

PRE-APPLICATION DOCUMENT



J. BRODIE SMITH HYDROELECTRIC PROJECT **FERC PROJECT NO. 2287**

Prepared for:

Central Rivers Power NH
Manchester, New Hampshire

Prepared by:

Kleinschmidt

July 2019

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DEFINITIONS OF TERMS, ACRONYMS, AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
AD	Anno Domini
af	Acre-foot, the amount of water needed to cover one acre to a depth of one foot
ALT	Androscoggin Land Trust
APE	Area of Potential Effect as pertaining to Section 106 of the National Historic Preservation Act as amended
Applicant	Central Rivers Power
ATV	All-terrain vehicle
BC	Before Christ
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulations
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
CWA	Clean Water Act
DLA	Draft License Application
DO	dissolved oxygen
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOT FHA	Department of Transportation Federal Highway Administration
DSSMP	Dam Safety Surveillance and Monitoring Program and Report
EA	Environmental Assessment
EAP	Emergency Action Plan
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EL	Elevation
ESA	Endangered Species Act
ESFB	Eastern small footed bat
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
FOIA	Freedom of Information Act
FPA	Federal Power Act
FWCA	Fish and Wildlife Coordination Act
GIS	Geographic Information Systems
GWh	Gigawatt-hour (equals one million kilowatt-hours)
Hp	Horsepower

Hz	hertz (cycles per second)
HPMP	Historic Properties Management Plan
ILP	Integrated Licensing Process
Installed Capacity	The nameplate MW rating of a generator or group of generators
Interested Parties	The broad group of individuals and entities that have an interest in a proceeding
IPaC	Information of Planning and Consultation
kV	Kilovolts
KVA	Kilovolt amps
kW	kilowatt
kWh	kilowatt-hour
License Application	Application for New License submitted to FERC no less than two years in advance of expiration of an existing license. See DLA
Licensee	Central Rivers Power
LBB	Little brown bat
LWCF	Land and Water Conservation Fund
MBI	Midwest Biodiversity Institute
Mg/L	Milligram per liter
MSL	Mean sea level
MW	megawatt
MWh	megawatt-hour
NEPA	National Environmental Policy Act
NGO	Non-governmental organization
NHPA	National Historic Preservation Act
NHESCA	New Hampshire Endangered Species Conservation Act
NHDCR	NH Department of Cultural Resources
NHDES	NH Department of Environmental Services
NHDHR	NH Division of Historical Resources
NHDRED	NH Department of Resources and Economic Development
NHF&G	NH Fish and Game Department
NHNHB	NH Natural Heritage Bureau
NHNHI	NH National Heritage Inventory
NHOEP	NH Office of Energy and Planning
NWI	National Wetlands Inventory
PAD	Pre-Application Document
Peaking	Operation of generating facilities to meet maximum instantaneous electrical demands
Penstock	An inclined pressurized pipe through which water flows from a forebay or tunnel to the powerhouse turbine

PDF	Portable Document Format
PFMA	Probably Failure Mode Analysis
PLP	Preliminary Licensing Proposal
PM&E	Protection, Mitigation and Enhancement Measures
PMF	Probable Maximum Flood
Project	FERC Project No. 2288, Gorham Project
Project Area	The area within the FERC Project Boundary
Project Boundary	The boundary line defined in the Project license issued by FERC that surrounds those areas needed for operation of the Project. In the case of the Gorham Hydroelectric Project, the project boundary encompasses the impoundment up to approximately 4,700 feet from the dam and just below the dam. The project boundary includes the dam and the powerhouse.
pH	The scale of acidity from 0 to 14. It tells how acidic or alkaline a substance is.
Project Impoundment	The 32-acre impoundment on the Androscoggin River, impounded by Gorham Dam.
PSNH	Public Service of New Hampshire
PSP	Proposed Study Plan
Project Vicinity	The general geographic area in which the Project is located; for this PAD, Gorham, Maine
QC	quality control
Relicensing	The process of acquiring a new FERC license for an existing hydroelectric Project upon expiration of the existing FERC license
Relicensing Participants	Individuals and entities that are actively participating in a proceeding
Resource Affected Area	The geographic area in which a specific resource is potentially affected by the Project
REA	Ready for Environmental Assessment
RM	River mile
Run-of-river	A hydroelectric Project that uses the flow of a stream with little or no reservoir capacity for storing water
RSP	Revised Study Plan
SD	Scoping Document
Service List	A list maintained by FERC of parties who have formally intervened in a proceeding. In relicensing, there is no Service List until the license application is filed and accepted by FERC. Once FERC establishes a Service List, any documents filed with FERC must also be sent to the Service List
SHPO	State Historic Preservation Officer
SPD	Study Plan Determination
STID	Supporting Technical Information Documents
SWQPA	Shoreland Water Quality Protection Act

Tailrace	Channel through which water is discharged from the powerhouse turbines
TCB	Tri-colored bat
T&E Species	Threatened and endangered species, which for purposes of this PAD is defined to include (1) all botanical species listed as threatened or endangered identified as occurring within the project boundary or immediate vicinity; (2) all wildlife species listed as threatened or endangered identified as occurring within Coos County; (3) all federal wildlife species listed as threatened or endangered for Coos County identified by the USFWS and NMFS and (4) species identified during other surveys or through consultation with the resource agencies.
TLP	Traditional Licensing Process
TU	Trout Unlimited
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WQC	Water Quality Certificate

PRE-APPLICATION DOCUMENT

J. BRODIE SMITH HYDROELECTRIC PROJECT (FERC PROJECT NO. 2287)

1.0 INTRODUCTION

Central Rivers Power NH, LLC (CRP) is filing with the Federal Energy Regulatory Commission (FERC or the Commission) its Notification of Intent (NOI) to relicense the 15 MW J. Brodie Smith Hydroelectric Project (FERC Project No. 2287). The J. Brodie Smith Hydroelectric Project consists of a 500-foot-long, 24-foot-high, masonry and concrete gravity U-shaped dam, a reservoir with a surface area of 8 acres, a spillway, a power canal, a powerhouse containing one generating unit, located on the Androscoggin River in Coos County, New Hampshire. CRP is not proposing to add capacity or make any physical modifications to the Project under the new license. The current license will expire on July 31, 2024.

CRP will be applying for license renewal using the Commission's Integrated Licensing Process (ILP). As required under the ILP and its accompanying regulations (18 CFR §5.6), this pre-application document (PAD) is being filed simultaneously with the NOI and will be distributed to federal and state resource agencies, local governments, Indian tribes and members of the public interested in the application. The purpose of this PAD is to: (1) describe the existing facility and current and proposed operations at the J. Brodie Smith Hydroelectric Project, and (2) summarize existing information and studies that CRP gathered during the PAD process that are relevant to the evaluation of the J. Brodie Smith Project impact on the area.

In compliance with the Commission's regulations governing the content of the PAD, CRP contacted appropriate state and federal resource agencies and interested public parties concerning the Project's impact on the Androscoggin River. CRP requested that contacted parties provide any relevant studies on topics such as water quality, fisheries, recreation, wildlife and archaeology in the area surrounding the Project.

This document will enable all state and federal resource agencies and interested public parties access to existing information on resource issues in the Project area. The document will also

provide the parties with information needed during the National Environmental Policy Act (NEPA) scoping process to be conducted by the Commission.

As set forth in 18 CFR §5.6, the Commission will issue Scoping Document 1 (SD 1) within 60 days of CRP's filing of the PAD and hold a public scoping meeting and site visit within 30 days of issuing SD 1.

The information contained in this document was assembled based on the requirements set forth in 18 CFR §5.6 and is organized as follows:

Section 2.0 – Process plan and schedule for all pre-application activity, including the proposed location and date for the scoping meeting and site visit. 18 CFR §5.6(d)(1).

Section 3.0 – Proposed communication protocol for open communications including using meetings, documents, email, Internet, and telephone.

Section 4.0 - General description of the project location, facilities and operations. 18 CFR §5.6(d)(2).

Section 5.0 – Description of existing environmental and resource impacts. 18 CFR §5.6(d)(3).

Section 6.0 – Preliminary resource issues and potential studies or information gathering needs associated with the issues. 18 CFR §5.6(d)(4).

Section 7.0 – Literature and information sources cited in the descriptions and summaries of existing resource data. 18 CFR §5.6(c)(2).

Appendices – Summary of contacts made in preparing the PAD and maps, flow duration curves and related information supporting the sections above and requirements of 18 CFR §5.6(d) include authorized agents in Appendix A.

2.0 PROCESS PLAN AND SCHEDULE

FERC's ILP regulations¹ define specific procedures and timelines for the relicensing process. FERC designed the ILP, the current default relicensing process, to be a transparent process that involves all interested parties including Native American tribes, agencies, Non-Governmental Organizations (NGOs), and the public. As such, CRP will carefully document the entire process including any information received from the interested parties, as well as records of communications. To keep the interested parties informed of the process, CRP will maintain records of relicensing and other information that will be available to the public at CRP's office at 59 Ayers Island Road in Bristol, NH.

The Process Plan and Schedule outlines actions by the FERC, Licensees, and other participants in the licensing process through filing of the License Application and issuance of the new license (Table 2-1). The Licensee developed the Process Plan and Schedule based upon filing the FLA on July 31, 2022. All subsequent dates given derive from that date. Readers should note that FERC regulations provide for a six-month window for filing the NOI/PAD; the PAD must be filed between 5.5 and 5 years before the license expiration. The License Application must be filed no later than two years before license expiration, but could be filed earlier.

CRP developed the Process Plan and Schedule using the timeframes set forth in 18 CFR Part 5 (ILP). Additionally, in developing the Process Plan and Schedule, CRP has included timeframes for Formal Dispute Resolution (18 CFR § 5.14) even though any study disputes may be resolved through informal dispute resolution. Because there is flexibility in the dates given, the Process Plan and Schedule is subject to change throughout the relicensing.

TABLE 2-1 PROPOSED PROCESS SCHEDULE

RESPONSIBLE ENTITY	LICENSE APPLICATION SCHEDULE MILESTONES	TIMEFRAME	FERC REGULATION
CRP	File NOI And PAD (5 to 5.5 years before expiration)	7/26/2019	5.5 & 5.6
CRP	Request FERC Designate CRP as Non- Federal Representative for Section 106 Consultation	7/26/2019	5.5(e)

¹ For more details on FERC licensing processes go to www.ferc.gov.

RESPONSIBLE ENTITY	LICENSE APPLICATION SCHEDULE MILESTONES	TIMEFRAME	FERC REGULATION
CRP	Request FERC Designate CRP as Non-Federal Representative for ESA Consultation	7/26/2019	5.5(e)
FERC	Notice of Commencement of Proceeding and issuance of Scoping Document 1 (w/in 60 days of filing NOI/PAD)	9/24/2019	5.8
FERC	Hold Site Visit and Scoping Meetings (w/in 30 days of FERC Notice of Proceeding)	10/24/2019	5.8(b)(3)(viii)
Participants	File Comments on PAD/SD1 and Study Requests (w/in 60 days of FERC Notice of Proceeding)	11/23/2019	5.9(a)(b)
FERC	Issue Scoping Document 2 (w/in 45 days of SD1 comments)	1/7/2020	5.1
CRP	File Proposed Study Plan (PSP) (w/in 45 days of PAD comments)	1/7/2020	5.11(a)
CRP	Hold PSP Initial Meeting with Participants (w/in 30 days of PSP)	2/6/2020	5.11(e)
Participants	File Comments on PSP (w/in 90 days of filing PSP)	4/6/2020	5.12
CRP	File Revised Study Plan (RSP) (w/in 30 days of PSP comments)	5/6/2020	5.13(a)
Participants	File Comments on RSP (w/in 15 days of RSP)	5/16/2020	5.13(b)
FERC	Issue Study Plan Determination (SPD) (w/in 30 days of RSP)	6/5/2020	5.13(c)
Participants	File any Study Disputes (w/in 20 days of SPD)	6/25/2020	5.14(a)
Dispute Resolution Panel	Dispute Resolution Panel Convenes (w/in 20 days of dispute)	7/15/2020	5.14(d)
CRP	File Comments and Information Regarding Dispute (w/in 25 days of dispute)	8/9/2020	5.14(i)
Dispute Resolution Panel	Issue Dispute Recommendations (w/in 50 days of dispute)	8/14/2020	5.14(k)
FERC	Issue Director's Study Dispute Determination (w/in 70 days of dispute) ²	9/3/2020	5.14(l)
CRP	First Study Season		5.15
CRP	File Initial Study Report (w/in 1 year of SPD)	6/5/2021	5.15(c) (1)

² FERC may not need to issue a SD2.

RESPONSIBLE ENTITY	LICENSE APPLICATION SCHEDULE MILESTONES	TIMEFRAME	FERC REGULATION
CRP	Hold Initial Study Report Meeting (w/in 15 days of Initial Study Report)	6/20/2021	5.15(c)(2)
CRP	File Initial Study Report Meeting Summary/Changes to Study Plan (w/in 15 days of Initial Study Report Meeting)	7/5/2021	5.15(c)(3)
Participants	File Any Study Plan Disputes/Amendment Requests (w/in 30 days of Initial Study Report Meeting Summary)	8/4/2021	5.15(c)(4)
Participants	File Responses to any Study Plan Disputes/Amendment Requests (w/in 30 days of any Disputes/Amendment Requests)	9/3/2021	5.15(c)(5)
FERC	Issue Director's Determination on any Study Plan Disputes/Amendment Requests (w/in 30 days of Responses)	10/3/2021	5.15(c)(6)
CRP	Second Study Season (if necessary)		5.15
CRP	File Updated Study Report (w/in 2 years of SPD)	6/5/2022	5.15(f) & 5.16(c)
CRP	Hold Updated Study Report Meeting (w/in 15 days of Updated Study Report)	6/20/2022	5.15(f)
CRP	File Updated Study Report Meeting Summary/Changes to Study Plan (w/in 15 days of Updated Study Report Meeting)	7/5/2022	5.15(f)
Participants	File any Study Plan Disputes/Amendment Requests (w/in 30 days of Updated Study Report Meeting Summary)	8/4/2022	5.15(f)
CRP	File Responses to any Study Plan Disputes/Amendment Requests (w/in 30 days of any Disputes/Amendment Requests)	9/3/2022	5.15(f)
FERC	Issue Director's Determination on any Study Plan Disputes/Amendment Requests (w/in 30 days of Responses)	10/3/2022	5.15(f)
CRP	File PLP, draft Biological Assessment (if any), and draft Historic Properties Management Plan (if any) (no later than 150 days prior to deadline for Final License Application)	1/22/2022	5.16(a)(b)
Participants	File Comments on PLP (w/in 90 days of PLP)	4/22/2022	5.16(e)
CRP	File Final License Application (FLA)	7/31/2022	5.17(a)

RESPONSIBLE ENTITY	LICENSE APPLICATION SCHEDULE MILESTONES	TIMEFRAME	FERC REGULATION
	(w/in 24 months of license expiration) ³		
FERC	Issue Notice of FLA (w/in 14 days of FLA)	8/14/2022	5.19(a)
FERC	Issue Director's Determination on any Additional Study Requests and Notification of any Deficiencies (w/in 30 days of FLA)	8/31/2022	5.19(d) & 5.20(a)(2)
FERC	Issue FERC Acceptance Notice and Ready for Environmental Analysis (REA) Notice	TBD	5.22
Participants	File Comments, Interventions and 10(a) Recommendations (w/in 60 days of FERC Acceptance Notice)	TBD	5.23(a)
Agencies	File 10(j) Recommendations	TBD	5.23(a)
CRP	Request Water Quality Certificate (WQC) from WVDEP (w/in 60 days of REA notice)	TBD	5.23(b)
FERC	Issue Single Environmental Assessment (EA) ⁴ ; Issue Biological Assessment (if any); Issue draft Programmatic Agreement for Historic Properties (if any)	TBD	5.24(a)
Participants	File Comments on EA (w/in 30 days of EA)	TBD	5.24(c)
NHDES	Issue Final WQC	TBD	N/A
FERC	Issue a New License Order	TBD	FPA

³ A license application must be filed by July 31, 2022 (current license expires July 31, 2024)

⁴ FERC will likely issue a "Single EA" (without a draft EA)

3.0 PROPOSED COMMUNICATIONS PROTOCOLS

Effective communication is essential for a timely, cost-effective licensing. The Licensee's goal is to maintain open communication during the licensing process and to provide public access to relevant project licensing information. The Licensee anticipates that it will use meetings, documents, email, Internet, and telephone to communicate as described below.

3.1 TELEPHONE

The Licensee anticipates that telephone calls among interested parties and licensing participants will be treated informally, with no specific documentation unless specifically agreed upon in the discussion or as part of formal agency consultation proceedings.

3.2 EMAIL AND WEBSITES

The Licensee anticipates distribution of relevant documents and submittal of comments, correspondence, and study requests from agencies will be largely conducted electronically, either by electronic filing of documents with the FERC or via e-mail distribution. In addition, some formal agency consultation proceedings and correspondence may, as a matter of convenience and expediency, occur electronically or via e-mail. The Licensee will maintain documentation of all electronic correspondence as part of formal agency consultation proceedings.

The FERC makes information available to the public through FERC's eLibrary, which is a records information system on the Internet that contains documents submitted to and issued by the FERC. The eLibrary can be accessed through the FERC's homepage, at <http://www.ferc.gov>, or directly at <http://elibrary.ferc.gov/IDMWS/search/fercgensearch.asp>. Documents filed with the FERC as part of the Project licensing process are available for viewing and printing via eLibrary. Interested parties can also subscribe to the Docket P-2287 for the Project under eSubscription on the Commission's website to receive notices of issuance and filings by e-mail.

3.3 MEETINGS

The Licensee will work with interested parties to develop meeting schedules that include practical locations and times to accommodate the majority of participants. In general, the Licensee will schedule meetings, other than FERC Scoping Meetings, between the hours of 9:00

a.m. and 4:00 p.m. FERC Scoping Meetings will include at least one daytime and one evening meeting. The Licensee will make every effort to begin and end meetings on time.

To the extent possible, the Licensee will notify all interested parties in advance of the next planned public meeting. At that time, the Licensee will provide a meeting agenda via mail and/or e-mail. The Licensee will also distribute any documents or other information that will be the subject of meeting discussions.

Meetings, other than FERC scheduled meetings, will be held at the Town and Country Inn in Gorham, NH, or at another suitable alternative location. While the proposed location and date for the Scoping Meetings and site visit are provided herein, pursuant to 18 CFR § 5.8 (b)(3)(viii), FERC will notice the final dates, times and locations of the FERC Scoping Meetings and publish that information in local papers shortly after the filing of the NOI and PAD. When possible, meetings for the J. Brodie Smith and Gorham relicensings will be held together.

3.4 DOCUMENTS

3.4.1 MAILING LISTS

There are two categories of participation in a FERC relicensing and each requires different notification or frequency and type of communication. "Interested parties" are a broad group of individuals, government agencies, and NGOs that have an interest in the licensing; sometimes this group is referred to as "stakeholders." The Licensee will maintain a Millville Project Licensing Mailing List of all interested parties. The list will include both standard U.S. Post Office addresses and available e-mail addresses for distributing notices and documents for public review, where possible.

Relicensing Participants are a subset of interested parties. Relicensing Participants are the individuals and entities that are actively participating in a proceeding. Any interested party may elect to be a licensing participant. Licensing participants generally are active on committees or specific aspects of the licensing and receive additional communications relative to the specific activity or function.

After the Licensee files the License Application, the FERC will establish an official Service List for parties who formally intervene in the proceeding. Intervention is a formal legal process described in the FERC regulations. Additional information may be found on FERC's website at

<http://www.ferc.gov/help/how-to/intervene.asp>. Once the FERC establishes a Service List, any written documents filed with FERC must also be sent to the Service List.

3.4.2 DOCUMENT DISTRIBUTION

The Licensee will distribute, whenever possible, all documents electronically in standard Microsoft Word or PDF format. The Licensee may distribute hard copies of some documents for convenience or by request. Distribution of information will follow the guidelines presented below (Table 3-1).

TABLE 3-1 DOCUMENT DISTRIBUTION FOR THE RELICENSING OF THE J. BRODIE SMITH PROJECT (FERC NO. 2288)

DOCUMENT	METHOD	DISTRIBUTION
Public Meeting Notice	Initial meetings by newspapers and either email or U.S. Mail. Thereafter, by email, website and/or newspaper	Public and all potential interested parties
Meeting Agendas	Email or U.S. Mail*	Interested parties
Meeting Summaries	Email or U.S. Mail*	On Request
Major Documents: PAD; FERC Scoping Documents; Proposed Study Plans; Study Reports; Draft License Application; etc.	Email or U.S. Mail*, available in Public Reference File	Notice of availability by Email or U.S. Mail to interested parties
PAD supporting documents	Public Reference File	On Request
FERC License and related documents	Email or U.S. Mail*	On Request
Written Communications	Email or U.S. Mail*	On Request

**U.S. Mail service by special request.*

3.4.3 PUBLIC REFERENCE FILE

The Licensee will maintain copies of all mailing lists, announcements, notices, communications, and other documents related to the relicensing of the Project on a public website located at www.smithgorhamrelicensing.com. The Licensee will regularly update the public files to ensure the public has the latest information related to the relicensing process available to them and that all public documents are available.

Electronic copies will be available for most documents free of charge. For a nominal copying fee, hard copies of all documents are available upon request. Documents are available for

inspection and reproduction during regular office business hours. Appointments are appreciated. Anyone may set up an appointment to view the files or request copies of specific documents by contacting Curt Mooney at 603-744-0846 or cmooney@centralriverspower.com.

In addition, public documents will be filed with the FERC. These materials will be available on the FERC website (www.ferc.gov) at the eLibrary link and can be searched for by the FERC project docket number (P-2287 for the J. Brodie Smith Project). In addition, all materials in the public reference files will be available for review and copying at the FERC offices in Washington, DC:

Federal Energy Regulatory Commission
Public Reference Room, Room 2-A
Attn: Secretary
888 First Street, N.E.
Washington, D.C. 20426

All communications added to the Public Reference File will be available to the public.

3.4.4 RESTRICTED DOCUMENTS

Certain project-related documents are restricted from public viewing in accordance with FERC regulations. Critical Energy Infrastructure Information (CEII) (defined under 18 CFR §388.113) are materials related to the design and safety of dams and appurtenant facilities and that, as necessary to protect national security and public safety, are restricted. Anyone seeking CEII information from FERC must file a CEII request. FERC's website at <http://www.ferc.gov/help/how-to/file-ceii.asp> contains additional CEII details.

Information associated with protecting sensitive archaeological or other culturally important information is also restricted under Section 106 of the National Historic Preservation Act (NHPA). Anyone seeking this information from FERC must file a Freedom of Information Act (FOIA) request. Instructions for FOIA are available on FERC's website at www.ferc.gov/legal/ceii-foia/foia.asp.

3.4.5 PROVIDING DOCUMENTS TO LICENSEE

The Licensee prefers to receive all documents electronically in either PDF or an appropriate Microsoft Office format. E-mail electronic documents to cmooney@centralriverspower.com.

Hardcopy documents may be mailed to Curt Mooney, Central Rivers Power, at 59 Ayers Island Road Bristol, NH 03222. In either case, all documents received become part of the consultation record for the licensing and are available for distribution to the public.

3.4.6 STUDY REQUESTS

In the development of the PAD, the Licensee has collected and summarized the reasonably available information regarding the Project and its effects on the human and natural environments. The PAD, however, also indicates areas where there is limited or no information related to areas of potential concern with respect to the operation of the Project. In those cases, licensing participants may request additional studies or investigations to add to the knowledge of the Project. As specified by 18 CFR § 5.9(b), requested studies should:

- Describe the goals and objectives of each study proposal and the information to be obtained;
- If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
- If the requestor is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
- Describe existing information concerning the subject of the study proposal, and the need for additional information;
- Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate filed season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
- Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The requestor should also describe any available cost-share funds or in-kind services that the sponsor of the request may contribute towards the study effort.

Study requests may be filed electronically with the FERC at www.ferc.gov citing the FERC Docket No. 2287. In addition, study requests in Microsoft Word or PDF format should be sent

electronically to cmooney@centralriverspower.com or in hardcopy to Curt Mooney, Central Rivers Power, at 59 Ayers Island Road Bristol, NH 03222.

3.5 REFERENCES

Federal Energy Regulatory Commission (FERC). 2004. Handbook for Hydroelectric Project Licensing and 5 MW Exemptions from Licensing. [Online] URL: http://www.ferc.gov/industries/hydropower/gen-info/handbooks/licensing_handbook.pdf. Accessed April 9, 2018.

4.0 DESCRIPTION OF PROJECT LOCATION, FACILITIES, AND OPERATION

4.1 PROJECT LOCATION

The J. Brodie Smith Hydroelectric Project (Project) is located in central New Hampshire in Coos County, in the city of Berlin, New Hampshire. The Project is located on the Androscoggin River.

4.2 PROJECT BOUNDARY

The Project boundary generally includes the reservoir, dam, powerhouse, and tailrace. The Project boundary also extends from the dam downstream approximately 2,500 feet and upstream approximately 1,200 feet.



FIGURE 4-1 PROJECT BOUNDARY MAP

4.3 PROJECT FACILITIES

4.3.1 EXISTING FACILITIES

The single-development Project consists of the J. Brodie Smith impoundment, dam, powerhouse, tailrace channel, transmission lines, transformers, and appurtenant facilities. Table 4-1 provides the specifications for the Project.

IMPOUNDMENT

The Project reservoir has a surface area of 8 acres, with a normal headwater elevation of 1009.7 feet (USGS). The water depth in the impoundment is approximately 10 feet (FEMA 2013).

DAM

The Project has a 500-foot-long, approximately 24 high, masonry and concrete gravity U-shaped dam with a maximum height of 24 feet. There are two spillways: 1) 170 feet long, with a crest elevation of 1002.96 feet (USGS), topped with hinged steel flashboards, about 6.7 feet high; separated by a two S. M. Smith steel roller-type sluice gates, each 17 feet high by 25 feet wide, with a sill elevation of 993.0 feet (USGS); 2) a second spillway section, 256 feet long, with a masonry crest elevation of 1006.7 feet (USGS), topped with pin-supported wooden flashboards, 3 feet high.



PHOTO 4-1 J. BRODIE SMITH DAM

POWER CANAL

The Project has a power canal which is approximately 500-feet-long by 100-feet-wide.



PHOTO 4-2 J. BRODIE SMITH POWER CANAL

PENSTOCK AND SURGE TANK

The Project's penstock is steel and has an 18-foot-diameter and is 1,440-feet-long. The steel surge tank is a 1.15-million-gallon, measuring 70 feet in diameter by 40 feet high.



PHOTO 4-3 J. BRODIE SMITH SURGE TANK

POWERHOUSE

The powerhouse is 65-feet-long by 53-feet-wide and contains one hydroelectric generating unit with a rated capacity of 15,000 kW and a hydraulic capacity of 3,200 cfs, and a normal operating head of 88 feet.



PHOTO 4-4 J. BRODIE SMITH POWERHOUSE

TRANSMISSION

The Project has a 3115-kV, 1,500-foot-long primary transmission line and appurtenant facilities. Appendix D contains the single-line diagram for the Project, which is being filed as Critical Energy Infrastructure Information (CEII).

TABLE 4-1 PROJECT FACILITIES AND DESCRIPTIONS

J. BRODIE SMITH PROJECT – FERC No. 2287	
Description	Number or Fact
GENERAL INFORMATION	
FERC Number	P-2287
License Issued	August 1, 1994
License Expiration Date	July 31, 2024
Licensed Capacity	15,000 kW

Project Location	On Androscoggin River in Coos County, New Hampshire.
RESERVOIR AND DAM	
Surface Area of Reservoir	8 acres
Elevation Top of Dam	1002.96 feet (spillway); 1006.7 feet (spillway); 993.0 feet (sill)
Height	24 feet
Length of Dam	500 feet
Trashracks	5/16-inch bars, 3 5/8 inches center to center, 3 inch clear span between bars
POWER CANAL	
Length	500 feet
Width	100 feet
PENSTOCK	
Length	1,450 feet
Width	18 feet diameter
SURGE TANK	
Material	steel
Length	40 feet
Width	70 feet diameter
POWERHOUSE	
Length (Superstructure)	65 feet
Width (Superstructure)	53 feet
TURBINES/GENERATORS	
Number of units	1 unit
	Type
Rated Net Head	88 feet
Total Hydraulic Capacity	3,200 cfs
Average Annual Generation	101,932 MWH
TRANSMISSION LINES	
Type	115-kV
Length	1,500 feet

4.3.2 PROPOSED FACILITIES

No new facilities are proposed to be added to the Project at this time.

4.4 PROJECT OPERATIONS

4.4.1 EXISTING OPERATION

The Project is operated as run-of-river with minimal impoundment fluctuations. Article 402 of the existing license requires the Licensee to release a minimum flow of 20 cfs or inflow to the bypass reach, whichever is less, for the protection and enhancement of fish and wildlife resources and water quality in the bypassed reach of the Androscoggin River.

The generating unit is normally operated remotely by Customized Energy Solutions (CES) located in Philadelphia, Pennsylvania, although the unit is also capable of local operation. Manual operations and maintenance of the J. Brodie Smith Project are performed by the Upper Hydro Group, which is also responsible for CRPNH's Gorham Project (FERC No. 2288) and Canaan Project (FERC No. 7528) located in northern New Hampshire. Daily logs of pond level, flow, and outages are maintained electronically for the Project. Minimum bypass flows through a 15-inch-square orifice in one of the two waste gates located immediately to the west of the existing flashboard opening. This enables CRPNH to provide the required minimum flow even if the pond were to suddenly drop.

4.4.2 PROPOSED OPERATION

No modifications to operations are proposed, either to the run-of-river mode or to the minimum flows.

4.5 OTHER PROJECT INFORMATION

4.5.1 PROJECT GENERATION AND OUTFLOW RECORDS

Project generation for the past five years (2013-2018 inclusive) averaged 101,932 MWH (102 MWH); the monthly and yearly MWH totals are as follows:

TABLE 4-2 MONTHLY AND YEARLY MWH TOTALS FOR THE J. BRODIE SMITH PROJECT

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
2013	11,235	10,792	12,312	12,794	9,722	12,829	11,888	7,735	4,090	5,934	5,421	6,005	110,756
2014	9,771	10,003	10,842	9,037	13,199	9,788	10,246	626	-	-	5,742	8,366	87,620
2015	11,392	11,243	8,670	10,410	8,908	12,562	8,858	6,627	2,568	6,045	5,697	8,889	101,869
2016	11,871	11,417	12,683	11,253	10,922	4,820	5,738	4,813	3,212	4,167	5,629	7,345	93,869
2017	10,060	10,914	12,578	12,065	12,709	9,452	9,940	7,313	2,986	5,538	11,412	10,577	115,545
2018	12,106	12,022	13,003	12,697	11,333	5,152	6,716	7,793	4,517	8,420	11,210	10,059	115,027
Average	11,072	11,065	11,681	11,376	11,132	9,891	9,334	5,423	2,571	4,337	6,780	8,236	101,932

River flow data for the J. Brodie Smith Project was generated from USGS gage No. 01054000 (Androscoggin River near Gorham, New Hampshire) for the period January 1988 to December 2017; the USGS gage is approximately 2.5 river miles downstream of the J. Brodie Smith Project. Data from the USGS gage were pro-rated by a factor of 0.986 to account for the difference in drainage area between the J. Brodie Smith Project and the gage.

