery ends. The non-overflow continues to the east beyond the end of the gallery.

4.51(b)(2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project;

The requested data is presented in the following table:

Oliver Dam	
Normal Maximum Surface Area (ac)	2280 ac @ elev. 337
Normal Maximum Surface Elevation (Plant Datum)	N/A PD (top of spillway gates)
Normal Maximum Surface Elevation (Mean Sea Level – MSL)	337 (top of spillway gates)
Gross Storage Capacity (acft)	32,000 acft @ elev. 337
Useable Storage Capacity (acft)	6,~~080~~ 100 acft @ elev. 337 to 334

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(3) The number, type, and rated capacity of any turbines or generators whether existing or proposed to be included as part of the project;

The powerhouse contains four generating units and a total~~The station has a~~ nameplate rating of 60.1 MW. Units 1 and 2 ~~will be~~ are generator limited, Unit 4 ~~will be~~ is turbine limited. Nameplate ratings for Unit 3 turbine and generator ~~will be~~ are equivalent. The normal head is 67~~6.7~~ feet. ~~The powerhouse contains four generating units.~~ All of the units are vertical units (the axis of the turbine and generator are perpendicular to the floor). Units 1, 2, and 3 are large peaking units while Unit 4 is a smaller unit that is used to pass a minimum flow. ~~Units 1, 2, and 3 are rated at 18 MW each while Unit 4, the small unit, is rated at 6 MW. All of the units went into commercial service in 1959. The small unit essentially runs all the time, while the large units run when water is made available from the larger U. S. Army Corps of Engineers West Point Dam which is upstream from all the Georgia Power Chattahoochee Hydro facilities.~~

The details of the Oliver units are presented in the following table:

Item	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**
Generator Manufacturer	Westinghouse	Westinghouse	Westinghouse	Westinghouse
Generator ~~Name Plate~~ Rating MW	22,500 MW x 0.8 p.f. = 18 MW	22,500 MW x 0.8 p.f. = 18 MW~~18~~	24,875 MW * 0.8 p.f. = 19.9 MW ~~18~~	7,500 MW * 0.8 p.f. = 6 MW
~~Generator Voltage KV~~	~~7.6~~	~~7.6~~	~~7.6~~	~~7.6~~
~~Exciter Voltage~~	~~250~~	~~250~~	~~250~~	~~250~~
Turbine Manufacturer	Newport News	Newport News	Newport News	Newport News
~~Shaft Orientation and RPM~~	~~Vertical 150~~	~~Vertical 150~~	~~Vertical 150~~	~~Vertical 257~~
~~Initial Start Up~~	~~7/18/59~~	~~8/12/59~~	~~8/27/59~~	~~11/19/59~~
~~Commercial Operations~~	~~7/18/59~~	~~8/12/59~~	~~8/27/59~~	~~11/19/59~~
Turbine Name Plate Rating (best gate) (hp)	26,496 hp * 0.75 = 19.9 MW	26,496 hp * 0.75 = 19.9 MW	26,496 hp * 0.75 = 19.9 MW	5,600 hp * 0.75 = 4.2 MW
Installed Capacity (best gate)	18 MW (generator limited)	18 MW (generator limited)	19.9 MW (turbine limited)	4.2 MW

4.51(b)(4) The number length, voltage, and interconnections of any primary transmission lines, whether existing or proposed to be included as part of the project (see 16 U.S.C. 796(11));

No transmission lines are proposed to be included as part of the project.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(5) The specifications of any additional mechanical, electrical and transmission equipment appurtenant to the project; and

Dam Equipment

The dam has 33 radial steel spillway gates, each is 16 feet high by 36 feet long. These gates are raised by two traveling hoists.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Intake Equipment

Each of the large units has three intake bays (for a total of 9 bays). Each of these bays has a fixed wheel steel headgate. The small unit has two bays and each of these has a fixed wheel steel headgate. All of the headgates are set into place by a traveling gantry crane.

Powerhouse Equipment

The powerhouse has one 100 ton gantry crane as well as auxiliary equipment such as air compressors~~, oil pumps, fire protection equipment, etc~~.

Electrical Equipment

The major electrical equipment at the station consists of generators, circuit breakers, and switchboards. ~~and m~~Miscellaneous electrical equipment such as transformers is also present~~, storage batteries, switchgear, lighting and telephone systems~~. ~~The generators for Units 1, 2, and 3 (the large units) are Westinghouse vertical shaft, 22,500 kva, 3 phase 60 cycle, 6,900 volt units. The Unit 4 (small unit) generator is a Westinghouse vertical shaft, 7,500 kva, 3 phase, 60 cycle, 6,900 volt unit.~~

4.51(b)(6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of lands of the United States within the project boundary.

~~The project boundary for the impoundment is predominantly the 342 foot contour.~~ There are no lands of the United States included within the project boundary ~~for this station~~.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

NORTH HIGHLANDS DAM

4.51 (b)(1) The physical composition, dimensions and general configurations of any dams, spillways, penstocks, powerhouses, tailraces or other structures whether existing or proposed to be included as part of the project;

General Description North Highlands Dam:
The North Highlands station is located at mile 162.5 on the Chattahoochee River and in the city limits of Columbus, Georgia and Phenix City, Alabama. The station is located downstream of Georgia Power Company's Oliver Dam (FERC Project Number 2177).

The North Highlands Development consists of: (1) an approximately 984-foot-long, 36-foot-high reinforced concrete dam composed of: (a) an approximately 46-foot-long non-overflow structure; (b) an approximately 705- foot-long curved spillway topped with 3-foot-high wooden flashboards, with one trash gate adjacent to the intake section; (c) an approximately 193-foot-long, 71-foot-wide combined powerhouse and intake section; and (d) an approximately 40-foot-long non-overflow structure; (2) a 131.7-acre impoundment at a normal maximum surface elevation 268.98 feet plant datum (PD) with 1,495 acre-feet of gross storage capacity and 935 acre-feet of usable storage capacity; (3) a powerhouse containing four vertical turbine-generator units with a total authorized installed capacity of 29.6 MW; (4) a 1,000-foot-long, 50 to 150-foot-wide tailrace; (5) a 615-foot-long rock and concrete weir, with top elevation of 225.5 feet in the existing tailrace; and (6) appurtenant facilities.

