

Hello,

STS Hydropower, LLC, a subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville, Virginia are co-licensees (The Licensees) of the Schoolfield Hydroelectric Project (FERC Project No. 2411). The Licensees are beginning the Federal Energy Regulatory Commission relicensing process. The hydroelectric project is located on the Dan River in Pittsylvania County, VA. The Licensees has identified you as a potential stakeholder, and kindly requests you review the attached document, and complete and return the included questionnaire no later than Monday, April 29, 2019. The completed questionnaire may be sent to Matthew Burak at mburak@louisberger.com. If you have any questions please do not hesitate to contact Matthew Nini at Matthew.Nini@eaglecreekre.com.

Respectfully,

STS Hydropower, LLC



March 29, 2019

**Re: Request for Information for the Federal Energy Regulatory Commission
Relicensing of the Schoolfield Hydroelectric Project (FERC No. 2411)**

Dear Stakeholder:

The Schoolfield Hydroelectric Project (Project), located on the Dan River in Pittsylvania County, in the City of Danville, Virginia, is licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2411. The Project, an existing hydroelectric facility, has a FERC license that expires on July 31, 2024. STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville, Virginia are co-licensees (The Licensees) of the Schoolfield Project.

The Licensees intend to pursue a new license for the Project and are beginning the FERC relicensing process. Louis Berger has been retained to assist in developing the Pre-Application Document (PAD), one of the first steps in the FERC relicensing process. The PAD is a document that summarizes all existing, relevant, and reasonably available information on the Project that has been collected and obtained by The Licensees, state and federal agencies, and non-governmental organizations.

The Licensees plan to follow FERC's Traditional Licensing Process (TLP) to relicense the Project. The original license for the Project was issued on August 26, 1994 for a 30-year term. As such, the final license application for the Project must be filed with FERC no later than August 1, 2022 (two years prior to the expiration date). According to FERC regulations, a Notice of Intent (NOI) to license the project and PAD must be filed not earlier than 5-1/2 years and no later than 5 years prior to the license expiration, which are January 31, 2019 to July 31, 2019, respectively. The Licensees will prepare and file the NOI and PAD with FERC on or before July 31, 2019.

On behalf of The Licensees, Louis Berger is gathering information to support preparation of the PAD. Consistent with this effort, we respectfully request any information your organization may have collected regarding the environmental, recreational and/or cultural resources along the Dan River in the vicinity of the Project. Additionally, we kindly ask that you complete the enclosed questionnaire and provide copies of any pertinent information as soon as possible, **but no later than Monday April 29, 2019**. Pertinent information applicable to subject matters related to the PAD's Table of Content, are described below.

Table of contents for a typical PAD:

- 1) Introduction
- 2) Proposed Communications Protocol for the Relicensing Process Plan and Schedule
- 3) Description of the Project Location, Facilities, and Operations
 - a) Authorized Agent
 - b) Project Maps
 - c) Existing and Proposed Project Facilities
 - d) Current and Proposed Project Operation
 - e) Other Project Information
 - i) Current License Requirements
 - ii) Project Generation and Outflow Records
 - iii) Net Investment
 - iv) License Compliance History
- 4) Description of Existing Environmental and Resource Impacts
 - a) General Description of River Basin
 - b) Geology and Soils
 - c) Water Resources
 - i) Water Quantity
 - ii) Water Quality
 - d) Fisheries & Aquatic Resources
 - e) Wildlife & Botanical Resources
 - f) Wetlands, Riparian, Littoral Habitat
 - g) Rare, Threatened, and Endangered Species
 - h) Recreation & Land Use
 - i) Aesthetic Resources
 - j) Cultural Resources
 - k) Socio-Economic Resources
 - l) Tribal Resources
- 5) Preliminary Issues and Studies List
 - a) Issues pertaining to the identified resources
 - b) Potential studies or information gathering requirements associated with the identified issues
 - c) Relevant qualifying Federal and state or tribal comprehensive waterway plans
 - d) Relevant resource management plans
- 6) Summary of Contacts
- 7) References

The Project is operated as a run-of-river facility. The Schoolfield Project consists of a 25-foot-high, 910-foot-long ogee spillway dam with 3-foot-high flashboards, which creates a 90-acre reservoir with 230 acre-ft of storage at a full pool elevation of about 438 feet mean sea level. Adjacent to the powerhouse is a 70-foot-long headwall section with a non-operating fish ladder and 6 low-level sluice gates. The powerhouse is 224-foot-long by 35-foot-wide brick and concrete structure that contains three 1.5 MW generating units, for a total installed generating

capacity of 4.5 MW. The Project also has electrical transmission facilities that consist of 4.16-kilovolt (kV) generator leads, a 5-kV service-connection cable, a 3-phase, and a 4.16/34.5-kV step-up transformer.

The Schoolfield Project has a minimum flow requirement as specified by Article 402 of the current license, which requires a minimum instantaneous flow through the project of at least 300 cfs and an average, 24-hour flow of 440 cfs, during reservoir refilling following dewatering for inspection and maintenance of the City of Danville's water supply intake. The Licensees may modify these minimum flows, if needed for municipal water supply purposes after notification to the resource agencies. Several other license articles required the development of plans to protect and monitor environmental resources at the Project, including a Sediment Flushing Plan (Article 401), Wildlife Habitat Management Plan (Article 405), and Cultural Resources Management Plan (Article 406). In addition, Article 407 required the Licensees to prepare a canoe portage plan to provide portage around the Project, and the related Article 408 to prepare an erosion control plan to prevent slope instability. However, after consultation with the agencies regarding the feasibility of constructing a canoe portage at the Project, the Licensees appealed to the Commission to amend Articles 407 and 408. The Commission subsequently determined that a canoe portage at the Project was not feasible but amended Article 407 to require the Licensees to provide funds to the City of Danville for recreational improvements, and deleted Article 408 by Order Approving Modified Recreation Enhancements and Deleting Article 408 dated November 9, 1995.

Figures 1 and 2 provide the location of the Project and major project features, respectively. The Schoolfield Hydroelectric Project facilities consist of:

- 25-foot-high, 910-foot-long ogee spillway dam with 3-foot-high flashboards;
- 90-acre reservoir;
- 224-foot-long by 35-foot-wide brick and concrete powerhouse with a total installed capacity of 4.5 MW;
- 70-foot-long headwall section with a non-operating fish ladder and 6 low-level sluice gates;
- Appurtenant facilities

The information you provide will assist The Licensees in obtaining all available data as well as assess potential issues for the relicensing. Paper or electronic copies (preferred) of the pertinent information may be sent to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

The Licensees are promoting the use of electronic communications and request that all parties who intend to be engaged in the relicensing process provide your email address via the attached questionnaire. For those entities where we do not have email information, we are distributing

material via hard copy mailings. If you prefer to receive materials in a particular method please indicate such on the questionnaire.

If you have any questions, please do not hesitate to contact me at 973-998-8400.

Sincerely,

A handwritten signature in black ink, appearing to read 'MSR', with a stylized flourish at the end.

Michael Scarzello
Director
Eagle Creek Renewable Energy, LLC

**Schoolfield Hydroelectric Project FERC No 2411
Pre-Application Document Stakeholder Questionnaire**

STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, LLC and the City of Danville, Virginia (hereafter, The Licensees), are beginning the Federal Energy Regulatory Commission (FERC) relicensing process for the existing Schoolfield Hydroelectric Project (FERC No. 2411). The Schoolfield Hydroelectric Project (Project) is located on the Dan River in the City of Danville in Pittsylvania County, Virginia. The Licensees are preparing a Pre-Application Document (PAD) for the Project that provides FERC, resource agencies and other stakeholders with existing, relevant, and reasonably available information regarding the Project to help identify issues and related information needs, develop study requests and study plans, and prepare environmental documents analyzing project impacts. This Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in possession of The Licensees.

Please return this questionnaire and any pertinent information as soon as possible or no later than but no later than Monday April 29, 2019 to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

Hardcopy mailings include a self-addressed return envelope.

1. Information about person completing the questionnaire:

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

2. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment of the Project (i.e., information regarding the resource areas listed below in the vicinity of the Project)?

_____ Yes (please complete 2a through 2e)

_____ No (please go to question 3)

- a) Please indicate by "X" next to the specific resource area or areas that the information relates to:

<input type="checkbox"/> Geology and Soil Resources	<input type="checkbox"/> Recreation and Land use Resources
<input type="checkbox"/> Water Resource	<input type="checkbox"/> Aesthetic Resources
<input type="checkbox"/> Fish and Aquatic Resources	<input type="checkbox"/> Cultural/Historical Resources
<input type="checkbox"/> Wildlife and Botanical Resources	<input type="checkbox"/> Socioeconomic Resources
<input type="checkbox"/> Wetlands, Riparian, and Littoral Habitat Resources	<input type="checkbox"/> Tribal Resources
<input type="checkbox"/> Other Resource Information	<input type="checkbox"/> Rare, threatened and endangered species

- b) Please briefly describe the information or list the available documents (additional writing space is provided on page 4 of this questionnaire).

- c) Where can The Licensees obtain this information (additional writing space is provided on page 4 of this questionnaire)?

- d) Please indicate whether there is a specific representative you wish to designate for a potential follow-up contact by a representative from The Licensees for the resource area or areas indicated above (additional information may be provided on page 4 of this questionnaire).

Representative Contact Information

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

- e) Based on the specific resources listed in 2a, are you aware of any specific issues pertaining to the resource you identified? For example, the historic significance of the facilities must be addressed during the relicensing (additional information may be provided on page 4 of this questionnaire).

_____ Yes (please list the specific issues below)

_____ No

Resource Area	Specific Issue

3. Do you or your organization plan to participate in the Schoolfield Hydroelectric Project relicensing proceeding?

_____ Yes

_____ No

If yes, please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process:

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

If no, please confirm that you do not want to receive any further correspondence associated with this proceeding, by indicating so below:

_____ Please remove me and the entity that I represent from the mailing list.

4. We are interested in your comments. If you have comments and/or questions regarding the Schoolfield Hydroelectric Project, PAD, or the relicensing proceeding please provide them below.

***** If you know of any other stakeholder not included on the e-mail list but should have been, we kindly ask that you forward the e-mail and questionnaire you received onto them with a courtesy copy to Matt Burak, email address mburak@louisberer.com. *****

Additional Comments:

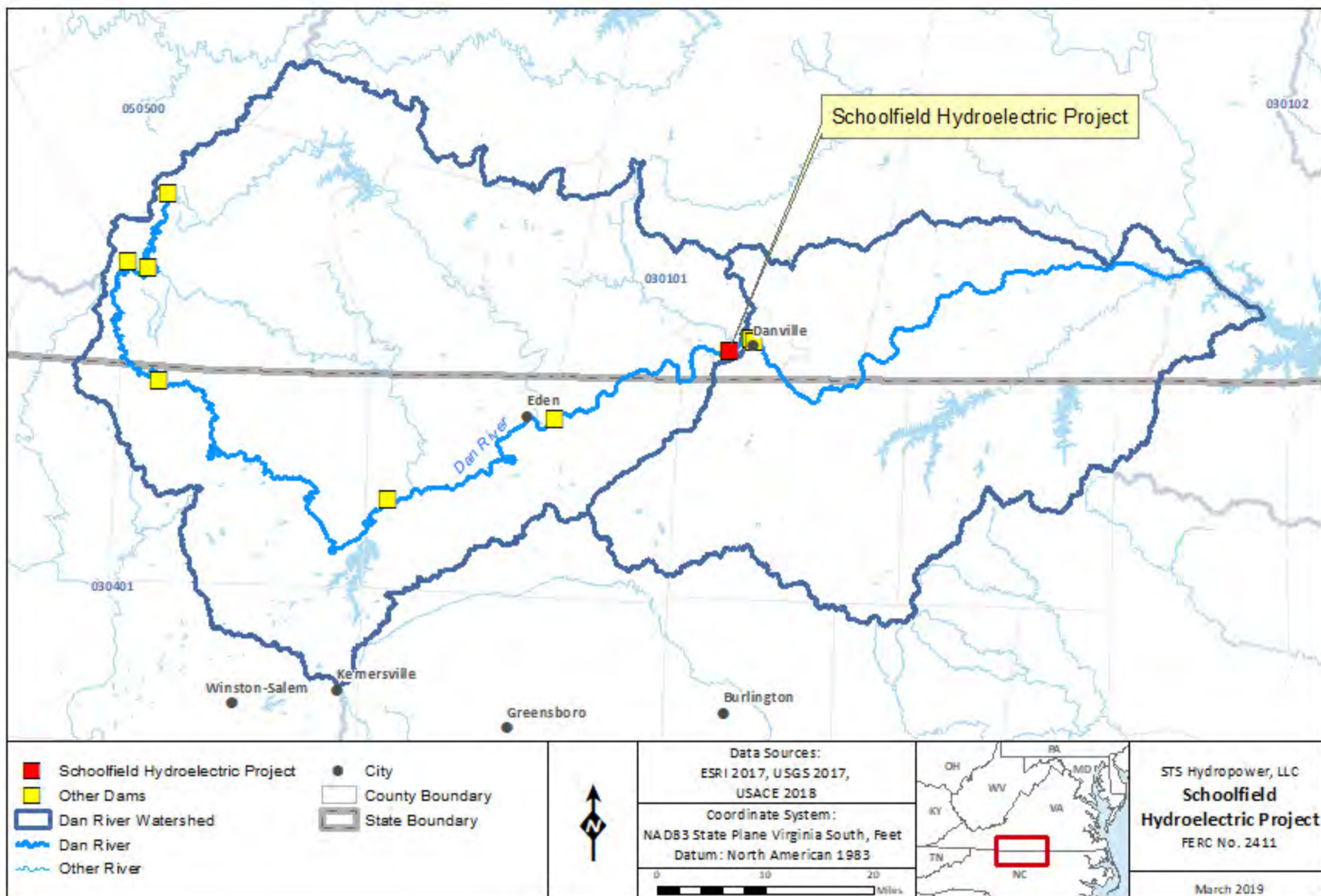


Figure 1: Location of the Schoolfield Hydroelectric Project.



Figure 2: Main features of the Schoolfield Hydroelectric Project.

Burak, Matthew

From: Greg Abbott <Greg.Abbott@scc.virginia.gov>
Sent: Friday, March 29, 2019 1:11 PM
To: Burak, Matthew
Subject: FW: Schoolfield Hydroelectric Project Relicense Questionnaire

External

From: Greg Abbott
Sent: Friday, March 29, 2019 1:10 PM
To: UtilityReg <UtilityReg@scc.virginia.gov>
Subject: RE: Schoolfield Hydroelectric Project Relicense Questionnaire

The SCC has no involvement in this relicensing effort. I suggest you contact DEQ and/or DGIF.

From: UtilityReg
Sent: Friday, March 29, 2019 11:41 AM
To: Greg Abbott <Greg.Abbott@scc.virginia.gov>
Subject: FW: Schoolfield Hydroelectric Project Relicense Questionnaire

From: Burak, Matthew [<mailto:MBurak@louisberger.com>]
Sent: Friday, March 29, 2019 10:10 AM
To: Alan Weaver <Alan.Weaver@dgif.virginia.gov>; Anthony Cario <anthony.cario@deq.virginia.gov>; Brian Watson <Brian.Watson@dgif.virginia.gov>; Bruce Maytubby <bruce.maytubby@bia.gov>; Chickahominy Indian Tribe <chickahominyindiantribe@gmail.com>; Cindy Schulz <cindy_schulz@fws.gov>; Dan Goetz <Dan.Goetz@dgif.virginia.gov>; DAn River Basin Association DRBA <drbadanville@danriver.org>; David K. Paylor <DAVID.PAYLOR@DEQ.VIRGINIA.GOV>; David Moore <dmoore@dickensonva.org>; David Poe <Dave.Poe@bracewelllaw.com>; David W. Sutherland <david_sutherland@fws.gov>; Dean Branham <Mnation538@aol.com>; Flannagan Water Authority <jfwa@mainet.com>; Genevieve LaRouche <Genevieve_LaRouche@fws.gov>; George Palmer <George.Palmer@dgif.virginia.gov>; Harold Peterson <harold.peterson@bia.gov>; Jeffery L. Hurst <JEFFREY.HURST@DEQ.VIRGINIA.GOV>; John Eddins <jeddins@achp.gov>; Jonnie B. Deel Memorial Library <jbdlib@lprlibrary.org>; Julie Crocker <julie.crocker@noaa.gov>; Karenne Wood <karennewood@virginia.edu>; Kendall Tyree <kendall.tyree@vaswcd.org>; Kevin Mendik <kevin_mendik@nps.gov>; Kyle Chelius <chelius.kyle@epa.gov>; Lynn Crump <lynn.crump@dcv.virginia.gov>; Mark Bennett <mrbennet@usgs.gov>; Mark Singleton <mark@americanwhitewater.org>; Mattaponi Indian Reservation <mattaponi@mattaponination.com>; Melanie Stine <contact@coastals.org>; Michael Barber <mike.barber@dhr.virginia.gov>; Mike Johnson <MIKE.JOHNSON@MRC.VIRGINIA.GOV>; Nansemond Indian Tribal Association - 1 <lockamylee@yahoo.com>; Nansemond Indian Tribal Association - 2 <samflyingeagle48@yahoo.com>; Randy Casey <RANDY.CASEY@DMME.VIRGINIA.GOV>; Robbie Rhur <Robbie.rhur@dcv.virginia.gov>; Robert Gray <robert.gray@pamunkey.org>; Scott Smith <Scott.smith@dgif.virginia.gov>; Sherry White <sherry.white@mohican-nsn.gov>; Timothy Hatton <timothy.hatton@dcv.virginia.gov>; Tony Anderson <troy_andersen@fws.gov>; Town of Clintwood <jsteele_townofclintwood@verizon.net>; Trey Glen <Glenn.trey@Epa.gov>; U.S. Army Corps of Engineers - Norfolk <dll-cenao-pa@usace.army.mil>; Virginia Department of Agriculture and Consumer Services <vdacs.commissioner@vdacs.virginia.gov>; Virginia Department of Health (Questions@vdh.virginia.gov)



March 29, 2019

**Re: Request for Information for the Federal Energy Regulatory Commission
Relicensing of the Schoolfield Hydroelectric Project (FERC No. 2411)**

Dear Stakeholder:

The Schoolfield Hydroelectric Project (Project), located on the Dan River in Pittsylvania County, in the City of Danville, Virginia, is licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2411. The Project, an existing hydroelectric facility, has a FERC license that expires on July 31, 2024. STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville, Virginia are co-licensees (The Licensees) of the Schoolfield Project.

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- Appurtenant facilities

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Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

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material via hard copy mailings. If you prefer to receive materials in a particular method please indicate such on the questionnaire.