Flow duration curves using data at the USGS gage No. 01054000 gage are provided in Appendix B.

TABLE 4-3 MEAN, MEDIAN, MINIMUM, AND MAXIMUM RIVER FLOWS BY MONTH FOR THE J. BRODIE SMITH PROJECT (JANUARY 1988 TO DECEMBER 2017).

MONTH	MEAN FLOW (CFS)	MEDIAN FLOW (CFS)	MINIMUM FLOW (CFS)	MAXIMUM FLOW (CFS)
January	2,485	2,470	1,232	6,211
February	2,593	2,544	1,252	6,852
March	2,931	2,711	1,242	14,000
April	4,509	3,520	1,252	19,619
May	3,888	3,002	1,361	15,971
June	2,874	2,223	1,144	12,619
July	2,234	1,824	931	10,155
August	1,985	1,775	1,094	9,859
September	1,876	1,784	769	9,593
October	2,348	1,903	1,006	14,788
November	2,577	2,174	1,124	9,859
December	2,488	2,268	1,144	9,652
Annual	2,731	2,258	769	19,619

4.5.2 DEPENDABLE CAPACITY

Due to the absence of useable storage associated with no impoundment fluctuation, the Project is entirely dependent upon available inflows for generation. The dependable capacity ratings as identified in the ISO New England 2019 Capacity, Energy, Loads, and Transmission (CELT) Report are 17.072 MW for the winter and 8.390 MW for the summer.

4.5.3 CURRENT NET INVESTMENT

The Project's current net investment value is \$20,707,275.

4.5.4 DESCRIPTION OF CURRENT LICENSE REQUIREMENTS

FERC issued a license for the J. Brodie Smith Project by order on August 1, 1994.

The license is for a period effective August 1, 1994 to July 31, 2024. Articles 1-28 are “standard articles” contained in FERC’s Form L-3 included as part of the Order Issuing License. Articles 201 to 205 and 401 to 410 were also included in the Order Issuing License (FERC 1994). The following is a summary of Articles 201 to 205 and 401 to 410 (see Appendix E):

Article 201 requires the Licensee to pay the United States an annual charge, effective the first day of the month in which the license is issued.

Article 202 requires amortization reserves.

Article 203 requires headwater improvement reimbursement for headwaters benefits from another licensee.

Article 204 reserves authority by the Commission in the context of a rulemaking proceeding, a statement of policy, or a proceeding specific to the license to require the Licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project.

Article 205 the Commission reserves authority, in the context of any licensing, relicensing, or license or exemption amendment proceeding involving the upstream Androscoggin River Basin projects.

Article 401 requires the Licensee to operate the project as run-of-river mode for the protection of fish and wildlife resources and water quality in the Androscoggin River.

Article 402 requires the Licensee to release a minimum flow of 20 cfs or inflow to the project bypassed reach, whichever is less, for the protection and enhancement of fish and wildlife resources and water quality in the bypassed reach of the Androscoggin River.

Article 404 gives the Commission the authority to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintain of, such fishways as may be prescribed by the Secretary of the Interior.

Article 405 reserves the Commission authority to require the Licensee to file with the Commission for approval, a plan to monitor dissolved oxygen levels and temperature of the Androscoggin River upstream and downstream of the Project.

Article 406 requires the Licensee to implement the provisions of the “Programmatic Agreement Among the FERC, the Advisory Council on Historic Preservation, and the New Hampshire Division of Historic Preservation, for the Managing Historic Properties likely to be Affected by continuing to Operate the Sawmill Project, Project No. 2422, Cross Power Project, Project no. 2326, Cascade Project, Project No. 2327, Gorham Project, Project No. 2311, Shelburne Project, Project No. 2300, J. Brodie Smith Project, Project No 2287, and Gorham Project, Project No. 2288.

Article 410 gives the Licensee authority to grant permission for certain types of use and occupancy of the project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval.

4.5.5 SUMMARY OF COMPLIANCE HISTORY OF THE PROJECT

The Licensee has followed existing license requirements and submitted statements and records indicating adherence to both the license articles and also the CFR to the FERC. Most notably, these include:

A deviation to Article 401 occurred on November 6, 2018 when IT staff were conducting a quarterly software dispatch on the Eversource Electric System Control Center (ESCC) control computers, which involved switching from communication line A to line B. Due to an unknown and undetected problem with line B, the operational communication between the ESCC and the Smith Station was lost once the switch to line B was made. During this time frame, the river flow at the project was decreasing because of planned reductions upstream at the Errol Project. Since Smith Station was at full load and the waste gate was open, the pond level began to drop due to the reduced inflows and the inability of the ESCC to control the waste gate. The headwater level dropped below the ESCC alarm setpoint of 6.5 feet at 11:00 a.m. and reached a low point of 3.2 feet at 12:34 p.m. At 11:47 a.m., the ESCC dispatcher realized communication to the Smith Station was lost and contacted local station personal. The station personal backed off generation and adjusted the waste gate in order to bring the headwater level back up. The headwater level at

1:05 p.m. CRP immediately notified FWS, New Hampshire FGD and New Hampshire Department of Environmental Services on November 7, 2018, and sent a follow-up email on November 9, 2018. CRP did not observe any adverse environmental effects or receive any public inquiries or concerns during this incident.

On February 26, 2019, FERC determined that the deviation that occurred on November 6, 2018 was not a violation of the license.

4.5.6 SAFETY PROCEDURES

The J. Brodie Smith Project is remotely monitored and operated 24 hours a day, 7 days a week. In addition, plant staff visit the site daily. Plant staff are generally within 30 minutes of the Project at all times. J. Brodie Smith is classified as a high hazard dam. The 11th Part 12 Dam Safety Inspection was filed with FERC in December 2017 and has completed a Potential Failure Mode Analysis for the dam. Section 10(c) of the Federal Power Act (FPA) authorizes FERC to establish regulations requiring licensees to operate and properly maintain their Projects for the protection of life, health, and property. FERC Part 12 regulations include such safety measures as signage and exclusion devices.

CRP was required by FERC to file a public safety plan for the Project, which depicts the public safety devices installed at the Project and their location (filed September 29, 2004). The Commission approved the Public Safety Plan on November 10, 2004.

Following photographs provide reference to Part 12 public safety items.



PHOTO 4-5 VIEW OF MINIMUM FLOW RELEASE ORIFICE AT J. BRODIE SMITH DAM. NOTE WARNING SIGN AND SIREN.



PHOTO 4-6 TYPICAL WARNING SIGN LOCATED IN THE BYPASS REACH.



PHOTO 4-7 VIEW OF FENCING AT POWERHOUSE AND TAILRACE.



PHOTO 4-8 TYPICAL WARNING SIGN LOCATED IN AUXILIARY SPILL CHANNEL.



PHOTO 4-9 FENCING ALONG THE BYPASS REACH IN PENINSULA PARK.



PHOTO 4-10 VIEW OF WARNING SIGN IN BYPASS REACH MOUNTED ON FORMER BRIDGE PIER.



PHOTO 4-11 FENCING ALONG POWER CANAL.



PHOTO 4-12 VIEW LOOKING UPSTREAM AT RESERVOIR. NOTE RESIDENTIAL DEVELOPMENT AND FENCING ON LEFT AND FORMER PAPER PLANT ON RIGHT. WHITEWATER AT UPPER END IS TAILRACE OF UPSTREAM PROJECT.



PHOTO 4-13 VIEW OF SMITH PENINSULA PARK ENTRANCE ALONG MAIN ST., BERLIN.



PHOTO 4-14 VIEW OF TRAIL WITHIN PARK, ALONGSIDE PENSTOCK.



PHOTO 4-15 VIEW OF TRAIL IN PARK NEAR GATEHOUSE.



PHOTO 4-16 VIEW OF TYPICAL SIGNS LOCATED AT TRAILHEAD AT PARK.



PHOTO 4-17 VIEW OF PARKING AREA NEAR POWERHOUSE FOR THE PENINSULA PARK.



PHOTO 4-18 TRAIL ALONG RIVER IN PENINSULA PARK.

4.6 REFERENCES

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5.0 DESCRIPTION OF EXISTING ENVIRONMENT AND RESOURCE IMPACTS

5.1 GENERAL DESCRIPTION OF THE RIVER BASIN

The Androscoggin watershed begins in northwestern Maine at Umbagog Lake, journeys through New Hampshire, then re-enters Maine near Bethel, eventually joining the Kennebec at Merrymeeting Bay. The Androscoggin River has a 1000-foot drop from its headwaters to the sea, the Androscoggin has an average descent of 8 feet per mile - a swift flowing, large volume river provides an excellent power source (Maine Rivers 2018).

The watershed has a total drainage area of 3,450 square miles (720-square-miles in New Hampshire) (Maine Rivers 2018). The Androscoggin River watershed can be broken down into two sections, the upper and lower Androscoggin River Watersheds. The Project is located within the upper watershed located approximately 16-river-miles-upstream from the boarder of Maine.

5.2 MAJOR LAND USES

The Project is surrounded by development on both the east and west. There is a small portion on land between the bypassed reach and penstock that is not developed with walking trails and tree growth.

5.3 MAJOR WATER USES

The Androscoggin River near the J. Brodie Smith Project is used for hydropower generation, recreation, flood control, and wastewater assimilation. The J. Brodie Smith Project is one of seven hydroelectric projects within an 11-mile reach of the Androscoggin River between Berlin and Shelburne, New Hampshire (FERC 1993).

TABLE 5-1 UPPER ANDROSCOGGIN RIVER BASIN HYDROELECTRIC PROJECTS (LISTED FROM UPSTREAM TO DOWNSTREAM)

PROJECTS	PROJECT NUMBERS
Sawmill	2422
J. Brodie Smith	2287
Cross Power	2326
Cascade	2327
Gorham	2311
Gorham	2288
Shelburne	2300

5.4 PROJECT RESERVOIR AND STORAGE

The J. Brodie Smith Project has a reservoir with a water surface area of 8 acres with a normal headwater elevation of 1009.7 feet (FERC 1994). The Project boundary extends upstream approximately 1,166 feet.

5.5 PROJECT DRAINAGE BASIN'S TRIBUTARY STREAMS

Principal tributaries to the Androscoggin River include: Dead River, which joins the Androscoggin River in Berlin, New Hampshire; the Moose River, which enters the Androscoggin River approximately 1.3-river-miles upstream of the Gorham Project; and the Peabody River, which enters the Androscoggin River approximately 1,000 feet downstream of the Gorham Project powerhouse (FERC No. 2288).

5.6 CLIMATE

The Project region experiences mild, relatively humid summers and cold winters with moderate snowfall in the lower elevations. Average July air temperatures in the Project vicinity range from a daily average maximum of 78°F to a daily average minimum of 55°F. The daily average maximum air temperature for January is approximately 26°F while the daily average minimum air temperature for January is 5°F. The average annual total precipitation is 41.57 inches with an average annual snowfall of 78 inches (US Climate Data, 2018).

5.7 REFERENCES

- Federal Energy Regulatory Commission (FERC). 1994. Order Issuing New License. Public Service Company of New Hampshire J. Brodie Smith Project. Project No. 2287-003. Issued August 1, 1994.
- Federal Energy Regulatory Commission (FERC). 1993. Final Environmental Impact Statement. Upper Androscoggin River Basin Hydroelectric Projects (FERC 2422-004, 2287-003, 2326-002, 2327-002, 2311-001, 2288-004, 2300-002). November 1993.
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5.8 GEOLOGY AND SOILS

5.8.1 OVERVIEW

New Hampshire is located in the New England physiographic province. This province is mountainous and contains highly deformed metamorphic rocks from the Precambrian and Paleozoic eras; the Project area is in the part of the province made up of Paleozoic sedimentary and metasedimentary rocks (NPS 2018).

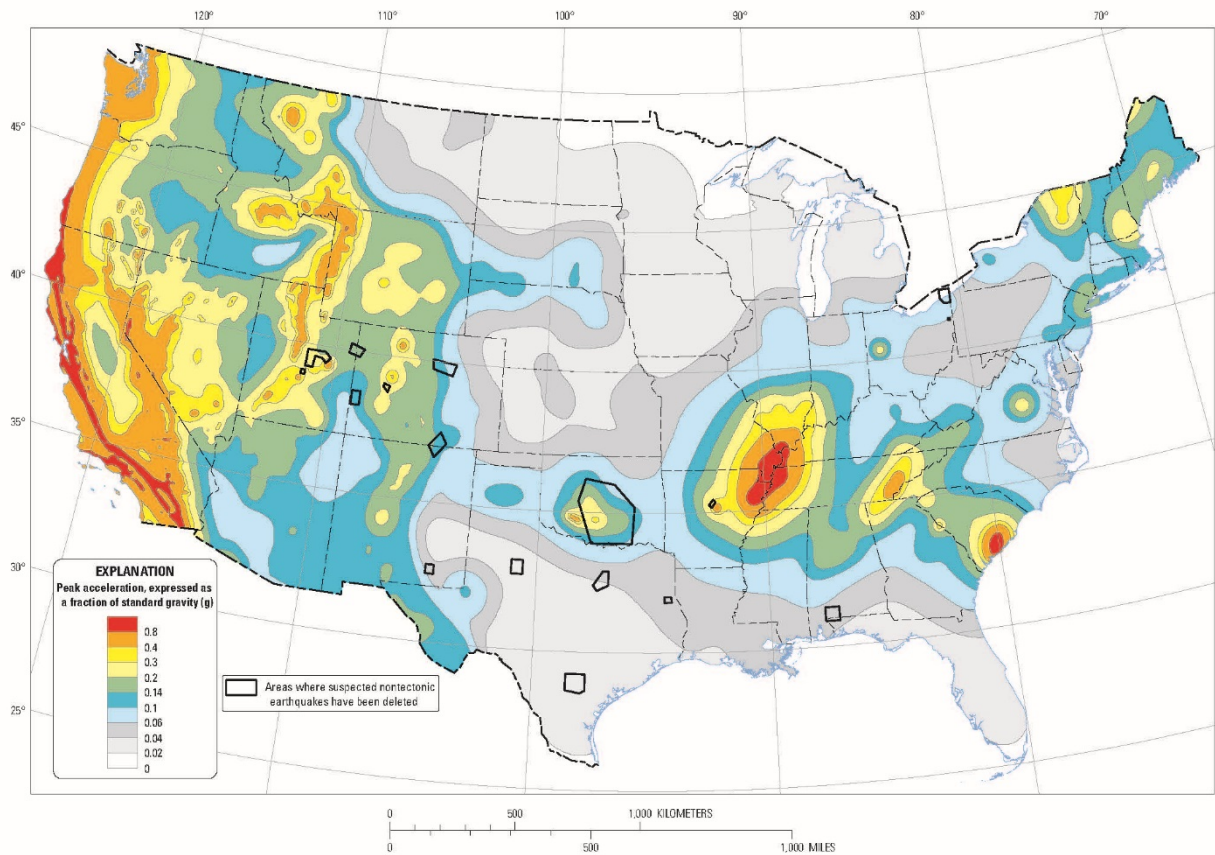
The majority of the Project occurs in a geologic unit characterized by the two-mica granite of northern and southeastern New Hampshire. This is part of the New Hampshire Plutonic Suite and includes synkinematic and postkinematic granitoids related to the Acadian orogeny. A strip along the western portion of the Project is part of the Ammonoosuc Volcanics geological unit, which is characterized by bimodal volcanic rocks (USGS 2018a).

5.8.2 SEISMIC ACTIVITY

The U.S. Geological Survey (USGS) National Seismic Hazard Maps display earthquake ground motions for various probability levels across the United States and are applied in seismic provisions of building codes, insurance rate structures, risk assessments, and other public policy.

The maps are derived from seismic hazard curves calculated on a grid of sites across the United States that describe the frequency of exceeding a set of ground motions (USGS 2018c). The map in Figure 5-1 shows in the levels of shaking that have a 2-in-100 chance of being exceeded in a 50-year period.

The Project location is located in an area considered the mid-level tier of hazard out of ten tiers (USGS 2018b).



Two-percent probability of exceedance in 50 years map of peak ground acceleration

FIGURE 5-1 LONG TERM SEISMICITY MODEL 50 YEAR MAP OF PEAK GROUND ACCELERATION

5.8.3 SOILS

34.4 percent of the project area is made up of Colton gravelly fine sandy loam with 0 to 3 percent slopes. The typical profile of this type of soil consists of the first horizon, 0 to 6 inches, being gravelly fine sandy loam; the second horizon, 6 to 18 inches, being stratified very gravelly sandy loam; and the third horizon, 18 to 65 inches, being extremely gravelly coarse sand. This soil type has a high capacity to transmit water, with no frequency of flooding or ponding. The map below shows the distribution of soil type in and 1000 feet around the Project boundary.

Soils Map

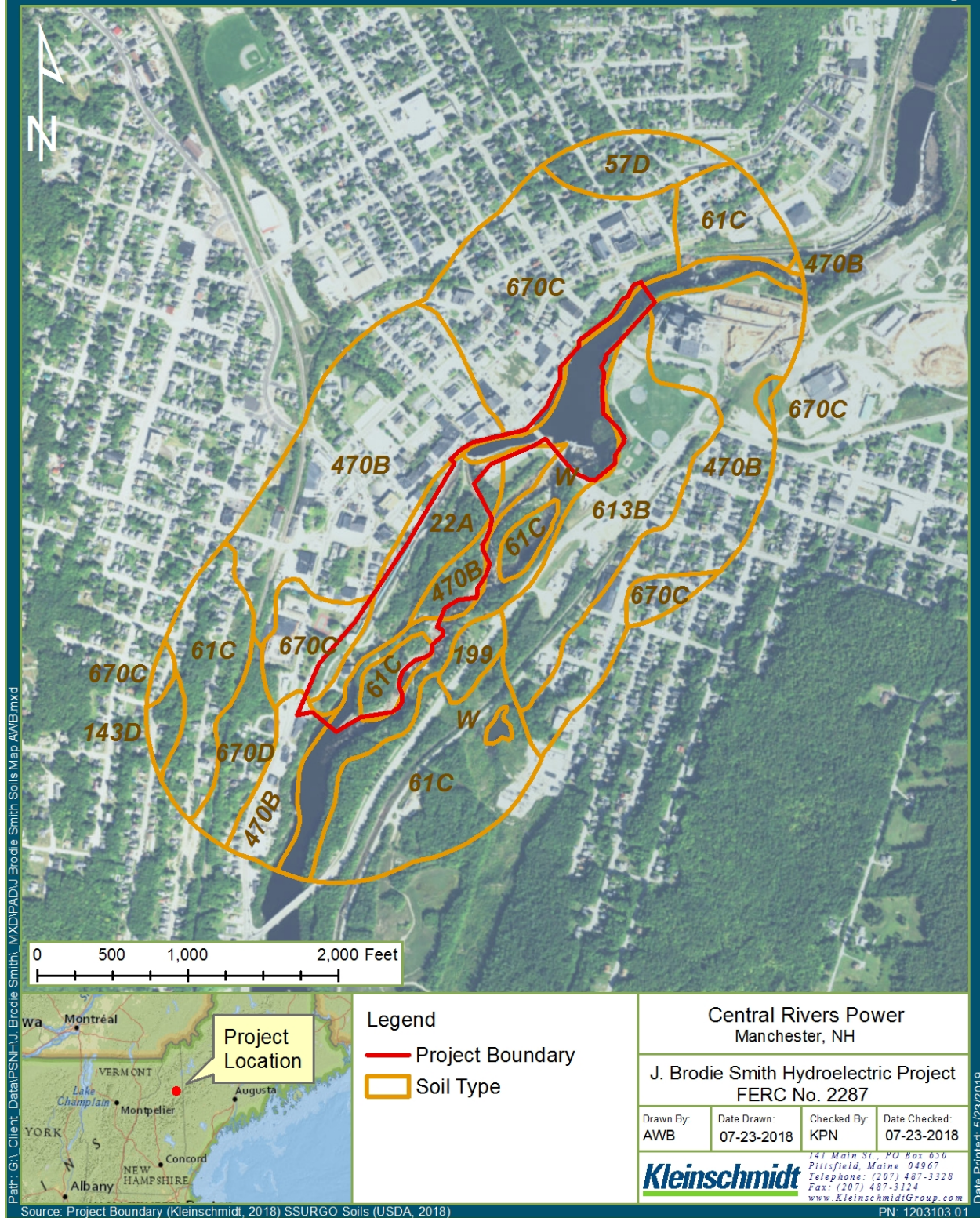


FIGURE 5-2 SOIL TYPES IN THE PROJECT AREA

TABLE 5-2 SOILS IN THE PROJECT AREA

MAP UNIT	MAP UNIT NAME	ACRES IN AOI	PERCENT OF AOI
22A	Colton gravelly fine sandy loam, 0 to 3 percent slopes	10.9	34.4%
61C	Tunbridge-Lyman-Rock outcrop complex, 8 to 15 percent slopes	2.9	9.0%
470B	Tunbridge-Peru complex, 3 to 8 percent slopes, rocky	3.6	11.4%
613B	Croghan loamy fine sand, 1 to 8 percent slopes	0.1	0.3%
670C	Tunbridge-Berkshire-Lyman complex, 8 to 15 percent slopes	2.6	8.3%
W	Water	11.6	36.5%
Totals for Area of Interest		31.8	100.0%

Source: USDA 2018

5.8.4 RESERVOIR SHORELINE AND STREAM BANKS AND EROSION

The major soil types along the northern shoreline of the J. Brodie Smith project boundary are Colton gravelly fine sandy loam, Tunbridge-Lyman-Rock outcrop complex, and Tunbridge-Peru complex (Table 5-2, Figure 5-2). These soils range from being moderately well drained to excessively drained.

On August 1, 1995, PSNH filed a land Protection plan pursuant to Article 409 and in consultation with the City of Berlin, New Hampshire Fish and Game Department, and the National Park Service. On January 8, 1998 FERC modified and approved the plan (82 FERC ¶ 62,005).

All of the roughly 28 acres covered by article 409 is owned by the licensee and already in the project boundary. The licensee must already obtain Commission approval of any significant uses of this land in accordance with standard license conditions.

The licensee's proposed land protection plan recognizes that of the 28 acres, a little more than half is within 250 feet of the river's ordinary high-water mark and therefore subject to the State of New Hampshire's Comprehensive Shoreline Protection Act (Act). The State of New Hampshire passed the Act the month before the project was issued a new license. The land-use restrictions in the Act begin in section 483-B:9. Some of these restrictions are highlighted in the licensee's filing, they are:

The Act covers all land within 250 feet of the river's ordinary high-water mark. Within this area, several types of land uses are prohibited from establishment or expansion, they include: salt storage yards, automobile junk yards and solid or hazardous waste facilities. Primary building structures must have a setback of 50 feet. A 150-foot woodland buffer, where existing, is also required. The buffer's purpose is to protect water quality by minimizing erosion, preventing excess nutrients and chemical pollution, maintaining natural water temperatures, maintaining a healthy tree canopy and understory, preserving fish and wildlife habitat, and respecting the overall natural condition of shoreline areas.

Other restrictions include removing no more than 50 percent of the basal area of trees, and a maximum 50 percent removal of saplings in a 20-year period. A healthy well distributed stand of trees, saplings, shrubs and ground cover shall be left in place. Replacement planting with native or naturalized species may be permitted to maintain the 50 percent level.

The licensee states that it will annually inspect the above lands to identify any needed screening of project features or general clean-up in accordance with article 409. It will also annually review the Act and notify the Commission if any substantial changes are made.

5.8.5 REFERENCES

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5.9 WATER RESOURCES

5.9.1 DRAINAGE AREA

The Androscoggin River flows south-southwest through northern New Hampshire and the towns of Berlin and Gorham before entering western Maine Figure 5-3. The Androscoggin River has a drainage area of approximately 3,450 square miles and a total length of 161 miles (FERC 1993). The J. Brodie Smith Project is in the Stearns Brook-Androscoggin HUC10 watershed (0104000106) within the larger Androscoggin River watershed (Figure 5-3). The drainage area at the J. Brodie Smith Project is approximately 1,337 square miles. Important tributaries in the Project vicinity include the Dead River, which joins the Androscoggin River approximately 1,500 feet downstream of the dam in the bypassed reach of the J. Brodie Smith Project, and Stearns Brook which enters the Androscoggin River approximately six miles upstream of the project in Milan, NH.

5.9.2 STREAMFLOW, GAGE DATA, AND FLOW STATISTICS

River flow data for the J. Brodie Smith Project was generated from USGS gage No. 01054000 (Androscoggin River near Gorham, New Hampshire) for the period January 1988 to December 2017; the USGS gage is approximately 2.5 river miles downstream of the J. Brodie Smith Project. Data from the USGS gage were pro-rated by a factor of 0.986 to account for the difference in drainage area between the J. Brodie Smith Project and the gage.

The mean, median, minimum, and maximum annual river flows of the Androscoggin River at the J. Brodie Smith Project are estimated to be 2,731 cfs; 2,258 cfs; 769 cfs; and 19,619 cfs, respectively (Table 5-3). The maximum monthly flow typically occurs in April, and the minimum monthly flow is typically in September (Table 5-3). The peak flow (19,619 cfs) occurred on April 1, 1998, and the minimum flow (769 cfs) occurred September 4, 2015. Annual and monthly flow duration curves for the J. Brodie Smith Project are presented in Appendix B.

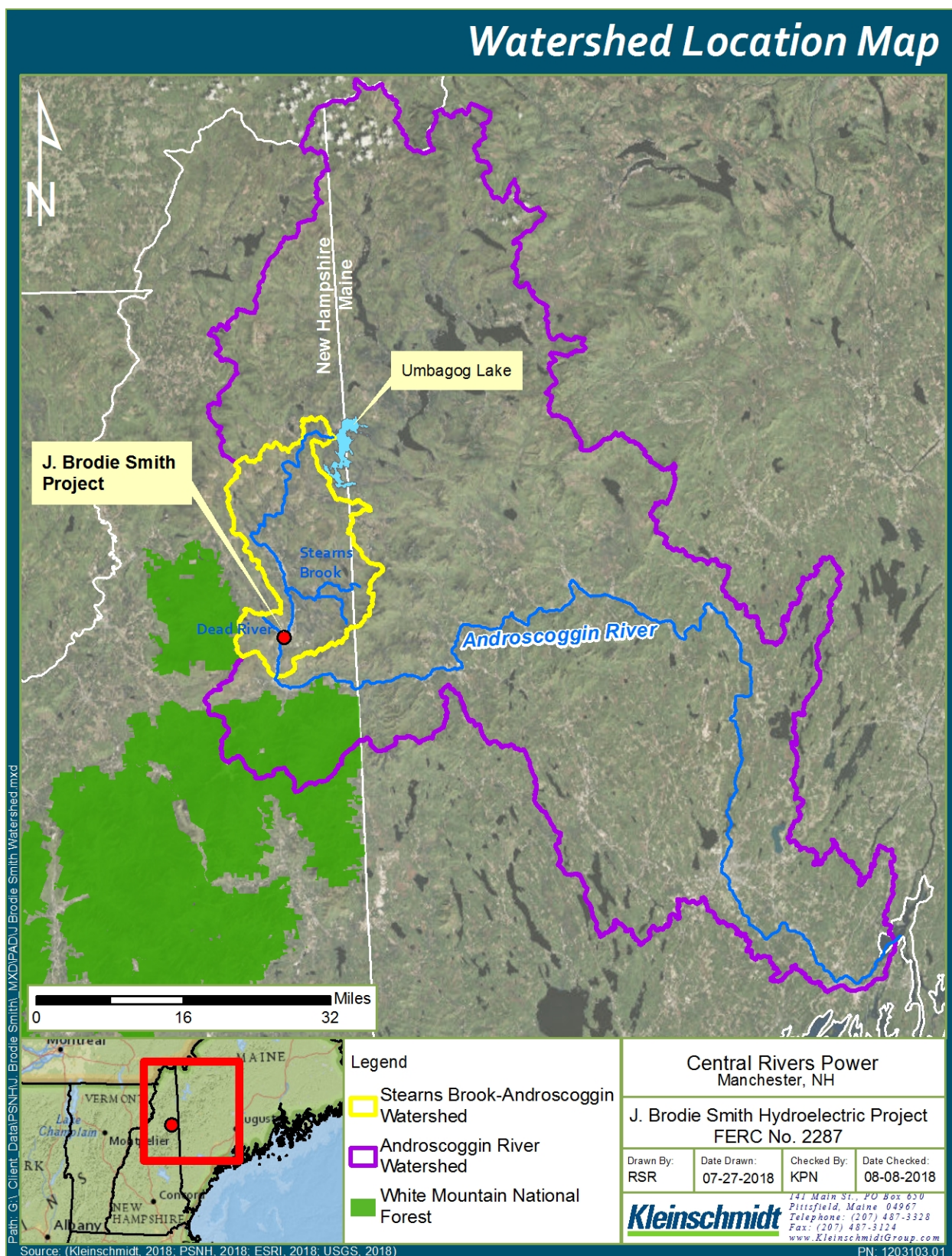


FIGURE 5-3 UPPER ANDROSCOGGIN WATERSHED

TABLE 5-3 MEAN, MEDIAN, MINIMUM, AND MAXIMUM RIVER FLOWS BY MONTH FOR THE J. BRODIE SMITH PROJECT (JANUARY 1988 TO DECEMBER 2017).

MONTH	MEAN FLOW (CFS)	MEDIAN FLOW (CFS)	MINIMUM FLOW (CFS)	MAXIMUM FLOW (CFS)
January	2,485	2,470	1,232	6,211
February	2,593	2,544	1,252	6,852
March	2,931	2,711	1,242	14,000
April	4,509	3,520	1,252	19,619
May	3,888	3,002	1,361	15,971
June	2,874	2,223	1,144	12,619
July	2,234	1,824	931	10,155
August	1,985	1,775	1,094	9,859
September	1,876	1,784	769	9,593
October	2,348	1,903	1,006	14,788
November	2,577	2,174	1,124	9,859
December	2,488	2,268	1,144	9,652
Annual	2,731	2,258	769	19,619

5.9.3 EXISTING AND PROPOSED USES OF WATER

The Androscoggin River near the J. Brodie Smith Project is used for hydropower generation, wastewater assimilation, and recreation. The J. Brodie Smith Project is one of eight hydroelectric projects within an 11-mile reach of the Androscoggin River between Berlin and Shelburne, New Hampshire (FERC 1993). There are two hydroelectric projects (Riverside and Sawmill) within approximately one river mile upstream of the J. Brodie Smith Project and five projects (Cross, Cascade, Gorham, Gorham (CRP), and Shelburne) within approximately 10 river miles downstream of the project.