Non-overflow North Highlands Dam:
The non-overflow is small. It is approximately 46 feet long from East to West. The elevation of the top of the non-overflow varies between elevation 277.63 and elevation 278.11 (a composite elevation of 278 was used in stability calculations). The width of the crest varies from 5.5 feet to 6.6 feet. The upstream face is vertical. The downstream face is irregular. It is battered downstream and the slope varies between 4.1 feet downstream for every 10 feet change in vertical height to 8.4 feet horizontal for every 10 feet vertically. The typical slope is on the order of 5 feet horizontal for every 10 feet vertical. The maximum vertical height of the section from the crest to the toe is 15.12 feet. The structure is a stone-masonry structure composed of large blocks of stone that were apparently quarried adjacent to the site.

Non-overflow Gallery North Highlands Dam: There is no gallery in the non-overflow.

Spillway North Highlands Dam:
The spillway at North Highlands is curved from East to West with a length of approximately 705 feet. The spillway is a free-crested spillway with flashboards on the top. The top of the flashboards is at elevation 268.98 and the crest of the spillway with the boards down is at elevation 266.45 while the crest of the spillway without the flashboards is elevation 265.88. The total height of the structure (including flashboards) is approximately 36 feet while the maximum height of the dam by itself is approximately

33 feet. The upstream face is nearly vertical with an upstream batter of 0.83 feet horizontal for each 10 feet vertical. The downstream face is rough and irregular. The maximum height of the spillway occurs approximately 3.32 feet downstream of the upstream lip of the top of the spillway. The spillway face is comprised of a circular arc section and a straight-line batter. The center for the circular section is 10 feet upstream of the maximum elevation section and approximately 26.5 feet below the maximum crest elevation. The radius of this circular arc is 30 feet and it extends from the maximum crest elevation of 265.88 to elevation 257.38. At this point, the downstream slope takes on a linear batter sloping downstream. The batter is 8.3 feet horizontal to 10 feet vertical. The dam facing was apparently constructed of large rocks that were quarried nearby.

Spillway Gallery North Highlands Dam:
There is no gallery in the spillway of this station.

Intake North Highlands Dam:
The intake structure is 192.5 feet long East to West. The deck of the intake is at elevation 290. The crest of the intake is 20 feet wide. The upstream face is vertical. The downstream face is also vertical to elevation 273 where it intersects the roof of the powerhouse.

Intake Gallery North Highlands Dam:
There is no gallery in the intake of this station.

Powerhouse North Highlands Dam:
The powerhouse is integral with the intake structure. The powerhouse measures 192.5 feet from East to West and is 70.75 feet upstream to downstream. The structure is a reinforced concrete structure. The powerhouse contains the operating floor for Units 1, 2, and 3 at elevation 260 and the draft tube access for these units is located on the downstream face of the dam at elevation 240. Unit 4 (the minimum flow unit) has its operating floor at elevation 246. Access to the spiral case and draft tube are provided at elevations 232.75 and 224.67 respectively.

Non-overflow North Highlands Dam:
The non-overflow is approximately 40 feet long from East to West. The crest elevation is 290 and it is contiguous with the intake section. It is hard to distinguish where the Intake stops and the non-overflow begins. The crest of the non-overflow is 20 feet wide. The upstream face is vertical. The downstream face is also vertical to elevation 260 where it intersects the powerhouse operating floor elevation.

Non-overflow Gallery North Highlands Dam: There is no gallery in the non-overflow at this station.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project;

The requested data is presented in the following table:

North Highlands	
Normal Maximum Surface Area (ac)	131.7 ac @ elev. 268.98
Normal Maximum Surface Elevation (Plant Datum)	N/A PD (top of flashboards)
Normal Maximum Surface Elevation (Mean Sea Level – MSL)	268.98 (top of flashboards)
Gross Storage Capacity (acft)	1,495 acft @ elev. 269
Useable Storage Capacity (acft)	935 acft @ elev. 269 to 260

4.51(b)(3) The number, type, and rated capacity of any turbines or generators whether existing or proposed to be included as part of the project;

The station has a nameplate rating of 29.6 MW. The normal head is 36.5 feet. The powerhouse contains four generating units. All of the units are vertical units (the axis of the turbine and generator are perpendicular to the floor). Units 1, 2, and 3 are large units while unit 4 is a small unit that is used to pass a minimum flow. Units 1, 2, and 3 are rated at 9.2 MW each while Unit 4, the small unit, is rated at 2 MW. All of the units went into commercial service in 1963. The small unit essentially runs all the time, while the large units run when water is made available from West Point Dam.

The details of the North Highlands units are presented in the following table:

Item	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**
Generator Manufacturer	General Electric	General Electric	General Electric	General Electric
Name Plate Rating MW	9.2	9.2	9.2	2
Generator Voltage KV	4.2	4.2	4.2	4.2
Exciter Voltage	250	250	250	250
Turbine Manufacturer	Allis Chalmers	Allis Chalmers	Allis Chalmers	Leffel
Shaft Orientation and RPM	Vertical 100	Vertical 100	Vertical 100	Vertical 225
Initial Start Up	2/22/63	3/22/63	1/25/63	1/3/63
Commercial Operations	2/22/63	3/22/63	1/25/63	1/3/63

4.51(b)(4) The number length, voltage, and interconnections of any primary transmission lines, whether existing or proposed to be included as part of the project (see 16 U.S.C. 796(11));

No transmission lines are proposed to be included as part of the project.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(5) The specifications of any additional mechanical, electrical and transmission equipment appurtenant to the project; and

Dam Equipment

The only equipment that is present on the dam are the flashboards and a trash gate. The flashboard sections are approximately 9 feet 11-1/2 inches long and have a ½ inch clearance between each section on the straight parts of the dam. On the curved sections, they can have a 2-1/4 inch clearance in the up position. This will allow the sections to have a separation of approximately 1/8 inch when they are in the down position. The boards are composted of 2 inch by 6 inch tongue and groove planks and the plank assembly is connected to a hinge at the bottom of the board assembly.