If you have any questions, please do not hesitate to contact me at 973-998-8400.

Sincerely,

A handwritten signature in black ink, appearing to read "MSR", with a stylized flourish at the end.

Michael Scarzello
Director
Eagle Creek Renewable Energy, LLC

**Schoolfield Hydroelectric Project FERC No 2411
Pre-Application Document Stakeholder Questionnaire**

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Please return this questionnaire and any pertinent information as soon as possible or no later than but no later than Monday April 29, 2019 to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

Hardcopy mailings include a self-addressed return envelope.

1. Information about person completing the questionnaire:

Name and Title: Mr. John McCloskey, Fish and Wildlife Biologist
Organization: U.S. Fish and Wildlife Service
Address: 6669 Short Lane, Gloucester, VA 23061
Phone: 804-824-2404
E-mail Address: john_mccloskey@fws.gov

2. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment of the Project (i.e., information regarding the resource areas listed below in the vicinity of the Project)?

 X Yes (please complete 2a through 2e)
question 3)

 No (please go to

- a) Please indicate by "X" next to the specific resource area or areas that the information relates to:

<input type="checkbox"/> Geology and Soil Resources	<input type="checkbox"/> Recreation and Land use Resources
<input type="checkbox"/> Water Resource	<input type="checkbox"/> Aesthetic Resources
<input checked="" type="checkbox"/> Fish and Aquatic Resources	<input type="checkbox"/> Cultural/Historical Resources
<input checked="" type="checkbox"/> Wildlife and Botanical Resources	<input type="checkbox"/> Socioeconomic Resources
<input checked="" type="checkbox"/> Wetlands, Riparian, and Littoral Habitat Resources	<input type="checkbox"/> Tribal Resources
<input type="checkbox"/> Other Resource Information	<input checked="" type="checkbox"/> Rare, threatened and endangered species

- b) Please briefly describe the information or list the available documents (additional writing space is provided on page 4 of this questionnaire).

The U.S. Fish and Wildlife Service has an online project review system which allows applicants to identify any trust resources (including federally listed threatened and endangered species) that occur within the project area and assess whether your project is likely to adversely affect these resources. The website is frequently updated to provide new species/trust resource information and methods to review projects. Here is the link to the site: <https://www.fws.gov/northeast/virginiafield/endangered/projectreviews.html>. This online system should be utilized to ensure information on proposed and listed species is up to date for this project.

The U.S. Fish and Wildlife Service also maintains National Wetland Inventory data which should be available online at: <https://www.fws.gov/wetlands/>

- c) Where can The Licensees obtain this information (additional writing space is provided on page 4 of this questionnaire)?

At the websites shown above.

- d) Please indicate whether there is a specific representative you wish to designate for a potential follow-up contact by a representative from The Licensees for the resource area or areas indicated above (additional information may be provided on page 4 of this questionnaire).

Representative Contact Information

Name and Title: Mr. John McCloskey, Fish and Wildlife Biologist
--

Organization: U.S. Fish and Wildlife Service
Address: 6669 Short Lane, Gloucester, VA 23061
Phone: 804-824-2404
E-mail Address: john_mccloskey@fws.gov

- e) Based on the specific resources listed in 2a, are you aware of any specific issues pertaining to the resource you identified? For example, the historic significance of the facilities must be addressed during the relicensing (additional information may be provided on page 4 of this questionnaire).

 X Yes (please list the specific issues below)

 No

Resource Area	Specific Issue
Federally listed species	The federally threatened Northern long-eared bat (<i>Myotis septentrionalis</i>), federally endangered Roanoke logperch (<i>Percina rex</i>), federally proposed threatened Atlantic Pigtoe (<i>Fusconaia masoni</i>) and federally endangered James spinymussel (<i>Pleurobema collina</i>) may occur in the project area. Potential impacts to these species from ongoing operations will need to be evaluated.
Diadromous fish	The American eel may occur in this part of the Roanoke River. Potential impacts to this species and other migratory fish from ongoing operations will need to be evaluated, including whether the project provides safe, timely and effective upstream and downstream passage for these species.

3. Do you or your organization plan to participate in the Schoolfield Hydroelectric Project relicensing proceeding?

 X Yes

 No

If yes, please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process:

Name and Title: Mr. John McCloskey, Fish and Wildlife Biologist
Organization: U.S. Fish and Wildlife Service
Address: 6669 Short Lane, Gloucester, VA 23061
Phone: 804-824-2404
E-mail Address: john_mccloskey@fws.gov

Name and Title: Mr. Rick McCorkle, Fish and Wildlife Biologist
Organization: U.S. Fish and Wildlife Service
Address: 110 Radnor Rd. Suite 101, State College, PA 16801
Phone: 814-206-7470
E-mail Address: richard_mccorkle@fws.gov

If no, please confirm that you do not want to receive any further correspondence associated with this proceeding, by indicating so below:

_____Please remove me and the entity that I represent from the mailing list.

4. We are interested in your comments. If you have comments and/or questions regarding the Schoolfield Hydroelectric Project, PAD, or the relicensing proceeding please provide them below.

***** If you know of any other stakeholder not included on the e-mail list but should have been, we kindly ask that you forward the e-mail and questionnaire you received onto them with a courtesy copy to Matt Burak, email address mburak@louisberer.com. *****

Additional Comments:

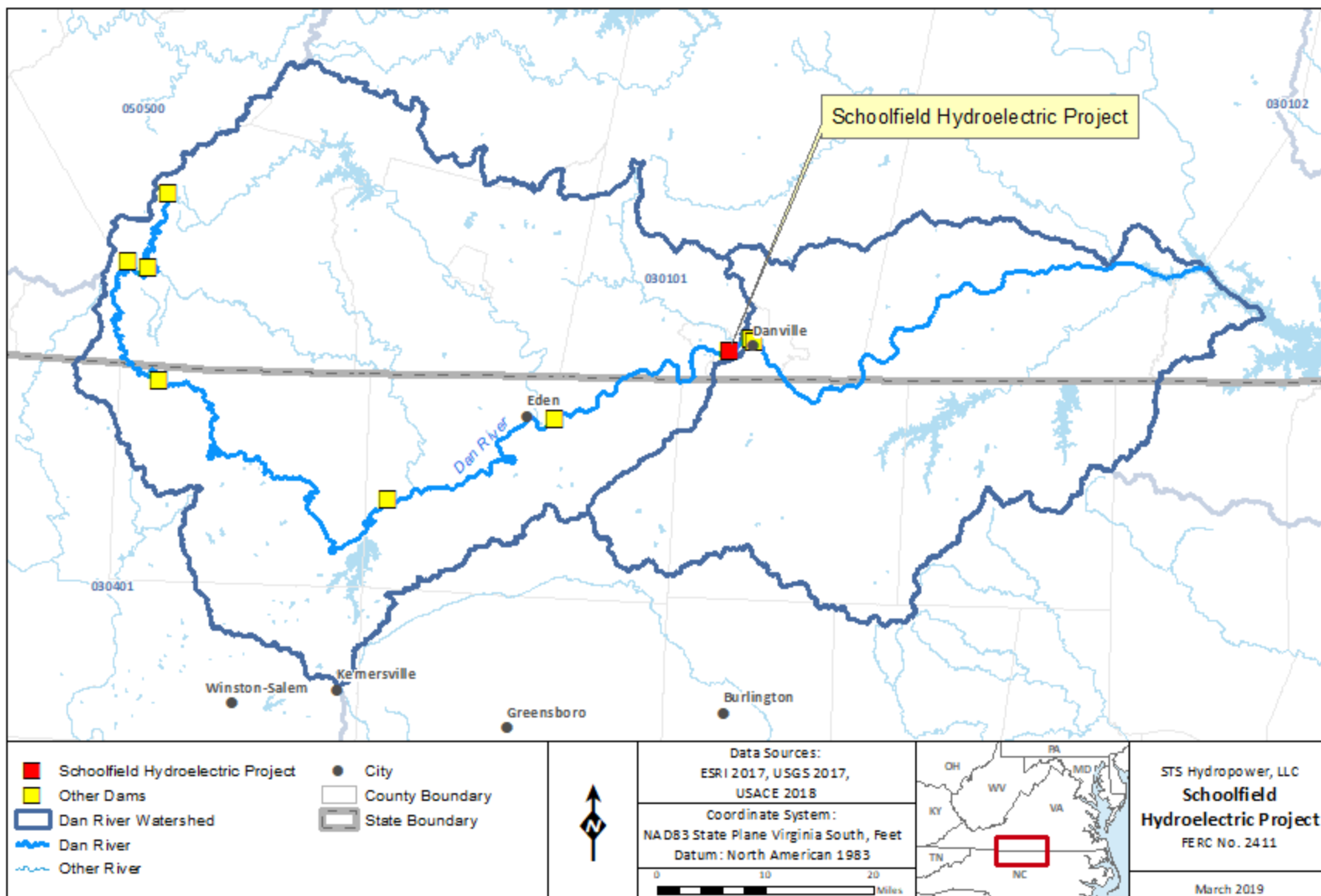


Figure 1: Location of the Schoolfield Hydroelectric Project.



Figure 2: Main features of the Schoolfield Hydroelectric Project.



March 29, 2019

**Re: Request for Information for the Federal Energy Regulatory Commission
Relicensing of the Schoolfield Hydroelectric Project (FERC No. 2411)**

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The Licensees intend to pursue a new license for the Project and are beginning the FERC relicensing process. Louis Berger has been retained to assist in developing the Pre-Application Document (PAD), one of the first steps in the FERC relicensing process. The PAD is a document that summarizes all existing, relevant, and reasonably available information on the Project that has been collected and obtained by The Licensees, state and federal agencies, and non-governmental organizations.

The Licensees plan to follow FERC's Traditional Licensing Process (TLP) to relicense the Project. The original license for the Project was issued on August 26, 1994 for a 30-year term. As such, the final license application for the Project must be filed with FERC no later than August 1, 2022 (two years prior to the expiration date). According to FERC regulations, a Notice of Intent (NOI) to license the project and PAD must be filed not earlier than 5-1/2 years and no later than 5 years prior to the license expiration, which are January 31, 2019 to July 31, 2019, respectively. The Licensees will prepare and file the NOI and PAD with FERC on or before July 31, 2019.

On behalf of The Licensees, Louis Berger is gathering information to support preparation of the PAD. Consistent with this effort, we respectfully request any information your organization may have collected regarding the environmental, recreational and/or cultural resources along the Dan River in the vicinity of the Project. Additionally, we kindly ask that you complete the enclosed questionnaire and provide copies of any pertinent information as soon as possible, **but no later than Monday April 29, 2019**. Pertinent information applicable to subject matters related to the PAD's Table of Content, are described below.

Table of contents for a typical PAD:

- 1) Introduction
- 2) Proposed Communications Protocol for the Relicensing Process Plan and Schedule
- 3) Description of the Project Location, Facilities, and Operations
 - a) Authorized Agent
 - b) Project Maps
 - c) Existing and Proposed Project Facilities
 - d) Current and Proposed Project Operation
 - e) Other Project Information
 - i) Current License Requirements
 - ii) Project Generation and Outflow Records
 - iii) Net Investment
 - iv) License Compliance History
- 4) Description of Existing Environmental and Resource Impacts
 - a) General Description of River Basin
 - b) Geology and Soils
 - c) Water Resources
 - i) Water Quantity
 - ii) Water Quality
 - d) Fisheries & Aquatic Resources
 - e) Wildlife & Botanical Resources
 - f) Wetlands, Riparian, Littoral Habitat
 - g) Rare, Threatened, and Endangered Species
 - h) Recreation & Land Use
 - i) Aesthetic Resources
 - j) Cultural Resources
 - k) Socio-Economic Resources
 - l) Tribal Resources
- 5) Preliminary Issues and Studies List
 - a) Issues pertaining to the identified resources
 - b) Potential studies or information gathering requirements associated with the identified issues
 - c) Relevant qualifying Federal and state or tribal comprehensive waterway plans
 - d) Relevant resource management plans
- 6) Summary of Contacts
- 7) References

The Project is operated as a run-of-river facility. The Schoolfield Project consists of a 25-foot-high, 910-foot-long ogee spillway dam with 3-foot-high flashboards, which creates a 90-acre reservoir with 230 acre-ft of storage at a full pool elevation of about 438 feet mean sea level. Adjacent to the powerhouse is a 70-foot-long headwall section with a non-operating fish ladder and 6 low-level sluice gates. The powerhouse is 224-foot-long by 35-foot-wide brick and concrete structure that contains three 1.5 MW generating units, for a total installed generating

capacity of 4.5 MW. The Project also has electrical transmission facilities that consist of 4.16-kilovolt (kV) generator leads, a 5-kV service-connection cable, a 3-phase, and a 4.16/34.5-kV step-up transformer.

The Schoolfield Project has a minimum flow requirement as specified by Article 402 of the current license, which requires a minimum instantaneous flow through the project of at least 300 cfs and an average, 24-hour flow of 440 cfs, during reservoir refilling following dewatering for inspection and maintenance of the City of Danville's water supply intake. The Licensees may modify these minimum flows, if needed for municipal water supply purposes after notification to the resource agencies. Several other license articles required the development of plans to protect and monitor environmental resources at the Project, including a Sediment Flushing Plan (Article 401), Wildlife Habitat Management Plan (Article 405), and Cultural Resources Management Plan (Article 406). In addition, Article 407 required the Licensees to prepare a canoe portage plan to provide portage around the Project, and the related Article 408 to prepare an erosion control plan to prevent slope instability. However, after consultation with the agencies regarding the feasibility of constructing a canoe portage at the Project, the Licensees appealed to the Commission to amend Articles 407 and 408. The Commission subsequently determined that a canoe portage at the Project was not feasible but amended Article 407 to require the Licensees to provide funds to the City of Danville for recreational improvements, and deleted Article 408 by Order Approving Modified Recreation Enhancements and Deleting Article 408 dated November 9, 1995.

Figures 1 and 2 provide the location of the Project and major project features, respectively. The Schoolfield Hydroelectric Project facilities consist of:

- 25-foot-high, 910-foot-long ogee spillway dam with 3-foot-high flashboards;
- 90-acre reservoir;
- 224-foot-long by 35-foot-wide brick and concrete powerhouse with a total installed capacity of 4.5 MW;
- 70-foot-long headwall section with a non-operating fish ladder and 6 low-level sluice gates;
- Appurtenant facilities

The information you provide will assist The Licensees in obtaining all available data as well as assess potential issues for the relicensing. Paper or electronic copies (preferred) of the pertinent information may be sent to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

The Licensees are promoting the use of electronic communications and request that all parties who intend to be engaged in the relicensing process provide your email address via the attached questionnaire. For those entities where we do not have email information, we are distributing

material via hard copy mailings. If you prefer to receive materials in a particular method please indicate such on the questionnaire.

If you have any questions, please do not hesitate to contact me at 973-998-8400.

Sincerely,

A handwritten signature in black ink, appearing to read "MSR", with a stylized flourish at the end.

Michael Scarzello
Director
Eagle Creek Renewable Energy, LLC

**Schoolfield Hydroelectric Project FERC No 2411
Pre-Application Document Stakeholder Questionnaire**

STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, LLC and the City of Danville, Virginia (hereafter, The Licensees), are beginning the Federal Energy Regulatory Commission (FERC) relicensing process for the existing Schoolfield Hydroelectric Project (FERC No. 2411). The Schoolfield Hydroelectric Project (Project) is located on the Dan River in the City of Danville in Pittsylvania County, Virginia. The Licensees are preparing a Pre-Application Document (PAD) for the Project that provides FERC, resource agencies and other stakeholders with existing, relevant, and reasonably available information regarding the Project to help identify issues and related information needs, develop study requests and study plans, and prepare environmental documents analyzing project impacts. This Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in possession of The Licensees.

Please return this questionnaire and any pertinent information as soon as possible or no later than but no later than Monday April 29, 2019 to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

Hardcopy mailings include a self-addressed return envelope.

1. Information about person completing the questionnaire:

Name and Title: Lynn Crump, PLA
Organization: VA Dept. of Conservation & Recreation
Address: 600 E. Mian St., 24th Floor Richmond, va 23219
Phone: 804-786-5054
E-mail Address: lynn.crump@dcr.virginia.gov

2. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment of the Project (i.e., information regarding the resource areas listed below in the vicinity of the Project)?

Y Yes (please complete 2a through 2e) No (please go to question 3)

- a) Please indicate by “X” next to the specific resource area or areas that the information relates to:

<input type="checkbox"/> Geology and Soil Resources	<input checked="" type="checkbox"/> Recreation and Land use Resources
<input type="checkbox"/> Water Resource	<input checked="" type="checkbox"/> Aesthetic Resources
<input type="checkbox"/> Fish and Aquatic Resources	<input type="checkbox"/> Cultural/Historical Resources
<input type="checkbox"/> Wildlife and Botanical Resources	<input type="checkbox"/> Socioeconomic Resources
<input type="checkbox"/> Wetlands, Riparian, and Littoral Habitat Resources	<input type="checkbox"/> Tribal Resources
<input type="checkbox"/> Other Resource Information	<input type="checkbox"/> Rare, threatened and endangered species

- b) Please briefly describe the information or list the available documents (additional writing space is provided on page 4 of this questionnaire).

VOP Mapper - an online interactive online resource for conservation lands, recreation and scenic resources in VA. This includes designated Scenic Rivers and Byways, trails, as well as park lands and other recreation resources.

- c) Where can The Licensees obtain this information (additional writing space is provided on page 4 of this questionnaire)?

Google VOP Mapper and fill in the disclaimer to use.

- d) Please indicate whether there is a specific representative you wish to designate for a potential follow-up contact by a representative from The Licensees for the resource area or areas indicated above (additional information may be provided on page 4 of this questionnaire).

Representative Contact Information

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

- e) Based on the specific resources listed in 2a, are you aware of any specific issues pertaining to the resource you identified? For example, the historic significance of the facilities must be addressed during the relicensing (additional information may be provided on page 4 of this questionnaire).

 X Yes (please list the specific issues below) No

Resource Area	Specific Issue
river	concerns for extending the Scenic River designation downstream and portage around the dam for the proposed Blueway.

3. Do you or your organization plan to participate in the Schoolfield Hydroelectric Project relicensing proceeding?

 Yes No

If yes, please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process:

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

If no, please confirm that you do not want to receive any further correspondence associated with this proceeding, by indicating so below:

_____ Please remove me and the entity that I represent from the mailing list.

4. We are interested in your comments. If you have comments and/or questions regarding the Schoolfield Hydroelectric Project, PAD, or the relicensing proceeding please provide them below.