The City of Berlin Pollution Control Facility discharges treated wastewater to the Androscoggin River approximately one river mile downstream of the J. Brodie Smith Project. The Town of Gorham wastewater treatment facility also discharges to the Androscoggin River approximately seven river miles downstream of the project (PSNH 1998a).

The Androscoggin River is used for a wide variety of water-based recreation. CRP provides recreational opportunities at the Tondreau Peninsula Park located between the penstock and bypassed reach of the J. Brodie Smith Project. Additional information about recreation

opportunities near the J. Brodie Smith Project is provided in Section 5.14 Recreation and Land Use.

5.9.4 EXISTING INSTREAM FLOW USES

CRP operates the J. Brodie Smith Project in a run-of-river mode where outflow from the powerhouse is approximately equal to inflow. Run-of-river operations minimize water level fluctuations in the impoundment; protect water quality, fishery, wildlife, and visual resources; and provide stable river flows downstream. Operation of the J. Brodie Smith Project results in the diversion of water from an approximately 0.5-mile-long bypassed reach. CRP provides a year-round minimum flow of 20 cfs or inflow, whichever is less, into the bypassed reach for the protection of water quality, aquatic habitat, and fishery resources (FERC 1994); the minimum flow was based on results from a fish survey and minimum flow study (FERC 1993). The minimum flow is provided through a 15-inch orifice in one of the two waste gates (PSNH 2004).

5.9.5 EXISTING WATER RIGHTS

CRP holds all the flowage easements necessary to operate the J. Brodie Smith Project. There is no development within the project boundary and no private property is affected by operations.

5.9.6 RESERVOIR INFORMATION

The J. Brodie Smith Project has an 8-acre reservoir at a water surface elevation of 1009.7 feet (FERC 1994). The impoundment extends upstream approximately 1,200 feet from the dam. The water depth in the impoundment is approximately 10 feet (FEMA 2013).

5.9.7 GRADIENT OF DOWNSTREAM REACHES

The elevation of the Androscoggin River at the base of the J. Brodie Smith dam is approximately 982 feet, and the elevation at the Cross dam is approximately 912 feet (FEMA 2013). Therefore, the river drops 70 feet over approximately 1 mile between the J. Brodie Smith and Cross dams ($70 \text{ feet} / 5,280 \text{ feet} = 0.013$ or 1.3 percent).

5.9.8 WATER QUALITY STANDARDS

The Androscoggin River in the J. Brodie Smith Project area is classified by the state of New Hampshire as Class B; this is the second highest water quality classification in New Hampshire (NHS 1989). Class B waters are “*considered acceptable for fishing, swimming and other*

recreational purposes, and, after adequate treatment, for use as water supplies.” All surface waters shall be free from substances that: settle to form harmful benthic deposits; float as foam, debris, scum or other visible substances; produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses; result in the dominance of nuisance species; or interfere with recreational activities (NHDES 2008). Water quality criteria are provided in Table 5-4. The Androscoggin River in the J. Brodie Smith Project area is not listed as impaired on the 303(d) list for the state of New Hampshire (NHDES 2017a).

TABLE 5-4 WATER QUALITY CRITERIA FOR CLASS B WATERS IN NEW HAMPSHIRE.*

PARAMETER	CRITERIA
Dissolved Oxygen (DO)	At least 75% saturation, based on a daily average; instantaneous minimum of 5 mg/L
Color	No concentrations that would impair any existing or designated use, unless naturally occurring
Turbidity	Shall not exceed naturally occurring conditions by more than 10 NTU
Nutrients	Shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.
pH	6.5 to 8.0
Temperature	Any stream temperature increase associated with the discharge of treated sewage, waste or cooling water, water diversions, or releases shall not be such as to appreciably interfere with the uses assigned to this class.

*NHDES 2008

5.9.9 EXISTING WATER QUALITY CONDITIONS

Water quality was monitored at 26 sites in the 19.1-mile reach of the Androscoggin River between Berlin, New Hampshire, and Gilead, Maine, from August 4-6, 1987, under low flow, high water temperature conditions (NAI 1989). One of the sites was in the J. Brodie Smith Project headpond and one was in the tailrace; the sites were sampled once each day. DO ranged from 7.8 mg/L to 8.2 mg/L in the headpond and tailrace, and the water temperature ranged from 69.8°F to 71.6°F (21.0°C to 22.0°C). A pH value of 6.5 was recorded in the headpond and tailrace (Table 5-5). At the time of the study, the Androscoggin River in the J. Brodie Smith Project area was classified as Class C (it was reclassified to Class B in 1991). There were no violations of

Class B or Class C water quality standards in the J. Brodie Smith headpond or tailrace or at any of the sites sampled in 19.1-mile reach of the Androscoggin River (NAI 1989; FERC 1993).

TABLE 5-5 WATER QUALITY DATA COLLECTED AUGUST 4-6, 1987, AT THE J. BRODIE SMITH PROJECT.

DATE	DO (MG/L)	TOTAL KJELDAHL NITROGEN (MG/L)	AMMONIA (MG/L)	TOTAL PHOSPHORUS (MG/L)	CHLOROPHYLL- A (µG/L)	WATER TEMPERATURE (°F)	PH
<i>Headpond</i>							
August 4	8.20	-	-	-	-	71.6	6.5
August 5	8.05	-	-	-	-	70.7	-
August 6	8.10	-	-	-	-	69.8	-
<i>Tailrace</i>							
August 4	8.00	0.42	0.23	0.03	1.14	71.6	6.5
August 5	8.10	1.62	0.19	0.02	1.17	70.7	-
August 6	7.80	0.66	0.08	0.03	1.45	69.8	-

CRP continuously monitored DO and water temperature over 72-hour periods at two sites at the J. Brodie Smith Project in 1994, 1995, and 1997 (PSNH 1998b). One site was in the headpond immediately upstream of the east end of the dam, and the second site was in the tailrace approximately 300 feet downstream of the powerhouse. The objective of the monitoring was to assess if station generation affected DO and water temperature. The DO percent saturation ranged from 56.7 percent to 106.2 percent in the headpond and from 60.6 percent to 99.4 percent in the tailrace (Table 5-6). A relationship between DO and generation was not observed in the headpond or tailrace (PSNH 1998b).

TABLE 5-6 DO PERCENT SATURATION MEASURED IN THE J. BRODIE SMITH PROJECT HEADPOND AND TAILRACE IN 1994, 1995, AND 1997.

DATE	HEADPOND	TAILRACE
July 19-22, 1994	84.4-98.0	71.8-87.6
August 5-8, 1994	92.3-100.5	86.3-93.5
September 6-9, 1994	56.7-90.7	60.6-90.4
August 8-11, 1995	67.6-85.2	60.9-85.8
Aug. 29-Sept. 2, 1995	no data-issues with instrument	74.5-82.7
October 13-16, 1995	63.8-82.8	82.6-92.9
July 15-18, 1997	78.1-99.1	83.1-95.2

DATE	HEADPOND	TAILRACE
August 18-21, 1997	89.6-106.2	90.0-97.2
September 5-8, 1997	82.5-100.8	88.8-99.4

The New Hampshire Volunteer River Assessment Program monitors water quality at several sites in the Upper Androscoggin River (NHDES 2017b). None of the monitoring sites are within the J. Brodie Smith project boundary. The closest sites were at the 12th Street Bridge in Berlin approximately 1.7 river miles upstream in 2016 and 2017; at Bridge Street in Berlin approximately 1.2 river miles upstream in 2012 and 2013; and at the Gorham railroad trestle approximately 5 river miles downstream of the J. Brodie Smith dam. Several water quality parameters were measured on multiple days (8 to 11) each year between May and October. The range of measurements observed each year monitoring occurred are shown in Table 5-7 and Table 5-8. The DO concentration and percent saturation met the state standard in all samples collected in Berlin (Table 5-7) and in 2004 and 2013 to 2017 at the Gorham railroad trestle (Table 5-8) (NHDES 2017b). Some pH measurements below the state standard were recorded (Table 5-7, Table 5-8).

TABLE 5-7 WATER QUALITY DATA COLLECTED AT THE 12TH STREET BRIDGE IN BERLIN, NH, IN 2016 AND 2017, AND AT BRIDGE STREET IN BERLIN, NH, IN 2012 AND 2013, BY THE VOLUNTEER RIVER ASSESSMENT PROGRAM.*

DATE	DO (MG/L)	DO (% SATURATION)	WATER TEMPERATURE (°C)	pH	TURBIDITY (NTU)	SPECIFIC CONDUCTANCE (µS/CM)
June 17-Oct. 28, 2017	7.3-10.2	79.6-91.4	10.4-20.5	5.6-6.7	0.7-2.1	26.8-30.0
June 29-Oct. 22, 2016	6.7-9.6	76.8-91.8	13.2-23.1	6.4-6.8	0.7-1.0	28.6-31.0
June 14-Oct. 26, 2013	6.4-9.0	70.1-78.2	12.6-21.3	6.0-6.3	0.9-1.7	25.1-30.4
June 24-Oct 20, 2012	5.9-8.9	66.0-82.0	10.9-22.1	5.8-6.2	1.4-4.5	28.8-31.4

*NHDES 2017b

TABLE 5-8 WATER QUALITY DATA COLLECTED AT THE RAILROAD TRESTLE IN GORHAM, NH, IN 2004 TO 2017, BY THE VOLUNTEER RIVER ASSESSMENT PROGRAM.*

DATE	DO (MG/L)	DO (% SATURATION)	WATER TEMPERATURE (°C)	pH	TURBIDITY (NTU)	SPECIFIC CONDUCTANCE (µS/CM)
May 10-October 28, 2017	8.2-12.3	90-102.2	7.3-20.2	5.9-6.9	0.64-2.0	26.2-35.0
June 30-October 22, 2016	7.8-9.9	89.7-94.1	13.2-22.5	6.8-7.1	0.8-1.3	34.2-37.6
June 26-October 18, 2015	7.5-10.5	78.9-96.0	8.3-21.6	6.3-6.9	0.7-2.3	26.6-34.8
June 15-October 18, 2014	7.2-9.5	79.4-91.2	13.7-21.9	6.1-6.6	0.8-1.5	27.5-34.3
June 22-October 26, 2013	6.5-10.9	72.3-102.5	6.3-22.9	6.1-6.6	0.9-2.7	34.0-38.6
June 7-October 7, 2012	3.3-9.2	38.4-96.2	12.0-22.6	6.1-6.6	0.9-2.2	34.7-51.2
June 6-October 25, 2011	4.2-6.8	46.1-71.3	10.3-20.2	6.1-6.5	1.3-2.4	29.9-37.7
June 11-September 3, 2004	8.1-8.8	89.7-92.2	17.9-21.1	6.6-7.1	1.6-2.1	54.4-89.0

*NHDES 2017b

5.9.10 REFERENCES

Federal Emergency Management Agency (FEMA). 2013. Flood Insurance Study. City of Berlin, New Hampshire, Coos County. December 15, 1981.

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5.10 FISH AND AQUATIC RESOURCES

The J. Brodie Smith Project is located on the upper Androscoggin River in Berlin, New Hampshire, approximately 35 RM downstream of Umbagog Lake and 18 RM upstream of the Maine-New Hampshire border. The upper Androscoggin River begins on the Canadian border from snow melt and rainfall, then flows south before entering Umbagog Lake in northwestern Maine and northeastern New Hampshire (AMC, 2003). Dam owners in the upper watershed manage the Androscoggin River for industrial purposes, recreation, instream flow uses, and for protection of aquatic species, with regulated outlets at Rangeley Lake, Mooselookmeguntic Lake, Richardson Lake, Aziscohos Lake and Lake Umbagog. The final control of flow is at Errol Dam in Errol, New Hampshire, where a river flow of 1,550 cfs is maintained on a year-round basis (PSNH, 1998).

Historically, the upper Androscoggin River supported a popular and important coldwater trout fishery. Pollution from point source discharges (e.g., paper mills and textile effluents), dams, timber drives, land use practices, non-native fish species, and over fishing have all contributed to a decline in the quality of the native brook trout fishery (Boucher, 1997; Yoder, 2006; AMC, 2003). Notable improvements in water quality were documented following enactment of the Clean Water Act of 1972 and the advent of water treatment facilities and pollution restrictions. As a result, the fishery has remained an important recreational and ecological resource (Inglis et al., 2014).

5.10.1 RIVERINE FISH ASSEMBLAGE

The existing fishery in the upper Androscoggin River is a mix of native and exotic species. It is estimated that 25 percent of the existing fish species have been introduced (AMC, 2003). Non-native species include landlocked salmon (*Salmo salar*), rainbow trout (*Onchorhynchus mykiss*), brown trout (*Salmo trutta*), smallmouth bass (*Micropterus dolomieu*), and rainbow smelt (*Osmerus mordax*). In parts of New Hampshire, lake trout (*Salvelinus namaycush*), yellow perch (*Perca flavescens*) and alewives (*Alosa pseudoharengus*) are native; however, these species have been introduced in to the Rangeley Lake area and vicinity of the J. Brodie Smith Project (AMC, 2003). Many coldwater trout populations in the Androscoggin River are managed with stocking programs and fishing regulations (AMC, 2003).

The Midwest Biodiversity Institute (MBI) electrofished 51 locations along the Androscoggin River in New Hampshire and Maine in 2003 to document the distribution and relative abundance of the existing, resident fish assemblage (Yoder et al., 2006). Twenty-two dams exist within the study area, which impound approximately 50 miles of the Androscoggin River in New Hampshire and Maine (Yoder et al, 2006). MBI sampled 3 reaches of the Androscoggin River in 2003 near the J. Brodie Smith Project, which is located at RM 132.8:

- Sawmill Dam Impoundment (approximately 1.3 RM upstream of the J. Brodie Smith Project)
- Cross Dam Impoundment (approximately 0.8 RM downstream of the J. Brodie Smith Project), and
- Cascade Dam (approximately 1.3 RM downstream of the J. Brodie Smith Project).

Five species of fish were captured in the Cross Dam Impoundment, including fallfish (*Semotilus corporalis*), rock bass (*Ambloplites rupestris*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*) and yellow perch (*Perca flavescens*) (Table 5-9 and Table 5-10); smallmouth bass made up most of the catch (n = 132, 81%) in the Cross Dam Impoundment. Fewer rock bass, yellow perch, largemouth bass, and fall fish were collected (Table 5-10). One brown trout (*Salma trutta*) was collected near Cascade dam but was considered transitory, or may have been washed downstream from stocking efforts in Berlin, New Hampshire (Yoder et al., 2006, personal communication with Brandon Kulik, July 2018). Upstream (Sawmill Dam) and downstream (Cascade Dam) of J. Brodie Smith, the catch was also dominated by smallmouth (60% and 86.7% of fish caught, respectively) (Table 5-10). Other than a few transitory brown trout, rainbow trout, golden shiners, common shiners, the composition of the catch was similar at all three sites (Table 5-9 and Table 5-10).

TABLE 5-9 UPPER ANDROSCOGGIN RIVER FISH ASSEMBLAGE NEAR THE J. BRODIE SMITH PROJECT (YODER ET AL., 2003)

SPECIES	RIVER MILE (SITE)		
	134.1 (SAWMILL DAM IMPOUNDMENT)	132.0 (CROSS DAM IMPOUNDMENT)	131.5 (CASCADE DAM IMPOUNDMENT)
Brown Trout	X	-	X
Rainbow Trout	X	-	-
Golden Shiner	X	-	-
Common Shiner	X	-	X
Fallfish	X	X	X
Rock Bass	X	X	X

SPECIES	RIVER MILE (SITE)		
	134.1 (SAWMILL DAM IMPOUNDMENT)	132.0 (CROSS DAM IMPOUNDMENT)	131.5 (CASCADE DAM IMPOUNDMENT)
Smallmouth Bass	X	X	X
Largemouth Bass	X	X	X
Yellow Perch	-	X	-
White Sucker	-	-	X

TABLE 5-10 SAMPLING SITE 134.1 (SAWMILL DAM), 132 (CROSS DAM), AND 131.5 (CASCADE DAM): SPECIES CAUGHT, # OF FISH, % BY NUMBER AND AVERAGE WEIGHT (GM)

	134.1 (SAWMILL DAM IMPOUNDMENT)		132.0 (CROSS DAM IMPOUNDMENT)		131.5 (CASCADE DAM IMPOUNDMENT)	
SPECIES	# OF FISH	% BY NUMBER	# OF FISH	% BY NUMBER	# OF FISH	% BY NUMBER
Brown Trout	2	1.8	-	-	1	0.4
Rainbow Trout	1	0.9	-	-	-	-
Golden Shiner	3	2.8	-	-	-	-
Common Shiner	1	0.9	-	-	1	0.4
Fallfish	22	20.1	16	9.8	8	3.7
Rock Bass	2	2.8	1	0.6	1	0.4
Smallmouth Bass	65	59.6	132	81	189	86.7
Largemouth Bass	12	11	11	6.8	14	6.4
Yellow Perch	-	-	3	1.8	-	-
White Sucker	-	-	-	-	4	2
Total	108	100	163	100	218	100

5.10.2 STOCKED FISHERY

NHDFG stocks brown trout and brook trout (*Salvelinus fontinalis*) upstream of the J. Brodie Smith Project annually at Berlin, New Hampshire (Table 5-10). Trout stocking in Berlin and in upstream reaches of the Androscoggin has steadily increased since the mid-1990s. Tributaries such as the Wild River and Peabody River are stocked with brown and rainbow trout (*Onchohynchus mykiss*), contributing to the trout fishery in the Androscoggin River in New Hampshire and Maine (Brautigam and Pellerin, 2014). In 2017, New Hampshire Fish and Game stocked a total of 31,416 eastern brook trout, brown trout, and rainbow trout in the Androscoggin River (Brautigam and Pellerin, 2014). Table 5-11 displays New Hampshire's 2017 trout stocking data for the Androscoggin River; including town, species, size, and number stocked. The trout fishery upstream of J. Brodie Smith Project is a put and take fishery. Approximately 19 miles downstream of the J. Brodie Smith Project, between Gilead and Rumford Falls, Maine, landlocked salmon stocking has increased since 2005. Before 2005, MDIFW stocked approximately 1,350 salmon annually, as compared to the 3,000 or more salmon currently stocked each year (MDIFW, 2018; Brautigam and Pellerin, 2014). Several hydroelectric facilities exist in between J. Brodie Smith Project (RM 132.8) and Gilead, ME; including Cross Dam (RM 131.7), Cascade Dam (RM 131.5), Brascan Dam (RM 128.1), Gorham Dam (125.6), and Shelbourne Dam (122.6) (Yoder et al., 2006).

TABLE 5-11 2017 TROUT STOCKING DATA FOR THE ANDROSCOGGIN RIVER IN NEW HAMPSHIRE (EBT = EASTERN BROOK TROUT, BT = BROWN TROUT, RT = RAINBOW TROUT)

TOWN	SPECIES	AGE	NUMBER
Berlin	EBT	1+YR	2,000
Berlin	BT	1+YR	1,800
Berlin	EBT	2+YR	500
Berlin	EBT	1+YR	2,500
Cambridge	BT	1+YR	1,979
Cambridge	EBT	1+YR	1,600
Cambridge	EBT	2+YR	200
Cambridge	RT	1+YR	1,500
Dummer	BT	1+YR	1,337
Dummer	EBT	1+YR	1,000
Dummer	EBT	2+YR	300
Dummer	RT	1+YR	2,000
Errol	BT	1+YR	1,000
Errol	EBT	1+YR	2,000

Errol	EBT	2+YR	300
Errol	EBT	3+YR	100
Errol	RT	1+YR	4,500
Milan	BT	1+YR	2,000
Milan	EBT	1+YR	1,800
Milan	EBT	2+YR	500
Milan	RT	1+YR	2,500

5.10.3 DIADROMOUS FISH SPECIES

The J. Brodie Smith Project is approximately 75 RM upstream of Lewiston Falls, which is the natural upstream migration limit for most diadromous species on the Androscoggin River.

Diadromous species did not occur in the Project area historically, nor do they occur presently.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the National Marine Fisheries Service (NMFS) to describe and identify “essential fish habitat” (EFH) in each federal fishery management plan for commercial species. The Magnuson-Stevens Act requires federal agencies to consult with NMFS when any activity is proposed to be permitted, funded or undertaken by a federal agency may have adverse effects on designated EFH. The Upper Androscoggin River does not have any commercially-managed fish species; therefore, EFH is not designated.

5.10.4 AQUATIC HABITAT

Aquatic habitat at the J. Brodie Smith Project area includes a small, riverine reservoir with a surface area of 8 acres at a water surface elevation of 1009.7 feet. The river channel within the Project boundary is narrow and confined (i.e., riverine) made up of boulders and steep bedrock. Mature trees and vegetation cover most of the river banks. The FERC license requires CRP to operate the J. Brodie Smith Project in run-of-river mode, requiring minimal reservoir fluctuations. After scheduled or emergency maintenance, when the impoundment is refilling after a maintenance drawdown, Aquatic Base Flows (ABF) or 90% of inflows, whichever is less, is released into the tailrace in order to protect aquatic resources and to maintain adequate water quality. The current license requires a minimum flow of 20 cfs or inflow, whichever is less (PSNH, 1998).

5.10.5 BENTHIC MACROINVERTEBRATES

Benthic macroinvertebrate information is not available currently. Information will be included in the Proposed Study Plan and Draft License Application.

5.10.6 REFERENCES

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5.11 TERRESTRIAL WILDLIFE AND BOTANICAL RESOURCES

The J. Brodie Smith project occurs within the Northern Appalachians and Atlantic Highlands ecoregion (CEC 2011). This region covers most of the northern and mountainous regions of New England. Characteristic wildlife are moose, black bear, white-tailed deer, red fox, bobcat, lynx, snowshoe hare, porcupine, fisher, marten, racoon, beaver, rabbit, northern flying squirrel, osprey, red-tailed hawk, wild turkey, ruffed grouse, black-backed woodpecker, gray jay, common loon, and red-back salamander (CEC 2011). Vegetation here is characterized as mostly mixed hard and softwood with spruce-fir forests. Typical forests include mixed hardwoods like sugar maple, beech, and yellow birch; mixed forests with hardwoods, hemlock, and white pine; and spruce-fir forests with balsam fir, red spruce, and birches. In swampy areas, black spruce, white spruce, red maple, black ash, and tamarack dominate. The region is a transitional zone between the boreal zone to the north and the broadleaved and deciduous forests to the south.

5.11.1 TERRESTRIAL WILDLIFE

Habitat within the J. Brodie Smith project is dominated by open water habitat provided by the Androscoggin River and areas of upland mixed riparian forest. The project is adjacent to areas of residential, commercial, and industrial development associated with the City of Berlin, NH.

5.11.1.1 MAMMALS

The project occurs within the range of approximately 51 mammal species (AMC 2003). During surveys completed in 1989 and 1991, 21 mammal species were identified within the Project (PSNH 1993). Mammal species that are likely to occur within the project are those species which are commonly associated with riparian and residential habitats. Species such as mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), or otter (*Lutra canadensis*) which are often found on river banks or utilizing riparian habitats. Bats are common to riparian areas, and some species feed over open water, the project likely provides habitat for northern long-eared bat (*Myotis septentrionalis*), little brown bat (*Myotis lucifugus*), eastern small-footed bat (*Myotis leibii*), and the hoary bat (*Lasiurus cinereus*). Many of these bat species are also adapted to human development and often roost in attics or eaves. Additional small mammal species such as skunk (*Mephitis mephitis*), fox (*Vulpes vulpes*), racoon (*Procyon lotor*), or many rodents (i.e., mice and voles) are likely common and are often found in areas of both woodland and residential development. Larger mammal species are likely less common within this project

due to the high level of development surrounding the project however, they may occur as transient species which are utilizing the riparian corridor, species such as white-tail deer (*Odocoileus virginianus*), coyote (*Canis latrans*), black bear (*Ursus americanus*), and moose (*Alces alces*) (AMC 2013). Table 5-12 includes a list of mammals know to occur within the Project vicinity.

TABLE 5-12 MAMMALS POTENTIALLY OCCURRING WITHIN THE PROJECT VICINITY.

COMMON NAME	LATIN NAME
Northern flying squirrel	<i>Glaucomys sabrinus</i>
Moose	<i>Alces</i>
Northern short- tailed shrew	<i>Blarina brevicauda</i>
Coyote	<i>Canis latrans</i>
American beaver	<i>Castor canadensis</i>
Star-nosed mole	<i>Condylura cristata</i>
Big brown bat	<i>Eptesicus fuscus</i>
Common porcupine	<i>Erethizon dorsatum</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Eastern red bat	<i>Lasiurus borealis</i>
Hoary bat	<i>Lasiurus cinereus</i>
Snowshoe hare	<i>Lepus americanus</i>
Northern river otter	<i>Lutra canadensis</i>
Lynx	<i>Lynx canadensis</i>
Bobcat	<i>Lynx rufus</i>
Woodchuck	<i>Marmota monax</i>
American marten	<i>Martes americana</i>
Fisher	<i>Martes pennanti</i>
Striped skunk	<i>Mephitis mephitis</i>
Rock vole	<i>Microtus chrotorrhinus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Woodland vole	<i>Microtus pinetorum</i>
Ermine	<i>Mustela erminea</i>
Long-tailed weasel	<i>Mustela frenata</i>
Mink	<i>Mustela vison</i>
Eastern small- footed bat	<i>Myotis leibii</i>
Little brown myotis	<i>Myotis lucifugus</i>
Northern myotis	<i>Myotis septentrionalis</i>
Woodland jumping mouse	<i>Napaeozapus insignis</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Southern red-backed v	<i>ole Clethrionomys gapperi</i>
Muskrat	<i>Ondatra zibethicus</i>

COMMON NAME	LATIN NAME
Hairy-tailed mole	<i>Parascalops breweri</i>
White-footed mouse	<i>Peromyscus leucopus</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Eastern pipistrelle	<i>Pipistrellus subflavus</i>
Common raccoon	<i>Procyon lotor</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Masked shrew	<i>Sorex cinereus</i>
Long-tailed shrew	<i>Sorex dispar</i>
Smoky shrew	<i>Sorex fumeus</i>
Pygmy shrew	<i>Sorex hoyi</i>
Water shrew	<i>Sorex palustris</i>
Northern bog lemming	<i>Synaptomys borealis</i>
Southern bog lemming	<i>Synaptomys cooperi</i>
Eastern chipmunk	<i>Tamias striatus</i>
Red squireel	<i>Tamiasciurus hudsonicus</i>
Common gray fox	<i>Urocyon cinereoargenteus</i>
Black bear	<i>Ursus americanus</i>
Red fox	<i>Vulpes vulpes</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>

5.11.1.2 AMPHIBIANS AND REPTILES

The J. Brodie Smith project occurs within the range of 10 reptiles and 16 amphibians (AMC 2013). During surveys completed in 1989 and 1991, seven reptile and amphibian species were regularly identified within the Project during surveys (PSNH 1993). Amphibians occurring within the project are those commonly associated with riverine and riparian habitat. Several frog species such as green frog (*Rana clamitans*), leopard frog (*Rana pipiens*), and pickerel frog (*Rana palustris*) are common in and adjacent to open water and rivers. Forested habitats provide forage and cover for species such as yellow spotted salamander (*Ambystoma maculatum*), blue spotted salamander (*Ambystoma laterale*), gray treefrog (*Hyla versicolor*), wood frog (*Rana sylvatica*), and redback salamander (*Plethodon cinereus*) as well as reptiles such as garter snakes (*Thamnophis sirtalis*) and milk snakes (*Lampropeltis triangulum*). Open water habitat is utilized by reptiles such as snapping turtle (*Chelydra serpentina*) and painted turtle (*Chrysemys picta*) (AMC 2013). Table 5-13 includes reptiles and amphibians which occur within the Project vicinity.

TABLE 5-13 REPTILES AND AMPHIBIANS POTENTIALLY OCCURRING WITHIN THE PROJECT VICINITY.

COMMON NAME	LATIN NAME
Blue spotted salamander	<i>Ambystoma laterale</i>
Spotted salamander	<i>Ambystoma maculatum</i>
American toad	<i>Bufo americanus</i>
Snapping turtle	<i>Chelydra serpentine</i>
Painted turtle	<i>Chrysemys picta</i>
Wood turtle	<i>Clemmys insculpta</i>
Dusky salamander	<i>Desmognathus fuscus</i>
Ringneck snake	<i>Diadophis punctatus</i>
Northern two-lined salamander	<i>Eurycea bislineata</i>
Spring salamander	<i>Gyrinophilus porphyriticus</i>
Common garter snake	<i>hamnophis sirtalis</i>
Gray treefrog	<i>Hyla versicolor</i>
Milk snake	<i>Lampropeltis triangulum</i>
Smooth green snake	<i>Liochlorophis vernalis</i>
Northern water snake	<i>Nerodia sipedon</i>
Eastern newt	<i>Notophthalmus viridescens</i>
Redback salamander	<i>Plethodon cinereus</i>
Spring peeper	<i>Pseudacris crucifer</i>
Bullfrog	<i>Rana catesbeiana</i>
Green frog	<i>Rana clamitans</i>
Pickerel frog	<i>Rana palustris</i>
Northern leopard frog	<i>Rana pipiens</i>
Mink frog	<i>Rana septentrionalis</i>
Wood frog	<i>Rana sylvatica</i>
Redbelly snake	<i>Storeria occipitomaculata</i>
Eastern ribbon snake	<i>Thamnophis sauritus</i>

5.11.1.3 BIRDS

The project location occurs within the range of 155 species of birds (AMC 2013). During surveys completed in 1989 and 1991, 88 bird species were regularly identified within the Project during surveys (PSNH 1993). Birds within the project may include several species that feed on, in or over open water. Species such as Kingfisher (*Ceryle alcyon*) and Mallard ducks (*Anas platyrhynchos*) as well as shoreline feeders such a Spotted Sandpiper (*Actitis macularia*) or Great Blue Heron (*Ardea Herodias*) may utilize the impoundment. Riparian areas are utilized by any

number of resident and migratory bird species including common species such as Black-Capped Chickadee (*Poecile atricapillus*), Red-Winged Blackbird (*Agelaius phoeniceus*), and Crows (*Corvus brachyrhynchos*). Table 5-14 includes a list of potential bird species that may occur within the Project, based on known ranges.

TABLE 5-14 BIRD SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT VICINITY.