The assembly is held erect on the dam crest by three sections of pipe. The pipe sections are spaced such that the amount of boards between each section is between 3 feet and 3 feet 6 inches. The pipes themselves are either 2-1/2 inch diameter schedule 40 or 2-1/2 inch diameter schedule 80. The reason there are different types of pipes is to have the flashboards fail in two groupings rather than all at once. Regardless of type, all the pipes are 4 feet long.

The trash gate has a gate width of 9 feet 6 inches. The actual clear space for the sluice way is 9 feet. The gate is bottom hinged and there is an operator that lowers the gate through a pulley system.

Intake Equipment

Each of the large units has three intake bays (for a total of 9 bays). Each of these bays has a fixed wheel steel headgate. The small unit has two bays and each of these has a fixed wheel steel headgate. All of the headgates are set into place by a traveling gantry crane.

Powerhouse Equipment

The powerhouse has one 75-ton Milwaukee gantry crane with an auxiliary hook rated at 15 tons as well as auxiliary equipment such as air compressors, oil pumps, fire protection equipment, etc.

Electrical Equipment

The major electrical equipment at the station consists of generators, circuit breakers, switchboards and miscellaneous electrical equipment such as transformers, storage batteries, switchgear, lighting and telephone systems. The generators for Units 1, 2, and 3 (the large units) are General Electric vertical shaft, 11,500 kva, 3 phase, 60 cycle, 4,200 volt units. The Unit 4 (small unit) generator is a General Electric vertical shaft, 2,500 kva, 3 phase, 60 cycle, 4,200 volt unit.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of lands of the United States within the project boundary.

The project boundary for the impoundment is predominantly the 290-foot contour. There are no lands of the United States included within the project boundary for this station.

ATTACHMENT D

EXHIBIT A – AMENDED PROJECT DESCRIPTION (CLEAN)

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

18 CFR 4.51.(b) Exhibit A – Is a description of the project. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. This section has sub-sections which follow this introduction. Each of these subsections is keyed to the appropriate corresponding requirements of 18 CFR 4.51.

The Middle Chattahoochee Project consists of three separate developments: Goat Rock Dam, Oliver Dam, and North Highlands Dam. The following table provides an overview of the stations and some of the salient features of each station.

Feature	Goat Rock Dam	Oliver Dam	North Highlands Dam
West Non-overflow	Yes	Yes	Yes
West Non-overflow Gallery	No	Yes	No
Spillway Type	Gated Ogee	Gated Ogee	Free Crested
Spillway Control	Obermeyer Gates	Tainter Gates	Flashboards
Spillway Gallery	Yes	Yes	No
Intake	Yes	Yes	Yes
Intake Gallery	Yes	Yes	No
Powerhouse	Yes	Yes	Yes
East Non-overflow	Yes	Yes	Yes
East Non-overflow Gallery	Yes	Yes	No

Pursuant to the requirements of 18 CFR 4.51, each development is described separately in the following sections.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

GOAT ROCK DAM

4.51 (b)(1) The physical composition, dimensions and general configurations of any dams, spillways, penstocks, powerhouses, tailraces or other structures whether existing or proposed to be included as part of the project;

General Description Goat Rock Dam:
The Goat Rock station is located at mile 172.2 on the Chattahoochee River approximately 10 miles upstream from Columbus, Georgia. The station is located downstream of Georgia Power Company's Bartletts Ferry Dam (FERC Project Number 485).

The Goat Rock Development consists of: (1) an approximately 1,433.5-foot-long, 75-foot-high cyclopean concrete dam composed of: (a) an approximately 200-foot-long non-overflow structure; (b) an approximately 173-foot-long, 56.33-foot-wide combined powerhouse and intake section; (c) an approximately 74-foot-long section with four trash gates; (d) an approximately 909.5-foot-long fixed-crest spillway topped that contains an Obermeyer gate system with three equal independently operated zones, each including 15 individual gate panels; and (e) an approximately 77-foot-long non-overflow section; (2) a 966-acre impoundment at a normal maximum surface elevation of 404 feet plant datum (PD) with a 8,500-acre-foot gross storage capacity and 4,833 acre-feet of usable storage capacity; (3) a powerhouse containing six horizontal turbine-generator units with a total authorized installed capacity of 40.5 megawatts (MW); (4) a 1,200-foot-long, 175 to 200-foot-wide tailrace with a concrete tailrace training wall near the dam; and (5) appurtenant facilities.

All of the structures except the powerhouse itself have been anchored to the foundation rock with post tensioned anchors.

Non-overflow Goat Rock Dam:
The non-overflow section is a massed concrete structure with its crest at elevation 415. It has a length of 200 feet. The crest is 5 feet wide. The upstream face of the non-overflow is vertical to elevation 378. At this elevation, the face assumes an upstream batter of 1 foot horizontal to 10 feet vertical. On the downstream face, the face is shaped as a vertical curve with at 10-foot radius and tangent to the downstream edge of the crest. The vertical curve extends approximately 5 feet below the crest or to elevation 410. At this point, the face is battered downstream at 6 feet horizontal to 10 feet vertical. At elevation 378 the batter flattens to 7 feet horizontal to 10 feet vertical. The non-overflow contains an internal drainage system consisting of horizontal and vertical box drains. The horizontal box drains are located at elevation 378 and 358.