***** If you know of any other stakeholder not included on the e-mail list but should have been, we kindly ask that you forward the e-mail and questionnaire you received onto them with a courtesy copy to Matt Burak, email address mburak@louisberer.com. *****

Additional Comments:

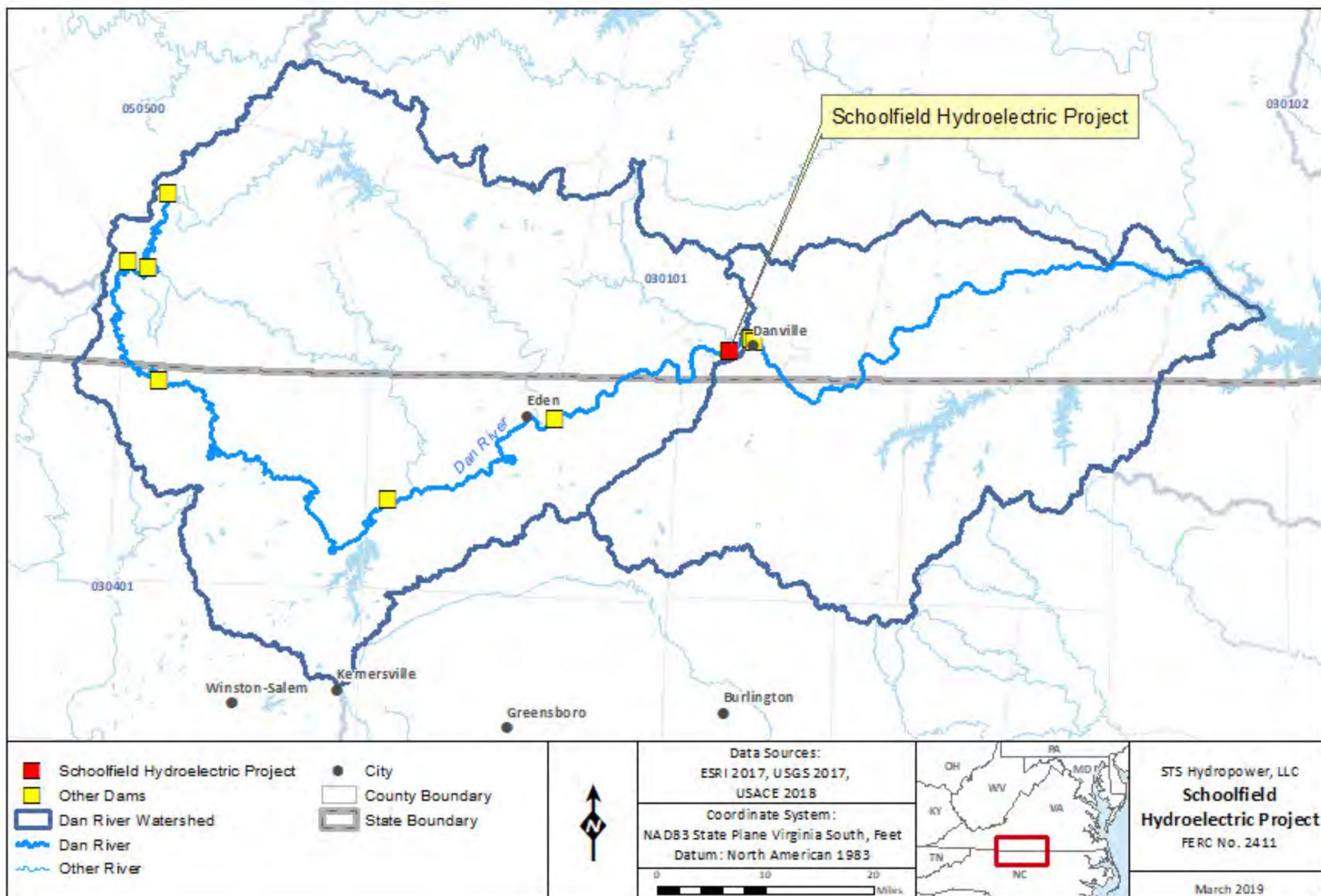


Figure 1: Location of the Schoolfield Hydroelectric Project.



Figure 2: Main features of the Schoolfield Hydroelectric Project.

**Schoolfield Hydroelectric Project FERC No 2411
Pre-Application Document Stakeholder Questionnaire**

STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, LLC and the City of Danville, Virginia (hereafter, The Licensees), are beginning the Federal Energy Regulatory Commission (FERC) relicensing process for the existing Schoolfield Hydroelectric Project (FERC No. 2411). The Schoolfield Hydroelectric Project (Project) is located on the Dan River in the City of Danville in Pittsylvania County, Virginia. The Licensees are preparing a Pre-Application Document (PAD) for the Project that provides FERC, resource agencies and other stakeholders with existing, relevant, and reasonably available information regarding the Project to help identify issues and related information needs, develop study requests and study plans, and prepare environmental documents analyzing project impacts. This Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in possession of The Licensees.

Please return this questionnaire and any pertinent information as soon as possible or no later than but no later than Monday April 29, 2019 to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

Hardcopy mailings include a self-addressed return envelope.

1. Information about person completing the questionnaire:

Name and Title: Mike Johnson
Organization: Virginia Marine Resources Commission
Address: 380 Fenwick Road Fort Monroe, VA 23651
Phone: (757) 247- 2255
E-mail Address: mike.johnson@mrc.virginia.gov

2. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment of the Project (i.e., information regarding the resource areas listed below in the vicinity of the Project)?

_____ Yes (please complete 2a through 2e)

____X____ No (please go to question 3)

- a) Please indicate by "X" next to the specific resource area or areas that the information relates to:

<input type="checkbox"/> Geology and Soil Resources	<input type="checkbox"/> Recreation and Land use Resources
<input type="checkbox"/> Water Resource	<input type="checkbox"/> Aesthetic Resources
<input type="checkbox"/> Fish and Aquatic Resources	<input type="checkbox"/> Cultural/Historical Resources
<input type="checkbox"/> Wildlife and Botanical Resources	<input type="checkbox"/> Socioeconomic Resources
<input type="checkbox"/> Wetlands, Riparian, and Littoral Habitat Resources	<input type="checkbox"/> Tribal Resources
<input type="checkbox"/> Other Resource Information	<input type="checkbox"/> Rare, threatened and endangered species

- b) Please briefly describe the information or list the available documents (additional writing space is provided on page 4 of this questionnaire).

- c) Where can The Licensees obtain this information (additional writing space is provided on page 4 of this questionnaire)?

- d) Please indicate whether there is a specific representative you wish to designate for a potential follow-up contact by a representative from The Licensees for the resource area or areas indicated above (additional information may be provided on page 4 of this questionnaire).

Representative Contact Information

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

- e) Based on the specific resources listed in 2a, are you aware of any specific issues pertaining to the resource you identified? For example, the historic significance of the facilities must be addressed during the relicensing (additional information may be provided on page 4 of this questionnaire).

_____ Yes (please list the specific issues below)

_____ No

Resource Area	Specific Issue

3. Do you or your organization plan to participate in the Schoolfield Hydroelectric Project relicensing proceeding?

_____ Yes X No

If yes, please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process:

Name and Title:
Organization:
Address:
Phone:
E-mail Address:

If no, please confirm that you do not want to receive any further correspondence associated with this proceeding, by indicating so below:

 X Please remove me and the entity that I represent from the mailing list.

4. We are interested in your comments. If you have comments and/or questions regarding the Schoolfield Hydroelectric Project, PAD, or the relicensing proceeding please provide them below.

***** If you know of any other stakeholder not included on the e-mail list but should have been, we kindly ask that you forward the e-mail and questionnaire you received onto them with a courtesy copy to Matt Burak, email address mburak@louisberer.com. *****

Additional Comments:

We have reviewed the provided project documents and found that the proposed relicensing of Schoolfield Hydroelectric Project will not impact jurisdictional areas of the Virginia Marine Resources Commission (VMRC). Please be advised that the VMRC, pursuant to §28.2-1200 et seq of the Code of Virginia, has jurisdiction over any encroachments in, on, or over the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth. Accordingly, if any portion of the subject project involves any encroachments channelward of ordinary high water along natural rivers and streams with a drainage area greater than 5-square miles, a permit may be required from our agency. Any jurisdictional impacts will be reviewed by the Commission during the Joint Permit Application process. Should the proposed project change, a new review by this agency may be required relative to these jurisdictional areas.

Burak, Matthew

From: Smith, Scott <scott.smith@dgif.virginia.gov>
Sent: Thursday, April 25, 2019 4:51 PM
To: Burak, Matthew
Cc: Michaelson Daniel pau22955; Watson Brian fci48971
Subject: Re: Schoolfield Hydroelectric Project Relicense Questionnaire
Attachments: Schoolfield Stakeholder Questionnaire.docx

External

Matthew,

Attached is a completed stakeholder questionnaire for the Schoolfield Hydro Project (2411). Please include myself, Dan Michaelson, and Brian Watson in any future correspondence regarding the relicensing process. As noted in the questionnaire, we have a limited amount of fish and mussel data from the Dan River that we can provide, but we don't have a huge amount of data for this system. If you have any questions, please let us know.

Scott

On Fri, Mar 29, 2019 at 10:10 AM Burak, Matthew <MBurak@louisberger.com> wrote:

Hello,

STS Hydropower, LLC, a subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville, Virginia are co-licensees (The Licensees) of the Schoolfield Hydroelectric Project (FERC Project No. 2411). The Licensees are beginning the Federal Energy Regulatory Commission relicensing process. The hydroelectric project is located on the Dan River in Pittsylvania County, VA. The Licensees has identified you as a potential stakeholder, and kindly requests you review the attached document, and complete and return the included questionnaire no later than Monday, April 29, 2019. The completed questionnaire may be sent to Matthew Burak at mburak@louisberger.com. If you have any questions please do not hesitate to contact Matthew Nini at Matthew.Nini@eaglecreekre.com.

Respectfully,

STS Hydropower, LLC

This message, including any attachments hereto, may contain privileged and/or confidential information and is intended solely for the attention and use of the intended addressee(s). If you are not the intended addressee, you may neither use, copy, nor deliver to anyone this message or any of its attachments. In such case, you should immediately destroy this message and its attachments and kindly notify the sender by reply mail. Unless made by a person with actual authority conferred by Louis Berger, the information and statements herein do not constitute a binding commitment or warranty by Louis Berger. Louis Berger assumes no responsibility for any misperceptions, errors or misunderstandings. You are urged to verify any information that is confusing and report any errors/concerns to us in writing.

**Schoolfield Hydroelectric Project FERC No 2411
Pre-Application Document Stakeholder Questionnaire**

STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, LLC and the City of Danville, Virginia (hereafter, The Licensees), are beginning the Federal Energy Regulatory Commission (FERC) relicensing process for the existing Schoolfield Hydroelectric Project (FERC No. 2411). The Schoolfield Hydroelectric Project (Project) is located on the Dan River in the City of Danville in Pittsylvania County, Virginia. The Licensees are preparing a Pre-Application Document (PAD) for the Project that provides FERC, resource agencies and other stakeholders with existing, relevant, and reasonably available information regarding the Project to help identify issues and related information needs, develop study requests and study plans, and prepare environmental documents analyzing project impacts. This Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in possession of The Licensees.

Please return this questionnaire and any pertinent information as soon as possible or no later than but no later than Monday April 29, 2019 to:

Matthew Burak
Louis Berger
9 Jarvis Avenue
Holyoke, MA 01040
mburak@louisberger.com

Hardcopy mailings include a self-addressed return envelope.

1. Information about person completing the questionnaire:

Name and Title: Kathryn Paxton, Policy Analyst
Organization: Virginia Department of Agriculture and Consumer Services
Address: 102 Governor Street Richmond, Virginia 23219
Phone: 804-786-5175
E-mail Address: Kathryn.Paxton@vdacs.virginia.gov

2. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment of the Project (i.e., information regarding the resource areas listed below in the vicinity of the Project)?

 X Yes (please complete 2a through 2e) No (please go to question 3)

- a) Please indicate by "X" next to the specific resource area or areas that the information relates to:

<input type="checkbox"/> Geology and Soil Resources	<input type="checkbox"/> Recreation and Land use Resources
<input type="checkbox"/> Water Resource	<input type="checkbox"/> Aesthetic Resources
<input type="checkbox"/> Fish and Aquatic Resources	<input type="checkbox"/> Cultural/Historical Resources
<input type="checkbox"/> Wildlife and Botanical Resources	<input type="checkbox"/> Socioeconomic Resources
<input type="checkbox"/> Wetlands, Riparian, and Littoral Habitat Resources	<input type="checkbox"/> Tribal Resources
<input type="checkbox"/> Other Resource Information	<input checked="" type="checkbox"/> Rare, threatened and endangered species

- b) Please briefly describe the information or list the available documents (additional writing space is provided on page 4 of this questionnaire).

VDACS works closely with the Department of Conservation and Recreation (DCR) in determining the potential impact of proposed projects on state endangered and threatened plant and insect species. Through a Memorandum of Agreement between our agencies, DCR reviews these projects and submits comments on our behalf.

- c) Where can The Licensees obtain this information (additional writing space is provided on page 4 of this questionnaire)?

Inquiries relating to state protected plant and insect species should be directed to DCR for response. If after researching its database of natural resources, critical habitats, and species locations DCR finds that a project poses a potential adverse impact on an endangered or threatened plant or insect species, the appropriate information will be referred to VDACS for further review and possible mitigation.

- d) Please indicate whether there is a specific representative you wish to designate for a potential follow-up contact by a representative from The Licensees for the resource area or areas indicated above (additional information may be provided on page 4 of this questionnaire).

Representative Contact Information

Name and Title: Rene Hypes
Organization: Department of Conservation and Recreation
Address: Virginia Natural Heritage Program 600 East Main Street; 24th Floor Richmond, VA 23219

Phone: 804-371-2708

E-mail Address: rene.hypes@dcr.virginia.gov

- e) Based on the specific resources listed in 2a, are you aware of any specific issues pertaining to the resource you identified? For example, the historic significance of the facilities must be addressed during the relicensing (additional information may be provided on page 4 of this questionnaire).

_____ Yes (please list the specific issues below) ☒ No

Resource Area	Specific Issue

3. Do you or your organization plan to participate in the Schoolfield Hydroelectric Project relicensing proceeding?

_____ Yes ☒ No

If yes, please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process:

Name and Title:

Organization:

Address:

Phone:
E-mail Address:

If no, please confirm that you do not want to receive any further correspondence associated with this proceeding, by indicating so below:

 X Please remove me and the entity that I represent from the mailing list.

4. We are interested in your comments. If you have comments and/or questions regarding the Schoolfield Hydroelectric Project, PAD, or the relicensing proceeding please provide them below.

*** If you know of any other stakeholder not included on the e-mail list but should have been, we kindly ask that you forward the e-mail and questionnaire you received onto them with a courtesy copy to Matt Burak, email address mburak@louisberer.com. ***
--

Additional Comments:

Burak, Matthew

From: Warren, Arlene <arlene.warren@vdh.virginia.gov>
Sent: Monday, April 29, 2019 4:05 PM
To: Burak, Matthew
Cc: MaryAnne Wollman; Dwayne Roadcap
Subject: Schoolfield Hydroelectric Project Relicense Questionnaire

External

Project Name: Schoolfield Hydroelectric Project Relicense Questionnaire

Project #: N/A

UPC #: N/A

Location: Virginia

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

There are no public groundwater wells within a 1-mile radius of the project site.

There are no surface water intakes located within a 5-mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

There are no apparent impacts to public drinking water sources due to this project.

- **Comments from Radiological Health, Mr. Steven Harrison, Director were “I have reviewed this and the project has no Rad Health impacts. Accordingly, we have no questions or comments.”**
- **Comments from Environmental Epidemiology, Mr. Dwight Flammia were “I don't have any comments on this project.”**
- No comments were received from OEHS Division of Shellfish Sanitation, Mr. Keith Skiles.
- No comments were received from OEHS Onsite Sewage & Water Services, Mr. Lance Gregory.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren

GIS Program Support Technician

Office of Drinking Water

Virginia Department of Health

109 Governor Street

Richmond, VA 23219

(804) 864-7781



May 31, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Via Electronic Filing

Re: Schoolfield Hydroelectric Project (FERC No. 2411) Notification of Intent to File License Application, Request to Use the Traditional Licensing Process, and Pre-Application Document

Dear Secretary Bose:

STS Hydropower, LLC (STS) and the City of Danville, Virginia (Danville) are licensed by the Federal Energy Regulatory Commission (FERC or Commission) to operate the Schoolfield Hydroelectric Project (Project; FERC No. 2411). STS and Danville are co-licensees ("Licensees") and are preparing to relicense the Project with the Commission. The Project is located on the Dan River in Pittsylvania County and the City of Danville, Virginia. The current FERC license for the Project expires on July 31, 2024.

In accordance with the Commission's regulations, the Licensees hereby commence the relicensing process by filing its Notice of Intent (NOI) to file an application for a new license and Pre-Application Document (PAD) for the Project. Also, pursuant to Section 5.3 of the Commission's regulations, 18 CFR § 5.3, the Licensees are requesting approval to use the Traditional Licensing Process (TLP).

In accordance with Section 5.6(a)(1) of the Commission's regulations, 18 C.F.R. § 5.6(a)(1), the Licensees are simultaneously distributing electronic copies of the NOI, PAD, and request to use the TLP to relevant federal and state resource agencies, Indian tribes, non-governmental organizations, and other potentially interested parties, by way of this transmittal, as set forth on the attached stakeholder distribution list. These electronic copies are being distributed to each stakeholder on the distribution list via an email, or where an email address is not available, via a hardcopy of this correspondence, containing the link or website address to the documents on Eagle Creek Renewable Energy's website (below). Electronic copies are also available on the Commission's e-library website at <https://elibrary.ferc.gov/idmws/search/fercgensearch.asp> and searching for docket P-2411. In addition, the Licensees are providing two courtesy paper copies of the NOI – TLP request and PAD to Commission Staff in the Office of Energy Projects and Office of General Counsel – Energy Projects, as required by the Commission's filing guidelines. The Licensees also have published notice of the NOI, PAD, and TLP Request Letter in the *Register and Bee*, a newspaper that is in general circulation in Pittsylvania County, Virginia. The NOI, PAD, and TLP Request Letter are

available for public inspection and copying during normal business hours at the Ruby B. Archie Public Library located at 511 Patton Street, Danville, VA 24541, as well as on the Project's relicensing website - www.eaglecreekre.com/schoolfield-relicensing. As required by 18 CFR § 5.3(d)(1), comments regarding the Licensees request to use the TLP to relicense the Project must be filed with the Commission within 30 days of this filing (by Monday, July 1, 2019) and must reference FERC Project No. 2411.