COMMON NAME	LATIN NAME
Cooper's hawk	<i>Accipiter cooperii</i>
Northern goshawk	<i>Accipiter gentilis</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Spotted sandpiper	<i>Actitis macularia</i>
Northern saw-whet owl	<i>Aegolius acadicus</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Wood duck	<i>Aix sponsa</i>
Green-winged teal	<i>Anas crecca</i>
Blue-winged teal	<i>Anas discors</i>
Mallard	<i>Anas platyrhynchos</i>
American black duck	<i>Anas rubripes</i>
American pipit	<i>Anthus rubescens</i>
Golden eagle	<i>Aquila chrysaetos</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Great blue heron	<i>Ardea Herodias</i>
Long-eared owl	<i>Asio otus</i>
Ring-necked duck	<i>Aythya collaris</i>
Tufted titmouse	<i>Baeolophus bicolor</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Ruffed grouse	<i>Bonasa umbellus</i>
American bittern	<i>Botaurus lentiginosus</i>
Canada goose	<i>Branta canadensis</i>
Great horned owl	<i>Bubo virginianus</i>
Common goldeneye	<i>Bucephala clangula</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Green heron	<i>Butorides virescens</i>
Whip-poor-will	<i>Caprimulgus vociferous</i>
Northern cardinal	<i>Cardinalis</i>
Pine siskin	<i>Carduelis pinus</i>
American goldfinch	<i>Carduelis tristis</i>
Purple finch	<i>Carpodacus purpureus</i>
Bicknell's thrush	<i>Catharus bicknelli</i>

COMMON NAME	LATIN NAME
Veery	<i>Catharus fuscescens</i>
Hermint thrush	<i>Catharus guttatus</i>
Swainson's thrush	<i>Catharus ustulatus</i>
Brown creeper	<i>Certhia Americana</i>
Belted kingfisher	<i>Ceryle alcyon</i>
Chimney swift	<i>Chaetura pelagica</i>
Killdeer	<i>Charadrius vociferus</i>
Black tern	<i>Chlidonias niger</i>
Common nighthawk	<i>Chordeiles minor</i>
Northern harrier	<i>Circus cyaneus</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
Northern flicker	<i>Colaptes auratus</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>
Eastern wood-pewee	<i>Contopus virens</i>
American crow	<i>Corvus brachyrhynchos</i>
Common raven	<i>Corvus corax</i>
Blue jay	<i>Cyanocitta cristata</i>
Black-throated blue warbler	<i>Dendroica caerulescens</i>
Bay-breasted warbler	<i>Dendroica castanea</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Blackburnian warbler	<i>Dendroica fusca</i>
Magnolia warbler	<i>Dendroica magnolia</i>
Palm warbler	<i>Dendroica palmarum</i>
Chestnut-sided warbler	<i>Dendroica pensylvanica</i>
Yellow warbler	<i>Dendroica petechia</i>
Pine warbler	<i>Dendroica pinus</i>
Blackpoll warbler	<i>Dendroica striata</i>
Cape May warbler	<i>Dendroica tigrina</i>
Black-throated green warbler	<i>Dendroica virens</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Gray catbird	<i>Dumetella carolinensis</i>
Alder flycatcher	<i>Empidonax alnorum</i>
Yellow-bellied flycatcher	<i>Empidonax flaviventris</i>
Least flycatcher	<i>Empidonax minimus</i>
Willow flycatcher	<i>Empidonax traillii</i>
Horned lark	<i>Eremophila alpestris</i>
Rusty blackbird	<i>Euphagus carolinus</i>

COMMON NAME	LATIN NAME
Spruce grouse	<i>Falcipennis canadensis</i>
Merlin	<i>Falco columbarius</i>
Peregrine falcon	<i>Falco peregrinus</i>
American kestrel	<i>Falco sparverius</i>
Common snipe	<i>Gallinago gallinago</i>
Common loon	<i>Gavia immer</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn swallow	<i>Hirundo rustica</i>
Wood thrush	<i>Hylocichla mustelina</i>
Baltimore oriole	<i>Icterus galbula</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Herring gull	<i>Larus argentatus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Red crossbill	<i>Loxia curvirostra</i>
White-winged crossbill	<i>Loxia leucoptera</i>
Swamp sparrow	<i>Melospiza georgiana</i>
Lincoln's sparrow	<i>Melospiza lincolnii</i>
Song sparrow	<i>Melospiza melodia</i>
Common merganser	<i>Mergus merganser</i>
Red-breasted merganser	<i>Mergus serrator</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Black-and-white-warbler	<i>Mniotilta varia</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Mourning warbler	<i>Oporornis Philadelphia</i>
Osprey	<i>Pandion haliaetus</i>
Northern parula	<i>Parula Americana</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Indigo bunting	<i>Passerina cyanea</i>
Gray jay	<i>Perisoreus canadensis</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
Black-backed woodpecker	<i>Picoides arcticus</i>
Downy woodpecker	<i>Picoides pubescens</i>
Three-toed woodpecker	<i>Picoides tridactylus</i>
Hairy woodpecker	<i>Picoides villosus</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>
Scarlet tanager	<i>Piranga olivacea</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>

COMMON NAME	LATIN NAME
Black-capped chickadee	<i>Poecile atricapillus</i>
Boreal chickadee	<i>Poecile hudsonicus</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Sora	<i>Porzana Carolina</i>
Common grackle	<i>Quiscalus quiscula</i>
Virginia rail	<i>Rallus limicola</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Bank swallow	<i>Riparia riparia</i>
Eastern phoebe	<i>Sayornis phoebe</i>
American woodcock	<i>Scolopax minor</i>
Ovenbird	<i>Seiurus aurocapillus</i>
Northern waterthrush	<i>Seiurus noveboracensis</i>
American redstart	<i>Setophaga ruticilla</i>
Eastern bluebird	<i>Sialia sialis</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
Chipping sparrow	<i>Spizella passerine</i>
Field sparrow	<i>Spizella pusilla</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Barred owl	<i>Strix varia</i>
Eastern meadowlark	<i>Sturnella magna</i>
Tree swallow	<i>Tachycineta bicolor</i>
Brown thrasher	<i>Toxostoma rufum</i>
House wren	<i>Troglodytes aedon</i>
Winter wren	<i>Troglodytes troglodytes</i>
American robin	<i>Turdus migratorius</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Tennessee warbler	<i>Vermivora peregrina</i>
Nashville warbler	<i>Vermivora ruficapilla</i>
Yellow-throated vireo	<i>Vireo flavifrons</i>
Warbling vireo	<i>Vireo gilvus</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Philadelphia vireo	<i>Vireo philadelphicus</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Canada warbler	<i>Wilsonia canadensis</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
Mourning dove	<i>Zenaida macroura</i>
White-throated sparrow	<i>Zonotrichia albicollis</i>

5.11.2 BOTANICAL RESOURCES

The Upper Androscoggin watershed, in which the project occurs, contains around 35 upland communities identified by the New Hampshire Natural Heritage Inventory (AMC 2013). The Project is located along the Androscoggin River and ranges from approximately 900-1,000 feet (MSL) in elevation. Forests within this region include the northern transitional hardwood-coniferous zone as well as forests associated with river floodplains. Upland forests within the project are likely dominated by Northern hardwood-Spruce-Fir forests. This community is characterized by northern hardwoods including sugar maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), and American beech (*Fagus grandifolia*). Birches, particularly yellow birch, paper birch (*B. papyrifera* var. *papyrifera*), and gray birch (*B. populifolia*), are frequent and sometimes abundant. Red spruce (*Picea rubens*) and Balsam fir (*Abies balsamea*) may be present but is usually not as prominent. Yellow birch is frequent in both the over and understory while American beech is occasional but not prominent. The woody understory frequently contains hobblebush (*Viburnum alnifolium*) and striped maple (*Acer pensylvanicum*). Herbaceous plant composition is variable, with, northern plants such as northern wood sorrel (*Oxalis acetosella*), shining clubmoss (*Huperzia lucidula*), bluebead lily (*Clintonia borealis*), twisted stalk (*Streptopus roseus*), and mountain wood fern (*Dryopteris campyloptera*). Based on the close proximity of the Androscoggin River, portions of the riparian forest likely also include the Conifer-hardwood terrace flat community which is dominated by a greater amount of sugar maple, red maple (*Acer rubrum*) and yellow, paper, and gray birches (Sperduto 2004).

The second major forested habitat likely to occur within the Project are areas of Sugar maple-silver maple-white ash floodplain forest. These forests are found along large rivers in the northern portion of the state, such as the Androscoggin. The tree layer in these areas often are dominated by sugar maple, silver maple (*Acer saccharinum*), with white ash (*Fraxinus americana*), and American elm (*Ulmus americana*) present in varying proportions. Similar species are usually growing in the understory; however, shrubs and vines grow only along edges or in recent gaps created by natural or human-induced disturbance. The shrub layer is typically poorly developed or absent. Herbaceous growth is often strongly dominated by ostrich fern (*Matteuccia struthiopteris* var. *pensylvanica*), and sensitive fern (*Onoclea sensibilis*). Other herbaceous and vine species are usually present, but never dominant, and may include jewelweed (*Impatiens capensis*), tall meadowrue (*Thalictrum pubescens*), Jack-in-the-pulpit (*Arisaema*

triphyllum), Virginia creeper (*Parthenocissus quinquefolia*), and Joe-pye-weed (*Eupatorium maculatum*) (Sperduto 2004).

Other habitats within the Project include areas residential and commercial development. In areas of residential and commercial development planted ornamentals and manicured lawns are common.

Riparian habitats often provide areas for establishment of invasive species. The New Hampshire list of Noxious Weeds includes 18 species, many of which are often found along streams, rivers and roadside. Table 5-15 includes the listed Noxious Weeds for New Hampshire.

TABLE 5-15 NEW HAMPSHIRE NOXIOUS WEEDS LIST¹

COMMON NAME	SCIENTIFIC NAME
tree of heaven	<i>Ailanthus altissima</i> (Mill.) Swingle
garlic mustard	<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande
European barberry	<i>Berberis vulgaris</i> L.
Oriental bittersweet	<i>Celastrus orbiculatus</i> Thunb. <i>Cynanchum louiseae</i> Kartesz & Gandhi
black swallow-wort	<i>Cynanchum nigrum</i> (L.) Pers., non Cav.
pale swallow-wort	<i>Cynanchum rossicum</i> (Kleopow) Borhidi
autumn olive	<i>Elaeagnus umbellata</i> Thunb. <i>Frangula alnus</i> Mill.
giant hogweed	<i>Heracleum mantegazzianum</i> Sommier & Levier
water-flag	<i>Iris pseudacorus</i> L.
blunt-leaved privet	<i>Ligustrum obtusifolium</i> Siebold & Zucc.
showy bush honeysuckle	<i>Lonicera</i> × <i>bella</i> Zabel [<i>morrowii</i> × <i>tatarica</i>]
Japanese honeysuckle	<i>Lonicera japonica</i> Thunb.
Morrow's honeysuckle	<i>Lonicera morrowii</i> A. Gray
Tartarian honeysuckle	<i>Lonicera tatarica</i> L.
Japanese knotweed	<i>Polygonum cuspidatum</i> Siebold & Zucc.
common buckthorn	<i>Rhamnus cathartica</i> L.
glossy buckthorn	<i>Rhamnus frangula</i> L.
multiflora rose	<i>Rosa multiflora</i> Thunb.

¹ New Hampshire Code of Administrative Rules. 2004. *Invasive species*, Chapter Agr. 3800 (15 September 2004). State of New Hampshire.

5.11.3 REFERENCES

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- Public Service Company of New Hampshire (PSNH). November 1993. Final Environmental Impact Statement: Relicensing Seven Existing Projects in the Upper Androscoggin River Basin; FERC Project Nos. 2422-004, 2287-003, 2326-002, 2327-002, 2311-001, 2288-004, 2300-002.
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5.12 WETLANDS, RIPARIAN AND LITTORAL HABITAT

The Project occurs within the Upper Androscoggin watershed on the Androscoggin River and includes several wetlands. The shoreline and much of the impoundment supports the littoral zone, and nearly all the upland areas provide riparian habitat.

5.12.1 WETLANDS

In 1991 there were no terrestrial wetlands identified within the J. Brodie Smith study area (which included areas outside the Project boundary) (PSNH 1993). The National Wetland Inventory (NWI) (USFWS 2018) identifies only open water habitats (9.4 acres) as occurring within the Project Boundary (Table 5-16).

TABLE 5-16 WETLANDS IDENTIFIED WITHIN THE PROJECT AREA (NWI)

WETLAND TYPE	CLASSIFICATION	ACRES
Riverine (Open Water)	R2UBH	.03
Freshwater Pond (Open Water)	PUBHh	8.2
Lake (Open Water)	L1UBHh	1.2
Total		9.43

Wetlands Within the Project Boundary

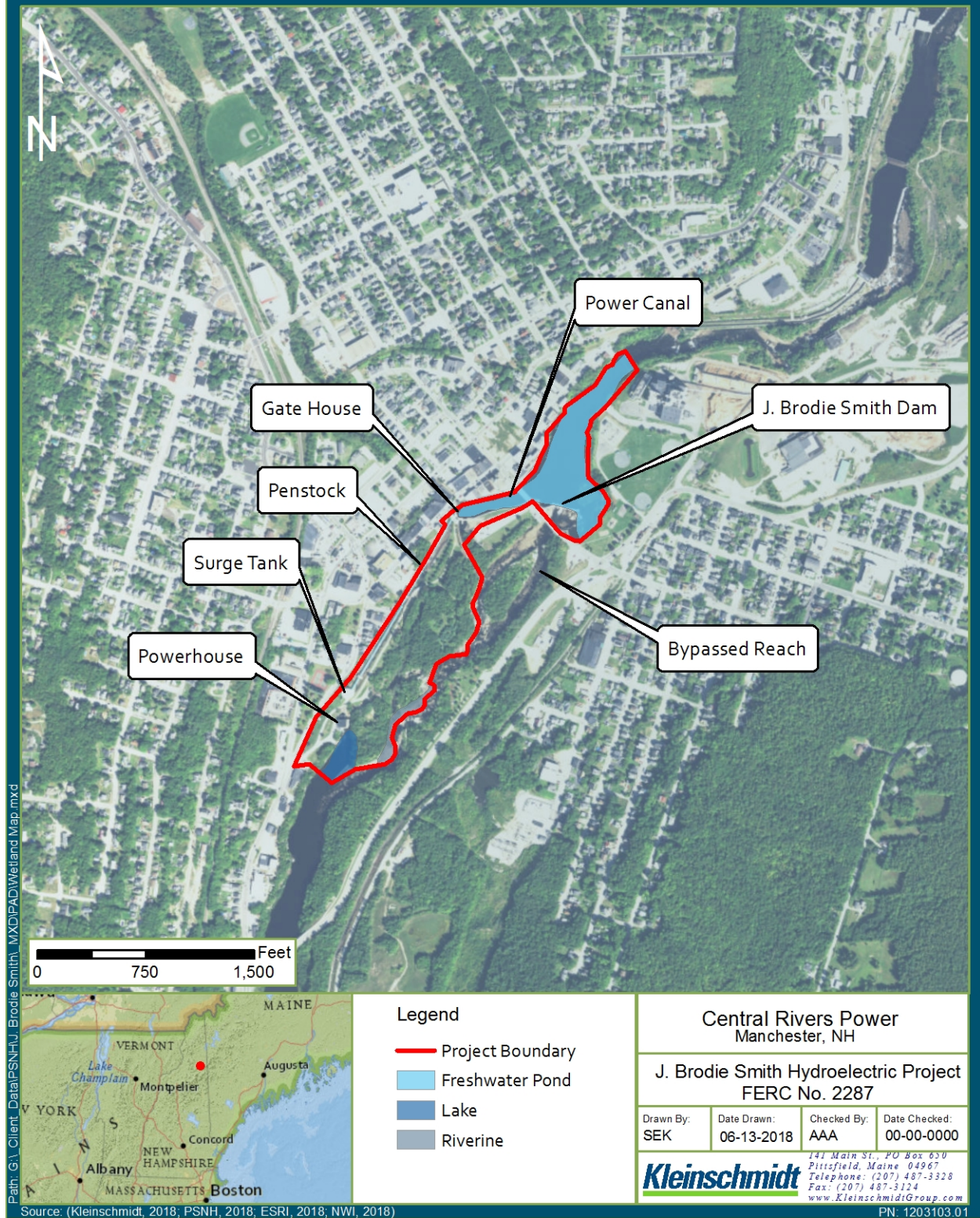


FIGURE 5-4 PROJECT WETLANDS

5.12.2 RIPARIAN AND LITTORAL HABITAT

Riparian areas are transitional zones along the shores of streams, rivers and lakes and are zones that often influence, and are influenced by, the presence of open water. They are an especially important part of the landscape. Riparian areas along major rivers in the Upper Androscoggin watershed have recovered from the damage caused by river drives in past decades (AMC 2013). Riparian areas within the project are a combination of upland and wetland habitats dominated by vegetation common to forest within the northern transitional hardwood-coniferous zone as well as forests associated with river floodplains. Portions of the riparian area are developed for commercial, residential, or industrial uses. These areas are often dominated by weedy or shrub species commonly found in disturbed sites or ornamental plantings and manicured lawns.

The littoral zone is the transitional zone between terrestrial and aquatic habitat, in the case of the Androscoggin River, much of the aquatic habitat is considered part of the littoral zone as water depths allow for vegetation to occur. The littoral zone is a broadly defined community dominated by floating leaved, submersed, and emergent herbaceous species in shallow quiet water areas of ponds, lakes, oxbows, streams and rivers. Water depths for aquatic bed habitats typically are at least 2-3 feet in mid-late summer or shallower but semi-permanently to permanently flooded. This zone may also include deeper emergent marshes consisting primarily of emergent rather than floating or submersed species and have water depths generally less than 2-3 feet.

Characteristic species include bur-reed (*Sparganium americanum*), pickerel weed (*Pontederia*), arum (*Peltandra virginica*), arrowhead (*Sagittaria latifolia*), pondweed (*Potamogeton spp.*), water lily (*Nuphar variegata*), and white water-lily (*Nymphaea odorata*). Submerged aquatic vegetation often includes bladderworts (*Utricularia spp.*), waterweeds (*Elodea spp.*), eel grass (*Vallisneria americana*), duckweeds (*Lemna spp.*), and milfoil (*Myriophyllum humile*) (Sperduto 2004).

While no aquatic invasive species are identified in Berlin, NH (NHDES 2017) there are several known occurrences of aquatic invaders that pose a potential risk of infestation. Species known to occur within NH, as of 2017 include curly-leaf pondweed (*Potamogeton crispus*), Eurasian watermilfoil (*Myriophyllum spicatum*), European naiad (*Najas minor*), fanwort (*Cabomba caroliniana*), variable milfoil (*Myriophyllum heterophyllum*), water chestnut (*Trapa natans*) (NHDES 2017).

5.12.3 REFERENCES

- Appalachian Mountain Club (AMC). 2013. Ecological Atlas of the Upper Androscoggin River Watershed. Published by the Appalachian Mountain Club, Gorham, NH.
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5.13 RARE, THREATENED, AND ENDANGERED SPECIES

The Endangered Species Act (ESA) was passed in 1973 to protect those animals and plants and associated habitats that are in danger of becoming extinct. The U.S. Fish and Wildlife Service (USFWS) classifies animals and plants into two categories: "endangered species" are in danger of extinction throughout the area in which they are usually found and "threatened species" are those that could become endangered in the near future. The bald eagle was removed from the ESA list on June 28, 2007. However, bald eagles remain federally protected under the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act.

Wildlife species in New Hampshire may also be protected under the New Hampshire Endangered Species Conservation Act (NHESCA) (NHFGD 2017). Depending on their level of vulnerability to extinction, species may be listed as Endangered or Threatened. Under NHESCA, a species may also be identified as Special Concern if it does not meet the criteria of endangered or threatened but is particularly vulnerable and could easily become threatened or is suspected to be endangered or threatened but for which insufficient data exists (NHFG 2018a).

5.13.1 RARE SPECIES

FEDERAL

The USFWS has identified two mammals listed on the federally threatened species list (USFWS 2018); the October 8, 2018 USFWS Species List conducted under the Information for Planning and Consultation (IPaC) project planning tool shows that the Canada lynx (*Lynx canadensis*) and the northern long-eared bat (*Myotis septentrionalis*) may occur in the Project Area or may be affected by the Project (USFWS 2018) (Appendix H).

STATE

Based on the available habitat and ranges of the state listed species using the New Hampshire Fish and Game species list and fact sheets within the New Hampshire Wildlife Action Plan, three additional bat species have been identified as having the potential to occur in or near the Project Area (Table 5-17).

TABLE 5-17 POTENTIAL STATE AND FEDERALLY LISTED SPECIES THAT MAY OCCUR IN THE PROJECT AREA.

COMMON NAME	SCIENTIFIC NAME	STATUS
Eastern small-footed bat	<i>Myotis leibii</i>	SE
Little brown bat	<i>Myotis lucifugus</i>	SE
Northern long-eared bat	<i>Myotis septentrionalis</i>	SE, FT
Tri-colored bat	<i>Perimyotis subflavus</i>	SE
Canada lynx	<i>Lynx canadensis</i>	SE, FT

SE – state endangered

FT – Federally threatened

Source: USFWS 2018

On October 8, 2015 the USFWS published a not warranted finding on the petition to list the American eel (FR 80, No 195, 2015/10/08, pp 60834-60838). As a result, the American eel is currently provided no protection under the ESA nor under the NHESCA.

5.13.2 THREATENED AND ENDANGERED WILDLIFE SPECIES DISTRIBUTION AND LIFE HISTORY INFORMATION

EASTERN SMALL-FOOTED BAT

The eastern small-footed bat (ESFB) has isolated occurrences in Coos County and Rockingham County in New Hampshire. Summer records are known from seven localities: the White Mountain National Forest, Bartlett, New Boston, Peirmont, Surry, Hinsdale, and Newington (NHFG 2015a).

In winter, ESFB require cave or mine habitat that provides adequate characteristics for successful hibernation. Such characteristics include low levels of human disturbance and a stable microclimate (NHFG 2015a). There is potential for the ESFB to utilize the Project area for feeding purposes.

LITTLE BROWN BAT

The little brown bat (LBB) is a migratory bat found throughout New England, whose habitat depends on the season and setting. LBB live in colonies that can range from hundreds to thousands of individuals (National Wildlife Federation 2015). During the winter, LBB hibernate in caves, abandoned mines, or other caverns. The mating season usually starts in August and

pups are born approximately two months later. Little brown bats feed strictly on insects and will typically live to six or seven years (National Wildlife Federation 2015). There is potential for the little brown bat to utilize the Project area for feeding purposes.

NORTHERN LONG-EARED BAT

The northern long-eared bat (NLEB) is listed as a federally threatened species and is listed as Endangered at the state level. The NLEB was listed as threatened on April 2, 2015, with a final rule published in the Federal Register on January 14, 2016. On April 27, 2016, the USFWS determined that the designation of critical habitat for the species was not prudent; therefore, no critical habitat is established for the NLEB (USFWS, 2016).

The NLEB feeds on invertebrates and is known to glean prey from vegetation and water surfaces. The NLEB winters in underground caves and cave like structures, but summers singly or in small colonies in cavities, under bark, or in hollows of live and dead trees typically greater than 3 in. in diameter. Suitable roosting trees also include exfoliating bark, cavities, or cracks (USFWS, 2016).

While the Project falls within the range of the NLEB it is unlikely that the overwintering or summer roosting occurs with the Project, although feeding may occur over the impoundment. Based on their known distribution, these bat species could occur in the J. Brodie Smith Project Area.

TRI-COLORED BAT

The tri-colored bat (TCB) is listed as a listed as endangered at the state level. The TCB winters in caves and mines, and occasionally use other structures to hibernate with low levels of human disturbance and temperature stability. No available data describe the summer habitat requirements of tricolored bats in New Hampshire. The few available data on summer habitat use and life history come from the Midwest. After leaving hibernacula, female tricolored bats from maternity colonies in live or dead foliage of deciduous trees (NHFG 2015b).

Currently the majority of the project boundary is surrounded by hardwood riparian forest and by urban development. While the Project falls within the range of the TCB it is unlikely that the overwintering or summer roosting occurs with the Project, although feeding may occur over the impoundment.

CANADA LYNX

Lynx occupy various habitats in the boreal forests and their southern extensions. In eastern forests, dominant vegetation includes spruce (*Picea spp.*) and balsam fir (*Abies balsamea*). Snowshoe hare (*Lepus americanus*) are important prey for lynx, and young or subalpine stands may be preferred because they contain more hare than do mature stands. Though data on competition and predation are equivocal, lynx may avoid bobcat (*Lynx rufus*) and coyote (*Canis latrans*) by seeking deep snow, to which lynx are morphologically adapted (long legs and large feet) (NHFG 2015c).

Although critical habitat has been designated on Maine, northern New Hampshire is only considered supporting landscape for the species. It is unlikely that the Canada lynx would use the Project area for anything other than for transient purposes.

MIGRATORY BIRDS

The protection of birds is regulated by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)).

Bald eagles are no longer listed under the ESA but maintain federal protection under the Bald and Golden Eagle Protection Act and legally protected in New Hampshire. Bald eagles typically nest near large bodies of open water, such as lakes and large rivers. Eagles nest in large, super-canopy trees or snags often in late-successional forest. They prefer a nest site at the edge of the forest, near foraging areas, unobstructed views, and with little human disturbance. Most eagles forage primarily on fish, with lesser quantities of waterfowl, carrion, and small mammals. The bald eagle often winters along large interior or coastal bodies of water that remain free of ice (NHFG 2018b).

TABLE 5-18 BIRDS OF CONSERVATION CONCERN THAT MAY OCCUR WITHIN OR IN THE PROJECT AREA.

COMMON NAME	SCIENTIFIC NAME	LEVEL OF CONCERN	PROBABILITY OF PRESENCE
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	BCC Rangewide	Breeds May 15 to Aug 10
Rusty Blackbird	<i>Euphagus carolinus</i>	BCC Rangewide	Breeds May 10 to July 20

Source: USFWS 2018

5.13.3 RARE, THREATENED, AND ENDANGERED BOTANICAL RESOURCES AND HABITATS

The Project area and immediate vicinity includes a wide variety of upland and wetland habitat associated with the shoreline of Androscoggin River. The New Hampshire Natural Heritage Bureau identifies 13 rare plant species that have historically been documented in Gorham, New Hampshire (NHNHB 2018). Of the 13, there is one species, the state endangered climbing hempvine that has been seen once in over 20 years (Table 5-19).

TABLE 5-19 RARE PLANTS REPORTED IN GORHAM, NEW HAMPSHIRE

			# REPORTED LAST 20 YEARS	
COMMON NAME	SCIENTIFIC NAME	STATE LISTED	TOWN	STATE
auricled twayblade	<i>Neottia auriculata</i>	E	Historical	8
** climbing hempvine	<i>Mikania scandens</i>	E	1	11
dwarf blueberry	<i>Vaccinium cespitosum</i>	T	Historical	17
fragrant wood fern	<i>Dryopteris fragrans</i>	T	Historical	15
heart-leaved twayblade	<i>Neottia cordata</i>	T	Historical	24
Hornemann's willow-herb	<i>Epilobium hornemannii</i> ssp. <i>hornemannii</i>	T	Historical	14
mountain sweet-cicely	<i>Osmorhiza berteroi</i>	E	Historical	23
ovoid spikesedge	<i>Eleocharis ovata</i>	E	Historical	12
parasol sedge	<i>Carex umbellata</i>	E	Historical	12
pink shinleaf	<i>Pyrola asarifolia</i> ssp. <i>asarifolia</i>	E	Historical	10
purple virgin's-bower	<i>Clematis occidentalis</i> ssp. <i>occidentalis</i>	E	Historical	25
round-leaved orchid	<i>Amerorchis rotundifolia</i>	E	Historical	1
smooth cliff fern	<i>Woodsia glabella</i>	E	Historical	4

** = Very High Importance

Source: NH Natural Heritage Bureau 2018

At this time, there are no known occurrences of rare plant species in or near the Project Area.

5.13.4 REFERENCES

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- U.S. Department of Interior: U.S. Fish and Wildlife Service (USFWS). 2019. Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your project. J. Brodie Smith Hydroelectric Project (FERC No. 2288). October 8, 2018.

5.14 RECREATION AND LAND USE

5.14.1 EXISTING RECREATION FACILITIES

CRP provides access to the approximately 10-acre Smith Peninsula Park located between the penstock and bypassed reach of the J. Brodie Smith Project. The park provides a main walking trail, a loop trail, a spur trail, picnic tables, benches, landscaping, , parking, restroom facilities, as well as scenic overlooks of the mountains, Dead River, and Androscoggin River (FERC 2000; PSNH 2000). The park is open year-round and can be used for cross-country skiing and snowmobiling access to downtown Berlin in the winter.



PHOTO 5-1 VIEW OF TONDREAU PENINSULA PARK ENTRANCE ALONG MAIN STREET



PHOTO 5-2 VIEW OF TRAIL WITHIN PARK, ALONGSIDE PENSTOCK



PHOTO 5-3 VIEW OF TRAIL IN PARK NEAR GATEHOUSE. SURVEILLANCE CAMERAS HAVE BEEN INSTALLED TO STEM VANDALISM



PHOTO 5-4 VIEW OF PARKING AREA NEAR POWERHOUSE FOR THE PENINSULA PARK.



PHOTO 5-5 TRAIL ALONG RIVER IN PENINSULA PARK.

5.14.2 PROJECT RECREATION USE AND CAPACITIES

CRP reported the number of recreation days at the J. Brodie Smith Project in the FERC Form 80 Licensed Hydropower Development Recreation Report. The annual total recreation days were 738, 54, and 1,440 in 2003, 2009, and 2015, respectively (Table 5-20). Capacity utilization ranged from 5 percent to 10 percent (PSNH 2003, 2009; Eversource 2015).

TABLE 5-20 RECREATION DAYS* AND CAPACITY UTILIZATION FROM THE 2003, 2009, AND 2015 FERC FORM 80 REPORTS FOR THE J. BRODIE SMITH PROJECT.

	2003	2009	2015
Annual Total Recreation Days	738	54	1,440
Peak Weekend Average Recreation Days	15	28	16
Capacity Utilization (%)	5	5	5-10

*A recreation day is defined as each visit by a person to a development for recreational purposes during any portion of a 24-hour period.

5.14.3 REGIONAL RECREATION OPPORTUNITIES

The J. Brodie Smith Project is within the Androscoggin Valley in the Great North Woods region of New Hampshire. This region is known for its open wilderness, hiking trails, mountain peaks, and scenic views. The White Mountain National Forest and the Presidential Range of the White Mountains are south and west of the project. State parks within the White Mountain National Forest include Mount Washington State Park, Crawford Notch State Park, and Franconia Notch State Park. Over 100 miles of the Appalachian Trail pass through the White Mountains (ATC 2018). The Presidential Rail Trail is a popular 18-mile hike between Gorham and along the northern border of the White Mountains; opportunities for horseback riding, biking, snowmobiling, cross-country skiing, and scenic and wildlife viewing are also available along the trail (NHDCNR 2018a).