Non-overflow Gallery Oliver Dam: There is no gallery at this structure.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Intake Goat Rock Dam:
The intake is a concrete gravity structure that is integral with the powerhouse. The intake measures, from its most upstream trash-rack-support haunch, downstream to its junction with the powerhouse, approximately 61.18 feet. It is approximately 173 feet long East to West. It has a foundation drainage system similar to the spillway drainage system. The intake contains trash racks, stop-log guides, and a gated penstock for each unit.

Intake Gallery Goat Rock Dam:
A gallery upstream of the turbines provides access to the upstream bearings and wicket gate mechanisms. The gallery measures 180 feet from East to West and spans almost the entire length of the powerhouse. The reason the length of the upstream bearing gallery is greater than the dimension of the Intake presented above (173 feet) is because the gallery extends to the west of the Intake at the Alabama side and to the east into the area of the trash gates. This gallery is 7.83 feet wide. It is rectangular in shape with a semicircular arch on the top. The maximum height of the tunnel is 16.21 feet. Its floor elevation is at 349.71.

Powerhouse Goat Rock Dam:
The powerhouse is a reinforced concrete structure. It contains a number of distinct floors. These include the turbine/generator deck at elevation 350.5, the Low Tension Bus Room at elevation 364.5, the Low Tension Switch Room at elevation 379.0 and the High Tension Room at elevation 395.33. The powerhouse measures approximately 56.33 feet wide from its junction with the intake to the downstream end of the structure. It measures 173 feet long from East to West.

Spillway Goat Rock Dam:
The dam is of cyclopean concrete construction and has a maximum height of approximately 75 feet. The spillway section at Goat Rock Dam is free-crested and measures approximately 909.5 feet from East to West. The crest of the spillway is at elevation 400 and the spillway is topped with Obermeyer gates whose top is at elevation 404.

The Obermeyer gates are located at the maximum elevation of the crest. On the upstream face, the face slopes away from this point upstream with a batter of 10 feet horizontal to 5 feet vertical until it reaches the upstream face of the spillway at elevation 397.5. The upstream spillway face below elevation 397.5 is vertical.

The downstream face of the spillway is ogee-shaped. At approximately elevation 390 on the downstream face, the slope of the spillway takes on a uniform downstream batter of 6.61 feet horizontal to 10 feet vertical. This extends to approximately elevation 348 where the slope transitions into a vertical curve with a radius of 35 feet.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

The spillway has five sets of box drains. Of these, 2 are horizontal and run upstream to downstream, two others are horizontal and run longitudinally along the long axis of the dam (East to West), and the final set is vertical and joins the two longitudinal horizontal drains.

The first set of horizontal box drains which run upstream to downstream, exit on the downstream face of the spillway. The upper group of this set of box drains drain the gallery and the lower group of this set drains the foundation. The upper set of box drains drain either at elevation 360 or 374 depending on the elevation of the gallery (see below). The lower set of drains for the foundation exits near elevation 336.

The second set of horizontal box drains runs along the long axis of the dam. The upper set is located at either elevation 365 or 378. This corresponds to the top of the initial construction phase of the dam. The lower set of horizontal box drains running along the long axis of the dam is located near the foundation level at elevation 336.

The final set of box drains in the spillway runs vertically and connects the two horizontal longitudinal drain sets.

Spillway Gallery Goat Rock Dam:
As previously mentioned, the spillway contains a drainage and inspection gallery at two different elevations in the spillway structure. The inspection gallery is at elevation 360.25 from where the Intake section adjoins the spillway on the Alabama side. The gallery remains essentially at this elevation to within approximately 234 feet of the junction of the spillway with the non-overflow. At this point, there are a series of stairs that transitions the gallery floor elevation from 360.25 to approximately elevation 374.25. The gallery is approximately 4 feet wide. The top of the gallery is semicircular in shape and the maximum height of the gallery is 8 feet. The upstream face of the gallery is 10.5 feet downstream of the upstream face of the non-overflow.

Non-overflow Goat Rock Dam:
The non-overflow is similar in shape to the non-overflow. It measures 77 feet from East to West. The crest of the structure is at elevation 415 and there is a 5-foot-wide walkway on the crest. The upstream face is vertical throughout its height. The downstream face has a 10-foot radius vertical curve tangent to the faces of the structure at approximately elevation 410. The downstream face is battered from this elevation on a 7-foot horizontal to 10 foot vertical slope. This section also has a box drainage system.

Non-overflow Gallery Goat Rock Dam:
The inspection and drainage gallery has a short segment in the westernmost part of the non-overflow. The floor elevation of the gallery is at elevation 374. The gallery is approximately 4 feet wide. The top of the gallery is semicircular in shape and the maximum height of the gallery is 7.75 feet. The upstream face of the gallery is 10.5 feet downstream of the upstream face of the non-overflow.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project;

The requested data is presented in the following table:

Goat Rock	
Normal Maximum Surface Area (ac)	966 ac @ elev. 404 PD
Normal Maximum Surface Elevation (Plant Datum)	404 PD (top of gates)
Normal Maximum Surface Elevation (Mean Sea Level – MSL)	403.16 (top of gates)
Gross Storage Capacity (acft)	8,500 acft @ elev. 404 PD
Useable Storage Capacity (acft)	4,833 acft elev. 404 to 398 PD

4.51(b)(3) The number, type, and rated capacity of any turbines or generators whether existing or proposed to be included as part of the project;

The station has a nameplate rating of 40.5MW[1] The average head is 65.7 feet. The powerhouse contains the six generating units. All of the units are horizontal units (the axis of the turbine and generator are parallel to the floor). Units 1 and 2 were replaced in 2004, and are rated at 9.3 MW each, Unit 3 is rated at 6.9 MW, and Units 4, 5 and 6 are rated at 5 MW each. The first two units originally went into commercial operation in 1912, but the replacement units for Units 1 and 2 began commercial operation in 2005. Unit 3 went commercial in 1915. Unit 4 went commercial in 1920. Units 5 and 6 went commercial in 1955 and 1956 respectively. In 1995, Unit 3 threw a runner bucket which destroyed the turbine. A new runner was commissioned which increased the unit's capacity from 5 to 6.9 MW. The new unit went commercial in 1996.