The Licensees understands that the Commission will issue a public notice of the NOI and PAD, and then will issue a Notice of Commencement (NOC) no later than 60 days following the filing of the NOI, PAD, and TLP Request Letter. If the Commission approves the request to use the TLP to relicense the Project, STS and Danville will hold a Joint Meeting and Site Visit for the Project between 30 and 60 days of the NOC issuance, which is proposed to be conducted no later than Friday, September 20, 2019. Within 60 days following the Joint Meeting and Site Visit, interested parties must file written comments on the PAD and study requests with the Commission, with a copy provided to STS and Danville.

Some of the information presented in the PAD is considered Critical Energy/Electric Infrastructure Information (CEII), as defined by 18 CFR § 388.113(c). Such information has been removed from the public version of the PAD. In accordance with the Commission's filing guidelines, all CEII material is included in a separate volume (Volume 2) that has been clearly marked as "CONTAINS CRITICAL ENERGY/ELECTRIC INFRASTRUCTURE INFORMATION – DO NOT RELEASE." The Licensees respectfully requests that this information be accorded treatment as CEII, as it consists of detailed Project facility diagrams and other information relating to the "production, generation, transportation, transmission, or distribution of energy" (18 CFR § 388.113(c)). In addition, some of the information presented in the PAD contains confidential financial information, as defined by 18 CFR §388.112, which has been removed from the public version of the PAD. The Licensees also respectfully requests such information be treated as privileged. This information has been filed in accordance with the Commission's filing guidelines as Volume 3, which has been clearly marked as "CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE."

In support of relicensing and in accordance with 18 CFR §5.5(e), the Licensees are requesting designation as the proceeding's non-federal representative for consultation under Section 7 of the Endangered Species Act with the United States Fish and Wildlife Service, National Marine Fisheries Service, and additional applicable agencies. The Licensee also request to be designated as the non-federal representative for consultation under Section 106 of the National Historic Preservation Act.

If you have any questions regarding this submittal or NOI, PAD, and TLP Request please contact me, at (973) 998-8400 or michael.scarzello@eaglecreekre.com.

Respectfully,



Michael Scarzello
Director



☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

June 21, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Subject: Notice of Intent to File License Application and
Request to use the Traditional Licensing Process
Schoolfield Hydroelectric Project, FERC Project No. 2411

Dear Secretary Bose:

The North Carolina Wildlife Resources Commission (NCWRC) has reviewed the Notice of Intent to File License Application, the Request to Use the Traditional Licensing Process (TLP), and the Pre-Application Document (PAD) submitted by STS Hydropower, LLC (STS) and the City of Danville, Virginia (Danville) on May 31, 2019. These comments and recommendations are provided in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

STS and Danville (co-Licensees) propose to continue operating the existing dam, reservoir and powerhouse in a run-of-river mode to generate electricity. The project is located on the Dan River in Danville, Virginia. However, due to the fact that the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. Therefore, we request that the Licensees include the NCWRC on the interested parties mailing list. Contact information for Mr. Chris Goudreau is provided in this letter.

Request to Use the Traditional Licensing Process

The NCWRC does not oppose the use of the TLP. We provide comments on the issues listed in 18 CFR 5.3 related to requests to use the TLP.

Likelihood of timely license issuance – We do not believe the TLP will affect the timing of license issuance.

Complexity of the resource issues – We believe the number and complexity of resource issues at Schoolfield is low compared to other FERC-regulated hydropower projects.

Level of anticipated controversy – We anticipate the level of controversy to be low, provided the issues we raise below are sufficiently addressed.

Relative cost of the traditional process compared to the integrated process – We believe the TLP will enable the NCWRC to make more efficient use of our limited time and resources.

Amount of available information and potential for significant disputes over studies – We believe there are some issues for which the PAD does not provide adequate information, but these should be relatively easy for the applicant to address through additional documentation or studies. We do not anticipate there to be significant disputes related to studies.

Other factors believed pertinent – None.

Comments on the Pre-Application Document

The PAD appears to adequately summarize available information pertinent to the project. We provide the following comments on certain sections of the PAD.

In various locations in the NOI and PAD the size of the reservoir is described as being 90 acres or 260 acres. Also, the volume is listed as 230 acre-feet. Our cursory estimate is that the surface area is approximately 230 acres, with a proportionally larger volume.

Section 4.1, General Description of River Basin – At the bottom of page 4-1, it appears the river mileages between various points was measured in kilometers but reported as miles.

Section 4.3.1, Hydrology and Streamflow – The USGS gage at Wentworth is approximately 37.3 miles upstream of the Schoolfield dam.

Section 4.7.1, Roanoke Logperch – The sentence at the top of page 4-63 appears to mix two different species accounts.

Section 5.0, Preliminary Issues and Study List – We will provide official comments on study requests after FERC issues a decision on the type of licensing process to be used for this project. At this time, we recommend the applicant address the following issues regardless of the relicensing method approved by FERC.

Fine-scale data on reservoir elevations and generation should be provided to better understand project operations under a range of inflow conditions and the resulting effects on downstream flows. Also, the frequency and duration of lowering and refilling the reservoir for maintenance or emergencies should be provided. Together, these data will be used to determine project impacts and assist in developing operating protocols to protect aquatic resources.

The mussel surveys conducted by Alderman Environmental Services in 2014 did not include the areas immediately downstream of the Schoolfield, Union Street or Dan Mills (Whites Mill)

dams. Also, previous fish sampling efforts do not appear to have targeted small or benthic species. Additional sampling of the Dan River in the immediate vicinity of the project and upstream and downstream of the project may be necessary to adequately characterize fish, mussel, and other aquatic taxa of the river. Specific sampling methods should be designed in consultation with the NCWRC, Virginia Department of Game and Fish, and U.S. Fish and Wildlife Service.

Although diadromous fish species may not currently occupy the Dan River near the Project, they may obtain access to Project waters during the course of the next license period. Current efforts at the Roanoke Rapids and Gaston dams are moving American eels upstream. Should eels gain access above Kerr dam, they are very likely to pass the other low head dams downstream of Schoolfield. Also, movement of other rare and listed fish and mussel species is of interest and should be addressed during relicensing.

We appreciate the opportunity to comment at this stage of the process and look forward to meeting on site with the applicant and interested agencies to discuss these matters more fully. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

Sincerely,



Christopher Goudreau
Hydropower Licensing Coordinator

cc: Michael Scarzello, STS Hydropower
Scott Smith, VDGIF
John McCloskey, USFWS
Fred Tarver, NCDWR



May 31, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Via Electronic Filing

Re: Schoolfield Hydroelectric Project (FERC No. 2411) Proof of Publication of Notice of Intent to File License Application, Pre-Application Document, and Request to Use the Traditional Licensing Process

Dear Secretary Bose:

STS Hydropower, LLC and the City of Danville, VA (the Licensees) are the existing Licensees of the Schoolfield Hydroelectric Project (the Project; FERC No. 2411). On May 31, 2019, the Licensees filed with the Commission a Notice of Intent to file an application for a new license, Pre-Application Document, and request to use the Traditional Licensing Process for the Project.

Pursuant to 18 CFR. §5.3(d)(2) of the Commission's regulations, the Licensees published a Public Notice of the above filings in the *Danville Register and Bee*, which is a daily print newspaper in general circulation that serves Pittsylvania County, VA. Enclosed with this letter is proof of the publication for the Public Notice published on May 30, 2019.

If you have any questions regarding this submittal, please contact me at (973) 998-8400 or michael.scarzello@eaglecreekre.com.

Respectfully,

Agent for Licensees
Michael Scarzello
Regulatory Director
Eagle Creek Renewable Energy

Enc: Proof of Public Notice publication of the NOI, PAD, and TLP Request in the *Danville Register and Bee*

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LEGAL NOTICES

LEGAL NOTICES

PUBLIC NOTICE

STS Hydropower, LLC and the City of Danville, Virginia ("Licensees") are licensed by the Federal Energy Regulatory Commission (FERC or Commission) to operate the Schoolfield Hydroelectric Project (Project; FERC No. 2411). The Licensees are preparing to relicense the Project with FERC. The Project is located on the Dan River in Pittsylvania County and the City of Danville, Virginia. On May 31, 2019 the Licensees intend to submit to FERC a Notice of Intent to File an Application for a New License (NOI), Pre-Application Document (PAD), and request to use FERC's Traditional Licensing Process (TLP). The NOI briefly lists information about the Project, the Licensees' intention to relicense the Project, and tribal and political entities that may be affected by, or located in the vicinity of, the Project. The PAD is a document that compiles and describes existing information and the surrounding environment relevant to the Project. The Licensees are requesting to follow the TLP to relicense the Project, as the Licensees believe it is the most efficient process for Project relicensing, while allowing continued communication between the Licensees and interested stakeholders. The Licensees anticipate timely license issuance, the need for few relicensing studies due to existing, extensive Project-related resource information, and relatively simple resource issues. Within 30 days of filing the NOI, PAD, and TLP Request with FERC, comments on the TLP Request from stakeholders can be submitted to the Licensees and FERC. Comments regarding the TLP Request should include the FERC Project No. 2411 and address: 1) the likelihood of timely license issuance; 2) complexity of the resource issues; 3) level of anticipated controversy; 4) relative cost compared to the Integrated Licensing Process; 5) the amount of available information and potential for significant disputes over studies; and 6) any other factors that the commenter believes are pertinent. Comments sent to FERC must be sent to the Secretary of the Commission in accordance with the filing procedures posted on the Commission website at <http://www.ferc.gov>. Comments sent to the Licensees can be sent (e-mail preferred) to Michael Scarzello (michael.scarzello@eaglecreekre.com; tel: (973) 998-8400; 116 N. State Street, P.O. Box 167, Neshkoro, WI 54960). Copies of the PAD, NOI, and TLP Request letter are available for public inspection and reproduction at the Ruby B. Archie Public Library located at 511 Patton Street, Danville, VA 24541 during normal business hours, at www.elibrary.ferc.gov, and at the Project's relicensing website: www.eaglecreekre.com/schoolfield-relicensing.

TRUSTEE SALES

TRUSTEE SALES

TRUSTEE SALE

137 Holbrook Avenue, Danville, VA 24541
City of Danville

In execution of a Deed of Trust in the original principal amount of **\$159,100.00**, dated **January 13, 2012** recorded in the Clerk's Office of the Circuit Court of the **City of Danville, Virginia**, in **Document No. 12-813**, at **Page 0059**, default having occurred in the payment of the Note thereby secured and at the request of the holder of said Note, the undersigned Trustee will offer for sale at public auction at the entrance to the **Circuit Court of the City of Danville, 401 Patton Street, Danville**, on **June 12, 2019 at 1:00 PM** the property described in said deed, located at the above address and briefly described as:

Lot 9, as shown on map recorded in Deed Book 27, Page 238, with improvements thereon

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SAMUEL I. WHITE, P.C., Trustee

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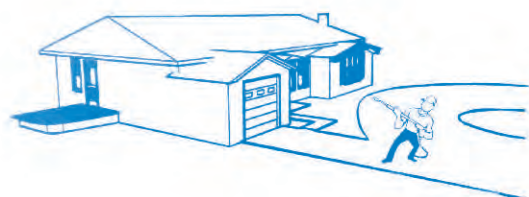
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Matthew J. Strickler
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA
Department of Game and Inland Fisheries

Gary F. Martel
Acting Executive Director

28 June, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Subject: Notice of Intent to File License Application and Request to use the Traditional
Licensing Process Schoolfield Hydroelectric Project, FERC Project No. 2411

Dear Secretary Bose:

The Virginia Department of Game and Inland Fisheries (VDGIF) has reviewed the Notice of Intent to File License Application, the Request to Use the Traditional Licensing Process (TLP), and the Pre-Application Document (PAD) submitted by STS Hydropower, LLC (STS) and the City of Danville, Virginia (Danville) on May 31, 2019. These comments and recommendations are provided in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). STS and Danville (co-Licensees) propose to continue operating the existing dam, reservoir and powerhouse in a run-of-river mode to generate electricity. The project is located on the Dan River in Danville, Virginia.

The VDGIF supports the proposal to use the Traditional Licensing Process (TLP). We generally agree with the statements in the Request to use the TLP, and do not foresee any problems associated with using this process for these proceedings.

Comments on the Pre-Application Document

The PAD generally summarizes available information regarding the Schoolfield Project. We concur with the comments submitted by the North Carolina Wildlife Resources Commission (NCWRC) regarding the PAD.

We would emphasize the need for data on aquatic species (fish and mussels) in and around the project area. There is the potential for aquatic resources upstream and downstream of the dam to be affected by project operations. It is our opinion that both fish and mussel community data are needed in the river segment from the NC/VA state line (immediately upstream of the U.S. Rt. 58 crossing) downstream to the Union Street Dam. These data will be necessary to adequately evaluate the impacts of this project upon aquatic resources. This is particularly important due to the possible presence of multiple Species of Greatest Conservation Need (SGCN) in the project vicinity.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D. C. 20426
July 24, 2019

OFFICE OF ENERGY PROJECTS

VIA FERC Service

Project No. 2411-028 – Virginia
Schoolfield Hydroelectric Project
STS Hydropower, LLC and City of Danville

Mr. Michael Scarzello, Director
Eagle Creek Renewable Energy, LLC
116 State Street
PO Box 167
Neshkoro, WI 54960

Reference: Authorization to Use the Traditional Licensing Process

Dear Mr. Scarzello:

In a letter filed on May 31, 2019, STS Hydropower, LLC (STS Hydropower) and the City of Danville, VA (co-licensees) requested to use the Traditional Licensing Process (TLP) in preparing a license application for the existing 4.5-megawatt Schoolfield Hydroelectric Project, located on the Dan River in the Town of Danville, Pittsylvania County, Virginia. On the same date, the co-licensees filed a notice of intent and pre-application document (PAD) for the proposed project.

On June 27, 2019, STS Hydropower filed documentation with the Commission showing that it published a notice of the request to use the TLP in the May 30, 2019 edition of *The Danville Register and Bee*. The notice contained the information required in section 5.3(d)(2) of the Commission's regulations, including a statement requesting that comments on the request to use the TLP be filed with the Commission by July 1, 2019. Comments have been filed by the Virginia Department of Game and Inland Fisheries¹ and the North Carolina Wildlife Resources Commission,² neither of which objected to the use of the TLP.

Therefore, based on the information that the co-licensees have provided indicating that the complexity of the resource issues is believed to be minor, the level of anticipated controversy is expected to be minimal, and there is a reasonable amount of available information regarding resources associated with the project, the co-licensees' request to use the TLP is granted.

¹ See letter filed July 1, 2019, FERC Accession No. 20190701-5120.

² See letter filed June 21, 2019, FERC Accession No. 20190621-5048.

Section 16.8 of the Commission's regulations describes the pre-filing steps that need to be completed when preparing an application for a hydropower license under the TLP, including consultation and conducting necessary studies [18 C.F.R. §16.8(a)-(e)]. Specific steps that will need to be carried out during pre-filing consultation include an initial joint agency/public meeting and site visit [§16.8(b)(3)]; an opportunity for participants to request studies [§16.8(b)(5)]; preparation and participant review of a draft application [§16.8(c)(4)]; and a meeting to resolve any disputes on the draft application [§16.8(c)(6)]. Please note that the initial joint agency/public meeting, is required to be held no sooner than 30 days, nor later than 60 days, from the date of this letter [§16.8(b)(3)(ii)].

If you have any questions, please contact Laurie Bauer at (202) 502-6519 or via email at laurie.bauer@ferc.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read 'V. Yearick', with a stylized flourish at the end.

Vince Yearick
Director
Division of Hydropower Licensing

We also agree with comments submitted by NCWRC regarding fine-scale assessments of reservoir elevations and releases. Flows in this reach of the Dan River are highly complex, due to the presence of multiple projects upstream that alter instream flows. As a result, robust data regarding project inflows and releases will be necessary to determine impacts under the current operational regime, as well as potential operational measures to reduce these impacts.

We further concur with NCWRC's comments regarding migratory species, and agree that there is a reasonable likelihood that, at the very least, American Eel may be present in the project area at some point during the life of the new license. Furthermore, we recognize the need to restore connectivity for all species present in the project area, whether migratory or resident. This is particularly relevant for SGCN that may be present.

Finally, we have determined that recreational access to the Dan River is somewhat limited in the project vicinity. While there is currently access available to the pool above the dam, there are no developed access points between Schoolfield and Union Street Dams, nor is there any developed means to portage the Schoolfield Dam.

We appreciate the opportunity to comment at this stage of the process and look forward to meeting on site with the applicant and interested agencies to discuss these matters more fully. If you have any questions concerning these comments, please contact me at 434/525-7522 or scott.smith@dgif.virginia.gov.

Sincerely,



Scott M. Smith
Regional Fisheries Manager
Virginia Dept. of Game and Inland Fisheries

CC: R. Southwick (VDGIF)
E. Aschenbach (VDGIF)
C. Goudreau (NCWRC)
J. McCloskey (USFWS)
M. Scarzello (STS Hydropower)

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

STS Hydropower, LLC and City of Danville

Project No. 2411-028

NOTICE OF INTENT TO FILE LICENSE APPLICATION, FILING OF PRE-
APPLICATION DOCUMENT, AND APPROVING USE OF THE TRADITIONAL
LICENSING PROCESS

(July 24, 2019)

- a. Type of Application: Notice of Intent to File License Application and Request to Use the Traditional Licensing Process
- b. Project No.: 2411-028
- c. Date filed: May 31, 2019
- d. Submitted by: STS Hydropower, LLC (STS Hydropower) and City of Danville (Danville)
- e. Name of Project: Schoolfield Hydroelectric Project
- f. Location: Located on the Dan River in the Town of Danville, Pittsylvania County, Virginia. The project does not occupy any federal lands.
- g. Filed Pursuant to: 18 CFR 5.3 of the Commission's regulations
- h. Potential Applicant Contact: Mr. Michael Scarzello, Director, Eagle Creek Renewable Energy, LLC, 116 State Street, PO Box 167 Neshkoro, WI 54960, Phone: (973) 998-8400, Email: michael.scarzello@eaglecreekre.com
- i. FERC Contact: Laurie Bauer, Phone: (202) 502-6519, Email: laurie.bauer@ferc.gov
- j. STS Hydropower and Danville filed its request to use the Traditional Licensing Process on May 31, 2019. STS Hydropower provided public notice of its request on May 30, 2019. In a letter dated July 24, 2019, the Director of the Division of Hydropower Licensing approved Consolidated Hydro's request to use the Traditional Licensing Process.