Popular destinations within approximately 30 miles of the J. Brodie Smith Project include the New Hampshire towns of Littleton, Bethlehem, Jefferson, Lancaster, Conway, and Gorham, as well as Bethel, Maine. Several state parks are less than 10 miles from the J. Brodie Smith Project (Moose Brook State Park, Milan Hill State Park, and the Nansen Wayside Park) which provide opportunities for camping, swimming, fishing, hiking, biking, picnicking, scenic viewing, boating, canoeing, kayaking, horseback riding, snowmobiling, and snowshoeing (NHDCNR 2018b, c, d). The Nansen Wayside Park is next to the Nansen Ski Jump State Historic Site; this

ski jump was once the largest in the eastern U.S. (NHDCNR 2018e). In addition, several downhill skiing facilities are within 30 miles of Berlin, including Wildcat Mountain, Attitash Mountain, Bretton Woods Mountain, and Sunday River (Recreation in Gorham, NH 2018).

The Ice Gulch Town Forest in Randolph and Gorham, is approximately 6 miles southwest and provides hiking, walking trails, and sightseeing (Section Hiker 2018). The Milan Community Forest is approximately 6 miles northeast and provides sightseeing, outdoor education, and pedestrian recreational use (Town of Milan 2018).

5.14.4 RECREATION OPPORTUNITIES IN THE PROJECT VICINITY

A variety of recreation opportunities are available within the vicinity of the J. Brodie Smith Project. Municipal recreation facilities in the City of Berlin include five parks, six athletic fields, and 4 playgrounds (City of Berlin 2018). The Community Street playground, park, and athletic fields are directly to the east of the project impoundment. The Unity Street Park, which provides walking, picnic tables and scenic viewing, is just east of the project bypassed reach. The Northern Forest Heritage Park is approximately 1 mile north of the J. Brodie Smith Project along the Androscoggin River and highlights the history of the wood products industry with a museum and replica logging camps (Upstate NH 2018).

Jericho Mountain State Park is in Berlin approximately 3 miles west of the J. Brodie Smith Project. The park provides access to Jericho Lake and opportunities for camping, hiking, boating, swimming, canoeing, fishing, horseback riding, picnicking, snowshoeing, snowmobiling, and ATV riding (NHDCNR 2018f).

The City of Berlin provides several opportunities for water-based recreation from rivers, lakes, and brooks within the city limits including the Androscoggin River, Dead River, Upper Ammonoosuc River, Head Pond, and Horne Brook (City of Berlin 2010). There are numerous trails and paths throughout the City of Berlin which serve hikers, walkers, bikers, snowmobilers, and cross-country skiers (City of Berlin 2010). Formal snowmobile trails throughout the western portion of the city connect to the statewide trail system. Numerous ATV trails are within Jericho Mountain State Park. Mount Jasper is approximately 1.3 miles northwest of the project and provides a diversity of habitats for viewing (e.g., wetlands, vernal pools, ledges, rock outcrop) (Watershed to Wildlife, Inc 2013). Mount Jasper provides a hiking trail, a snowmobile trail,

wildlife viewing and views of downtown Berlin, the Dead River, and Mount Forist. Hiking opportunities within Berlin are also available on Mount Forist and Cates Hill (Watershed to Wildlife, Inc 2013).

5.14.5 REGIONAL NEEDS IDENTIFIED IN MANAGEMENT PLANS

The 2013-2018 New Hampshire Statewide Comprehensive Outdoor Recreation Plan (NH SCORP) serves to qualify New Hampshire for funding from the federal Land and Water Conservation Fund (LWCF) and provides guidance on prioritizing the allocation of LWCF grants. Goals of the NH SCORP include identifying outdoor recreation trends, needs, and issues; evaluating the supply and demand of recreation resources; and providing a strategic plan for addressing recreation issues in the state (NH DNCR 2013). The strategic priorities for the state of New Hampshire from the 2013-2018 SCORP are connecting people to the outdoors to promote healthy lifestyles, consistent and wise stewardship and conservation of natural resources, economic vitality through the promotion of outdoor recreation and tourism, and education of recreation users, partners, and agencies (NH DNCR 2013).

The City of Berlin Master Plan outlines development and growth priorities for the city through 2030 (City of Berlin, 2010). Several of the primary themes are centered around preserving, maintaining, and improving the historic and cultural heritage and the natural resources of the city. Specific components of the plan include providing more natural resource based recreation opportunities such as multi-use, multi-seasonal trails that connect the urban core with the surrounding area; additional walking paths and trails; increased use of the Androscoggin River (e.g., recreation events); promoting tourism; improving visual access of the surrounding mountains; protecting the scenic value of the river; and maintaining or improving historic sites or restoring them as interpretive sites (City of Berlin 2010).

5.14.6 EXISTING SHORELINE MANAGEMENT POLICIES

CRP conducts annual inspections of the shoreline at the J. Brodie Smith Project to assess compliance with the New Hampshire Shoreland Water Quality Protection Act (SWQPA) and whether any changes to the act impact the project. The annual shoreland inspections have not identified any violations of the SWQPA at the J. Brodie Smith Project.

5.14.7 NATIONAL AND STATE DESIGNATIONS

The Androscoggin River in the J. Brodie Smith Project area is not listed on the Nationwide Rivers Inventory (NRI). The reach of the Androscoggin River from the just above the City of Berlin to the Pontook Reservoir (approximately 2 to 12 river miles upstream of the project) is listed on the NRI because of fishery and hydrologic resources; the reach from the Pontook Reservoir to Errol, NH, is also listed on the NRI for recreation and hydrologic resources (NPS 2018a). The Appalachian Trail is designated a National Scenic Trail (NPS 2018b); sections of the trail to the southeast are within 5 miles of the J. Brodie Smith Project. There are no project lands being considered for inclusion in the National Trail System or as a Wilderness Area.

5.14.8 LAND USES AND MANAGEMENT WITHIN THE VICINITY OF THE PROJECT

The dominant land cover class in the Stearns Brook-Androscoggin watershed (Figure 5-4) is deciduous forest (33.8 percent) followed by mixed forest (25.0 percent), evergreen forest (17.0 percent), shrub/scrub (10.3 percent), woody wetlands (6.4 percent), and developed (3.1 percent) (Figure 5-4, Table 5-21). The J. Brodie Smith Project is located in the most developed area of the watershed (Figure 5-4). The area immediately to the west of the project and bordering the Androscoggin River is zoned for downtown and general business (Figure 5-5). The area to the east is zoned for industrial/business and residential/general (City of Berlin 2018b) (Figure 5-5).

TABLE 5-21 LAND COVER IN THE STEARNS BROOK-ANDROSCOGGIN WATERSHED.

LAND COVER	SQUARE MILES	PERCENT
Open Water	3.4	1.3
Developed	8.5	3.1
Barren Land	1.5	0.6
Deciduous Forest	90.8	33.8
Evergreen Forest	45.7	17.0
Mixed Forest	67.2	25.0
Shrub, Scrub	27.8	10.3
Grassland	4.9	1.8
Agriculture	1.2	0.4
Woody Wetlands	17.2	6.4
Emergent Herbaceous Wetlands	0.6	0.2
Total	269	

Source: MRLC 2018.

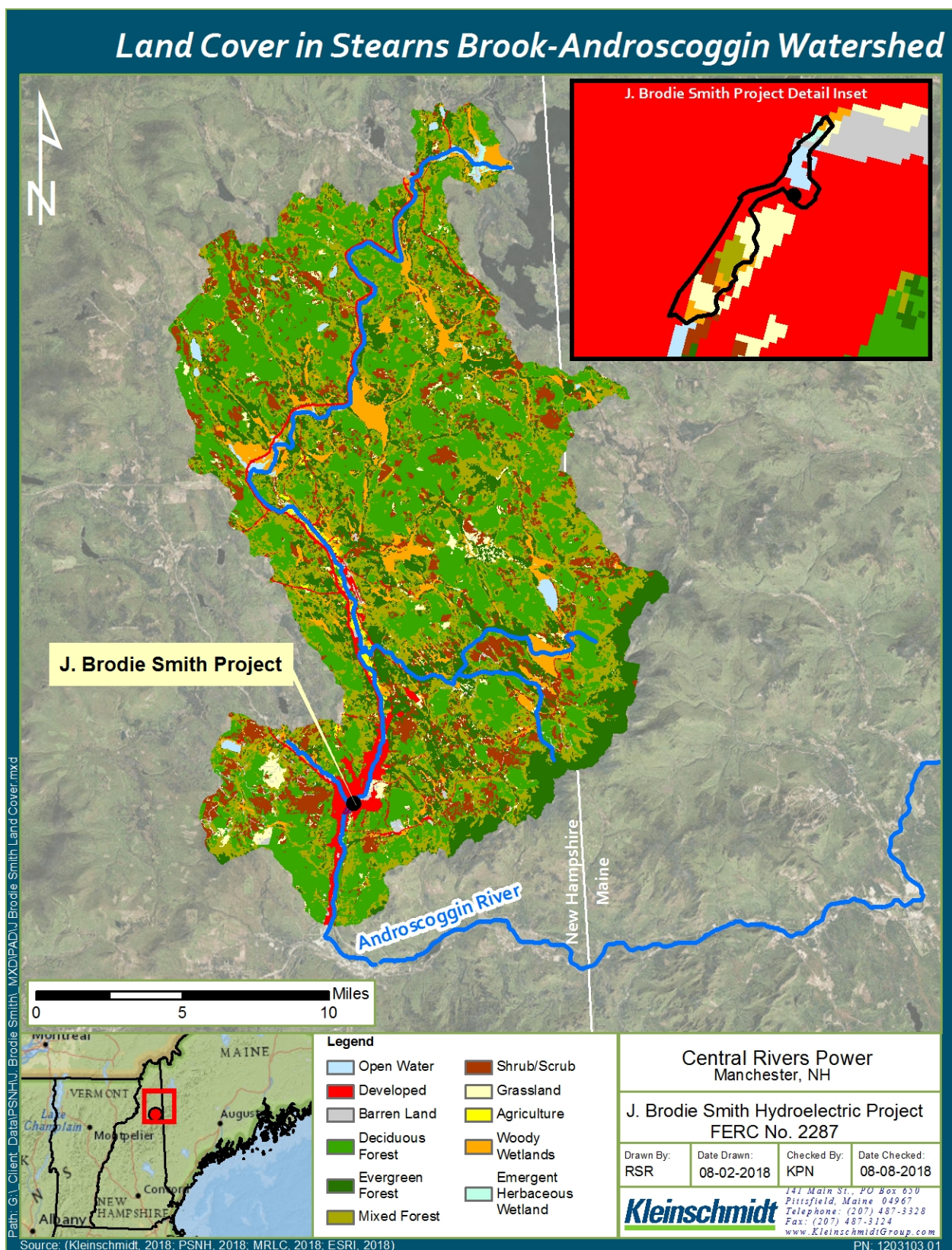


FIGURE 5-5 UPPER ANDROSCOGGIN WATERSHED LAND COVER

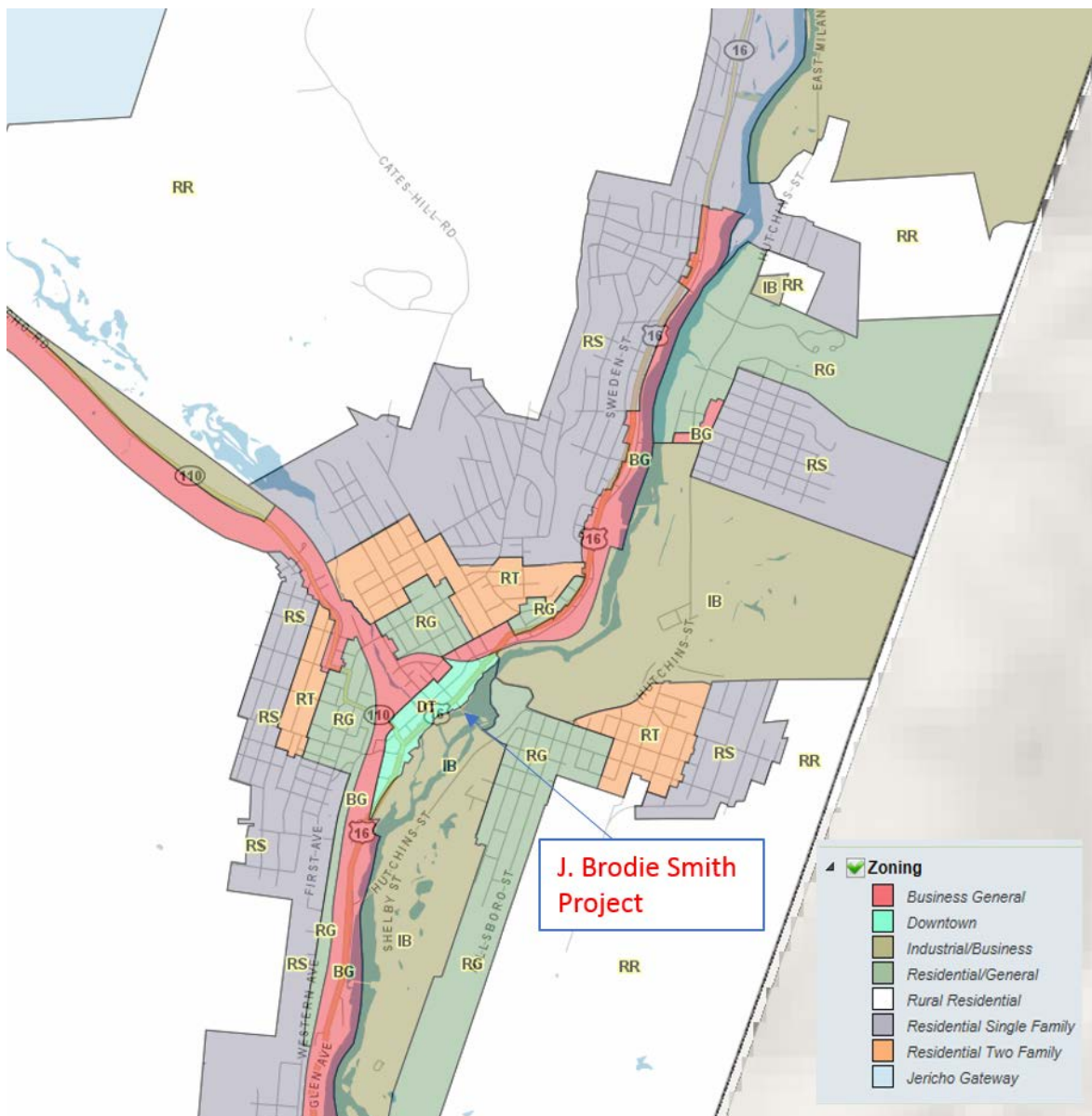


FIGURE 5-6 ZONING IN THE CITY OF BERLIN NEAR THE J. BRODIE SMITH PROJECT.
(SOURCE: CITY OF BERLIN 2018B).

5.14.9 LAND USE AND MANAGEMENT OF PROJECT LANDS

Project operations and maintenance are the primary activities that occur on project lands.

5.14.10 REFERENCES

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- New Hampshire Department of Natural and Cultural Resources (NH DNCR). 2018d. New Hampshire State Parks. Nansen Wayside Park. <https://www.nhstateparks.org/visit/state-parks/nansen-wayside-park.aspx>. Accessed August 2, 2018.
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5.15 AESTHETIC RESOURCES

5.15.1 VISUAL CHARACTER OF THE PROJECT LANDS AND WATERS

The J. Brodie Smith Project is located within the Androscoggin River Valley in the City of Berlin, Coos County, New Hampshire. The river basin surrounding the J. Brodie Smith Project is dominated by the landscape of the White Mountains, Mount Jasper, and Mount Forist.

Approximately 45 percent of the City of Berlin is in the White Mountain National Forest, and another 20 percent is owned by the state of New Hampshire and other organizations for recreation and conservation (City of Berlin, 2010). The Androscoggin River Valley is relatively narrow with steep adjacent upland areas (FERC 1993); within the reach between Berlin and Shelburne, the width of the valley floor ranges from approximately 0.2 miles to 0.6 miles (1,050 to 3,170 feet) (FERC 1993). The elevation of the Androscoggin River drops from around 1,095 feet at the Sawmill Project (approximately one river-mile upstream of the J. Brodie Smith Project) to 720 feet at the Shelburne Project (approximately 10 river miles downstream) (FERC 1993).

The J. Brodie Smith Project in the commercial and industrial section of Berlin which was developed for pulp and paper production and related industries in the 1800's (FERC 1993). Remnants of an old paper mill are visible to the northeast of the project; this site now contains a biomass energy plant. The Androscoggin River at the J. Brodie Smith Project flows within a steep-sided rocky gorge with vertical outcrops, concrete retaining and foundation walls, and bridge abutments on both sides (FERC 1993).

The J. Brodie Smith Project is visible to passersby from the Mason Street Bridge which crosses over the upper end of the power canal and bypassed reach (Photo 5-6, Photo 5-7). The surge tank and penstock are visible from Route 16 on the west side of the project (Photo 5-8). The surge tank and penstock were painted green to blend with the surrounding area and enhance aesthetics at the site (FERC 2002).



**PHOTO 5-6 VIEW OF J. BRODIE SMITH POWER CANAL FROM THE MASON STREET BRIDGE.
(PHOTO COURTESY OF GOOGLE EARTH).**



**PHOTO 5-7 VIEW OF J. BRODIE SMITH BYPASSED REACH FROM THE MASON STREET
BRIDGE.**



PHOTO 5-8 VIEW OF J. BRODIE SMITH PENSTOCK AND SURGE TANK FROM ROUTE 16.



PHOTO 5-9 VIEW OF J. BRODIE SMITH DAM INCLUDING WASTE GATES, MINIMUM FLOW OPENING, AND SPILLWAY FROM THE MASON STREET BRIDGE.



PHOTO 5-10 VIEW OF J. BRODIE SMITH IMPOUNDMENT FROM THE MASON STREET BRIDGE.

5.15.2 NEARBY SCENIC ATTRACTIONS

The J. Brodie Smith Project is situated in the Androscoggin River Valley between two of the most scenic regions of New Hampshire: the Great North Woods and the White Mountains. Scenic attractions near the J. Brodie Smith Project include mountains, national and state forests, national and state scenic byways, and covered bridges. The following is a list of some scenic attractions near the J. Brodie Smith Project:

- Cates Hill Road is approximately 2.5 miles north of the project. The City of Berlin has designated Cates Hill Road as a Scenic Road (City of Berlin 2010).
- The Appalachian Trail is a National Scenic Trail (NPS 2018). Over 100 miles of the Appalachian Trail passes through the White Mountain National Forest and continues through Shelburne less than 5 miles from the J. Brodie Smith Project (ATC 2018).
- The 100-mile Woodland Heritage Trail travels through Berlin and the northern section of White Mountain National Forest; the trail is designated a New Hampshire Scenic and Cultural Byway (NHDOT 2015a). The trail provides access to state parks, state forests, historic sites, and covered bridges.
- The 98-mile Moose Path Trail passes through Berlin and past the J. Brodie Smith Project on Route 16. The trail is designated a New Hampshire Scenic and Cultural Byway and provides access to historic sites, hiking, campgrounds, and state parks (NHDOT 2015b).
- The Thirteen Mile Woods Wilderness Area is approximately 15 miles north of Berlin. The land is adjacent to the Androscoggin River and Umbagog National Wildlife Refuge and provides hiking, fishing, scenic and wildlife viewing, snowmobiling, and cross-country skiing (TPL 2018).

5.15.3 REFERENCES

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5.16 CULTURAL RESOURCES

A brief summary of both the prehistory and history of the region is presented here. Humans first came to the region during the Paleoindian period, ca 9000- 7000 B.C., although there are few remains in the area. Evidence of successive hunter-gather Archaic populations, ca 7000 -1000 B.C., are more common. The Androscoggin River was likely a travel route from these early periods through the Woodland period (1,000 to 1,500 AD). There are several landforms in the area that are likely to have a potential for cultural resources given that flat areas with easy access to water were needed for encampments and activities like tool making. In addition, areas near stream confluences and rapids were used for portage (FERC 1993).

The first Europeans settled in New Hampshire in the 1600s and the first permanent European settlement was established in 1623 by David Thomson (New Hampshire Historical Society 2018). The same landforms that appealed to the Native Americans appealed to the European settlers and as the European population grew and there was an increase in commercial and industrial development, many prehistoric sites were damaged. In addition, shoreline erosion marred prehistoric sites in the area (FERC 1993). There are no remaining federal tribes in the state (PSNH 1996).

Berlin was settled in 1824 and grew with the pulp and paper industry. The Brown Company was the largest mill, at one point employing 9,000 men. Berlin's population reached the highest point in the 1930s, declining as the pulp and paper mills closed (Berlin, New Hampshire History 2018).

The original dam on the site was built by the Glen Manufacturing Company or the International Paper Company in 1885. Most of this dam was dismantled as it became a safety concern. The J. Brodie Smith Project was constructed from August 1945 to May 1948 on the original International Paper Company Mill (IPC Mill Site). Although the J. Brodie Smith Project overlays much of the IPC Mill Site, the site was designated as eligible for listing on the National Register of Historic Places (NRHP) by the New Hampshire State Historic Preservation Office (SHPO). The Smith Project uses the original granite lined canal and spillway and also the original timber crib (PSNH 1996). Although the IPC Mill Site should not be altered by continued Smith Project operation, the CRP will consult with the SHPO on any future plans that could alter the property.

In 1991, Justine Gengras and Dr. Charles Bolian conducted a Phase 1 archeological study of the Smith Project vicinity. No prehistoric resources were identified in the Smith Project boundary and the IPC Mill Site was the only historic property within the Smith Project Boundary. The IPC Mill site consists of portions of canals, retaining walls, dams, building foundations, tunnels, cellars, and masonry.

Article 407 of the 1994 License order provides for a “Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the New Hampshire Division for Historic Preservation, for Managing Historic Properties Likely to be Affected by Continuing to Operate the Sawmill Project, Project No. 2422, Cross Power Project, Project No. 2326, Cascade Project, Project No. 2327, Gorham Project, Project No. 2311, Shelburne Project, Project No. 2300, J. Brodie Smith Project, Project No. 2287, and Gorham Project No. 2288, All Located on the Androscoggin River” (Programmatic Agreement) as executed in November 1993. Among other things this Programmatic Agreement provides for a Cultural Resources Management Plan (FERC 1994).

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5.17 SOCIO-ECONOMIC RESOURCES

The J. Brodie Smith Dam is located on the Androscoggin River in Coos County, New Hampshire. It is located in Berlin, which has a population of 10,273 (United States Census Bureau 2017c). Coos County is the northernmost county in the state, as well as the largest at 1,800-square-miles. The county's population was estimated to be 32,039 in 2016, representing a 3.1% decrease from the 2010 census, compared to a 1.4% increase statewide during that period (United States Census Bureau 2017a).

Coos County's estimated median household income for 2012-2016 was \$45,154 (in 2016 dollars), and the poverty rate was 13.8% (United States Census Bureau 2017a). It is amongst the counties with the highest poverty rate in New Hampshire; 2017 was the first year in three years during which it was not ranked as the county with the highest poverty rate in the state (Bookman 2017). The county's percentage of high school graduates for the years 2012-2016 was 87.9% (Data USA).

The economy of Coos County is highly dependent on agriculture, forestry, fishing, and hunting; utilities; and accommodation and food service, much more so than most counties of its size. The largest industries are healthcare and social assistance, retail trade, and accommodation and food service (Data USA).

The 2012 Census of Agriculture shows that the amount of land in agriculture in Coos County increased between 2007 and 2012 by 12%, with the land in farms rising from 50,895 acres in 2007 to 56,797 acres in 2012. In 2012, approximately 5% of the county was comprised of farms. The increase in farmland was accompanied by an increase of 9% in the total market value of crops and livestock sold; however, the average value of products sold per farm decreased by 2% (Census of Agriculture 2012).

Population statistics for Coos County and New Hampshire can be found in the table below:

TABLE 5-22 POPULATION STATISTICS FOR COOS COUNTY AND NEW HAMPSHIRE

	COOS COUNTY	NEW HAMPSHIRE
Population		
Population (2017 estimate)	31,634	1,342,795
Population (2010)	33,052	1,316,460

	COOS COUNTY	NEW HAMPSHIRE
Population Growth (2010 to 2017)	-4.3%	2.0%
Geography (2010)		
Land area in square miles	1,794.69	8,952.65
Population per square mile	18.4	147.0
Gender (2017)		
Male	53.0%	49.5%
Female	47.0%	50.5%
Age (2017)		
Persons under 5 years old	4.0%	4.8%
Persons under 18 years old	16.7%	19.5%
Persons 65 years old and over	22.5%	17.0%
Race and Hispanic Origin (2017)		
White	96.5%	93.8%
Black or African American	0.9%	1.5%
American Indian and Alaska Native	0.4%	0.3%
Asian	0.6%	2.7%
Native Hawaiian and Other Pacific Islander	Z	0.1%
Two or more races	1.5%	1.7%
Hispanic or Latino	1.9%	3.5%
White, not Hispanic or Latino	95.0%	90.8%

Sources: United States Census Bureau 2017a, 2017b

5.17.1 REFERENCES

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Accessed March 7, 2019.

5.18 TRIBAL RESOURCES

CRP is not aware that the Project affects any Native American tribes. There are no Native American lands, known Native American traditional cultural properties or religious properties, or National Register-eligible or -listed sites associated with Native American Nations within the Project boundary. The following are Native American tribes and intertribal organizations that may be interested in the Project area or surrounding area:

Abenaki Nation of New Hampshire
Rhonda Besaw, Speaker
262 Lancaster Rd
Whitefield NH 03598
TEL 603-837-3381
Kcicasco@aol.com

Cowasuck Band – Pennacook/Abenaki People
Paul Pouliot, Council Chief and Speaker
COWASS North America, Inc.
Cowasuck Band of the Pennacook - Abenaki People
P.O. Box 52
840 Suncook Valley Road (Route 28)
Alton, NH 03809-0052
TEL: 603) 776-1090
FAX: 603) 776-1091
cowasuck@cowasuck.org
www.cowasuck.org

Koasek Abenaki of the Koas
Council of Chiefs : Amy Therrian, Carrie Gendreau,
John Prescott, Shirley Hook
Koasek of the Koas
Box 42
Newbury, Vt. 05051
www.koasekofthekoas.org
www.voicesofthekoas.com

Koasek Traditional Abenaki Nation
Chiefs Paul Bunnell and Nathan Pero
PO Box 147
Post Mills, VT 05058-0147
bunnellloyalist@aol.com
www.cowasuckabenaki.com

Eastern Pequot Reservation
Eastern Area Office
Roy Sebastian, Chairperson
North Stonington, CT 06359

Golden Hill Indian Reservation
Golden Hill Paugussett 3 Chief Government
Moonface Bear, Leader
95 Stanavage Rd.
Trumbull, CT 06415
(203) 377-4410 phone
(203) 738-2051 fax

Paucatuck Eastern Pequot Tribe
Eastern Area Office
Roy Sebastian, Chairperson
935 Lantern Hill Rd.
Ledyard, CT 06339

Schaghticoke Tribal Nation of Kent
Schaghticoke Tribal Council
Richard Velky, Chairperson
605 Main St.
Monroe, CT 06468
(203) 459-2531 phone
(201) 459-2535 fax

Laconia Indian Historical Association
Cliff Williamson, President
P.O. Box 224
Tilton, NH 03276
603-934-4819 (Gerald Dulac, Land Trust)

Nulhegan Band of the Coosuk - Abenaki Nation
Don Stevens, Chief
156 Bacon Drive
Shelburne VT 05482
Tel: (802) 985-2465
donald_stevens@myfairpoint.net
www.abenakitribe.org
Vermont State Recognized Tribe

NH Intertribal Native American Council
Peter Newell, Council Chief
9 Durrell Mountain Road
Belmont NH 03220

Sovereign Abenaki Nation of Missisquoi
St. Francis/Sokoki Band
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6.0 PRELIMINARY ISSUES AND STUDIES LIST

6.1 KNOWN OR POTENTIAL PROJECT EFFECTS

This section identifies any known or likely effects of licensing the continued operation of the existing Project. For the purposes of this PAD, Project effects are any new changes to the natural and human environment attributable to licensing the continued operation of the Project.

6.1.1 PRIMARY PROJECT EFFECTS

FERC issued a new license for the J. Brodie Smith Project in 1984. The license provides for the operation of the Project and to serve as a generation facility; run-of-river with minimal impoundment fluctuations. Article 402 of the existing license requires there be a minimum bypass flow release of 20 cfs from the J. Brodie Smith dam at all times.

6.2 PRELIMINARY ISSUES, STUDIES, AND MEASURES BY RESOURCE

This section identifies issues associated with the potential effects of relicensing continued Project operations, initial study proposals based upon these issues, and current and proposed protection, mitigation, and enhancement (PM&E) measures by the Licensee to address these issues. This includes:

Potential Issues – Identification of issues is a key step in the relicensing process because any specific concerns or questions arising from the proposed continued Project operations may need to be addressed in the context of the relicensing proceeding. The Licensee has attempted to identify all of the issues that have a nexus to licensing continued Project operations.

Proposed Study Plans – Where noted, the Licensee has included summaries for specific studies that it anticipates will be undertaken. The Licensee will file the formal “Study Plan” in accordance with 18 CFR §5.11 within 45 days following the deadline for filing comments on the PAD and the issuance of a Scoping Document by FERC. Regardless, the Licensee may agree to certain studies and information gathering activities prior to the formal filing and may voluntarily initiate those activities or studies prior to the formal filing. The Licensee understands that FERC’s Scoping meetings and additional comments by resource agencies, tribes, or the public may alter suggested studies or require additional studies. Any information or study requests must comply with the requirements of 18 CFR §5.9(b).

Continued or Proposed PM&E Measures – The issues identified for each resource area may or may not ultimately warrant specific PM&E measures or may already be addressed through PM&E measures required by the existing Project license or undertaken voluntarily by the Licensee. Existing relevant information and additional information obtained through studies will be used to determine if additional PM&E measures are needed.

6.2.1 GEOLOGY AND SOILS

6.2.1.1 POTENTIAL ISSUES AND PROJECT EFFECTS

The vast majority of the shoreline within the Project boundary is adjacent to developed lands (Section 5.8), with limited erosion. As outlined in the Section 5.1, soils within the Project range from moderately well drained to excessively drained. There may be limited amounts of localized erosion, but if present, the extent of such shoreline erosion is unknown. In addition, in 1998 FERC approved a Shoreland Protection Plan for the J. Brodie Smith Project. The Licensee files annually a shoreline inspection report for the upstream and downstream shoreline areas of the Project boundary. To date, no changes have occurred nor violations to the Shoreland Protection Act have occurred.

6.2.1.2 PROPOSED STUDIES

No studies are being proposed specific to geologic or soil resource. Observations of the condition of the shoreline relative to project-induced erosion will be made during the conduct of other reconnaissance surveys for the relicensing. Any areas of significant project-induced erosion will be identified and addressed as necessary during relicensing.

6.2.1.3 CONTINUED OR PROPOSED PM&E MEASURES

A Shoreland Protection Plan is currently in place relative to geologic or soil resources. If significant areas of localized erosion resulting from project operations are discovered during the course of normal operation, these can be addressed through site appropriate measures at the time under the license.