The details of the Goat Rock units are presented in the following table.

Item	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**
Generator Manufacturer	Ideal Electric Company	Ideal Electric Company	Allis - Chalmers	Allis - Chalmers	Allis - Chalmers	Allis - Chalmers
Name Plate Rating MW	9.3	9.3	6.9	5	5	5
Generator Voltage KV	12	12	12	12	4	4
Exciter Voltage	125	125	125	125	125	125
Turbine Manufacturer	VA Tech Bouvier	VA Tech Bouvier	American Hydro	Allis - Chalmers	Leffel	Leffel
Shaft Orientation and RPM	Horizontal 229	Horizontal 229	Horizontal 200	Horizontal 200	Horizontal 200	Horizontal 200

[1] The Goat Rock station has a total generating capacity of 40.5 MW. This was not corrected when FERC issued the March 22, 2005 Errata Notice which updated the Name Plate Rating for the replacements units of Unit 1 and Unit 2. The Errata Notice states, "Page 21. Paragraph 67 (B) (2) (a) (3) line 8. Replace "3-MW" with "9. 3-MW"." This statement changes the total generating capacity of the plant to 40.5 MW from 39.7 MW.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Initial Start Up	2005	2005	1996	1920	12/18/55	2/16/56
Commercial Operations	2005	2005	1996	1920	12/18/55	2/16/56

4.51(b)(4) The number length, voltage, and interconnections of any primary transmission lines, whether existing or proposed to be included as part of the project (see 16 U.S.C. 796(11));

No transmission lines are proposed to be included as part of the project.

4.51(b)(5) The specifications of any additional mechanical, electrical and transmission equipment appurtenant to the project; and

Dam Equipment
The only equipment that is present on the dam are the Obermeyer gates. The Obermeyer gate system is a steel gate hinged on the reservoir side that is raised or lowered by air-filled rubber bladders that are in three independently operated zones, each including 15 individual gate panels.

Intake Equipment
Each of the intakes is equipped with a steel headgate. Units 1-4 have steel slide head gates with individual motor operated rack and pinion hoists. Units 5 and 6 have steel fixed wheel headgates with individual motor operated drum and cable hoists. The two exciter penstocks also have steel slide head gates with rack and pinion hoists. The final set of gates that is present on the intake area are 4 steel slide waste gates for the 12 foot by 8 foot 6 inch openings.

Powerhouse Equipment
The powerhouse has one 35-ton bridge crane as well as auxiliary equipment such as air compressors, oil pumps, fire protection equipment, etc.

Electrical Equipment
The major electrical equipment at the station consists of generators, circuit breakers, switchboards and miscellaneous electrical equipment such as transformers, storage batteries, switchgear, lighting and telephone systems. The generators for the original Units 1 and 2 were Westinghouse horizontal shaft, 3750 kva, 3 phase, 60 cycle, 12,000 volt units. The replacement Units 1 and 2 generators are Ideal Electric Company horizontal shaft, 10,941 kva, 3 phase, 60 cycle, 12,000 volt units. The Unit 3 generator is Allis-Chalmers horizontal shaft, 6250 kva, 3 phase, 60 cycle, 12,000 volt unit. The Unit 4 generator is an Allis Chalmers horizontal shaft, 6250 kva, 3 phase, 60 cycle 12,000 volt unit. The Unit 5 and 6 generators are Allis Chalmers horizontal shaft, 6250 kva 3 phase, 60 cycle, 4160 volt units.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of lands of the United States within the project boundary.

The project boundary for the Goat Rock impoundment is predominantly the 420-foot contour. There are some isolated areas where the Goat Rock project boundary reaches to the 415, 412 or 404 foot elevations, depending on the topography. There are no lands of the United States included within the project boundary for this station.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

OLIVER DAM

4.51 (b)(1) The physical composition, dimensions and general configurations of any dams, spillways, penstocks, powerhouses, tailraces or other structures whether existing or proposed to be included as part of the project;

General Description Oliver Dam:
The Oliver station is located at mile 163.5 on the Chattahoochee River in the northern outskirts of Columbus, Georgia. The station is located downstream of Georgia Power Company's Goat Rock Dam (FERC Project Number 2177).

The Oliver Development consists of: (1) an approximately 2,021-foot-long, 70-foot-high concrete gravity dam composed of: (a) an approximately 284-foot-long west non-overflow structure; (b) an approximately 1,324-foot-long gated spillway containing 33 radial arm Tainter gates each 35 feet long, 16 feet high, and a trash gate 11 feet long and 16 feet high; (c) an approximately 198-foot-long, 74-foot-wide combined powerhouse and intake section; and (d) an approximately 215-foot-long east non-overflow structure; (2) a 2,280-acre impoundment at a normal maximum surface elevation 337 feet PD with a 32,000-acre- foot gross storage capacity and 6,100 acre-feet of storage capacity between elevations 337 to 334 PD; (3) a powerhouse containing four vertical turbine-generator units with a total authorized installed capacity of 60 MW; (4) a 1,500-foot-long, 100-foot-wide tailrace; and (5) appurtenant facilities.

West Non-overflow Oliver Dam:
The West non-overflow structure is 12 foot wide at the crest which is at elevation 350.0 and measures 284.375 feet from east to west. The upstream face of the non-overflow is vertical. The downstream face of the non-overflow is vertical from elevation 350 to elevation 329.0. At elevation 329.0, the slope becomes battered downstream on a slope of 6.7 feet horizontal to 10.0 feet vertical. This continues to elevation 289. At elevation 289 the batter flattens out to 8.0 horizontal to 10.0 vertical.