Project No. 2411-028

2

k. With this notice, we are initiating informal consultation with the U.S. Fish and Wildlife Service and/or NOAA Fisheries under section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 CFR, Part 402; and NOAA Fisheries under section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR 600.920. We are also initiating consultation with the Virginia State Historic Preservation Officer, as required by section 106, National Historic Preservation Act, and the implementing regulations of the Advisory Council on Historic Preservation at 36 CFR 800.2.

l. With this notice, we are designating STS Hydropower and Danville as the Commission's non-federal representatives for carrying out informal consultation pursuant to section 7 of the Endangered Species Act; and consultation pursuant to section 106 of the National Historic Preservation Act.

m. STS Hydropower and Danville filed a Pre-Application Document (PAD; including a proposed process plan and schedule) with the Commission, pursuant to 18 CFR 5.6 of the Commission's regulations.

n. A copy of the PAD is available for review at the Commission in the Public Reference Room or may be viewed on the Commission's website (<http://www.ferc.gov>), using the "eLibrary" link. Enter the docket number, excluding the last three digits in the docket number field to access the document. For assistance, contact FERC Online Support at FERCONlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY). A copy is also available for inspection and reproduction at the address in paragraph h.

o. The licensee states its unequivocal intent to submit an application for a new license for Project No. 2411. Pursuant to 18 CFR 16.8, 16.9, and 16.10 each application for a new license and any competing license applications must be filed with the Commission at least 24 months prior to the expiration of the existing license. All applications for license for this project must be filed by April 30, 2022.

p. Register online at <http://www.ferc.gov/docs-filing/esubscription.asp> to be notified via e-mail of new filing and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

Kimberly D. Bose,
Secretary.



September 3, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street N.E.
Washington, DC 20426

via Electronic Filing

**Re: Notification of Joint Meeting and Site Visit;
Schoolfield Hydroelectric Project (FERC No. 2411-028)**

Dear Secretary Bose:

On May 31, 2019 STS Hydropower, LLC (a wholly-owned subsidiary of Eagle Creek Renewable Energy) and the City of Danville (Co-licensees), filed with the Federal Energy Regulatory Commission (Commission) its Pre-Application Document, Notice of Intent, and Request to Use the Traditional Licensing Process (TLP) for the relicensing of their Schoolfield Hydroelectric Project ("Project", FERC No. 2411). The Commission, by letter order dated July 24, 2019, granted the request by the Co-licensees to use the TLP.

On August 14, 2019, the Co-licensees distributed a consultation letter to stakeholders regarding the scheduling of the Joint Meeting and Site Visit, and requested those interested in participating in the Joint Meeting and Site Tour RSVP to Jane Manibusan at jane.manibusan@eaglecreekre.com or (920) 293-4628 ext. 318.

In accordance with the first stage of consultation requirements of the TLP, the Co-licensees have scheduled a Joint Meeting and Site Visit for Wednesday, September 18, 2019. The Joint Meeting will be held at the Danville Public Library Meeting Room, located at 511 Patton Street, Danville, VA 24541, and will begin at 10:00 AM. The Site Visit will take place following the Joint Meeting at the Project located at 1932 Memorial Drive, Danville, VA 24541. The meeting agenda is the following:

- Welcome and Introductions
- FERC TLP Relicensing Process and Schedule
- Project Layout and Operations
- Review of Information Provided in the PAD
- Solicit Comments and Information/Study Requests

A public notice of the Joint Meeting and Site Visit is scheduled for publication in the Danville Register & Bee, a daily print newspaper that serves Pittsylvania County and the City of Danville, VA where the Project is located, in the September 4, 2019 edition of the newspaper (14-days prior to the Joint Meeting and Site Visit). In the notice, the Co-licensees requested that stakeholders and interested parties planning to participate in the site tour wear proper footwear and attire (flat,

hard-soled, closed-toe shoes, such as work boots or hiking shoes and long pants, no sneakers or shorts,) and noted that no children (under the age of 16) would be allowed in non-public areas pursuant to 18 CFR 16.8(b)(4).

A hardcopy of the PAD is available at the Danville Public Library at 511 Patton Street, Danville, VA 24541 during normal business hours and may be downloaded from the Project's relicensing website via <https://www.eaglecreekre.com/schoolfield-relicensing>. The PAD is also available on FERC's e-library (<https://elibrary.ferc.gov/idmws/search/fercadvsearch.asp>) by searching for Accession Number 20190531-5457.

The Co-licensees are also distributing this correspondence to the stakeholder list provided in the Notice of Intent/Pre-Application Document, appended hereto, via e-mail.

If there are any questions concerning this letter, please contact me at (973) 998-8400 or michael.scarzello@eaglecreekre.com.

Respectfully,

A handwritten signature in black ink, appearing to read 'MSR', is positioned above the printed name of Michael Scarzello.

Michael Scarzello
Regulatory Director
Eagle Creek Renewable Energy

cc: Stakeholder List



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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

November 15, 2019



Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

Re: Schoolfield Hydroelectric Project (FERC # 2411), Danville, VA, Review of Notice of Intent and Pre-Application Document, and Request for Studies

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) is writing in response to the July 24, 2019, Notice of Intent to File License Application, Filing of Pre-Application Document (PAD), and Approving Use of Traditional Licensing Process for the Schoolfield Hydroelectric Project (Project). The Project is owned and operated by STS Hydropower, LLC (a wholly-owned subsidiary of Eagle Creek Renewable Energy) and the City of Danville (Licensees) located on the Dan River at approximately river mile 60.1 in the City of Danville, Pittsylvania County, VA. The Project consists of: (1) a 25-foot-high, 910-foot-long concrete ogee spillway dam equipped with 3-foot-high flashboards creating a 230-acre reservoir; (2) a 70-foot-long headwall section containing a fish ladder and 6 low-level sluicing gates; (3) a 224-foot-long by 35-foot-wide concrete and brick powerhouse on the south end of the dam containing 3 generating units with a total installed capacity of 4.5 megawatts (MW); (4) transmission facilities consisting of the 4.16-kilovolt (kV) generator leads, a 5-kV service-connection cable, a 3-phase, 4.16/34.5-kV step-up transformer, a 34.5-kV, 13-mile-long transmission line (owned by the city of Danville); and (5) appurtenant facilities. The Service participated in the September 18, 2019 Joint Meeting and Site Visit in Danville, VA and has reviewed the PAD, which was filed by the Licensees on May 31, 2019.

The following comments are provided pursuant to the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

General Comment: There are inconsistencies regarding the size of the Project reservoir. On page 2 of the Notice of Intent, the reservoir is described as being 90 acres in size. The Introduction of the PAD, page 1-1, gives “an approximate 260-acre reservoir.” Section 3.2 of the PAD states that the surface area is “about 90 acres,” with a “gross storage capacity of approximately 230 acre-ft.” Section 3.5 states that

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VIRGINIA, WEST VIRGINIA

the Project reservoir has a surface area of approximately 260 acres, with a gross storage capacity of approximately 230 acre-feet. This seems unlikely, as this would require the average depth of the reservoir to be less than 1 foot. The 1994 License order states that the Project has a normal surface area of 90 acres with a storage volume of 230 acre-feet. The North Carolina Wildlife Resources Commission commented on this issue in a June 21, 2019 letter, and estimated that the surface area was approximately 230 acres, with a proportionally larger volume. The Service has also estimated the surface area to be approximately 230 acres. We suspect that the “90” figure may be the surface area in hectares (90 hectares x 2.471 acres per hectare = 222 acres; or 90 hectares x 2.5 acres per hectare = 225 acres); therefore, a surface area of approximately 230 acres is probably correct. The reservoir gross storage volume is likely greater than 230 acre-feet, as average depth is presumably greater than 1 foot. This information should be reviewed and changed if incorrect.

Section 3.2, Facilities: This section does not discuss the intake structure or the spacing on the trash racks. Downstream fish passage options at the Project are currently limited to through the turbines or passage over the dam at high flows. Passage over the dam is an option that may not be available year-round and may not be safe for fish depending on the depth of the plunge pool. If spillage over the dam is reduced as a result of operation of the Project, a large percentage of fish attempting to move downstream past the Project would be forced to travel through the turbines. This would put fish in danger of becoming entrained in the powerhouse turbines resulting in some injury or mortality. Based on the site visit conducted on September 18, 2019, the spacing on the trash racks appears to be greater than 1 inch and likely in the 2 to 3 inch range. The exact spacing on the trash racks should be provided. To protect fish from entering the intake, the Service’s standard recommended spacing for trash racks is 1-inch (0.75 inch if American eel [*Anguilla rostrata*] is present) clear spacing and an approach velocity not exceeding 2 feet per second measured at a distance of 1 foot upstream of the trash racks.

The use of horizontal bars on trash racks has been shown to exclude more fish than those with vertical bars having the same spacing, and impinged fish are better able to escape trash racks with horizontal bars because their side-to-side movements are not restricted as they would be when impinged between vertical bars. There are examples of trash racks with rounded bars that allow for tighter spacing with less associated head loss. Sloped racks have demonstrated success in protecting fish from entrainment, particularly American eels. Because the spacing on the trash racks exceeds 1 inch, the Service recommends an entrainment and impingement study to assess impacts on fish populations in the river (see Study Requests below).

Section 3.2, Powerhouse: This section states the generating units are connected to six identical propeller-type turbines, two turbines per generating unit. Provide additional details pertaining to the six propeller-type turbines, such as runner diameter, rated speed (revolutions per minute), and number of blades/buckets.

Section 3.3, Project Lands: This section states the Project boundary includes all lands that are necessary for the operation and maintenance of the Project. Figure 3.2-1 shows the general location of Project facilities and approximate Project boundary. This figure only shows the Project boundary extending as far downstream as the dam and powerhouse. This boundary does not include areas downstream of the dam potentially influenced by the Project. The Project boundary should extend downstream to the extent of influence from the powerhouse and dam discharge. Without hydraulic modeling or a habitat assessment, the Service recommends that the project boundary extend a minimum of 1.6 kilometer (km) (1 mile) downstream of turbine discharge. This is the area that should be investigated as part of the relicensing studies.

Section 3.4, Current Project Operations: This section states during normal operations, Article 403 of the current license requires an instantaneous minimum flow of at least 300 cubic feet per second be passed at the Project, which is usually provided via the turbine-generating units. It appears that no

minimum spillage over the dam is required. No minimum spillage over the dam could have a negative impact on water quality, particularly dissolved oxygen (DO). To assess impacts of the Project on water quality, a water quality study is recommended (see Study Requests below).

Section 3.5, Reservoir Storage: This section states the reservoir surface area is approximately 260 acres, with a gross storage capacity of approximately 230 acre-feet. This would mean an average depth of less than 1 foot, which seems unlikely for an impoundment (e.g., PAD Section 4.4.3 Reservoir description indicates a channel depth of approximately 18 feet behind the Schoolfield Dam and a depth of 4 feet at the upper end of the reservoir at the normal reservoir water surface elevation of 438 feet NAVD88). These values should be checked for accuracy and revised, as necessary.

Section 4.3.1, Water Resources, Water Quantity, Hydrology and Streamflow: This section states the nearest U.S. Geological Survey (USGS) gage is located approximately 5.2 miles downstream of the Project at the sewage treatment plant. This section further states the period of record for this gage is October 1, 1985 to present. However, the adjusted monthly mean, median, maximum, and minimum flows from this gage provided in Table 4.3.1-1 uses the period from 1996 through 2018. It is unclear why the gage data from 1985 to 1996 was not used to calculate these flows. The Service recommends this additional data be used in these calculations so more representative flows can be calculated.

Section 4.3.3, Water Resources, Water Quality, Water Quality Standards: This section states water quality standards are established to support the propagation and growth of aquatic life. The numeric and descriptive water quality standards are provided in Table 4.3.3-1. This table lists the water quality criteria for DO as a daily average not less than 5.0 milligrams per liter (mg/L) and an instantaneous minimum not less than 4.0 mg/L.

The DO criteria (average DO minimum of 5.0 mg/L per day; minimum DO level of 4.0 mg/L) are not fully supportive of optimal growth conditions for many fish and other aquatic species. A literature review by Chamberlain et al. (1980) found that largemouth bass (*Micropterus salmoides*) experienced reduced larval growth at 6 mg/L (water temperature 20-23 degrees Celsius), and juvenile swimming speed was reduced at DO concentrations of < 5.0-6.0 mg/L (water temperature 25 degrees Celsius). Carlson and Siefert (1974) concluded that DO concentrations up to 6.3 mg/L reduced the early stages of growth of largemouth bass by 10 to 20 percent. Stewart et al. (1967) observed reduced growth of juvenile largemouth bass at 5.9 mg/L DO and lower concentrations, with significant growth reductions at DO concentrations below 5.5 mg/L.

In general, prolonged exposure to 4 mg/L DO causes acute mortality in many invertebrates and non-salmonid fish embryos (Gray et al. 2002). Severe production impairment of early-life-stage non-salmonid species occurs at DO concentrations below 4.5 mg/L (U.S. Environmental Protection Agency 1986). The Habitat Suitability Index Model for largemouth bass considers a DO concentration of 5-8 mg/L as providing a suitability of 80 percent during midsummer within pools or littoral areas, and a concentration > 8 mg/L as being optimal (suitability rating of 100 percent) (Stuber et al. 1982). Optimal DO concentration for walleye (*Sander vitreus*) spawning and embryo development is ≥ 6.5 mg/L (McMahon et al. 1984). Therefore, the optimal DO within the Project reservoir is likely ≥ 6.5 mg/L for target fish species. This higher DO concentration should be used when evaluating water quality impacts to fish from the Project.

Section 4.3.1, Water Quality, Project Reservoir, bottom of page 4-12: The Project reservoir surface area is described as being “approximately 90 acres.” This does not agree with other sections of the PAD where the surface area is described as covering 230 or 260 acres. As previously stated, the Service has estimated that the reservoir surface area is approximately 230 acres, which converts to approximately 90 hectares. This inaccuracy needs to be corrected.

Section 4.3.3, Water Resources, Water Quality, Existing Water Quality Data: This section states the Virginia Department of Environmental Quality maintains three water quality stations in the vicinity of the project: (1) 6.2 river miles upstream of the Project, (2) 0.1 miles upstream of the Project powerhouse, and (3) 5.2 river miles downstream of the Project. The only Virginia Department of Environmental Quality water quality station in close proximity to the Project is at the City of Danville water intake. According to information provided in Table 4.3.3-3, DO was measured 4 times over 5 years at this location. This data is insufficient to assess the impact of the Project on water quality in the river. The Service is particularly interested in water quality downstream of the Project during low flow conditions in the summer and fall when water temperatures are high and DO can be low. The Service is also interested in whether the presence of the reservoir raises the temperature in the river compared to the free-flowing river upstream of the Project. Therefore, a water quality study is recommended to assess impacts from the Project (see Study Requests below).

Section 4.4.1, Fish and Aquatic Resources, Fish Community: This section states the fish community within the Project area is typical of a southeastern warmwater fishery, consisting of largemouth bass, sunfish, suckers, catfish, and various minnows. The citation for this fish community information is the Final Environmental Assessment from the previous relicensing. Based on this information and other cited sources in this section, it appears there have been no recent comprehensive fish surveys near the Project. Because fish communities change through time, the Service recommends an updated fish survey be completed to identify which fish species may be impacted by Project operations (see Study Requests below). This survey is also needed to determine whether any state and/or federally listed fish species are present in the vicinity of the Project including the federally listed endangered Roanoke logperch (*Percina rex*).

Section 4.4.2, Fish and Aquatic Resources, Freshwater Mussels: This section states mussel surveys were conducted in response to the coal ash spill. The nearest survey locations from this survey relative to the Project were located approximately 7.5 miles upstream and 4.8 miles downstream of the Project dam. This is the only mussel survey discussed in this section. No mussel surveys in close proximity of the Project were provided. The Service is particularly interested in the mussel community immediately downstream of the Project and how it may be affected by Project operations. Therefore, the Service recommends a mussel survey be conducted to identify which mussel species may be present and could be impacted by Project operations (see Study Request below). This survey is also needed to determine whether any state and/or federally listed mussel species are present in the vicinity of the Project.

Section 4.4.3, Aquatic Habitat, Reservoir: This section includes a description of the reservoir and its surface area. The Service believes the surface area estimate is incorrect (see comments above) and this inaccuracy needs to be corrected.

Section 4.5.1, Wildlife and Botanical Resources, Wildlife Resources: This section states a complete list of mammals, amphibians, reptiles, and bird species that may be in the Project area was compiled using the Virginia Department of Game and Inland Fisheries, Virginia Fish and Wildlife Information Service. Table 4.5.1-4 shows the bird species that may occur within the Project area and includes the bald eagle (*Haliaeetus leucocephalus*). According to the Center for Conservation Biology Eagle Nest locator (<https://ccbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/>), there are no documented eagle nests within and near the Project area. However, there may be nests within the Project area as not all nests in the state have been mapped. A survey for eagle nests within the Project area is recommended to assess whether eagles could be affected by Project operations. The bald eagle is protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). If bald eagles are present in the Project area, we recommend that following the Service's Bald Eagle Management Guidelines. These guidelines, as well as additional eagle information, are available at <http://www.fws.gov/northeast/EcologicalServices/eagle.html>. To assist you in making a decision regarding potential impacts to bald eagles, a screening form can also be found at

<http://www.fws.gov/northeast/EcologicalServices/eagleguidelines/constructionnesting.html>.

Section 4.7.1, Rare, Threatened, and Endangered Species, Federal Species, Atlantic Pigtoe; and Section 4.7.2, State Species: These sections refer to recent freshwater mussel surveys conducted in response to the coal ash spill as evidence that the Atlantic pigtoe (*Fusconaia masoni*), proposed for federal listing as threatened, and other special-status mollusk species do not occur in the Project area. However, the nearest survey locations from the cited survey effort, relative to the Project, were located approximately 7.5 miles upstream and 4.8 miles downstream of the Project dam. Therefore, the statements in these sections indicating that Atlantic pigtoe and other special-status mollusk species do not occur in the vicinity of the Project are unsupported. Section 4.7.2 also states that the cited surveys were performed “in the Project area.” This statement is inaccurate. Therefore, the Service recommends a mussel survey be conducted.

Section 5.1.3, Issues Pertaining to the Identified Resources, Fish and Aquatic Resource Issues:

This section states there are no anadromous fish in the Project area, as dams downstream of the Project preclude upstream fish passage. This information should be updated as there are currently efforts to provide passage for catadromous American eels within the Roanoke River watershed. The two most downstream dams on the Roanoke River (Roanoke Rapids and Lake Gaston) are currently required to provide passage for American eels as part of their recent relicensing. The resource agencies are also working with the U.S. Army Corps of Engineers to facilitate American eel passage at Kerr Dam. American eels are currently being trapped and transported above the Roanoke Rapids and Gaston Dams. As this effort progresses upstream, American eels may eventually be able to reach the Dan River and the Project within this upcoming license cycle. There is also a statement in this section that a recent mussel survey of the Project area has indicated that two mussel species are present; however, as noted above, the referenced survey did not include the Project area. Therefore, the Service recommends a mussel survey be conducted to identify which mussel species may be present and could be impacted by Project operations (see Study Request below). This survey is also needed to determine whether any state and/or federally listed mussel species are present in the vicinity of the Project.