6.2.2 WATER RESOURCES

6.2.2.1 POTENTIAL ISSUES AND PROJECT EFFECTS

Historical data indicates that water quality conditions upstream and downstream of the Project meet state standards and it is not anticipated that operations adversely affect water quality.

However, since existing data does not include some areas of Project waters, CRP proposes to supplement the data with riverine water quality sampling as outlined below.

6.2.2.2 PROPOSED STUDIES

The J. Brodie Smith Project impoundment is riverine in nature and is relatively shallow (maximum depth of approximately 10 feet). Licensee proposes to conduct baseline water quality sampling employing a typical riverine sampling approach of early morning/late afternoon DO, temperature and Chlorophyll a sampling during a three-day period of high temperature and low flow conditions in the summer, in the impoundment and downstream of the dam.

6.2.2.3 CONTINUED OR PROPOSED PM&E MEASURES

No specific PM&E measures are proposed beyond continuing appropriate minimum flows.

6.2.3 FISH AND AQUATIC RESOURCES (INCLUDING RELATED RT&E AND RIPARIAN, WETLAND AND LITTORAL HABITAT RESOURCES)

Currently, the fishery in the upper Androscoggin River is a mix of native and exotic species. Stocking and fishing regulations are the main drivers controlling fish populations on the upper Androscoggin River. The Midwest Biodiversity Institute (MBI) sampled the Androscoggin River in 2003 to document the fish assemblage and develop a database for the distribution and abundance of fishes. Riverine segments in the upper Androscoggin River had higher densities of fish as compared to downstream impounded areas.

MBI electrofished 3 reaches of the Androscoggin River in 2003 near the J. Brodie Smith Project, which is located at RM 132.8. One brown trout (*Salma trutta*) was collected near Cascade dam but was considered transitory, or may have been washed downstream from stocking efforts in Berlin, New Hampshire. Trout stocking in the upstream portions of the river above Berlin, New Hampshire has steadily increased since the mid-1990s; several large tributaries in New Hampshire are continually stocked with brown and rainbow trout. NHDFG stocks brown trout and brook trout (*Salvelinus fontinalis*) upstream of the J. Brodie Smith Project annually at Berlin,

New Hampshire. Approximately 19 miles downstream of the J. Brodie Smith Project, between Gilead and Rumford Falls, Maine, landlocked salmon stocking has increased since 2005. Before 2005, MDIFW stocked approximately 1,350 salmon annually, as compared to the 3,000 or more salmon currently stocked each year.

The J. Brodie Smith Project is approximately 75 RM upstream of Lewiston Falls, which is the natural upstream migration limit for most diadromous species on the Androscoggin River.

CRP is not proposing any changes to its current operations for the next license term; therefore, continued operations are expected to provide and maintain aquatic habitats in support of the existing fish and aquatic species in the Project area that have developed over many years of operation.

6.2.3.1 PROPOSED STUDIES

No Studies are being proposed at this time.

6.2.3.2 CONTINUED OR PROPOSED PM&E MEASURES

Licensee is proposing to continue to operate as run of river and provide existing bypass reach flow.

6.2.4 WILDLIFE RESOURCES (INCLUDING RELATED RT&E AND RIPARIAN, WETLAND AND LITTORAL HABITAT RESOURCES)

6.2.4.1 POTENTIAL ISSUES AND PROJECT EFFECTS

Through initial research reviews, no significant habitats or rare and exemplary natural communities were found within the Project area. Licensing the continued operation of the Project is not anticipated to adversely affect wildlife or habitat.

6.2.4.2 PROPOSED STUDIES

No studies are being proposed at this time.

6.2.4.3 CONTINUED OR PROPOSED PM&E MEASURES

There are no existing PM&E measures in-place regarding wildlife, and none are proposed.

6.2.5 BOTANICAL RESOURCES (INCLUDING RELATED RT&E AND RIPARIAN, WETLAND AND LITTORAL HABITAT RESOURCES)

6.2.5.1 POTENTIAL ISSUES AND PROJECT EFFECTS

The wetland plant communities that currently exist within the Project boundary have become established under the existing operating regime that has existed for many years since the Project was constructed. Therefore, it is anticipated that continued operations will not result in adverse effects on wetland and botanical resources.

6.2.5.2 PROPOSED STUDIES

The Licensee proposes to conduct reconnaissance level surveys to document the botanical resources along the Project Boundaries and to search for rare, threatened or endangered species. This survey will include documentation of invasive vegetation species and location of existing erosion within vegetation communities, if there is any.

6.2.5.3 CONTINUED OR PROPOSED PM&E MEASURES

There are no existing PM&E measures in-place relative to wetland and botanical resources, and none are proposed.

6.2.6 RECREATION AND LAND USE

6.2.6.1 POTENTIAL ISSUES AND PROJECT EFFECTS

The J. Brodie Smith Project, operating in accordance with the current FERC license operates in a run-of-river mode. The existing water levels does not appear to have an effect on shoreline recreation, walking trail, a loop trail, a spur trail, picnic tables, benches, landscaping, , parking, restroom facilities, as well as scenic overlook.

6.2.6.2 PROPOSED STUDIES

No studies are being proposed at this time. However, CRP anticipates participation of the surrounding municipalities in the licensing process and consultation efforts relative to recreational resources at the Project.

6.2.6.3 CONTINUED OR PROPOSED PM&E MEASURES

The Licensee will continue to provide for public access and use of Project lands and waters as appropriate and consistent with Project purposes. The Licensee also will continue to provide and maintain the walking trail, a loop trail, a spur trail, picnic tables, benches, landscaping, interpretive signs describing the history and ecology of the site, parking, restroom facilities, as well as scenic overlook that are Project related.

6.2.7 AESTHETIC RESOURCES

6.2.7.1 POTENTIAL ISSUES AND PROJECT EFFECT

No issues have been identified relative to aesthetic resources.

6.2.7.2 PROPOSED STUDIES

No studies are being proposed at this time.

6.2.7.3 CONTINUED OR PROPOSED PM&E MEASURES

No measures have been identified and none are proposed.

6.2.8 CULTURAL RESOURCE ISSUES

6.2.8.1 POTENTIAL ISSUES AND PROJECT EFFECTS

Project operations could potentially affect cultural resources if water levels result in significant erosion and the exposure of resources of significance. Ground disturbances associated with activities such as land-clearing or construction activities can also expose culturally significant resources, making them susceptible to alteration, damage, and theft/vandalism. A Phase 1 archeological study was conducted in 1991 of the J. Brodie Smith Project vicinity. No prehistoric resources were identified in the Smith Project boundary and the IPC Mill Site was the only historic property within the Smith Project Boundary. The IPC Mill site consists of portions of canals, retaining walls, dams, building foundations, tunnels, cellars, and masonry.

The proposed relicensing of the Project anticipates that the Project will be operated without significant changes to its facilities or operations. If changes to the Project are found to be necessary during relicensing or after a license has been issued, then the Licensee would consult with the SHPO before beginning any land-clearing or land-disturbing activities within the Project

boundaries. The consultation will determine the need to conduct archeological or historical survey(s) and to implement further avoidance or mitigation measures before undertaking the action.

6.2.8.2 PROPOSED STUDIES

The Licensee will consult with the SHPO regarding potential archaeological surveys in connection with the Project relicensing.

6.2.8.3 CONTINUED OR PROPOSED PM&E MEASURES

The need for any PM&E measures will be determined in consultation with SHPO during the relicensing process.

6.2.9 SOCIOECONOMIC RESOURCES

6.2.9.1 POTENTIAL ISSUES AND PROJECT EFFECTS

No issues have been identified relative to socioeconomic resources.

6.2.9.2 PROPOSED STUDIES

No studies are proposed at this time.

6.2.9.3 CONTINUED OR PROPOSED PM&E MEASURES

No measures have been identified and none are proposed at this time.

6.2.10 TRIBAL RESOURCES

6.2.10.1 POTENTIAL ISSUES AND PROJECT EFFECTS

CRP is not aware that the Project affects any Native American tribes. There are no Native American lands, known Native American traditional cultural properties or religious properties, or National Register-eligible or -listed sites associated with Native American Nations within the Project boundary.

6.2.10.2 PROPOSED STUDIES

No Studies are proposed.

6.2.10.3 CONTINUED OR PROPOSED PM&E MEASURES

No measures have been identified and none are proposed.

6.3 POTENTIALLY RELEVANT QUALIFYING FEDERAL AND STATE OR TRIBAL COMPREHENSIVE WATERWAY PLANS

Section 10(a) of the Federal Power Act (FPA), 16 U.S.C. § 803(a)(2)(A), requires FERC to consider the extent to which a Project is consistent with Federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the Project. On April 27, 1988, FERC issued Order No. 481-A, A revising Order No. 481, issued October 26, 1987, establishing that FERC will accord FPA Section 10(a)(2)(A) comprehensive plan status to any Federal or state plan that:

- Is a comprehensive study of one or more of the beneficial uses of a waterway or waterways.
- Specifies the standards, the data, and the methodology used.
- Is filed with the Secretary of the Commission.

FERC currently lists comprehensive plans for the State of New Hampshire and U.S. resources. Of these listed plans, 5 are potentially relevant to the Project, as listed below in Table 6-1.

These plans may be useful in the relicensing proceeding for characterizing desired conditions.

TABLE 6-1 LIST OF QUALIFYING FEDERAL AND STATE COMPREHENSIVE WATERWAY PLANS POTENTIALLY RELEVANT TO THE GORHAM PROJECT

RESOURCE	COMPREHENSIVE PLAN
National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management	National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management. New Hampshire Office of State Planning. 1988. New Hampshire coastal program and final environmental impact statement. Washington, D.C. July 1988.
National Park Service	National Park Service. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C. 1993.
New Hampshire Office of State Planning	New Hampshire Office of State Planning. 1977. Wild, scenic, & recreational rivers for New Hampshire. Concord, New Hampshire. June 1977.
U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Service. 1989. Atlantic salmon restoration in New England: Final environmental impact statement 1989-2021. Department of the Interior, Newton Corner, Massachusetts. May 1989.
U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Service. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.

6.4 POTENTIALLY RELEVANT RESOURCE MANAGEMENT PLANS

In addition to the qualifying Federal, state, and Tribal comprehensive waterway plans listed in Section 6.0, some resource agencies have developed resource management plans to help guide their actions regarding specific resources of jurisdiction. The resource management plans listed in Table 6-2 may be relevant to the Project and may be useful in the relicensing proceeding for characterizing desired conditions.

TABLE 6-2 LIST OF RELEVANT RESOURCE MANAGEMENT PLANS POTENTIALLY RELEVANT TO THE GORHAM PROJECT.

RESOURCE	RESOURCE MANAGEMENT PLAN
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 1998. Amendment 1 to the Interstate Fishery Management Plan for Atlantic sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>). (Report No. 31). July 1998
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 1998. Interstate fishery management plan for Atlantic striped bass. (Report No. 34). January 1998.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 1999. Amendment 1 to the Interstate Fishery Management Plan for shad and river herring. (Report No. 35). April 1999.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2000. Interstate Fishery Management Plan for American eel (<i>Anguilla rostrata</i>). (Report No. 36). April 2000.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2000. Technical Addendum 1 to Amendment 1 of the Interstate Fishery Management Plan for shad and river herring. February 9, 2000.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2008. Amendment 2 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. October 2008.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2009. Amendment 2 to the Interstate Fishery Management Plan for shad and river herring, Arlington, Virginia. May 2009.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2010. Amendment 3 to the Interstate Fishery Management Plan for shad and river herring, Arlington, Virginia. February 2010.

RESOURCE	RESOURCE MANAGEMENT PLAN
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2013. Amendment 3 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. August 2013.
Atlantic States Marine Fisheries Commission	Atlantic States Marine Fisheries Commission. 2014. Amendment 4 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. October 2014
National Marine Fisheries Service	National Marine Fisheries Service. 1998. Final Amendment #11 to the Northeast Multi-species Fishery Management Plan; Amendment #9 to the Atlantic sea scallop Fishery Management Plan; Amendment #1 to the monkfish Fishery Management Plan; Amendment #1 to the Atlantic salmon Fishery Management Plan; and Components of the proposed Atlantic herring Fishery Management Plan for Essential Fish Habitat. Volume 1. October 7, 1998
New Hampshire Office of State Planning	New Hampshire Office of State Planning. 1989. New Hampshire wetlands priority conservation plan. Concord, New Hampshire.
New Hampshire Office of Energy and Planning	New Hampshire Office of Energy and Planning. New Hampshire Statewide Comprehensive Outdoor Recreation Plan (SCORP): 2008-2013. Concord, New Hampshire. December 2007.
New Hampshire Office of State Planning	New Hampshire Office of State Planning. 1991. Public access plan for New Hampshire's lakes, ponds, and rivers. Concord, New Hampshire. November 1991.
State of New Hampshire	State of New Hampshire. 1991. New Hampshire rivers management and protection program [as compiled from NH RSA Ch. 483, HB 1432-FN (1990) and HB 674-FN (1991)]. Concord, New Hampshire.

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APPENDIX A

AGENTS FOR CENTRAL RIVERS POWER

18 CFR 5.6(d)(2)(i) requires the exact name, business address and telephone number of each person authorized to act as agent for the applicant.

Exact name, business address and telephone:

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Authorized agents:

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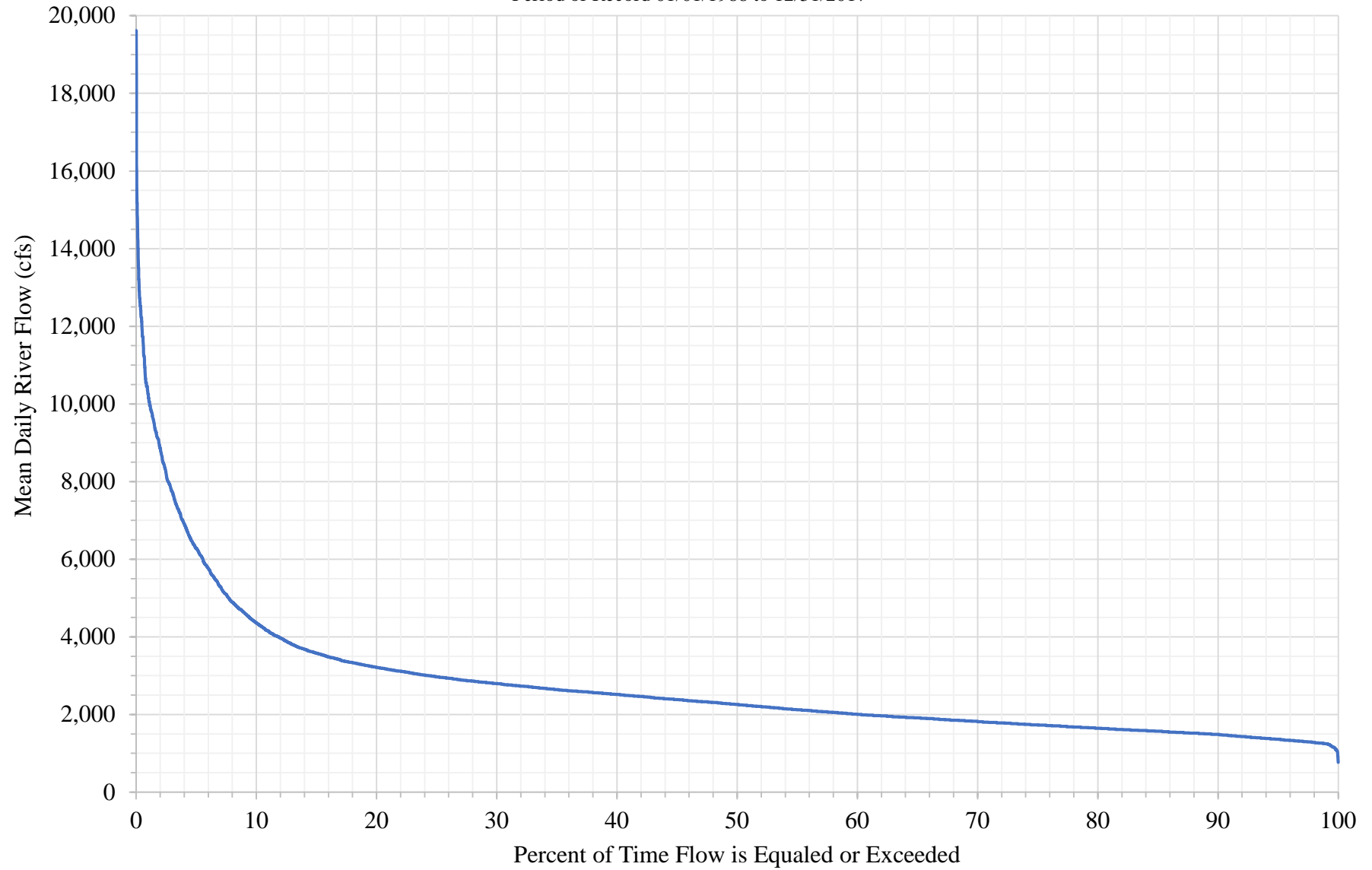
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Hull Street Energy, LLC
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APPENDIX B

FLOW DURATION CURVES

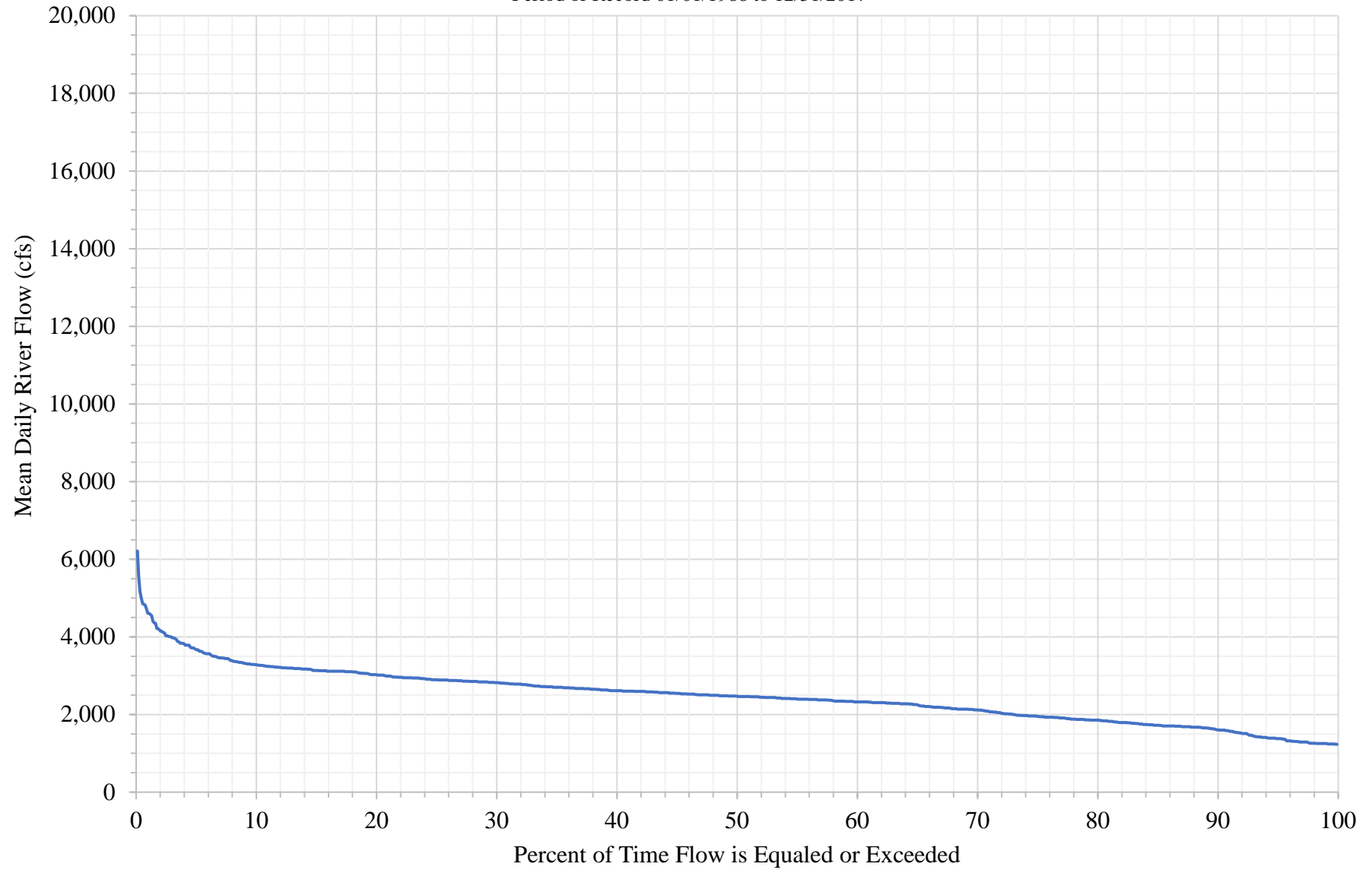
J. Brodie Smith
Annual Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017



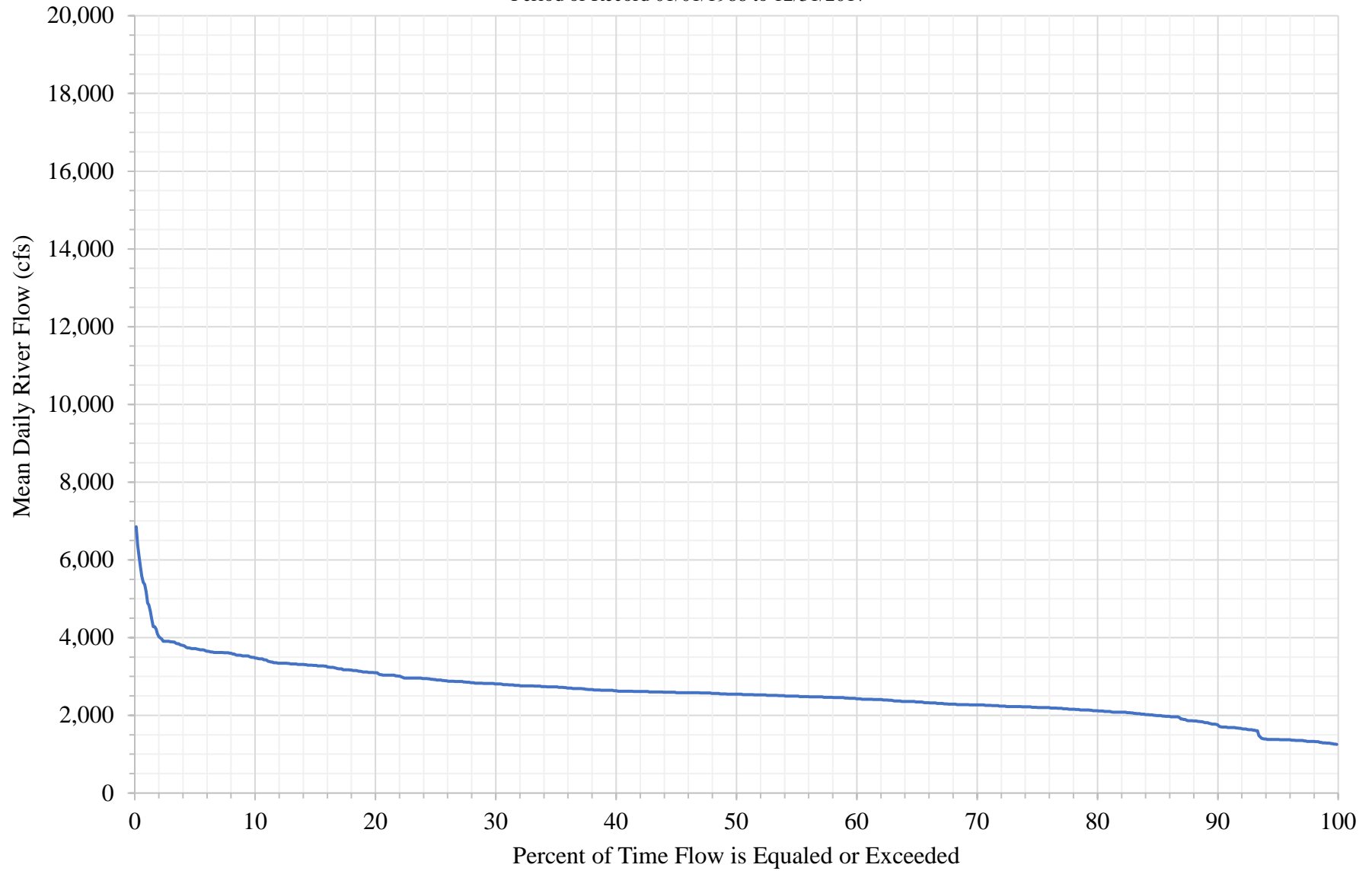
J. Brodie Smith
January Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017



J. Brodie Smith
February Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017

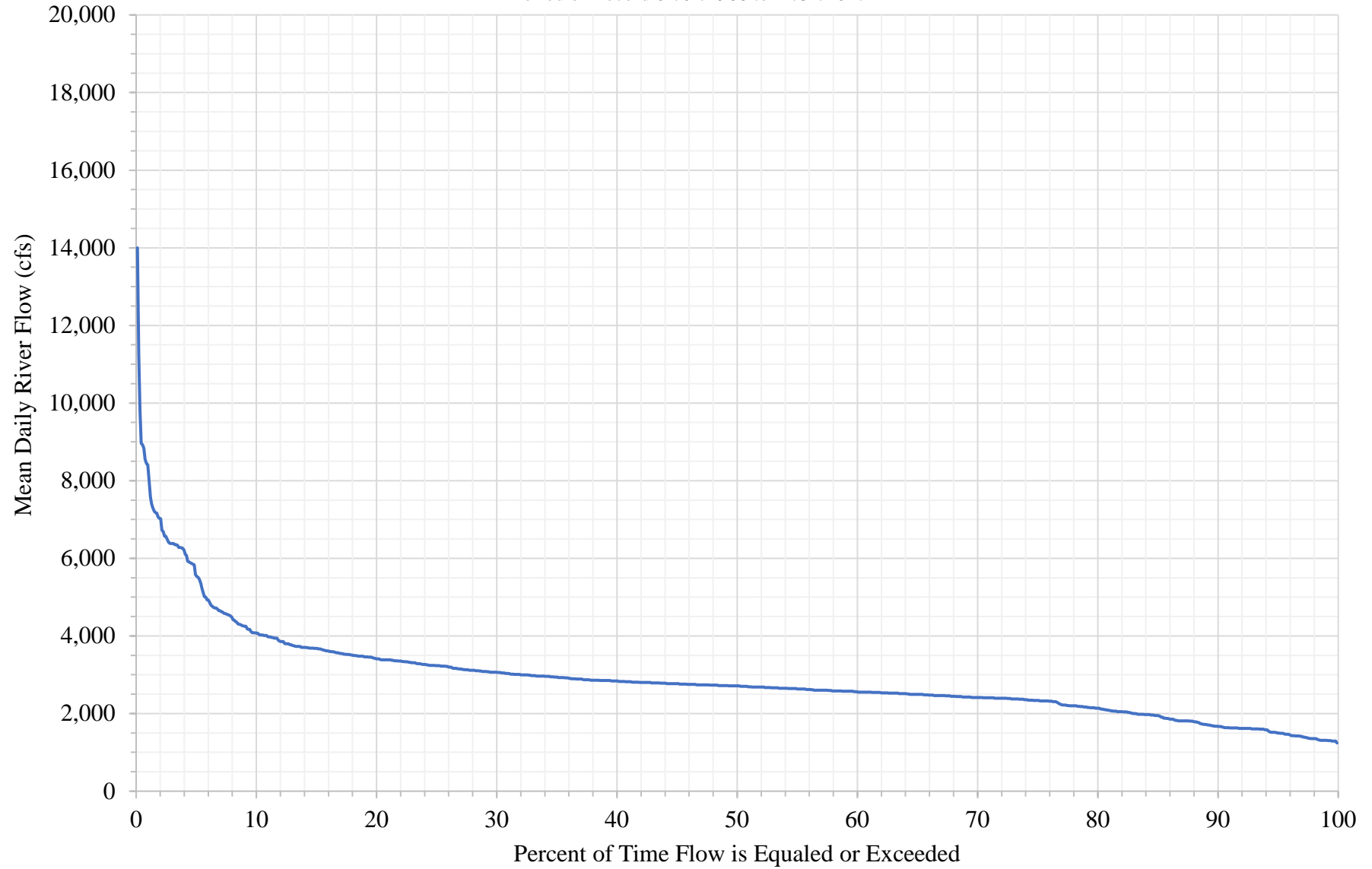


J. Brodie Smith

March Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)