West Non-overflow Gallery Oliver Dam:
The non-overflows contain a portion of the drainage and inspection gallery that extends through the whole length of the spillway. The drainage and inspection gallery on the west (Alabama) abutment has its floor at elevation 312 at station 19+45.375. A short stairway extends to station 19+01.375 where the elevation of the gallery is approximately 291.58. The inspection and drainage gallery is roughly rectangular in shape, measuring 5 feet wide by 7.5 feet high. The inspection and drainage gallery retains this shape throughout the structure.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Spillway Oliver Dam:
The spillway section has a total length of 1324.0 feet and starts at station 18+29.375 and runs to station 5+05.375. The spillway is formed of massed concrete with an ogee shape and a flip-bucket apron. The dam is a concrete gravity structure and has a maximum height of approximately 70 feet from the toe of the dam to the crest of the bridge. The spillway section is topped by a bridge deck which is 12 feet wide at elevation 350. The bridge deck is supported by two I beams which in turn are supported by concrete spillway piers. These piers are 4 feet thick (east to west). The top of the piers is at elevation 347.42. While the upstream face of the piers is flush with the face of the spillway, the downstream edge slopes downstream from elevation 347.42 to elevation 330 at a batter of 7.47 feet horizontal for 10 feet vertical. The pier then drops vertically from elevation 330 to intersect the downstream face of the spillway. The total length of the pier upstream-to-downstream is approximately 25 feet.

The spillway is topped by a total of 33 steel tainter gates and one trash gate. The tainter gates are approximately 35.67 feet long and they extend vertically 16 feet from the spillway crest at elevation 321 to elevation 337 (top of normal pool).

Spillway Gallery Oliver Dam:
In the spillway section, the gallery floor starts at elevation 291.68 at station 19+01.375 and slopes to elevation 290 at station 5+56.045. At this point, the gallery descends in two series of steps to elevation 267.5 at station 5+05.375. This is the junction of the spillway section and the intake section.

Intake Oliver Dam:
The intake section of the station measures 197.875 feet and runs from station 5+05.375 to station 3+07.500. The intake is integral with the powerhouse and measures 197.875 feet from east to west. The crest of the intake is at elevation 350 and is 20.25 feet upstream-to-downstream. The upstream face of the intake is vertical. On the downstream side, the intake is vertical from elevation 350 to elevation 329. At this elevation, the face of the intake is battered at a slope of 6.7 feet horizontal to 10 feet vertical until it reaches elevation 299 which is the elevation of the top of the powerhouse. The intake measures approximately 40.33 feet from the upstream face of the intake to where the downstream face intersects the powerhouse roof elevation of 299. There is a short section measuring 13.17 feet between the end of the intake and the upstream wall of the powerhouse.

Intake Gallery Oliver Dam:
The inspection and drainage gallery has its lowest elevation where it passes below the suction for the hydraulic turbines. Station 5+05.375 is the junction of the spillway and the intake section. The floor of the gallery is elevation 267.5. The floor remains at this elevation to station 3+39.875. At this station, the gallery floor rises up to elevation 275 at station 3+07.500. This station is the junction between the intake and the east non-overflow.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Powerhouse Oliver Dam:
The powerhouse is integral with the intake structure. The powerhouse measures 197.83 feet from east to west and 73.67 feet upstream to downstream. The structure is a reinforced concrete structure. The powerhouse contains the operating floor for Units 1-3 at elevation 286. There is a gallery for Units 1-3 which provides access to the draft tube manholes. The gallery elevation is at elevation 247 and the manholes are near the top of the stairs at elevation 250.5. This gallery also contains a stairwell that leads up to the turbine inspection manways at elevation 260.

Unit 4 (the minimum flow unit) has a slightly different configuration. A floor exists on elevation 275 and there is a passageway that leads to the turbine inspection manway and draft tube inspection manway at elevations 258.5 and 251.62 respectively.

East Non-overflow Oliver Dam:
The east non-overflow is similar in shape to the intake and west non-overflow sections. It is 214.5 feet long from east to west. The crest is at elevation 350 and is 12 feet wide. It has the same geometry as the west non-overflow section. The upstream face of the non-overflows is vertical. On the downstream face of the non-overflows is vertical from elevation 350 to elevation 329.0. At elevation 329.0, the slope becomes battered downstream on a slope of 6.7 feet horizontal to 10.0 feet vertical. This continues to elevation 289. At elevation 289 the batter flattens out to be 8.0 horizontal to 10.0 vertical. The non-overflow contains a portion of the drainage and inspection gallery that extends through the whole length of the spillway.

East Non-overflow Gallery Oliver Dam:
The east non-overflow drainage and inspection gallery has three distinct elevations which are connected by stair sections. The first section is at the end of the stair connecting the intake and the east non-overflow section. It is at elevation 287.5 and extends to station 2+71.500. The second section is at elevation 299.375 and extends to station 2+35.500. The last section of the inspection and drainage gallery is at elevation 312.5 and extends to station 1+86.500 where the inspection and drainage gallery ends. The non-overflow continues to the east beyond the end of the gallery.

4.51(b)(2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project;

The requested data is presented in the following table:

Oliver Dam	
Normal Maximum Surface Area (ac)	2280 ac @ elev. 337
Normal Maximum Surface Elevation (Plant Datum)	N/A PD (top of spillway gates)
Normal Maximum Surface Elevation (Mean Sea Level – MSL)	337 (top of spillway gates)
Gross Storage Capacity (acft)	32,000 acft @ elev. 337
Useable Storage Capacity (acft)	6,100 acft @ elev. 337 to 334

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(3) The number, type, and rated capacity of any turbines or generators whether existing or proposed to be included as part of the project;

The powerhouse contains four generating units and a total nameplate rating of 60.1 MW. Units 1 and 2 are generator limited, Unit 4 is turbine limited. Nameplate ratings for Unit 3 turbine and generator are equivalent. The normal head is 67 feet. All of the units are vertical units (the axis of the turbine and generator are perpendicular to the floor). Units 1, 2, and 3 are large peaking units while Unit 4 is a smaller unit that is used to pass a minimum flow.