Regarding the statement that the Project is located at a low-head dam, has propeller type turbines and an angled trash rack structure upstream of the Project intakes, and these factors would mitigate entrainment and impingement of downstream moving fish at the Project, there are no recent entrainment and impingement evaluations to support this position. Therefore, the Service recommends an entrainment and impingement study to assess impacts on fish populations in the river (see Study Requests below).

Section 5.1.6, Issues Pertaining to the Identified Resources, Rare, Threatened and Endangered Species Issues:

This section states the Licensee had determined that there are no known hibernacula or maternity roost trees in the Project area for the federally listed threatened Northern long-eared bat (*Myotis septentrionalis*) (NLEB). Therefore, this section concludes the Project is not expected to affect this species. During the summer, NLEB roost in tree cavities and under bark throughout the state. Therefore, any activities that require tree removal could potentially impact this species.

This section states the range of the Roanoke logperch within the Dan River basin is primarily west and upstream of the Project; therefore continued operation of the Project is not expected to effect this species. Historically, the range of the Roanoke logperch was within and downstream of the Project. The Service is not aware of any surveys for this species immediately upstream, within, or immediately downstream of the Project. Therefore, it is premature to make this conclusion until further studies on the occurrence of the Roanoke logperch in the area are conducted, as discussion in Section 4.4.1.

This section states recent mussel surveys of the Project area did not determine that the Atlantic pigtoe is present in the Project area; therefore continued operation of the Project is not anticipated to affect the Atlantic pigtoe. The closest survey sites were located 7.5 river miles upstream and 4.8 river miles

downstream of the Project. No mussel surveys have been conducted immediately upstream and downstream of the Project. Therefore, it is premature to make this conclusion until further studies on the occurrence of mussels within the Project area are conducted. Therefore, the Service recommends a mussel survey be conducted.

Section 5.2, Potential Studies or Information Gathering: This section states the Licensees are not proposing any resource studies for the relicensing at this time. The Service does not agree with this position. For the reasons provided in the comments above, the Service recommends the following studies be conducted to assess potential impacts from Project operations: (1) Water quality study; (2) Fish surveys, including targeted Roanoke logperch surveys, to be conducted by a qualified/approved surveyor; (3) Freshwater mussel surveys, including targeted Atlantic pigtoe surveys, to be conducted by a qualified/approved surveyor; (4) Fish protection and upstream and downstream passage studies; and (5) Entrainment and impingement study. The Service does not intend to request NLEB surveys unless there are proposed activities that require tree removal.

Section 5.3, Relevant Comprehensive Waterway Plans: This section lists the comprehensive plans considered applicable to the Project. The following comprehensive plan is not included on this list and should also be considered for this Project:

U.S. Fish and Wildlife Service. 1992. Roanoke Logperch (*Percina rex*) Recovery Plan. Annapolis, MD. https://ecos.fws.gov/docs/recovery_plan/920320a.pdf.

This plan was accepted by FERC as a comprehensive plan on July 12, 2019.

Study Requests:

I. Water Quality Study

We do not agree with the applicant's conclusion that no water quality study is needed. A water quality study is needed to determine the impact Project operations may have on water quality in the Dan River. During periods of normal and low flow, the majority of the river flow is routed through the powerhouse. This results in little spillage over the dam. This can result in reduced DO concentrations downstream of the Project. These studies should include water temperature and DO monitoring on a continuous basis from the spring through early fall. Of particular interest is water quality conditions during low flow periods in late summer/early fall. The study should be conducted for one spring/summer/fall season, with a provision for a second year of study if data collected are inadequate based on review by the Service and other resource agencies, or if river flows are atypical during the initial study year. Data should be collected from the area upstream of the impoundment (as a reference), the impoundment, and the area downstream of the powerhouse.

1. *Goals and Objectives*

The goals and objectives of this study are to determine whether Project operations, including reduced spillage during periods of lower flow, have an impact on water quality downstream of the Project.

2. *Resource Management Goals*

Resource management goals include ensuring the protection of, and continued recovery of, existing fish and mussel communities within the Dan River.

3. *Public Interest*

The requestor is a resource agency.

4. *Existing Information*

The PAD provides water quality data collected by Virginia Department of Environmental Quality from the U.S. Route 58 Bypass Bridge approximately 6.2 river miles upstream of the Project, at the City of Danville's water supply intake approximately 0.1 river miles upstream of the powerhouse, and near the USGS gage near the sewage treatment plant approximately 5.2 river miles downstream of the Project. According to Table 4.3.3-3, no temperature data was collected from these locations, and DO was limited to 12 readings over 10 years at the upstream location and 4 readings over 5 years at the City of Danville's water supply intake. No DO data were collected at the downstream location. It is unclear what time of year these data were collected and whether data were collected during any periods of low flow. These data are limited and are not sufficient to assess the impact of Project operations on water quality. USGS continuously monitored water temperature and specific conductivity at the most downstream site over a three-year period from February 2006 through February 2009. No continuous data has been collected upstream, within the impoundment, or immediately downstream of the powerhouse.

5. *Nexus to Project Operations and Effects*

Operation of the Project involves diversion of most or all flow to the powerhouse. Therefore, operation of the Project during certain periods may reduce spillage over the dam crest, possibly resulting in downstream effects to DO. The presence of the impoundment may also cause an increase in water temperature compared to the upstream free-flowing river.

6. *Methodology Consistent with Accepted Practice*

The recommended study uses standard scientific water quality sampling techniques used in most hydropower licensing activities.

7. *Level of Effort, Cost, and Why Alternative Studies Will Not Suffice*

The level of effort for the monitoring component of this proposed study would be low, and would involve one crew collecting monthly samples while undertaking other work such as fisheries surveys. In addition, temperature and DO loggers should be installed, with data being periodically downloaded. The actual cost is unknown. Existing data are limited.

II. *Fish Surveys*

We do not agree with the applicant's conclusion that no fish surveys are needed. Fish surveys are needed to obtain an updated assessment of fish species present in the vicinity of the Project. A variety of sampling gear, including gill nets, trap nets, seines, and electroshocking should be used as appropriate for site conditions. The surveys should cover at least three seasons (spring, summer, and fall). Surveys should also include methods specific for Roanoke logperch to determine if adults are present upstream, within and downstream of the Project area. If adult logperch are documented in the vicinity of the Project, additional surveys for earlier life stages would be needed. The study should be for one year, with provision for a second year of study if data collected are inadequate based on review by the Service and other resource agencies, or if river flows are atypical during the initial study year. Information to be collected should include species, size, age, sex, and condition, as well as movement patterns and habitat utilization. Standard water quality data (i.e., water temperature, DO, pH, and conductivity) should be collected in conjunction with these surveys. These studies should focus on general fishery resources, and should include the reservoir, including near the powerhouse intake, the dam tailrace area, and the Dan

River within the downstream extent of Project effects. The Roanoke logperch targeted surveys should also focus on appropriate habitat upstream of the reservoir and downstream of the tailrace.

1. *Goals and Objectives*

The goals and objectives of this study are to provide information on the existing fishery resources, including information on the current distribution of the Roanoke logperch in the vicinity of the Project, and to inform the requested entrainment and impingement study (i.e., species and quantities potentially impacted). Fish surveys should be performed upstream, within and downstream of the Project area, including dam tailwaters, to aid in the determination of what the Project impacts may be and to establish a baseline for future assessments. The information to be obtained should include both the temporal and spatial aspects of species distribution; age, size, sex, and condition data; habitat utilization; and fish movement patterns. Information on the habitat present in the river should also be collected.

2. *Resource Management Goals*

Resource management goals include: (1) protecting potential populations of the federally listed endangered Roanoke logperch; (2) protecting the existing warmwater fishery; (3) ensuring protection of species which are known or potential hosts for the glochidia (larvae) of federally listed and/or rare freshwater mussels; and (4) possibly developing protection or passage measures for these species.

3. *Public Interest*

The requestor is a resource agency.

4. *Existing Information*

The PAD provides a list in Table 4.4.1 of the fish species that may occur in the Dan River. This section also states the fish community is typical of a southeastern warmwater fishery and cites the 1994 Final Environmental Assessment for this Project. However, there is no information provided on what, if any, fish surveys have been conducted within the Project area. Based on the limited information provided in the PAD, it appears no recent comprehensive fishery surveys have been conducted in this section of the Dan River. Updated information on the fish community in the vicinity of the Project is needed.

5. *Nexus to Project Operations and Effects*

The Schoolfield Dam serves as a barrier to upstream and downstream fish migration and may reduce survival of downstream migrants due to turbine entrainment. The Project also can redirect flow and change flow patterns, impact channel morphology and substrates (e.g., spawning gravels) in downstream areas, and impact habitats in the impoundment above the dam.

6. *Methodology Consistent with Accepted Practice*

The recommended study uses standard scientific collecting techniques used in most hydropower licensing activities.

7. *Level of Effort, Cost, and Why Alternative Studies Will Not Suffice*

The level of effort would involve one field crew sampling on a seasonal basis. The study would last for 1-2 years. The actual cost is unknown and would depend upon the gear types used, number of sampling locations, local labor costs, and the ability to combine multiple studies (e.g., fisheries and water quality) into one task.

Within appropriate habitat, methods specifically targeting Roanoke logperch should be used to determine whether any Roanoke logperch are present within the Project area. If adults are found to be present, a second year of sampling specifically targeting earlier life stages would be needed to fully assess potential impacts to this species from Project operations.

The existing data and literature are inadequate to fully assess Project impacts, and there are no alternatives to conducting standard fishery surveys. However, the Licensee has flexibility to design the most cost-effective way to acquire the necessary data.

III. Mussel Surveys

We do not agree with the applicant's conclusion that no mussel surveys are needed. The Service is not aware of any comprehensive mussel surveys in the Dan River in close proximity to the Project. A mussel survey is needed to determine whether any federally listed and/or rare freshwater mussel species are present within the potentially affected area, and to determine the potential for operation of the Project to adversely affect any mussel species that may be present. We recommend that a detailed habitat assessment be conducted by an approved surveyor to identify suitable habitat, and that a mussel survey be conducted within all suitable habitat, extending at least as far downstream as the extent of Project effects. Surveys are not needed if the approved surveyor determines that no suitable habitat is present within this potentially affected area.

1. *Goals and Objectives*

The goals and objectives of this study are to provide information on occurrences and distributions of freshwater mussels and their habitats, to establish a baseline from which to measure changes in mussel occurrence over time, to assess the potential for the Project to adversely affect listed mussel species or other mussel species of conservation concern, and to develop protection and mitigation measures for these species if a determination is made that such measures are necessary and appropriate.

2. *Resource Management Goals*

To restore and protect viable populations of freshwater mussels, including federally listed species and other species of conservation concern.

3. *Public Interest*

The requestor is a resource agency.

4. *Existing Information*

The PAD provides a summary of mussel surveys conducted in 2014 in response to the coal ash spill at Duke Energy's Dan River Steam Station. Surveys were conducted from the Snow Creek confluence with the Dan River in Stokes County, NC to Kerr Reservoir in Halifax County, VA. In total, 39 sites were surveyed, collectively within which ten species were documented. Listed mussels found in the Dan River were the Atlantic pigtoe (federally proposed threatened, state threatened) and green floater (*Lasmigona subviridis*; state threatened). The nearest survey locations relative to the Project are located 7.5 river miles upstream and 4.8 river miles downstream of the Project dam. These are not close enough to assess potential impacts from Project operations. Therefore, a mussel survey is needed to assess the potential for the Project to affect mussel species, and to establish a baseline for future determinations of any effects of the Project on mussels.

5. *Nexus to Project Operations and Effects*

If present, freshwater mussel populations could be impacted by the Project, both directly (scouring, sedimentation, changes in flow distribution, changes in water quality) and indirectly (reduced upstream and downstream movements of host fish species, and possible entrainment impacts to host species). Lack of host fish passage options can result in fragmentation of mussel populations and the loss of genetic exchange, leading to reduced genetic diversity. The replacement of the upstream lotic habitat (e.g., riffles) with lentic habitat that includes benthic substrates smothered by accumulated silt also eliminates suitable habitat for most mussel species. Project effects can also include downstream water quality issues (i.e., DO and temperature effects) which can result in reduced reproduction and recruitment or, in some cases, mortality.

6. *Methodology Consistent with Accepted Practice*

While there are Freshwater Mussel [survey] Guidelines for Virginia (https://molluskconservation.org/Mussel_Protocols.html), based on a recent communication from VDGIF, a specific survey methodology is not recommended upfront as that is usually developed in consultation with the surveyor. The Virginia guidelines include a link to the list of approved surveyors in Virginia for Atlantic Slope freshwater mussels.

7. *Level of Effort, Cost, and Why Alternative Studies Will Not Suffice*

The level of effort would be moderate. At a minimum, the river channel and banks upstream and downstream of the Project should be surveyed, extending downstream beyond the influence (e.g., sedimentation) of the Project. A few to several person-days would be required. Costs would be moderate, depending on the number of person-days needed to thoroughly survey the area, and quantitative methods used. There are no known alternative approaches to determining presence, distribution and abundance of freshwater mussels.

IV. Fish Protection and Upstream and Downstream Passage Studies

There are two viable options for the downstream passage of fish including: (1) over the dam during high flows, and (2) through the powerhouse turbines. During periods of lower flows the majority of the flow is routed through the turbines with the remainder leaking through the flashboards. Without an adequate plunge pool, fish moving over the dam would be susceptible to injury or mortality. Fish moving downstream through the turbines would be subjected to potential injury or mortality from impingement and entrainment. Many hydroelectric project licenses have incorporated trash racks with 1-inch clear bar spacing to physically exclude most adult fish from the turbines, alternate downstream passage routes, and other features (e.g., reduced approach velocities, adequate plunge pools, etc.) to encourage safe downstream fish passage. In the context of multiple, stacked hydropower projects, cumulative entrainment impacts are likely. The Licensees have not proposed any measures to ensure safe, timely and effective upstream and downstream fish passage. Therefore, we request that upstream and downstream passage studies be undertaken.

1. *Goals and Objectives*

The goals and objectives of this study are to provide information on potential fish passage and protection structures, or other measures that could be utilized at this Project. If Roanoke logperch are found near the Project, an additional goal should be to determine whether Roanoke logperch are able to pass through the Project and whether the populations upstream and downstream of the Project (if present) are isolated from one another. The information obtained will allow the Service's fishway engineers to evaluate the potential effectiveness of various options.

2. *Resource Management Goals*

Resource management goals include providing safe, timely and effective passage to migratory fish species (e.g., smallmouth bass, largemouth bass, white bass, redhorses, channel catfish), and fish species that serve as glochidial hosts for freshwater mussels found in the Project area.

Because larval Roanoke logperch can drift several miles downstream, it is possible for larval logperch to enter the powerhouse intake from upstream; therefore, an additional resource management goal is to prevent injury of any larvae that drift downstream. In addition, tagged Roanoke logperch have been documented moving up to 3.2 km (Roberts et al. 2007), and another study estimated a median lifetime dispersal distance of 6-26 km (Roberts et al. 2016); therefore, an additional resource management goal is to prevent entrainment of any adult logperch that may migrate downstream during dispersal. Preventing entrainment of all life stages of Roanoke logperch is an important goal given their endangered status and the Service's goal of recovering this species.

3. *Public Interest*

The requestor is a resource agency.

4. *Existing Information*

The PAD provides little information regarding currently available passage alternatives.

5. *Nexus to Project Operations and Effects*

Available options for safe downstream passage are currently limited, and any fish attempting to move downstream are likely to be attracted to the powerhouse intake and become entrained in the Project turbines, resulting in some immediate mortality, as well as latent mortality and cumulative mortality from multiple, stacked hydropower projects. Without an adequate plunge pool, fish moving over the dam are susceptible to injury. There is currently no alternative for migratory fish to move upstream past the Project.

6. *Methodology Consistent with Accepted Practice*

The recommended study uses standard literature reviews and site-specific data collection techniques common to most hydropower licensing activities.

7. *Level of Effort, Cost, and Why Alternative Studies Will Not Suffice*

The level of effort would involve a moderate literature review, discussions with fishway engineers, and site-specific data collection. The study could be completed in less than 1 year, but may require more time to design effective facilities or measures. The actual cost is unknown and would depend on the number of alternatives examined. The existing information in the PAD is inadequate to allow for a thorough examination of alternatives; however, most of the information needed should be available in the existing literature.

V. Entrainment and Impingement Study

We do not agree with the applicant's conclusion that no entrainment and impingement study is needed. There is no mention of an entrainment and impingement study being done as part of the previous relicensing. This study is needed to assess the potential impact of Project operations on the fish

community. Because the spacing between the bars on the trash racks is greater than 1 inch, fish can pass through the trash racks into the turbines. Therefore, the Service recommends a desktop entrainment and impingement study be performed to assess impacts from the Project. The Service's Fish Passage Engineering group and others have developed turbine blade strike analyses based on a study by Franke et al. (1997). The updated fish survey recommended above should be used to determine what sensitive and rare fish should be evaluated as part of this study. The study should also consider the attraction of migratory fish species to the intake flow.

1. Goals and Objectives

The goals and objectives of this study are to provide information on survival rates of all species and life stages of fish that may be impinged on powerhouse intake trash racks or entrained in powerhouse turbines, and to develop estimates of annual mortality rates for all species and life stages. Estimates should also consider indirect, latent mortality of injured fish that are subjected to predation (e.g., due to disorientation or loss of equilibrium), disease (e.g., as a result of cavitation injuries), or physiological stress.

2. Resource Management Goals

To protect native fish populations and ensure that entrainment and impingement impacts are not resulting in population-level effects to species of conservation concern. Conclusions regarding potential population-level effects should consider the cumulative effects of multiple, stacked hydropower project in the Dan and Roanoke Rivers.

3. Public Interest

The requestor is a resource agency.

4. Existing Information

There is no mention of an entrainment and impingement study conducted as part of the previous relicensing; thus it appears no such study has been done at the Project. Therefore, there is currently no information on how Project operations may be affecting fish populations within the Dan River.

5. Nexus to Project Operations and Effects

Operations of the Project result in injury and mortality of a percentage of fish that are impinged on powerhouse intake trash racks or entrained in Project turbines.

6. Methodology Consistent with Accepted Practice

The recommended study uses standard methodologies used in many hydropower licensing activities.