Period of Record 01/01/1988 to 12/31/2017

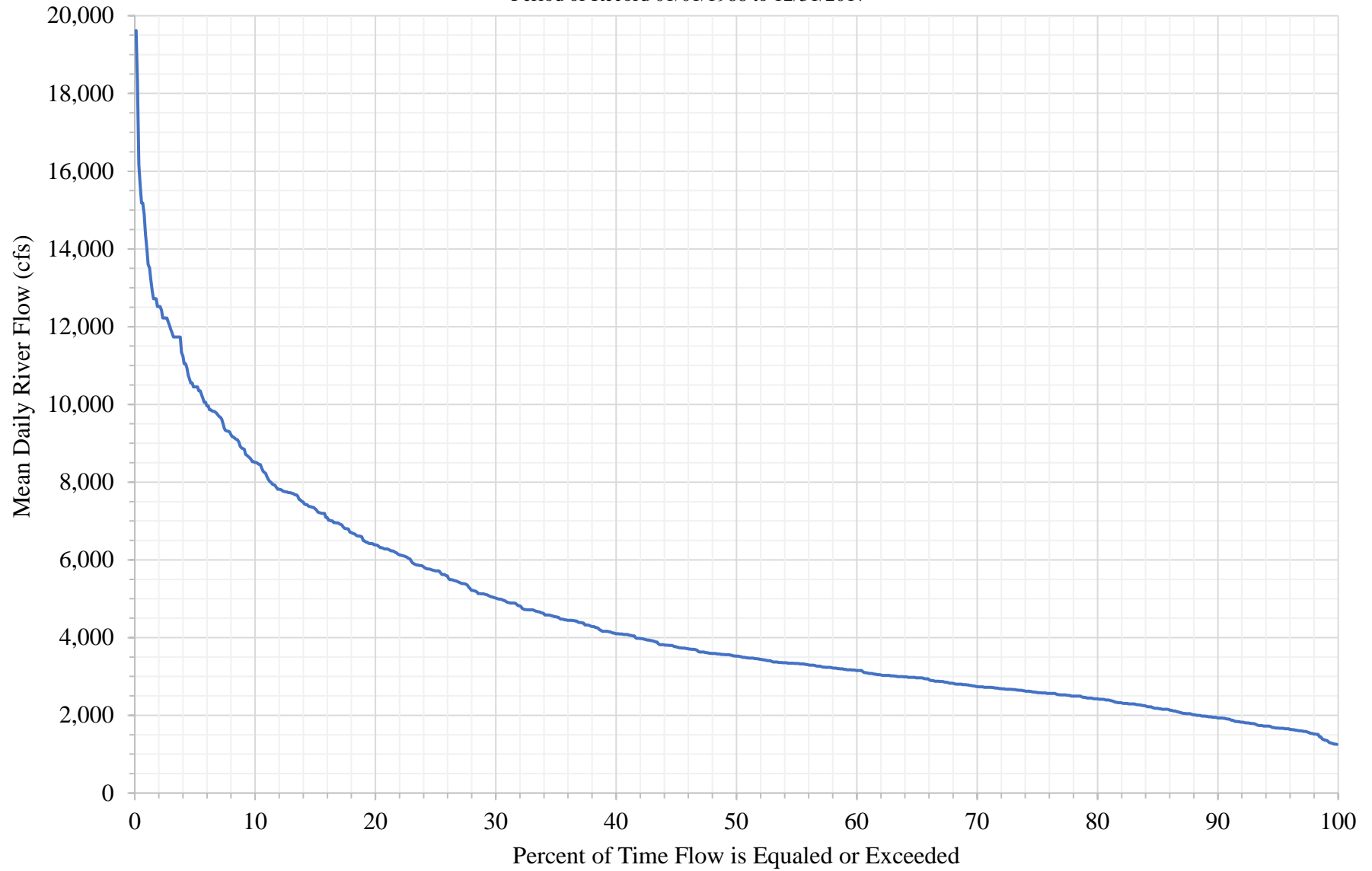


J. Brodie Smith

April Flow Duration Curve

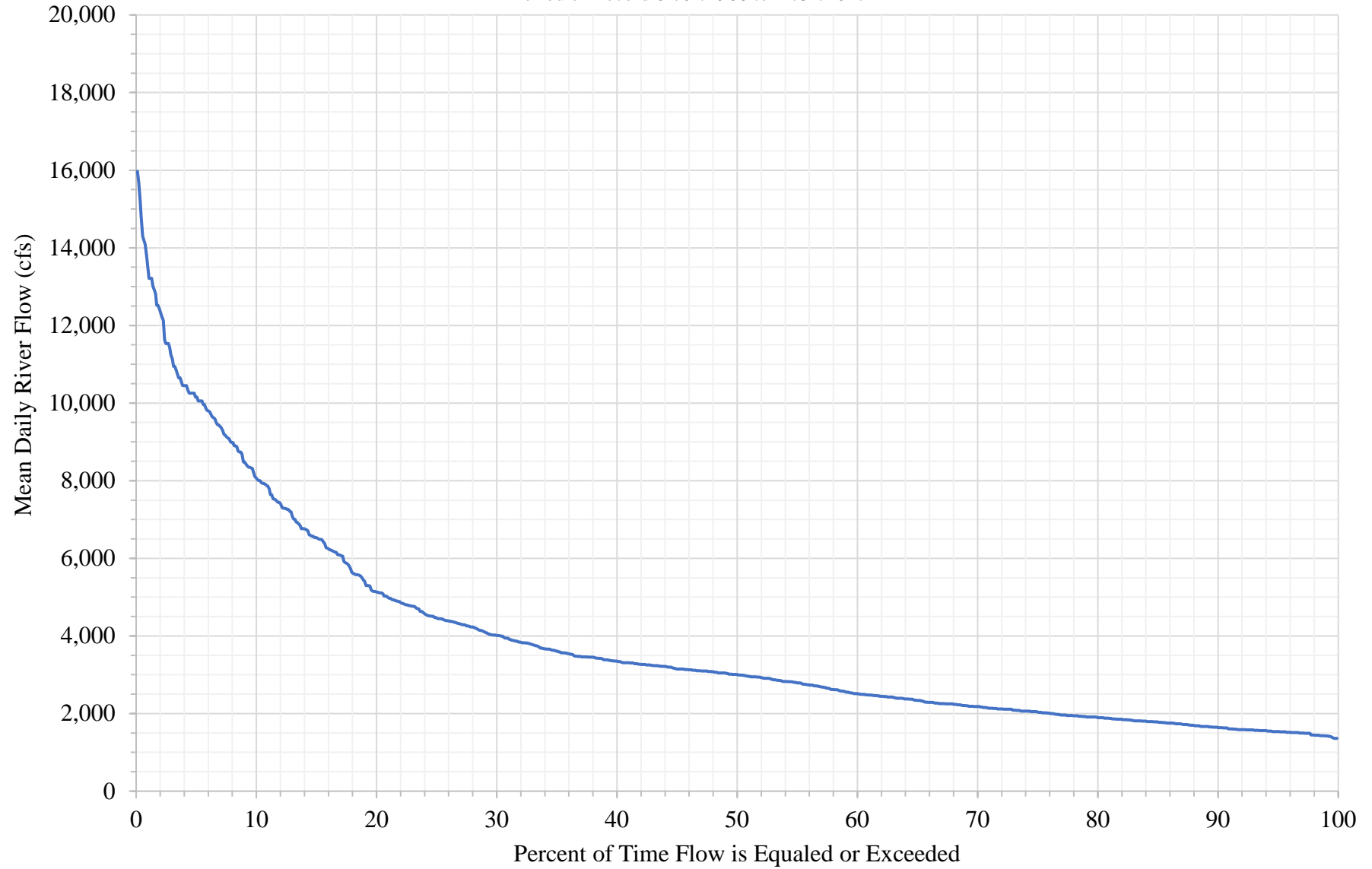
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Period of Record 01/01/1988 to 12/31/2017



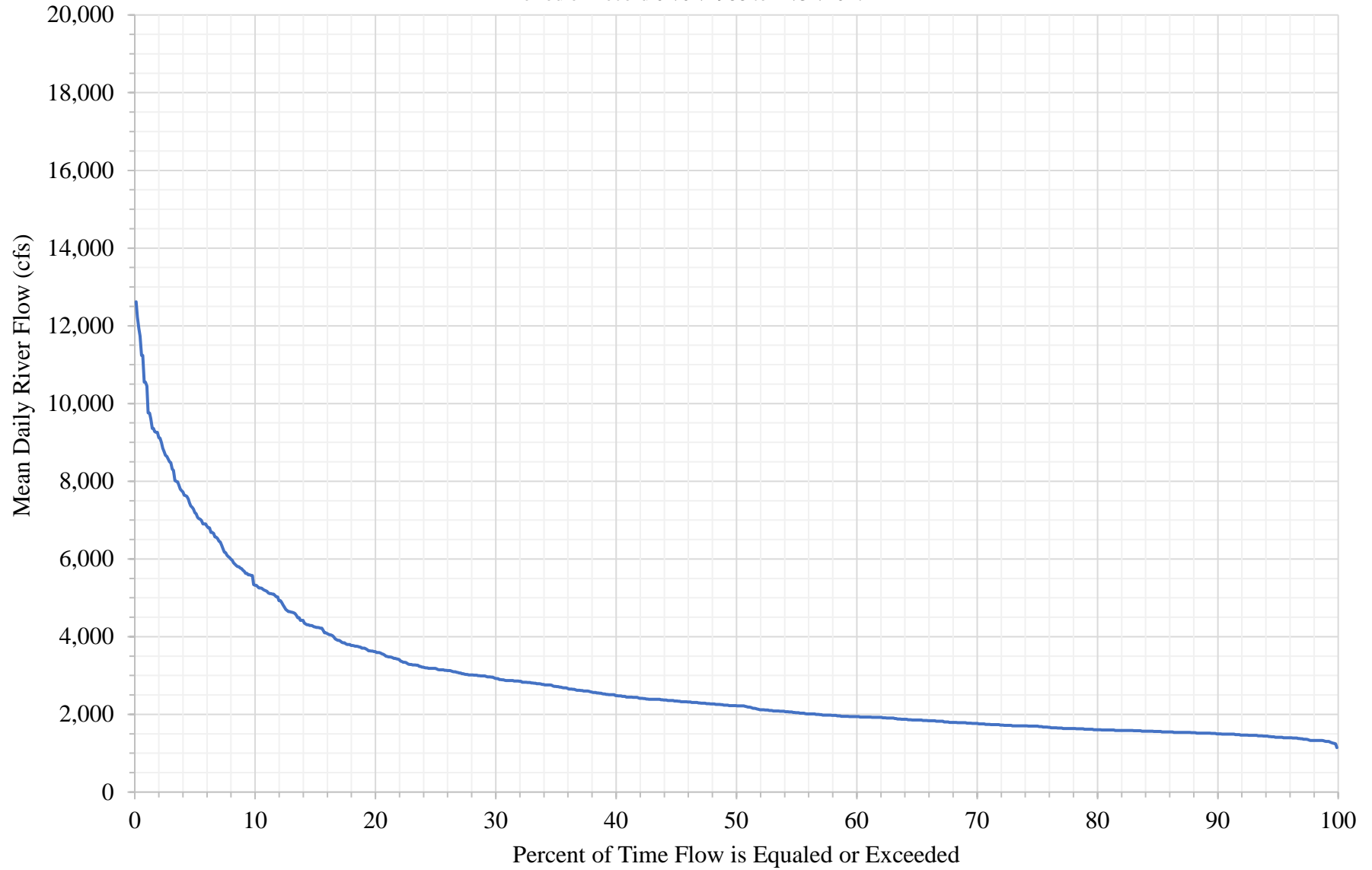
J. Brodie Smith
May Flow Duration Curve

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Period of Record 01/01/1988 to 12/31/2017



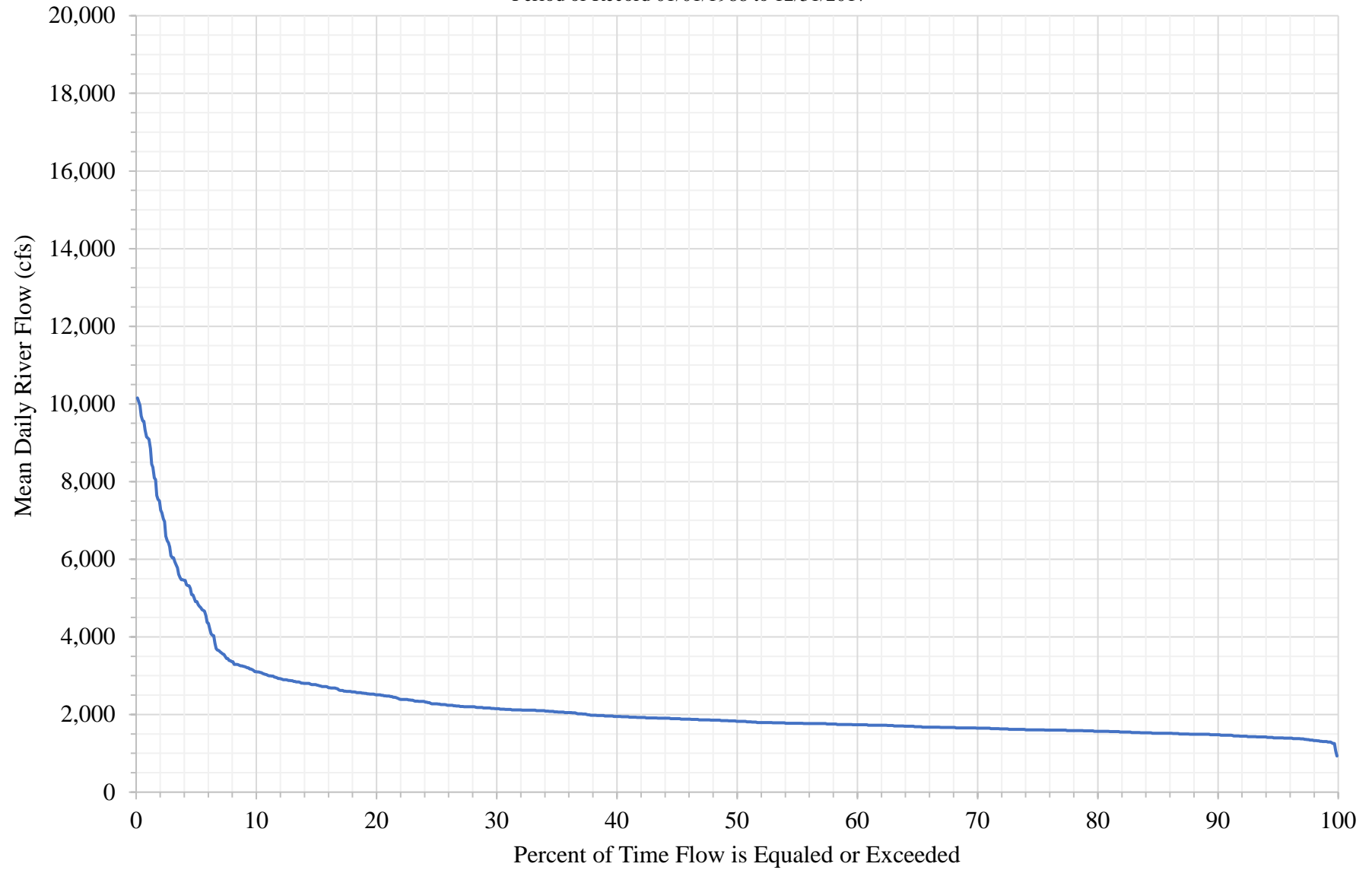
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June Flow Duration Curve

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Period of Record 01/01/1988 to 12/31/2017



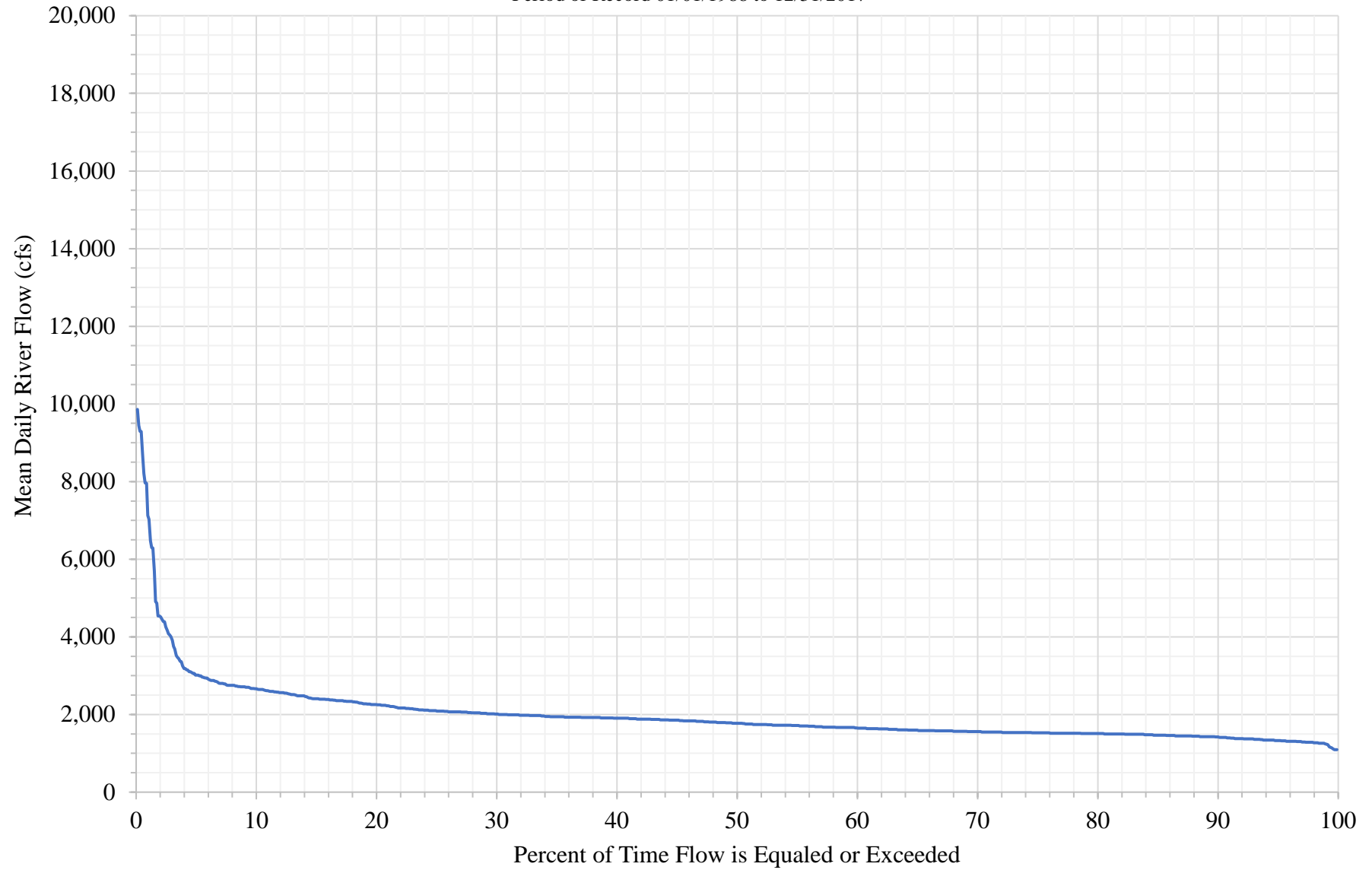
J. Brodie Smith
July Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017



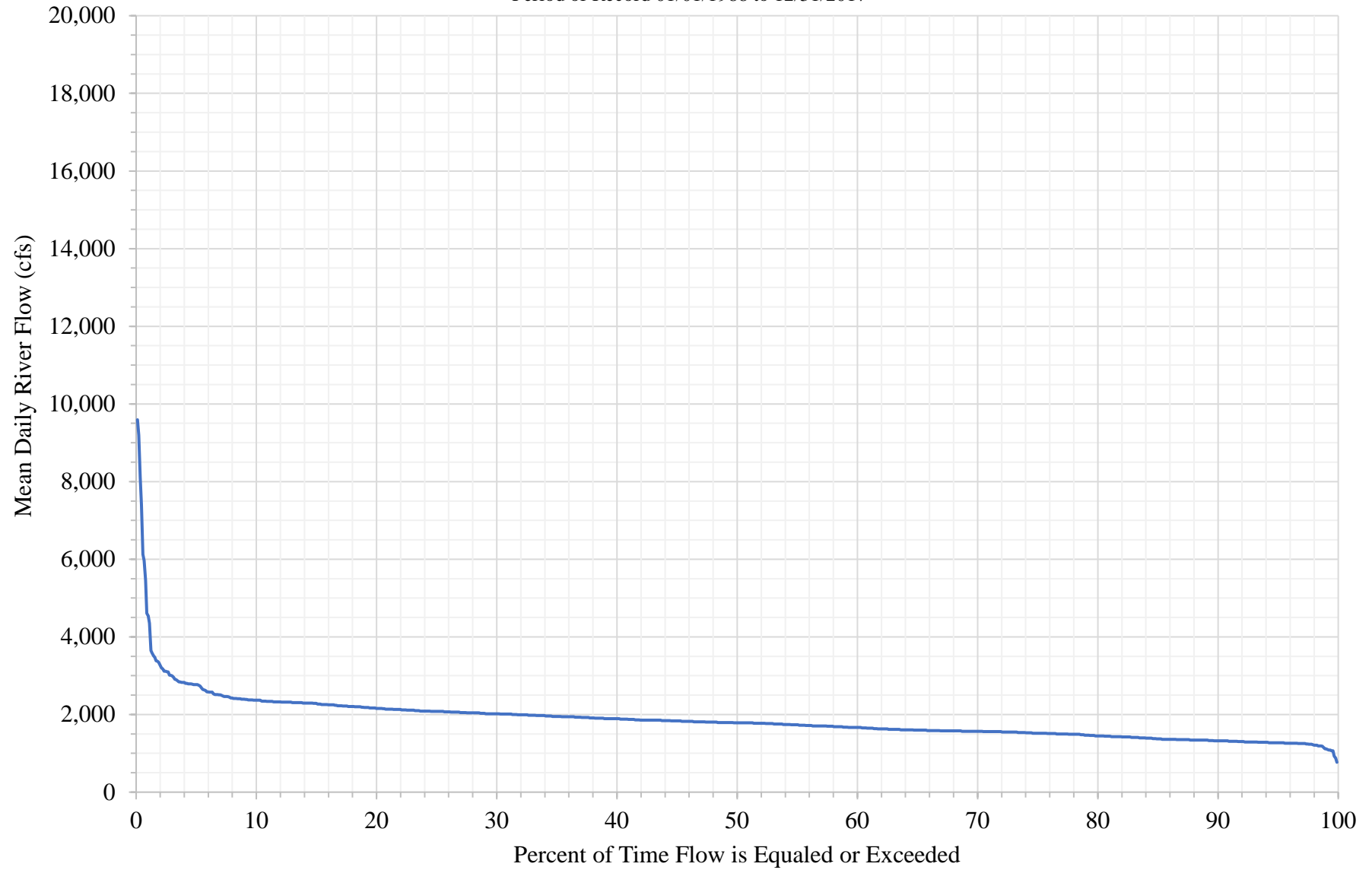
J. Brodie Smith
August Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017



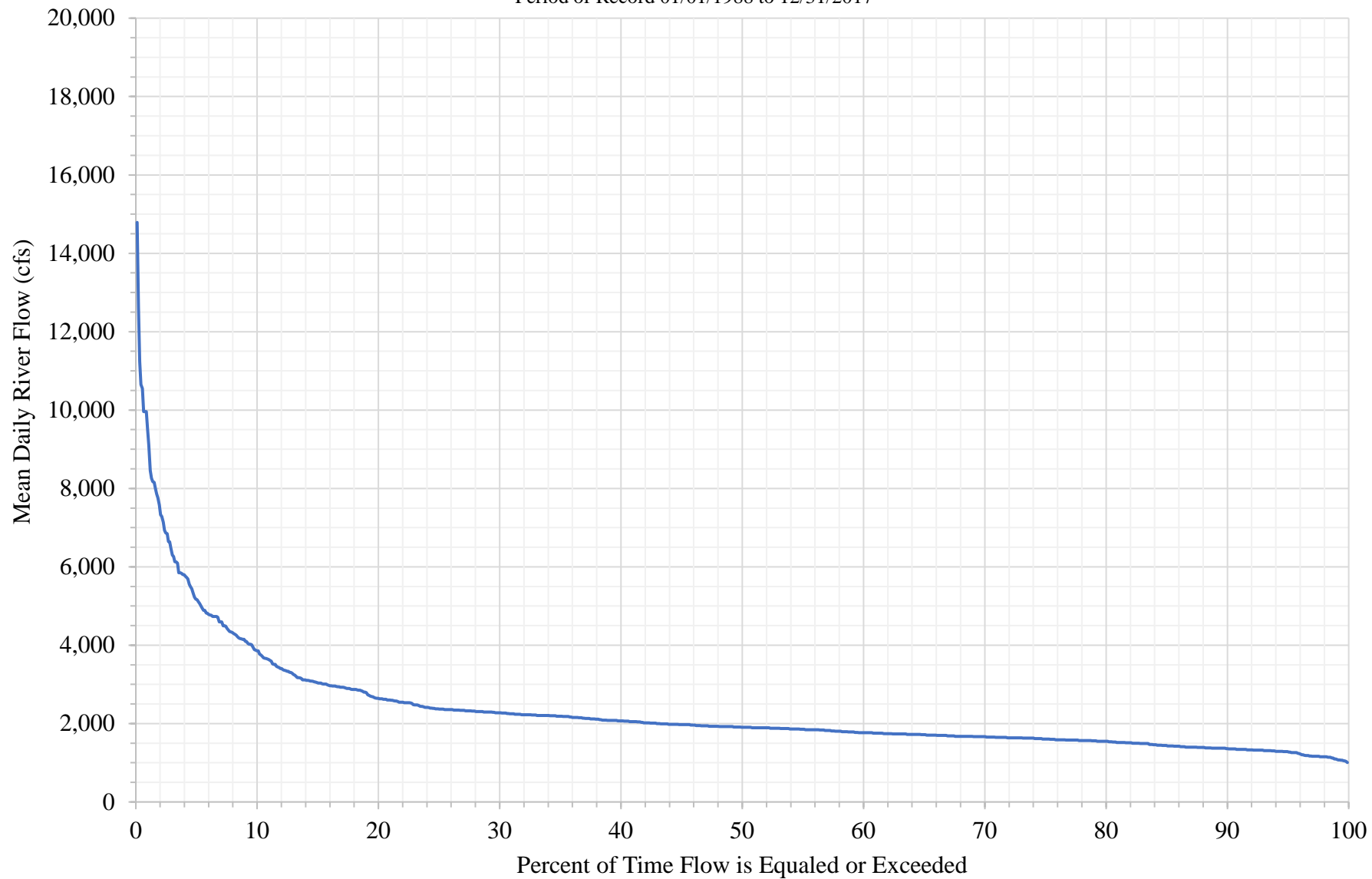
J. Brodie Smith
September Flow Duration Curve

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Period of Record 01/01/1988 to 12/31/2017



J. Brodie Smith
October Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017

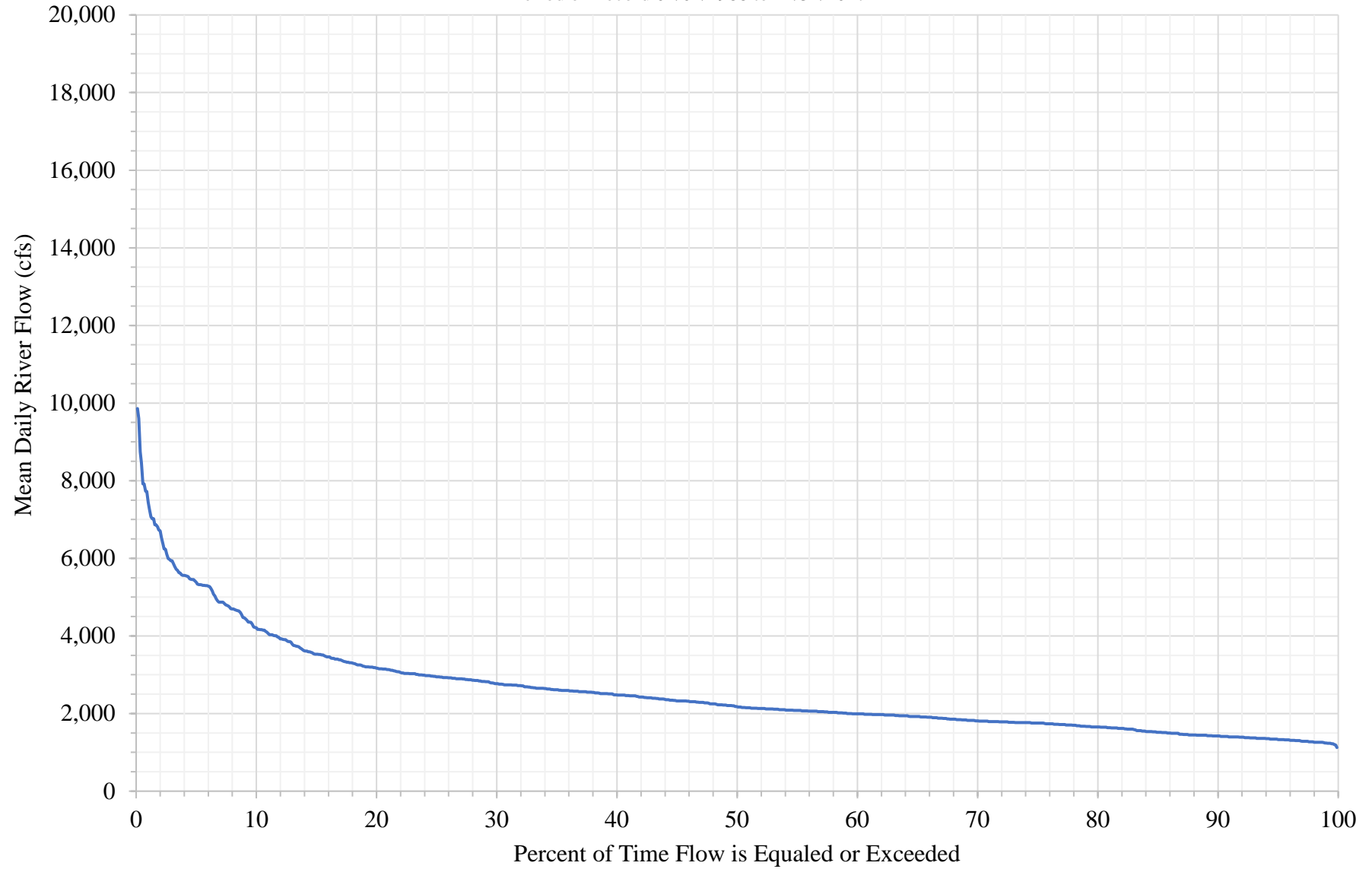


J. Brodie Smith

November Flow Duration Curve

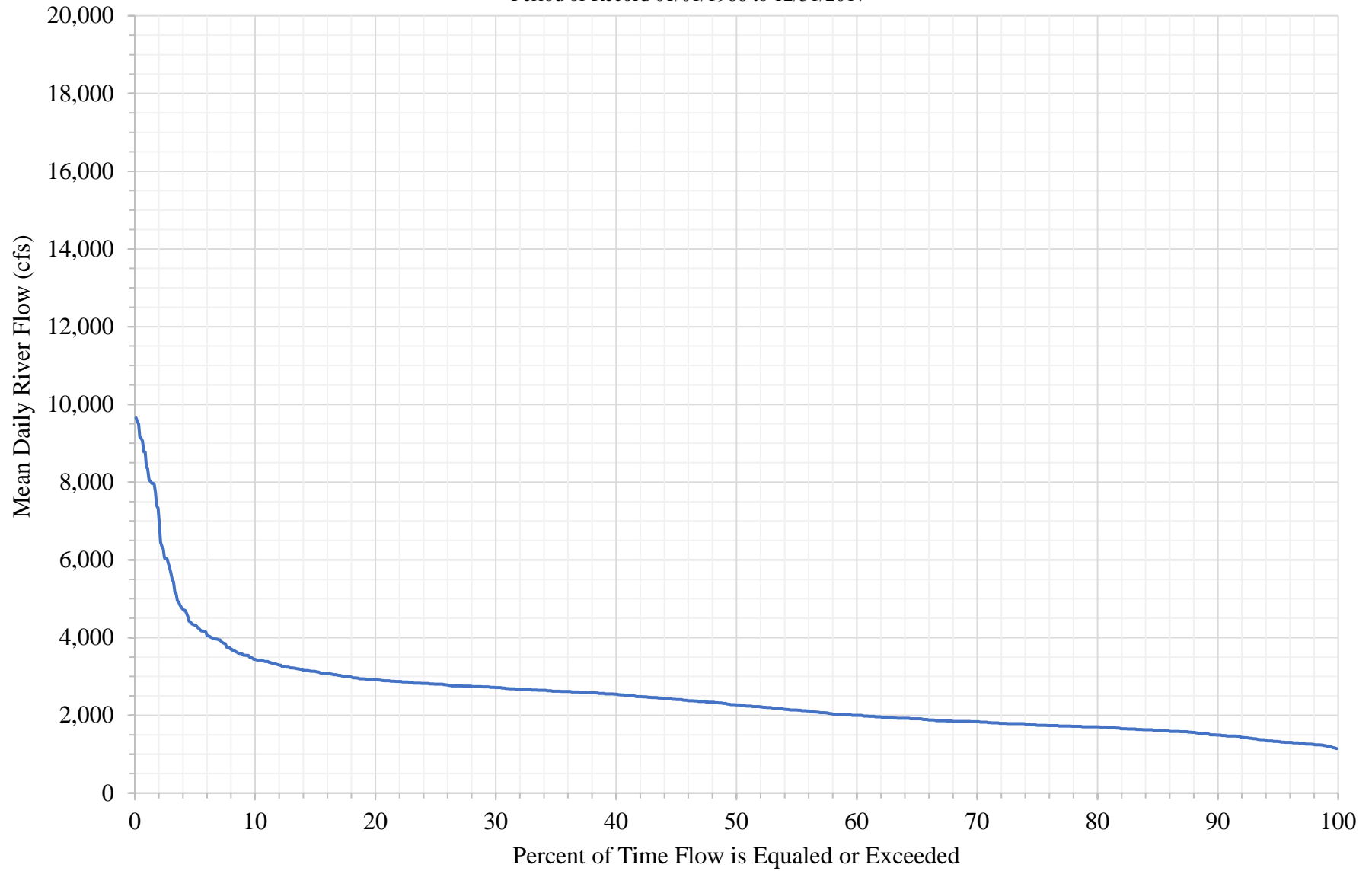
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Period of Record 01/01/1988 to 12/31/2017



J. Brodie Smith
December Flow Duration Curve

(Prorated from USGS Gage No. 01054000 Androscoggin River near Gorham, NH)
Period of Record 01/01/1988 to 12/31/2017



APPENDIX C

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J. B. Smith & Gorham Distribution List
July 2019

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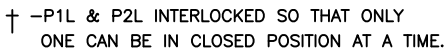
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Yvonne D. Thomas
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Berlin, NH 03570-3703

Maggie Hassan
Senator
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Berlin, NH 03570

APPENDIX D

TRANSFER OF ELECTRICITY FROM PROJECT TO TRANSMISSION GRID (ONE LINE DIAGRAM)



DRN.	CHKD.	APPR.	7/10/17	D-7794
WNT	KR	CEC		

/d/021002/038129063

APPENDIX E

CURRENT LICENSE REQUIREMENTS

68 FERC ¶ 61,179

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Elizabeth Anne Moler, Chair;
Vicky A. Bailey, James J. Hoecker,
William L. Massey, and Donald F. Santa, Jr.