The details of the Oliver units are presented in the following table:

Item	Unit 1	Unit 2	Unit 3	Unit 4
Generator Manufacturer	Westinghouse	Westinghouse	Westinghouse	Westinghouse
Generator Rating MW	22,500 MW x 0.8 p.f. = 18 MW	22,500 MW x 0.8 p.f. = 18 MW	24,875 MW * 0.8 p.f. = 19.9 MW	7,500 MW * 0.8 p.f. = 6 MW
Turbine Manufacturer	Newport News	Newport News	Newport News	Newport News
Turbine Name Plate Rating (best gate) (hp)	26,496 hp * 0.75 = 19.9 MW	26,496 hp * 0.75 = 19.9 MW	26,496 hp * 0.75 = 19.9 MW	5,600 hp * 0.75 = 4.2 MW
Installed Capacity (best gate)	18 MW (generator limited)	18 MW (generator limited)	19.9 MW (turbine limited)	4.2 MW

4.51(b)(4) The number length, voltage, and interconnections of any primary transmission lines, whether existing or proposed to be included as part of the project (see 16 U.S.C. 796(11));

No transmission lines are proposed to be included as part of the project.

4.51(b)(5) The specifications of any additional mechanical, electrical and transmission equipment appurtenant to the project; and

Dam Equipment
The dam has 33 radial steel spillway gates, each is 16 feet high by 36 feet long. These gates are raised by two traveling hoists.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

Intake Equipment
Each of the large units has three intake bays (for a total of 9 bays). Each of these bays has a fixed wheel steel headgate. The small unit has two bays and each of these has a fixed wheel steel headgate. All of the headgates are set into place by a traveling gantry crane.

Powerhouse Equipment
The powerhouse has one 100 ton gantry crane as well as auxiliary equipment such as air compressors.

Electrical Equipment
The major electrical equipment at the station consists of generators, circuit breakers, and switchboards. Miscellaneous electrical equipment such as transformers is also present.

4.51(b)(6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of lands of the United States within the project boundary.

There are no lands of the United States included within the project boundary.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

NORTH HIGHLANDS DAM

4.51 (b)(1) The physical composition, dimensions and general configurations of any dams, spillways, penstocks, powerhouses, tailraces or other structures whether existing or proposed to be included as part of the project;

General Description North Highlands Dam:
The North Highlands station is located at mile 162.5 on the Chattahoochee River and in the city limits of Columbus, Georgia and Phenix City, Alabama. The station is located downstream of Georgia Power Company's Oliver Dam (FERC Project Number 2177).

The North Highlands Development consists of: (1) an approximately 984-foot-long, 36-foot-high reinforced concrete dam composed of: (a) an approximately 46-foot-long non-overflow structure; (b) an approximately 705- foot-long curved spillway topped with 3-foot-high wooden flashboards, with one trash gate adjacent to the intake section; (c) an approximately 193-foot-long, 71-foot-wide combined powerhouse and intake section; and (d) an approximately 40-foot-long non-overflow structure; (2) a 131.7-acre impoundment at a normal maximum surface elevation 268.98 feet plant datum (PD) with 1,495 acre-feet of gross storage capacity and 935 acre-feet of usable storage capacity; (3) a powerhouse containing four vertical turbine-generator units with a total authorized installed capacity of 29.6 MW; (4) a 1,000-foot-long, 50 to 150-foot-wide tailrace; (5) a 615-foot-long rock and concrete weir, with top elevation of 225.5 feet in the existing tailrace; and (6) appurtenant facilities.

Non-overflow North Highlands Dam:
The non-overflow is small. It is approximately 46 feet long from East to West. The elevation of the top of the non-overflow varies between elevation 277.63 and elevation 278.11 (a composite elevation of 278 was used in stability calculations). The width of the crest varies from 5.5 feet to 6.6 feet. The upstream face is vertical. The downstream face is irregular. It is battered downstream and the slope varies between 4.1 feet downstream for every 10 feet change in vertical height to 8.4 feet horizontal for every 10 feet vertically. The typical slope is on the order of 5 feet horizontal for every 10 feet vertical. The maximum vertical height of the section from the crest to the toe is 15.12 feet. The structure is a stone-masonry structure composed of large blocks of stone that were apparently quarried adjacent to the site.

Non-overflow Gallery North Highlands Dam: There is no gallery in the non-overflow.

Spillway North Highlands Dam:
The spillway at North Highlands is curved from East to West with a length of approximately 705 feet. The spillway is a free-crested spillway with flashboards on the top. The top of the flashboards is at elevation 268.98 and the crest of the spillway with the boards down is at elevation 266.45 while the crest of the spillway without the flashboards is elevation 265.88. The total height of the structure (including flashboards) is approximately 36 feet while the maximum height of the dam by itself is approximately

33 feet. The upstream face is nearly vertical with an upstream batter of 0.83 feet horizontal for each 10 feet vertical. The downstream face is rough and irregular. The maximum height of the spillway occurs approximately 3.32 feet downstream of the upstream lip of the top of the spillway. The spillway face is comprised of a circular arc section and a straight-line batter. The center for the circular section is 10 feet upstream of the maximum elevation section and approximately 26.5 feet below the maximum crest elevation. The radius of this circular arc is 30 feet and it extends from the maximum crest elevation of 265.88 to elevation 257.38. At this point, the downstream slope takes on a linear batter sloping downstream. The batter is 8.3 feet horizontal to 10 feet vertical. The dam facing was apparently constructed of large rocks that were quarried nearby.