7. Level of Effort, Cost, and Why Alternative Studies Will Not Suffice

The level of effort and cost are to be determined during the study plan development phase. The Service is interested in working with the Licensees, FERC, and the other resource agencies to develop a study plan that will address resource agency concerns.

The Service recommends that the Draft Study Plan developed by the Licensees incorporate all of the above-listed studies. The study proposals incorporated into the Draft Study Plan should be as detailed as possible so that all parties know exactly what is being agreed to when the study plan is approved.

Thank you for the opportunity to comment on the PAD, and the opportunity to provide study requests. If you have any questions, please contact John McCloskey of this office at (804) 824-2404, or via email at john_mccloskey@fws.gov.

Sincerely,



Date: 2019.11.15 09:56:19
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Cindy Schulz
Field Supervisor
Virginia Ecological Services

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North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

November 15, 2019

Mr. Michael Scarzello
Eagle Creek Renewable Energy, LLC
116 State Street
Neshkoro, WI 54960
michael.scarzello@eaglecreekre.com

Via Email

Subject: First Stage Consultation Comments and Study Requests
Schoolfield Hydroelectric Project (P-2411-028)

Dear Mr. Scarzello:

This letter contains First Stage Consultation comments and study requests of the North Carolina Wildlife Resources Commission (NCWRC) pursuant to the regulations governing the relicensing of a hydroelectric project by the Federal Energy Regulatory Commission (FERC) under the Traditional Licensing Process (18 CFR 16.8). The project is located on the Dan River in Danville, Virginia. However, due to the fact that the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. The NCWRC provides these comments in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

On May 31, 2019 STS and Danville (co-Licensees or applicant) submitted a Pre-Application Document (PAD) and request to use the Traditional Licensing Process (TLP). STS and Danville propose to continue operating the existing dam, reservoir and powerhouse in a run-of-river mode to generate electricity. The PAD also states that no studies are planned by the applicant. On June 21, 2019 the NCWRC provided comments on the PAD. On July 24, 2019 the FERC granted the co-Licensees authority to use the TLP. A public meeting and site visit were held on September 18, 2019 which were attended by the NCWRC.

The NCWRC does not have a fish and wildlife management plan specific to the Roanoke River basin but we have prepared a Wildlife Action Plan (<https://www.ncwildlife.org/plan>) which focuses on rare, threatened and endangered species, and addresses fish and wildlife generally. The Wildlife Action Plan has been accepted by FERC as a comprehensive plan. Our

management goals are: 1) to protect and improve the overall aquatic ecology and important fisheries of the Roanoke basin, including listed species of fish, mussels, crayfish, snails, and amphibians; and, 2) to improve populations of diadromous fish species, including American eels.

Pursuant to 18 CFR 16.8(b)(5) we submit the following study requests in order to more fully understand the natural resources of the project vicinity and the potential impacts of project operation on them.

Study Request #1 – Aquatic Fauna Surveys

1. Study or information request

Aquatic biota sampling of the Dan River in the immediate vicinity of the project and upstream and downstream of the project are necessary to adequately characterize the occurrence, distribution, and relative abundance of fish, mussel, and other aquatic taxa of the river. At a minimum, surveys should be conducted at three locations – downstream of the Schoolfield dam, in the project impoundment, and in riverine habitat upstream of the Schoolfield impoundment (above US 58). The downstream location should include areas immediately below the powerhouse, between the dam and Piedmont Drive bridge, and downstream of the bridge. Within the Schoolfield impoundment a variety of habitats should be targeted.

Additional sampling locations should be included to characterize the general faunal conditions of the Dan River in the vicinity of the project. These areas include the reaches downstream of the Union Street dam and the Dan Mills (Whites Mill) dam, respectively about 2.5 and 2.9 miles downstream of Schoolfield dam.

Different sampling methods should be used to target fish and mussels. Fish sampling should include boat, backpack or tote-barge electrofishing and seining. We are particularly interested in collecting small, benthic species that typically are not adequately sampled using just boat electrofishing methods. Fish collection should take place under normal to low flow conditions, between May and June to determine if any migratory fishes are present (i.e., spring spawning run of suckers) and in late summer or early fall.

Qualitative mussel sampling (presence/absence) should be conducted by visual (snorkel, SCUBA, or view scope) and tactile surveys. Areas immediately below the Union Street and Dan Mills dams and in the vicinity of Reedy Island also provide suitable habitats for benthic fishes and mussels.

All surveys should be conducted in a variety of habitat types at each site and be timed to provide catch-per-unit effort (CPUE). Temperature and dissolved oxygen should be measured at each site. Organisms collected should be identified to species, enumerated and measured.

2. Basis for study request

A thorough and comprehensive assessment of the aquatic fauna present in the vicinity of the project is lacking. The information on aquatic fauna provided in the PAD is generally not in close proximity to the Schoolfield project. The PAD indicates that the data source for most fish species in Table 4.4.1-1 is from fishmap.org which provides data at a HUC 8 scale, so it is not clear which of these species are actually found near the project. Also, previous fish sampling efforts do not appear to have targeted small or benthic species in the vicinity of the project, so it is possible that such species occur nearby.

Similarly, the mussel surveys conducted by Alderman Environmental Services in 2014 did not include the areas immediately downstream of the Schoolfield, Union Street or Dan Mills dams. The nearest mussel survey locations were 1.5 miles upstream of the upper end of the Schoolfield impoundment and 4.8 miles downstream of the Schoolfield dam. Areas downstream of dams typically provide suitable habitat for mussels because they often contain substrates that are less embedded with silt and sand. Therefore, the aquatic fauna in the reach downstream of Schoolfield dam is of particular interest.

3. Resource issues and agency goals for these resources

The NCWRC is charged with protecting and enhancing fish and wildlife, including rare, threatened and endangered species. Schoolfield dam and other dams in the area are likely fragmenting populations of rare fish and mussels. Our goal is to recover these species such that they are no longer listed as threatened or endangered. According to our records the following listed species have been collected since 2017 in the North Carolina portion of Dan River downstream of Duke Energy's Dan River steam station dam and may occur in the vicinity of the project:

Common Name	Scientific Name	State Status	Federal Status
Atlantic Pigtoe	<i>Fusconaia masoni</i>	Endangered	Proposed Threatened
Green Floater	<i>Lasmigona subviridis</i>	Endangered	
James Spiny mussel	<i>Parvaspina collina</i>	Endangered	Endangered
Notched Rainbow	<i>Villosa constricta</i>	Threatened	
Roanoke Logperch	<i>Percina rex</i>	Endangered	Endangered
Yellow Lampmussel	<i>Lampsilis cariosa</i>	Endangered	

Although diadromous fish species may not currently occupy the Dan River near the Project, they may obtain access to Project waters during the course of the next license period. Current efforts at the Roanoke Rapids and Gaston dams are moving American eels upstream. Should eels gain access above Kerr dam, they are very likely to pass the other low head dams downstream of Schoolfield.

4. Why the study methodology is more appropriate than any other available methodology alternatives, including those identified by the applicant in the PAD

According to the PAD, the applicant does not plan to conduct any studies.

5. Documentation that the study methodology is a generally accepted practice

These are standard fish and mussel surveys typically conducted for all hydropower relicensings.

6. How the study/information request will be useful to the agency in furthering its resource goals and objectives practice

Understanding how the project affects the rare aquatic fauna will assist the NCWRC and other resource agencies in developing operational and mitigation recommendations for the hydro project to minimize impacts to fish and wildlife resources.

Study Request #2 – Effects of Project Operation on Downstream Flows*1. Study or information request*

Fine-scale data on reservoir and tailwater water surface elevations and hydropower generation should be provided to better understand project operations under a range of inflow conditions and the resulting effects on downstream flows. These data can be collected with water level loggers and should be provided at 15-minute intervals so comparisons can be made with USGS gage data. The data should be collected for at least 12 months to capture a variety of high and low flow conditions.

Also, the frequency and duration of previous instances of lowering and refilling the reservoir for maintenance or emergencies should be provided. Together, these data will be used to determine project impacts and assist in developing operating protocols to protect aquatic resources.

2. Basis for study request

Rapid and frequent fluctuations in flow can impact fish and mussel populations, particularly in riffles and other shallow habitats. Analysis of the USGS stream gages Dan River near Wentworth, NC (02071000), Smith River at Eden, NC (02074000), and Dan River at STP near Danville, VA (02075045) indicates that flows may be regulated by the Schoolfield project or other facilities in the intervening reaches. See attached figures for examples of apparent flow regulation of the Dan River. Because of the distances between the gages and the unknown operations of Schoolfield and the other facilities, it is unclear if, and to what extent, the flow regulation is due to Schoolfield or another facility. Providing detailed reservoir level and hydro generation data from Schoolfield will assist in determining its influence on downstream flows.

3. Resource issues and agency goals for these resources

The NCWRC is charged with protecting and enhancing fish and wildlife, including rare, threatened and endangered species. See the Wildlife Action Plan for more details. Furthermore, it is our goal to re-establish or expand migrations and populations of native, naturally reproducing target species, particularly American eel.

4. *Why the study methodology is more appropriate than any other available methodology alternatives, including those identified by the applicant in the PAD*

According to the PAD, the applicant does not plan to conduct any studies.

5. *Documentation that the study methodology is a generally accepted practice*

Documenting the effects of project operations on downstream flows and habitat is routinely conducted for hydropower relicensings.

6. *How the study/information request will be useful to the agency in furthering its resource goals and objectives practice*

The results will allow the NCWRC and other resource agencies to isolate the influence of Schoolfield on downstream flow fluctuations and determine necessary operational changes or mitigation options.

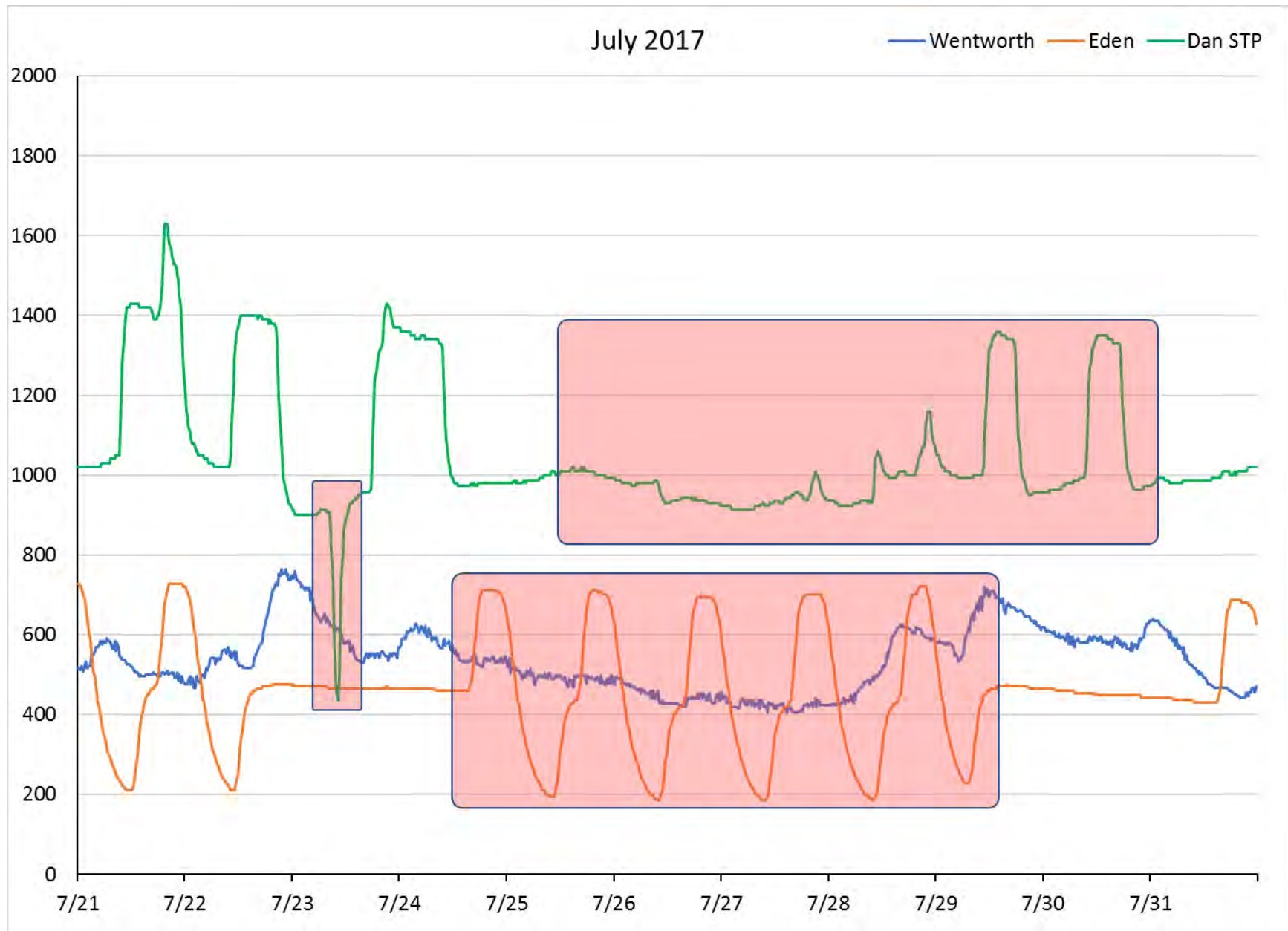
We appreciate the opportunity to provide these comments. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