Public Service Company of) Project No. 2287-003
New Hampshire)

ORDER ISSUING NEW LICENSE

(Issued August 1, 1994)

Public Service Company of New Hampshire (Public Service) filed a license application under Part I of the Federal Power Act (FPA) for continued operation and maintenance of the 15 megawatt (MW) J. Brodie Smith Project, located on the Androscoggin River, in Coos County, New Hampshire. The Androscoggin River is a navigable waterway of the United States. 1/ Public Service proposes no new capacity and no new construction. We will issue the license.

BACKGROUND

Notice of the application has been published in the Federal Register. Motions to intervene were filed by the City of Berlin, New Hampshire (Berlin), the Town of Gorham, New Hampshire (Gorham), American Whitewater Affiliation and New England FLOW (American Whitewater), and a coalition of groups consisting of Conservation Law Foundation, Inc., Appalachian Mountain Club, American Rivers, Inc., and Trout Unlimited (Conservation Law). The comments received from interested agencies and individuals have been fully considered in determining whether to issue the license.

On October 19, 1992, the Commission issued a Notice of Intent to prepare an Environmental Impact Statement (EIS) for this project. The Commission's staff issued an FEIS for this project on November 30, 1993. The comments received from interested agencies and individuals have been fully considered in the FEIS in determining whether to issue the license. The staff also prepared a Safety and Design Assessment (SDA), which is available in the Commission's public file for this project.

Concurrently with this order, we are issuing an Order Granting Applications for New License, which addresses issues common to seven projects on the Androscoggin River. The discussion in that order is incorporated by reference herein.

1/ Public Service Company of New Hampshire, 27 FPC 826 (1962).

9408080287

FILED
AUG 1 1994

Project No. 2287-003

- 2 -

PROJECT DESCRIPTION

The existing project consists of a 24-foot-high masonry and concrete gravity U-shaped dam, a reservoir with a surface area of 8 acres, a spillway, a 500-foot-long power canal, an 18-foot-diameter, 1,450-foot-long steel penstock, a surge tank, a powerhouse containing one generating unit with an installed capacity of 15 MW, a 1,500-foot-long transmission line, and appurtenant facilities. The average annual energy production is 104.01 GWh. A more detailed project description can be found in ordering paragraph B(2) and in the FEIS.

APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10 and 15 of the FPA, we have evaluated Public Service's record as a licensee for these areas: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission line improvements; and (7) project modifications.

1. Section 10(a)(2)(C): Conservation Efforts

The New Hampshire Public Utilities Commission (NHPUC) has statutory and regulatory authority regarding least cost planning and energy conservation in the state of New Hampshire. Public Service promotes electric conservation among its member systems in compliance with the requirements and policies of the NHPUC. Public Service's plans and activities to promote and achieve conservation of electric energy and to reduce the peak demand for generating capacity include: (1) energy analyses, (2) interruptible rates, (3) time of use rates for large power customers, and rates for thermal storage space and water heating, (4) implementation of demand-side management programs, (5) energy-efficient technologies, (5) weatherization, and (6) bill-stuffing of conservation information to its customers. Therefore, Public Service is making a good faith effort to conserve electricity in compliance with the requirements of the NHPUC.

2. Section 15(a)(2)(A): Compliance History and Ability to Comply with the New License

We have reviewed Public Service's license application in an effort to judge its ability to comply with the articles, terms and conditions of any license issued, and with other applicable provisions of this part of the FPA. Based on that review, we believe Public Service has or can acquire the resources and expertise necessary to carry out its plans and comply with all articles, terms and conditions of a new license.

Project No. 2287-003

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3. Section 15(a)(2)(B): Safe Management, Operation, and Maintenance of the Project

Public Service has continuously operated the plant safely. Flood flows at the J. Brodie Smith Project are generally managed by operation of two wastegates located at the dam. In the event that flood flows exceed the capacity of the wastegates, flashboards located on the crest of the dam would be lowered. Although there is little public access in the river reach immediately below the dam, a horn is sounded by the operator prior to initially operating the wastegates. Public Service retains an independent consultant to make a complete inspection of the project facilities every five years in accordance with Part 12 of the Commission's regulations. Therefore, the project is safe for continued use and operation.

4. Section 15(a)(2)(C): Ability to Provide Efficient and Reliable Electric Service

The project is operated to derive maximum energy benefit from the river flow and is, therefore, operating in an efficient and reliable manner.

5. Section 15(a)(2)(D): Need for Power

Public Service's need for the electricity produced by the project is addressed in the FEIS. Based on that discussion, we conclude that Public Service's short- and long-term need for power exists to justify licensing the J. Brodie Smith Project.

6. Section 15(a)(2)(E): Transmission Line Improvements

Public Service proposes no new development at the project but wants to continue to use the low-cost energy in its system. The transmission and distribution systems are designed to function with the project out-of-service, such that no operational or circuit loading impacts would occur. Therefore, the existing transmission system is sufficient, and no changes to the service affected by the project's operation would be necessary whether the Commission issues a license for the project or not.

7. Section 15(a)(2)(F): Project Modifications

Public Service proposes to modify the existing project operation of the J. Brodie Smith to enhance environmental and aesthetic resources affected by the project. Public Service doesn't propose any additional generating capacity for the project. The project, as presently constructed and as Public Service proposes to operate it, fully develops and uses the economical hydropower potential of the site.

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8. Section 15(a)(3)(A) and (B): Compliance Record

Public Service has complied with the terms and conditions of the existing license and has made timely filings with the Commission.

WATER QUALITY CERTIFICATION

The New Hampshire Department of Environmental Services granted Public Service a water quality certification for the J. Brodie Smith Project on April 25, 1991. It prescribed a water quality monitoring program to be implemented no later than 1994 and continue for three years.

SECTION 18 - RESERVATION OF AUTHORITY TO PRESCRIBE FISHWAYS

The Department of Interior requests that any license issued for the J. Brodie Smith Project include a reservation of authority for Interior to prescribe the construction, operation, and maintenance of fishways pursuant to Section 18 of the FPA. Article 404 of this license reserves authority to the Commission to require the licensee to construct, operate and maintain such fishways as may be prescribed by Interior pursuant to Section 18 of the FPA.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

Section 10(j) of the FPA requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources. Pursuant to Section 10(j) of the FPA, the Commission staff made a determination that the recommendations of the federal and state fish and wildlife agencies are consistent with the purposes and requirements of Part I of the FPA and applicable law. The staff has addressed the concerns of the federal and state fish and wildlife agencies in the FRIS and the license includes conditions consistent with the recommendations of the agencies.

COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to also consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Under Section 10(a)(2) of the FPA, federal and state agencies filed 12 comprehensive plans that address various resources in

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New Hampshire. Of these, staff identified and reviewed eight plans relevant to this project. 2/ No conflicts were found.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a proposed project, the recreational, fish and wildlife resources, and other nondevelopmental values of the involved waterway are considered equally with power and other developmental values. In determining whether, and under what conditions, a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

Based on an independent review and evaluation of the existing J. Brodie Smith Project, agency recommendations, and the no-action alternative as documented in the FEIS, we have selected issuing a new license for the J. Brodie Smith Project with additional enhancement measures as the preferred option. We have selected this option because: (1) the required measures would protect and enhance the water quality, fishery resources and aesthetics; and (2) the electricity generated from a renewable resource would be beneficial because it would continue to replace the use of fossil-fueled, steam-electric generating plants, thereby conserving nonrenewable energy resources and reducing atmospheric pollution.

The existing J. Brodie Smith Project has an installed capacity of 15.0 MW and generates about 104.26 GWh of energy per year. The annual operating cost of the existing project is about \$970,000 (9.30 mills/kWh). The 30-year levelized annual value of the project's power, based on the cost of equivalent alternative replacement power in the region, is about \$7,914,000 (75.91 mills/kWh), in 1994 dollars. Therefore, the levelized net

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- 2/ Wild and scenic rivers for New Hampshire, New Hampshire Office of State Planning, 1977; New Hampshire outdoors, 1988-1993: State comprehensive outdoor recreation plan, New Hampshire Office of State Planning, 1989; New Hampshire wetlands priority conservation plan, New Hampshire Office of State Planning, 1989; Public access plan for New Hampshire's lakes, ponds, and rivers, New Hampshire Office of State Planning, 1991; New Hampshire rivers management and protection plan, State of New Hampshire, 1991; North American Waterfowl Management Plan, U.S. Fish and Wildlife Service, 1986; The nation-wide rivers inventory, National Park Service, 1982; Fisheries USA: The recreational fisheries Policy of the U.S. Fish and Wildlife Service, U.S. Fish and Wildlife Service, undated.

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annual economic benefit of the existing project without any enhancement measures would be about \$6,944,000 (66.61 mills/kWh).

The enhancement measures being required include a minimum flow of 20 cfs into the bypassed reach of the dam, reserving additional lands for recreation, protection of wildlife and improvement of the aesthetics of the project. The 20-cfs minimum flow would reduce the project's existing energy generation by about 0.59 GWh annually, and the project's 30-year levelized net economic benefits by about \$40,000 per year. Even with the enhancement measures, the proposed project would provide about 103.67 GWh of clean and renewable energy annually, at a cost significantly below the cost of equivalent replacement power.

We believe that issuing a license for the J. Brodie Smith Project, with the required enhancement measures and other special license conditions, would permit the best comprehensive development of the Androscoggin River. The clean energy that would be produced by the project would continue to displace fossil-fueled power generation, thereby conserving nonrenewable energy resources and reducing the emissions of noxious gases that contribute to atmospheric pollution and global warming.

SUMMARY OF FINDINGS

Background information, analysis of impacts and support for related license articles are contained in the FRIS.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the SDA.

We conclude that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Commission orders:

(A) This license is issued to Public Service Company of New Hampshire (Licensee), for a period of 30 years, effective the first day of the month in which this license is issued, to operate and maintain the J. Brodie Smith Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

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(B) The project consists of:

(1) All lands, to the extent of the Licensee's interests in those lands shown by Exhibit G:

<u>Exhibit G-</u>	<u>FERC No. 2287-</u>	<u>Showing</u>
1	16	Project Map

(2) Project works consisting of: (a) a masonry and concrete gravity U-shaped dam, about 500 feet long with a maximum height of about 24 feet, with (1) a spillway section, 170 feet long, with a crest elevation of 1002.96 feet (USGS), topped with hinged steel flashboards, about 6.7 feet high; separated by (2) a two 8. M. Smith steel roller-type sluice gates, each 17 feet high by 25 feet wide, with a sill elevation of 993.0 feet (USGS), (3) a second spillway section, 256 feet long, with a masonry crest elevation of 1006.7 feet (USGS), topped with pin-supported wooden flashboards, about 3 feet high; (b) an intake structure, consisting of (1) a 500-foot-long by 100-foot-wide power canal, (2) a 18-foot-diameter by 1,450-foot-long steel penstock, and (3) a 1.15-million-gallon steel surge tank, measuring 70 feet in diameter by 40 feet high; (c) a powerhouse, 65 feet long by 53 feet wide, with one hydroelectric generating unit with (1) a rated capacity of 15,000 kilowatts (kW), (2) a hydraulic capacity of 3,000 cfs, and (3) a normal operating head of 88 feet; (d) a reservoir with a water surface area of 8 acres, at a normal headwater elevation of 1009.7 feet (USGS); (e) a 115-kV, 1,500-foot-long primary transmission line; and (f) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A - The following sections of Exhibit A filed December 26, 1991:

The dam, turbines, generators and electrical single-line-diagram as described on pages A-1 through A-10.

Exhibit F - The following Exhibit F drawings, filed on December 26, 1991:

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<u>Exhibit</u>	<u>FERC No.</u>	<u>Showing</u>
F-1	2287-1	Dam Plan and Sections
F-2	2287-2	Main Dam Elevation & Sections
F-3	2287-3	Main Dam Gate Piers
F-4	2287-4	Plan-Power Canal & Intake
F-5	2287-5	Sections-Canal Wall
F-6	2287-6	Intake-Stanchion Section
F-7	2287-7	Intake Plan-Elevation-Section
F-8	2287-8	Intake-Bascule Gate
F-9	2287-9	Details Penstock-Surge Tank
F-10	2287-10	Powerhouse Plan Generator Floor
F-11	2287-11	Powerhouse Basement Floor Plan
F-12	2287-12	Powerhouse-Longitudinal Section Centerline of Unit
F-13	2287-13	Powerhouse-Transverse Section Centerline of Unit
F-14	2287-14	Powerhouse-North Elevation

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A, F, and G described above are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-3, (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the U.S.," and the following additional articles.

Article 201. The Licensee shall pay the United States an annual charge, effective the first day of the month in which this license is issued, for the purpose of reimbursing the United States for the cost of administration of Part I of the FPA as determined by the Commission. The authorized installed capacity for that purpose is 20,000 horsepower.

Article 202. Pursuant to Section 10(d) of the FPA, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The Licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the Licensee shall

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deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The Licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The Licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includable in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. If the Licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed. The benefits will be assessed in accordance with Subpart B of the regulations.

Article 204. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the Licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this article shall be effective unless the Commission, in Docket No. RM93-23, finds that the Commission lacks statutory authority to require such actions, or otherwise determines that the article should be rescinded.

Article 205. The Commission reserves authority, in the context of any licensing, relicensing, or license or exemption amendment proceeding involving the upstream Androscoggin River Basin projects located at Mooselookmeguntic Lake, Richardson Lake, the Aziscohos Project No. 4026, the Errol Project No. 3133, the Pontook Project No. 2861, or the Kennebago Project No. 4413, to require the Licensee, in a proceeding specific to this license, to conduct studies, modify minimum flow releases, or otherwise make reasonable provisions for modifying project

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facilities or operation as necessary to mitigate or avoid cumulative effects identified in environmental analyses of these upstream projects.

Article 401. The Licensee shall operate the project in a run-of-river mode for the protection of fish and wildlife resources and water quality in the Androscoggin River. The Licensee shall at all times act to minimize the fluctuation of the reservoir surface elevation by maintaining a discharge from the project so that, at any point in time, flows, as measured immediately downstream from the project tailrace, approximate the sum of inflows to the project reservoir. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods upon mutual agreement between the Licensee, the New Hampshire Fish and Game Department, and the U.S. Fish and Wildlife Service. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 402. The Licensee shall release from the J. Brodie Smith dam into the Androscoggin River a minimum flow of 20 cubic feet per second, as measured immediately below the J. Brodie Smith dam, or inflow to the project reservoir, whichever is less, for the protection and enhancement of fish and wildlife resources and water quality in the bypassed reach of the Androscoggin River. This flow may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods upon agreement between the Licensee, the New Hampshire Fish and Game Department, and the U.S. Fish and Wildlife Service. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 403. Within six months from the effective date of the license, the Licensee shall file with the Commission for approval, a plan to monitor run-of-river operation and minimum flows of the project, as stipulated by articles 401 and 402, respectively, and to describe how flows will be maintained below the project when the impoundment is refilled after any maintenance and/or repairs.

The plan shall include, but not be limited to, a schedule for installing the monitoring equipment, the proposed location, design, and calibration of the monitoring equipment, the method of flow data collection, and a provision for providing flow data to the consulted agencies, within 30 days from the date of the agencies request for the data.

The Licensee shall prepare the plan after consultation with the U.S. Geological Survey, the U.S. Fish and Wildlife Service, the New Hampshire Fish and Game Department. The Licensee shall

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include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to make changes to the plan. Upon Commission approval of the plan, the Licensee shall implement the plan including any changes required by the Commission.

If the results of monitoring indicate that changes in project structures or operations are necessary to ensure run of river operation or maintenance of minimum flows, the Commission may direct the Licensee to modify project structures or operations.

Article 404. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the Interior.

Article 405. Within six months of the effective date of the license, the Licensee shall file with the Commission for approval, a plan to monitor dissolved oxygen (DO) levels and temperature of the Androscoggin River upstream and downstream of the project. The purpose of this monitoring plan is to ensure that stream flows, as measured immediately upstream of the impoundment, downstream of the project dam, and downstream of the project tailrace, maintain a DO content of no less than 75 percent saturation.

The monitoring plan shall include a schedule for:

- (1) implementation of the monitoring plan;
- (2) consultation with the appropriate federal and state agencies concerning the results of the monitoring; and
- (3) filing the results, agency comments, and Licensee's response to agency comments with the Commission.

The Licensee shall prepare the monitoring plan after consultation with the New Hampshire Department of Environmental Services, the New Hampshire Fish and Game Department, and the U.S. Fish and Wildlife Service. The Licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed monitoring plan after it has

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been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the monitoring plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the monitoring plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the monitoring plan. Upon Commission approval, the Licensee shall implement the monitoring plan, including any changes required by the Commission.

If the results of monitoring indicate that changes in project structures or operations are necessary to ensure maintenance of the state DO standard, the Commission may direct the Licensee to modify project structures or operations.

Article 406. The Licensee shall implement the provisions of the "Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the New Hampshire Division for Historic Preservation, for Managing Historic Properties Likely to be Affected by Continuing to Operate the Sawmill Project, Project No. 2422, Cross Power Project, Project No. 2326, Cascade Project, Project No. 2327, Gorham Project, Project No. 2311, Shelburne Project, Project No. 2300, J. Brodie Smith Project, Project No. 2287, and Gorham Project, Project No. 2288, All Located on the Androscoggin River" executed on November 18, 1993. The Commission reserves the authority to require changes to the Cultural Resources Management Plan or plans at any time during the term of the license.

Article 407. Within six months from the effective date of this license the Licensee shall file revised project boundary drawings that incorporate the piece of land between the penstock and the bypassed reach into the project boundary and reserve it for future public use if and when Berlin develops a specific proposal for the site.

Article 408. Within six months from the effective date of this license, the Licensee shall develop and file, for Commission approval, a plan for aesthetic enhancements.

The plan must include, but not be limited to:

- (1) provisions for painting the surge tank and penstock with a color that blends with the surrounding environment;
- (2) provisions to install plant material that screens the view of the surge tank from Route 16 and;

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(3) a schedule for completing items (1) and (2).

The Licensee shall prepare the plan after consultation with the City of Berlin, Parks and Recreation Department and the National Park Service. The Licensee shall include with the plan, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 409. Within one year from the effective date of this license, the Licensee shall develop and file, for Commission approval, a land protection plan. The plan shall be designed to protect the aesthetics and public access of all undeveloped land between the bypassed reach and the project penstock at the J. Brodie Smith Project.

The plan shall include, but not be limited to:

- (1) maps delineating the protected land area; and
- (2) provisions for: (a) maintaining prescribed minimum-width buffer zones, no tree-cutting, public roads, and private property; (c) minimizing openings in shoreline vegetation where future recreational facility development requires construction closer to the shoreline than the prescribed minimum-width buffer zone; (d) maintaining the project transmission line right-of-ways in a way that minimizes adverse aesthetic effects caused by the clearing of vegetation; (e) landscape screening, on an as-needed basis, for all storage buildings, parking areas, and other adverse visual features that are visible from the shoreline, impoundment, or other adjacent critical viewpoints. Further, the licensee should conduct a periodic inspection of project lands to identify any features in need of screening or general clean-up, and subsequently take remedial action.

The Licensee shall prepare the plan after consultation with the City of Berlin, New Hampshire Fish and Game Department, and the National Park Service. The Licensee shall include with the plan, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The

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Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 410. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction

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of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The Licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a

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particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d) (7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the Licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the Licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the Licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit R; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries.

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The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the Licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The Licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is final unless a request for rehearing is filed within 30 days of the date of issuance of this order, as provided in Section 313 of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The Licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)


Linwood A. Watson, Jr.
Acting Secretary.

Document Content(s)

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APPENDIX F

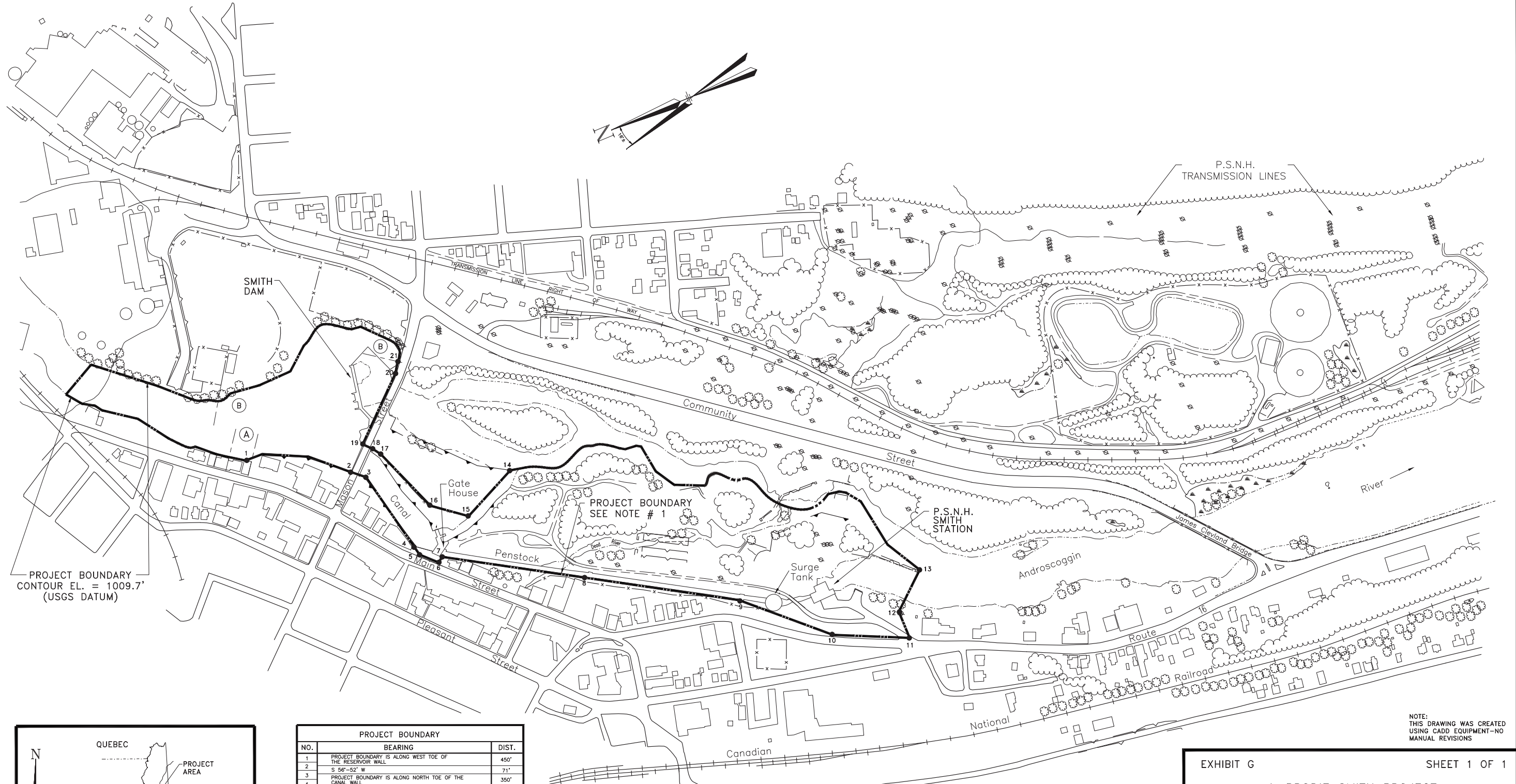
EXHIBIT F

CEII MATERIALS

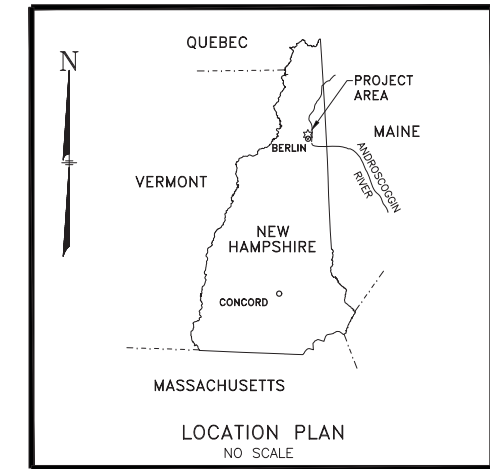
**THIS MATERIAL IS CRITICAL ENERGY INFRASTRUCTURE INFORMATION (CEII).
MEMBERS OF THE PUBLIC MAY OBTAIN NONPUBLIC OR PRIVILEGED
INFORMATION BY SUBMITTING A FREEDOM OF INFORMATION ACT (FOIA)
REQUEST.**

APPENDIX G

EXHIBIT G

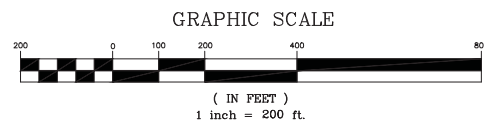


PROJECT BOUNDARY
CONTOUR EL. = 1009.7'
(USGS DATUM)



PROJECT BOUNDARY		
NO.	BEARING	DIST.
1	PROJECT BOUNDARY IS ALONG WEST TOE OF THE RESERVOIR WALL	450'
2	S 56°-52' W	71'
3	PROJECT BOUNDARY IS ALONG NORTH TOE OF THE CANAL WALL	350'
4	S 88°-14' W	30'
5	S 60°-41' W	89'
6	S 19°-00' E	26'
7	PROJECT BOUNDARY IS 12' OFF CENTERLINE OF PENSTOCK	
8	PROJECT BOUNDARY IS 16' OFF CENTERLINE OF PENSTOCK	
9	S 58°-43' W	425'
10	S 40°-40' W	322'
11	S 73°-58' E	119'
12	S 25°-05' E	192'±
13	PROJECT BOUNDARY IS AT NORMAL WATER LINE ALONG WEST BANK OF THE ANDROSCOGGIN RIVER	
14	PROJECT BOUNDARY IS ALONG EAST TOE OF CONCRETE RETAINING WALL	259'
15	N 53°-57' E	179'
16	N 85°-23' E	296'
17	N 67°-51' E	38'
18	N 62°-20' E	44'
19	S 26°-20' E	297'
20	S 36°-47' E	72'
21	PROJECT BOUNDARY IS AT CONTOUR ELEV. = 1009.7' (U.S.G.S. DATUM)	

LEGEND:
——— DENOTES PROJECT BOUNDARY
- - - - - DENOTES PROPERTY LINE



THIS PRINT MAY BE A REDUCED COPY OF THE ORIGINAL. WHEN NECESSARY TO SCALE USE GRAPHIC SCALE ABOVE.

NOTES:

- METES AND BOUNDS HAVE NOT BEEN FIELD SURVEYED.
- THE APPLICANT OWNS BY DEED ALL LANDS OR FLOWAGE RIGHTS NECESSARY TO OPERATE AND MAINTAIN THE EXISTING PROJECT.
- PARCEL NUMBERS FOR LANDS WITHIN PROJECT BOUNDARY FOR WHICH APPLICANT OWNS FLOWAGE RIGHTS ONLY ARE DENOTED AS (A) AND (B).

THIS PLAN IS PART OF THE APPLICATION FOR A LICENSE MADE BY THE UNDERSIGNED THIS DAY OF 1991

BY : _____
VICE PRESIDENT
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

NOTE:
THIS DRAWING WAS CREATED
USING CADD EQUIPMENT-NO
MANUAL REVISIONS

EXHIBIT G SHEET 1 OF 1
J. BRODIE SMITH PROJECT
MAP OF PROJECT AREA
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
MANCHESTER, N.H.

APPENDIX H
CONSULTATION



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>



In Reply Refer To:

October 08, 2018

Consultation Code: 05E1NE00-2019-SLI-0052

Event Code: 05E1NE00-2019-E-00110

Project Name: J. Brodie Smith Hydroelectric Project (FERC No. 2287)

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

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:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2019-SLI-0052

Event Code: 05E1NE00-2019-E-00110

Project Name: J. Brodie Smith Hydroelectric Project (FERC No. 2287)

Project Type: DAM

Project Description: The J. Brodie Smith Hydroelectric Project consists of a 500-foot-high masonry and concrete gravity U-shaped dam, a reservoir with a surface area of 8 acres, a spillway, a power canal, a powerhouse containing one generating unit, located on the Androscoggin River in Coos County, New Hampshire

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/44.468248779792596N71.18136144429543W>



Counties: Coos, NH

Endangered Species Act Species

There is a total of 2 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 Fisheries¹, 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
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.