Spillway Gallery North Highlands Dam:
There is no gallery in the spillway of this station.

Intake North Highlands Dam:
The intake structure is 192.5 feet long East to West. The deck of the intake is at elevation 290. The crest of the intake is 20 feet wide. The upstream face is vertical. The downstream face is also vertical to elevation 273 where it intersects the roof of the powerhouse.

Intake Gallery North Highlands Dam:
There is no gallery in the intake of this station.

Powerhouse North Highlands Dam:
The powerhouse is integral with the intake structure. The powerhouse measures 192.5 feet from East to West and is 70.75 feet upstream to downstream. The structure is a reinforced concrete structure. The powerhouse contains the operating floor for Units 1, 2, and 3 at elevation 260 and the draft tube access for these units is located on the downstream face of the dam at elevation 240. Unit 4 (the minimum flow unit) has its operating floor at elevation 246. Access to the spiral case and draft tube are provided at elevations 232.75 and 224.67 respectively.

Non-overflow North Highlands Dam:
The non-overflow is approximately 40 feet long from East to West. The crest elevation is 290 and it is contiguous with the intake section. It is hard to distinguish where the Intake stops and the non-overflow begins. The crest of the non-overflow is 20 feet wide. The upstream face is vertical. The downstream face is also vertical to elevation 260 where it intersects the powerhouse operating floor elevation.

Non-overflow Gallery North Highlands Dam: There is no gallery in the non-overflow at this station.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project;

The requested data is presented in the following table:

North Highlands	
Normal Maximum Surface Area (ac)	131.7 ac @ elev. 268.98
Normal Maximum Surface Elevation (Plant Datum)	N/A PD (top of flashboards)
Normal Maximum Surface Elevation (Mean Sea Level – MSL)	268.98 (top of flashboards)
Gross Storage Capacity (acft)	1,495 acft @ elev. 269
Useable Storage Capacity (acft)	935 acft @ elev. 269 to 260

4.51(b)(3) The number, type, and rated capacity of any turbines or generators whether existing or proposed to be included as part of the project;

The station has a nameplate rating of 29.6 MW. The normal head is 36.5 feet. The powerhouse contains four generating units. All of the units are vertical units (the axis of the turbine and generator are perpendicular to the floor). Units 1, 2, and 3 are large units while unit 4 is a small unit that is used to pass a minimum flow. Units 1, 2, and 3 are rated at 9.2 MW each while Unit 4, the small unit, is rated at 2 MW. All of the units went into commercial service in 1963. The small unit essentially runs all the time, while the large units run when water is made available from West Point Dam.

The details of the North Highlands units are presented in the following table:

Item	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**
Generator Manufacturer	General Electric	General Electric	General Electric	General Electric
Name Plate Rating MW	9.2	9.2	9.2	2
Generator Voltage KV	4.2	4.2	4.2	4.2
Exciter Voltage	250	250	250	250
Turbine Manufacturer	Allis Chalmers	Allis Chalmers	Allis Chalmers	Leffel
Shaft Orientation and RPM	Vertical 100	Vertical 100	Vertical 100	Vertical 225
Initial Start Up	2/22/63	3/22/63	1/25/63	1/3/63
Commercial Operations	2/22/63	3/22/63	1/25/63	1/3/63

4.51(b)(4) The number length, voltage, and interconnections of any primary transmission lines, whether existing or proposed to be included as part of the project (see 16 U.S.C. 796(11));

No transmission lines are proposed to be included as part of the project.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(5) The specifications of any additional mechanical, electrical and transmission equipment appurtenant to the project; and

Dam Equipment

The only equipment that is present on the dam are the flashboards and a trash gate. The flashboard sections are approximately 9 feet 11-1/2 inches long and have a ½ inch clearance between each section on the straight parts of the dam. On the curved sections, they can have a 2-1/4 inch clearance in the up position. This will allow the sections to have a separation of approximately 1/8 inch when they are in the down position. The boards are composted of 2 inch by 6 inch tongue and groove planks and the plank assembly is connected to a hinge at the bottom of the board assembly.

The assembly is held erect on the dam crest by three sections of pipe. The pipe sections are spaced such that the amount of boards between each section is between 3 feet and 3 feet 6 inches. The pipes themselves are either 2-1/2 inch diameter schedule 40 or 2-1/2 inch diameter schedule 80. The reason there are different types of pipes is to have the flashboards fail in two groupings rather than all at once. Regardless of type, all the pipes are 4 feet long.

The trash gate has a gate width of 9 feet 6 inches. The actual clear space for the sluice way is 9 feet. The gate is bottom hinged and there is an operator that lowers the gate through a pulley system.

Intake Equipment

Each of the large units has three intake bays (for a total of 9 bays). Each of these bays has a fixed wheel steel headgate. The small unit has two bays and each of these has a fixed wheel steel headgate. All of the headgates are set into place by a traveling gantry crane.

Powerhouse Equipment

The powerhouse has one 75-ton Milwaukee gantry crane with an auxiliary hook rated at 15 tons as well as auxiliary equipment such as air compressors, oil pumps, fire protection equipment, etc.

Electrical Equipment

The major electrical equipment at the station consists of generators, circuit breakers, switchboards and miscellaneous electrical equipment such as transformers, storage batteries, switchgear, lighting and telephone systems. The generators for Units 1, 2, and 3 (the large units) are General Electric vertical shaft, 11,500 kva, 3 phase, 60 cycle, 4,200 volt units. The Unit 4 (small unit) generator is a General Electric vertical shaft, 2,500 kva, 3 phase, 60 cycle, 4,200 volt unit.

Georgia Power Company
Middle Chattahoochee Project P-2177
Exhibit A

4.51(b)(6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of lands of the United States within the project boundary.

The project boundary for the impoundment is predominantly the 290-foot contour. There are no lands of the United States included within the project boundary for this station.