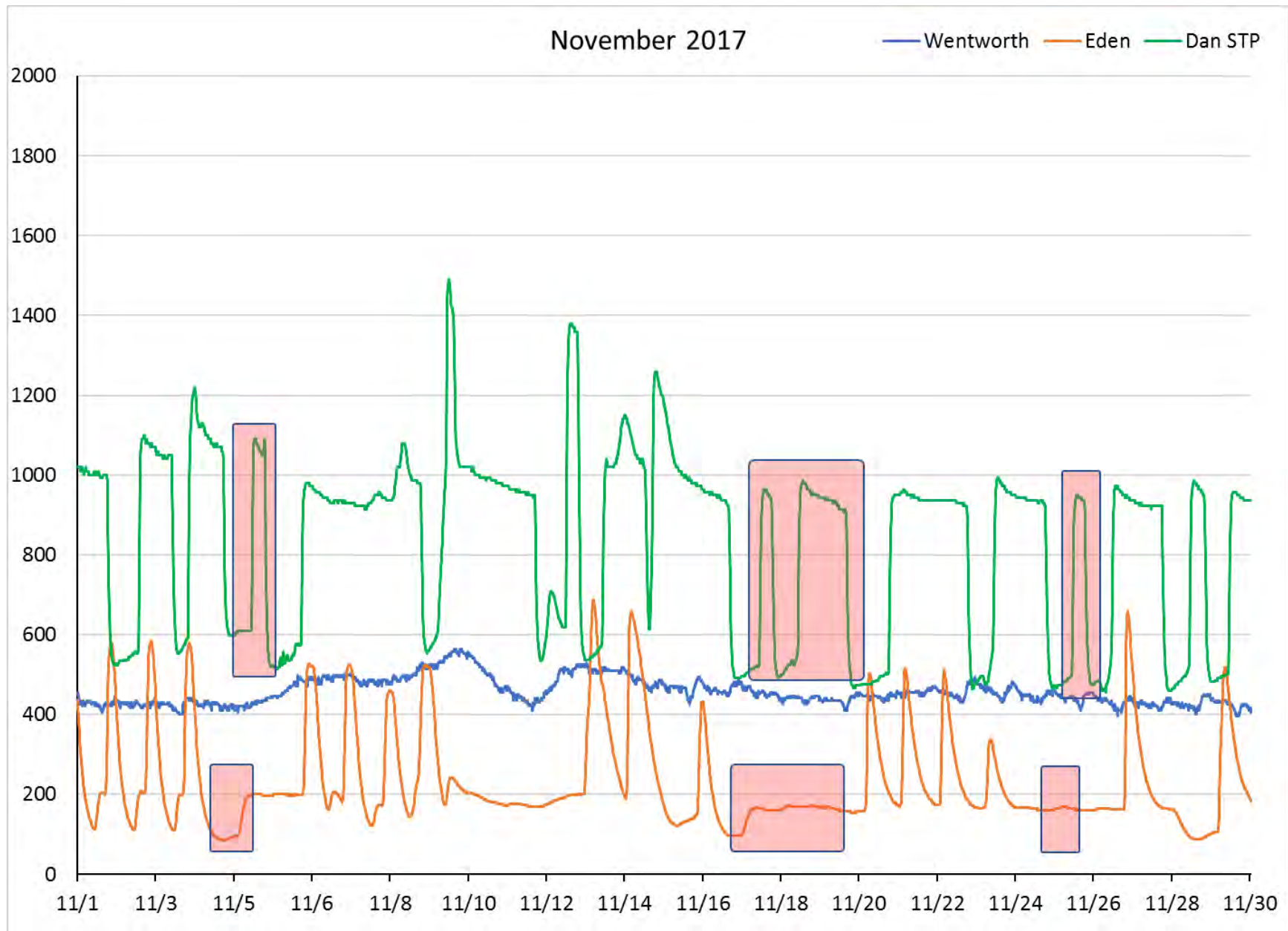
Sincerely,

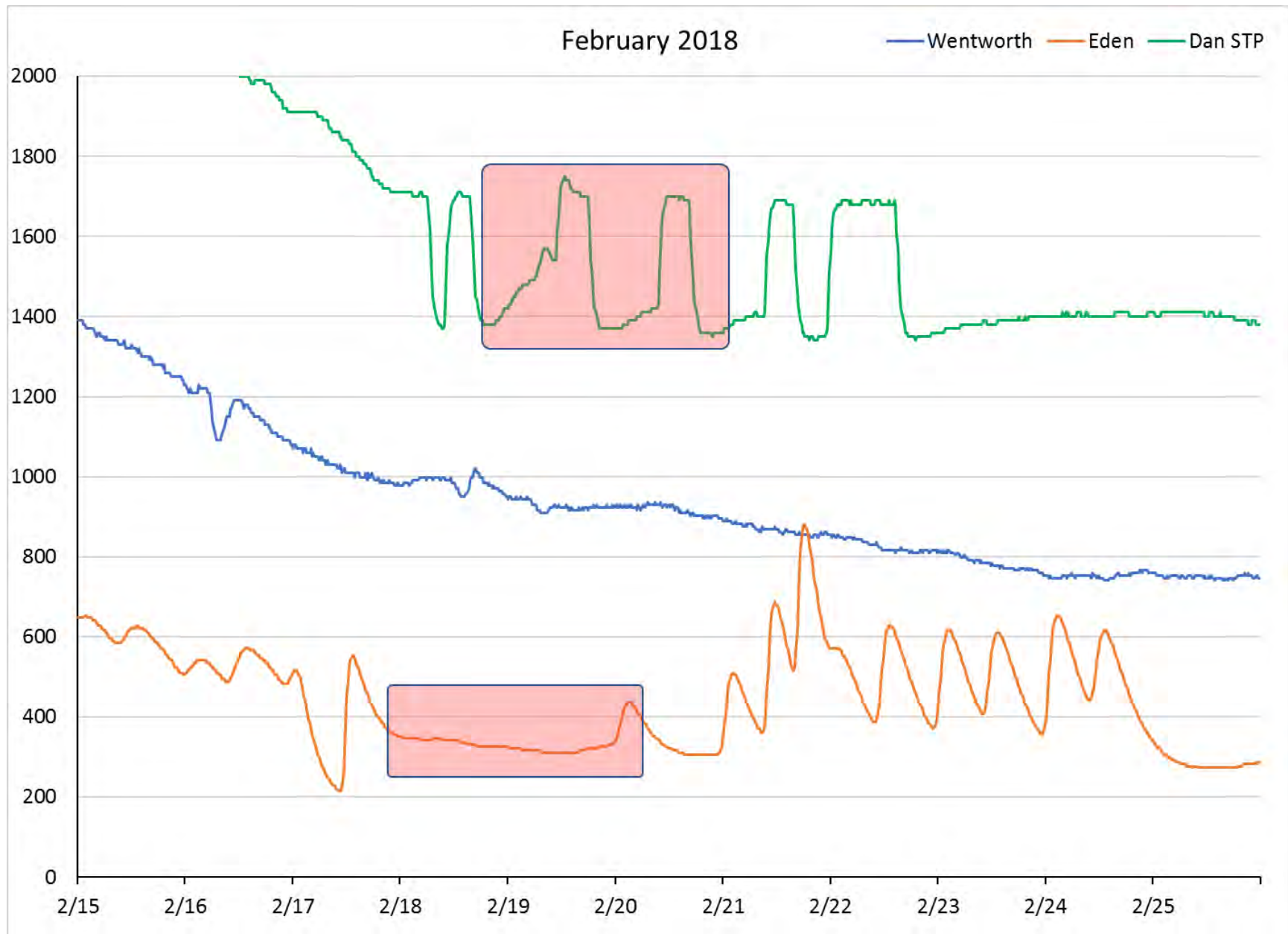


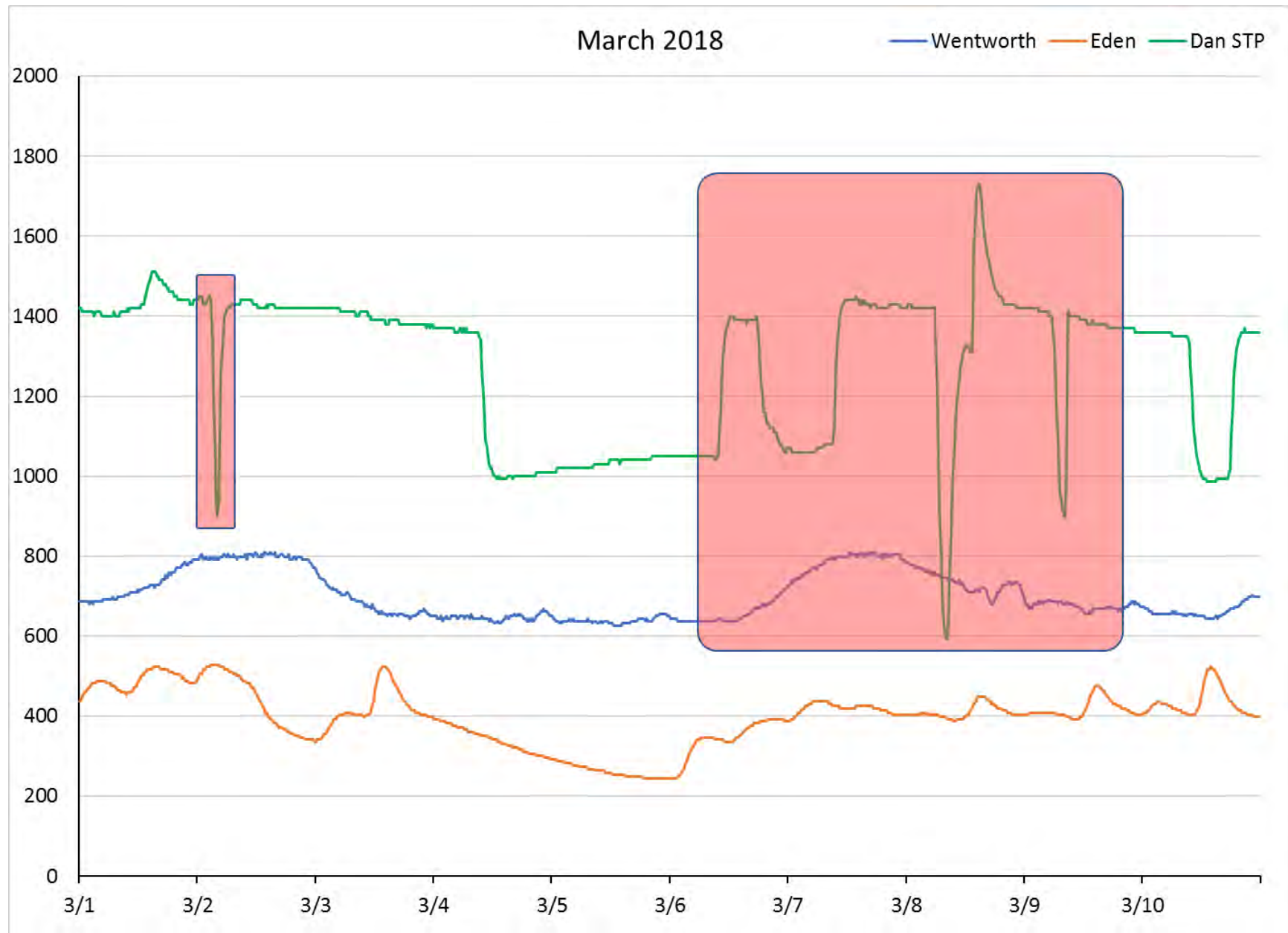
Christopher Goudreau
Hydropower Licensing Coordinator

cc: Scott Smith, VDGIF
John McCloskey, USFWS
Fred Tarver, NCDWR











Matthew J. Strickler
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA
Department of Game and Inland Fisheries

Ryan J. Brown
Executive Director

November 15, 2019

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 201426

**Re: Schoolfield Hydroelectric Project (P-2411) – Application for New License
Virginia Dept. of Game and Inland Fisheries Comments on PAD and Study
Requests**

Dear Secretary Bose:

Thank you for the opportunity to provide input into the relicensing process for the Schoolfield Hydroelectric Project (P-2411) under the Traditional Licensing Process (18 CFR 16.8). The Virginia Dept. of Game and Inland Fisheries (VDGIF) provides these comments in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The mission of VDGIF is to conserve and manage wildlife populations and habitat, connect people to Virginia's outdoors, and protect people and property by promoting safe outdoor experiences. Additionally, VDGIF is the state agency responsible for managing aquatic and terrestrial wildlife resources, including rare/listed species of fish and wildlife.

With our mission statement in mind, we have identified several issues regarding the project that we believe should be addressed in the relicensing process. In broad terms, these issues include the following:

- Downstream releases associated with project operations. Based upon internal analyses of multiple PHABSIM studies throughout Virginia, we have determined that alterations of stream discharge in excess of 10% have a high likelihood of impacting fish and other aquatic resources. We understand that inflows to the project are heavily influenced by upstream projects (particularly those on the Smith River). However, it appears that in some instances, the Schoolfield project further modifies the downstream flow regime via project operations (some examples of these cases were provided in the comments submitted by the North Carolina Wildlife Resources Commission). Furthermore, we would be interested in investigating the possibility of using the Schoolfield project to attenuate some of the flow fluctuations associated with upstream projects. It may be

possible to operate the project in a manner that benefits both the applicant and downstream aquatic resources, and this possibility should be investigated further.

- Protection and enhancement of populations of aquatic species (fish and mussels) potentially in the project area. Currently, essentially no information on mussels is available in the immediate area of the project. Some fish data are available from the area above the dam, but no data are available from the river segment between Schoolfield Dam and Dan Mills (Whites Mill) Dam. These data are needed to fully assess potential project impacts.
- The potential for the Federally-Endangered Roanoke Logperch (*Percina rex*) to be both present in the project area, and to be impacted by the project. This species has been collected in multiple locations in the Dan River basin upstream of the project, including the Eden, NC area (approximately 25 miles upstream from the project). Fish community sampling in the reaches between known locations and the project is both very limited and was typically conducted with boat electrofishing gear. This gear type is not well-suited to collecting small, benthic species such as the Roanoke Logperch. Based upon this information, there is a reasonable likelihood that this species could be present in the project area, or immediately downstream. As such, directed-effort sampling is needed to assess the potential impacts of the project on this species.
- Currently, no diadromous species are present in the project area. However, efforts are underway to provide passage for American Eel (*Anguilla rostrata*) at Roanoke Rapids and Gaston dams, downstream. Should these efforts prove successful, and eel passage is initiated at John H. Kerr Dam, then this species could potentially migrate to Union Street and Schoolfield dams. Additionally, a reproducing population of Striped Bass (*Morone saxatilis*) is present in Kerr Reservoir. Currently, these fish make a spawning run to the Danville area, but cannot pass the Union Street and Schoolfield dams. Since the Schoolfield Dam is an obvious barrier to fish movement, opportunities for enhancing fish passage for resident and migratory species should be investigated. This would include both upstream and downstream passage for all species present, as well as possible options for enhancing connectivity.
- Recreational access opportunities, and options for enhancement. Currently, the only access is a boat ramp and bank fishing access in the project headpond. There are no portage facilities to pass around the dam, nor is there any developed access below the dam. Given the location of the project in an urban area, the demand for additional access to the Dan River is high. Access enhancement options need to be investigated, with the goals of providing access to the river below the dam, providing a means to portage around the dam for hand-carried watercraft, as well as providing additional upstream access for small watercraft.

Study Requests

In light of the issues identified above, the Dept. of Game and Inland Fisheries requests the following studies in order to fully assess the impacts of the project on aquatic resources and aquatic-based recreation. In addition, we concur with and fully support the study requests submitted by the North Carolina Wildlife Resources Commission (NCWRC) and the U.S. Fish and Wildlife Service (USFWS).

Flow Alteration Assessment

1. *Study Goals and Objectives* – Based upon information submitted in the Pre-Application Document (PAD), the project operates in a strict “run of the river” mode, and simply passes inflows. However, there have been some occurrences whereby it appears that

downstream flows were modified by the project (see comments from NCWRC). Additionally, inflows into the project are highly altered by upstream projects (particularly those located on the Smith River). This study would have two primary objectives: (1) to assess the impacts of project operations on downstream flows in relation to project inflows; and (2) to assess the potential for utilizing the project to at least partially attenuate the highly variable inflows caused by upstream project operations. The overall goal of this study would be to fully assess project operations on downstream flows, and to evaluate options for utilizing the project to attenuate highly altered inflows with the goal of more closely matching the natural hydrograph of the Dan River.

2. *Agency Resource Management Goals* – The Dept. of Game and Inland Fisheries is the state agency responsible for managing fish and wildlife resources within the Commonwealth, including listed species. For this study request, the agency goals will be to determine a recommended flow regime for the Dan River to protect aquatic resources in the affected area.
3. *Public Interest Considerations (non-resource agency)* – n/a
4. *Existing Information and Need* – Paired project inflow/outflow data are currently unavailable, and these are needed to assess the impact of project operations on downstream resources. Lacking instantaneous inflow data, we cannot assess how project operations affect the downstream flow regime. Further, since inflows are highly altered by upstream projects, there exists the potential for the project to operate in a manner that will result in a hydrograph that more closely mimics the natural flow regime of the Dan River. This could potentially provide benefits to both the applicant and downstream resources, but will require further investigation of options and possible impacts.
5. *Project Nexus* – The project may alter the flow regime with current operations, but this needs to be assessed by comparing inflow/outflow data. In addition, the project may be able to provide significant downstream benefits (as well as possible benefits to the applicant) through the attenuation of highly altered inflows via operational modifications.
6. *Study Methodology* – There are several accepted alternatives for evaluating potential flow alterations (Annear et al., 2004). It is anticipated that the applicant and stakeholders would work cooperatively to select a suitable study method. The method selected would be appropriate in terms of cost while providing the necessary results to be used in evaluating flow regime options.

Annear, T., I. Chisholm, H. Beecher, A. Locke, and 12 coauthors. 2004. Instream Flows for Riverine Resource Stewardship, revised addition. Instream Flow Council, Cheyenne, WY.

7. *Level of Effort* – The level of effort required would be dependent upon the exact methodology selected. Since this will be cooperatively determined among the applicant and stakeholders, it cannot be assessed at this time. Additionally, as project inflow data

are currently lacking, and the potential for using the project to modify downstream flows is unknown, there are no practical alternatives to this proposed study.

Aquatic Species (Fish and Mussels) Assessment

1. *Study Goals and Objectives* –The goals of this study proposal would be to assess the presence, location, size distribution, and abundance of aquatic species inhabiting the area affected by the project. Specific objectives would be to determine the fish and mussel community composition upstream of the reservoir (suggested: Rt. 58 crossing to the reservoir headwaters), in the reservoir, and in the reach between Schoolfield and Union Street dams. Data collected would be utilized to describe the fish and mussel communities above the project, in the project reservoir, and below the project. These data are necessary to determine overall project impacts, as well as suitable mitigation measures, should these be necessary.
2. *Agency Resource Management Goals* – The Dept. of Game and Inland Fisheries is the state agency responsible for managing fish and wildlife resources within the Commonwealth, including listed species. For this study request, the agency goals will be to determine the species composition, abundance, population trends, and available habitat for aquatic species in the project impact area.
3. *Public Interest Considerations (non-resource agency)* – n/a
4. *Existing Information and Need* – A very limited amount of fish community data, and no mussel data are currently available from the project area. Additional data are necessary to adequately evaluate project impacts and to suggest mitigation options, should these be needed. A limited amount of both fish and mussel data are available from some sites on the Dan River, but these are inadequate due to both distance from the project and a limited amount of information.
5. *Project Nexus* – The project has significantly altered habitat in the affected area, which may be impacting aquatic populations. Since data from the project area either unavailable or of very limited scope, it is difficult to assess these impacts from the current information. Since the project directly impacts aquatic habitat via operations, these data are needed to determine project impacts on aquatic resources.
6. *Study Methodology* – We recommend mussel surveys be conducted by an approved expert in the impoundment, upstream of the impoundment (to Rt. 58), and between Schoolfield and Union Street dam. Species composition, abundance, and age structure of collected mussels could be compared to determine project impacts. Available and potential habitat could be assessed by this same approved expert using a standard methodology.

We further recommend that the fish community be sampled using appropriate electrofishing methods (boat, raft, etc.) in the impoundment, upstream of the impoundment to Rt. 58, and downstream of the dam to Union Street Dam. Species composition, abundance, and lengths should be collected for all fish encountered.

7. *Level of Effort* – This study would require a moderate level of effort extending over one field season. Since mussel data in the project vicinity are currently unavailable, and fisheries data are limited to a sample or two in the impoundment area, there appear to be no viable alternatives to this study that would provide the information necessary to assess project impacts. Estimated costs would be in the range of \$60,000-80,000.

Roanoke Logperch Assessment

1. *Study Goals and Objectives* – The overall goal of this study would be to determine the status of Roanoke Logperch (RLP) in the areas impacted by the project in order to assess the impact of project operations on this Federally-Endangered species. The specific objectives of this proposed study would be to evaluate the status of RLP in the river segment above the reservoir (Rt 58 to the reservoir headwaters), in the reservoir itself, and between Schoolfield and Union Street dams. Status would include abundance and size information. A further objective would be to assess the habitat potential for this species among the study areas for possible population enhancement measures in the future.
2. *Agency Resource Management Goals* - The Dept. of Game and Inland Fisheries is the state agency responsible for managing fish and wildlife resources within the Commonwealth, including listed species. For this study request, the agency goals will be to determine the status of RLP in the area impacted by the project, to evaluate possible impacts to this species from project operations, to consider mitigation options, and to assess the potential for future population enhancement options.
3. *Public Interest Considerations (non-resource agency)* – n/a
4. *Existing Information and Need* – It is our understanding that no RLP-targeted sampling efforts have been performed in the Virginia portion of the Dan River. Only very limited fish community sampling has occurred, and these efforts (using boat electrofishing gear) are not suited for collecting small, benthic species. Thus, the status of RLP in the area impacted by the project is essentially unknown. Lacking empirical data, resource agencies will have to assume that the species is present when evaluating this project, since no evidence to the contrary exists, and they are known from upstream locations. A targeted sampling effort, combined with a habitat assessment, would assist the resource agencies with making a determination as to whether the project will likely impact RLP or not. Many agency recommendations for the project will be based upon the perceived or actual likelihood of RLP being impacted by project operations.
5. *Project Nexus* – At this time, it is unknown whether Roanoke Logperch inhabit the area impacted by the project. They are known from upstream sites that are moderately close to the project, and habitat in the project vicinity appears to be potentially suitable for this species. Thus, there is a reasonably high likelihood that they could be present in the river segment impacted by project operations. However, since no targeted sampling has occurred in this area, and this species is rarely collected by non-targeted sampling, directed efforts need to be made to determine the status of this species in the project

area. Once the status is determined, resource agencies will be able to evaluate the impacts of project operations on this listed species.

6. *Study Methodology* – We recommend this study be done by an approved RLP expert, with experience sampling this species. Details of the methodology will be worked out in cooperation with the applicant, stakeholders, and the selected RLP expert. In broad terms, we would expect the study to encompass the area upstream of the reservoir (Rt. 58 to the reservoir headwaters), within the reservoir, and below the dam (Schoolfield Dam to Union Street Dam). We anticipate that collections will consist of some mixture of backpack electrofishing and snorkel/SCUBA sampling, although this will be determined by the study group advisory committee. Additionally, a habitat mapping/delineation component would be included to assess habitat quality/quantity for RLP in the areas impacted by the project.
7. *Level of Effort* – The study details and level of effort will be determined in consultation with the applicant, stakeholders, and the RLP expert selected to do the work. We recommend sampling in the river segments described above. We anticipate that the field portion of this study could be completed in one sampling season.

Fish Passage Assessment

1. *Study Goals and Objectives* – This study would examine the options for enhancing upstream and downstream fish passage for resident and migratory species at the project location, with the goal of restoring connectivity in this segment of the Dan River for all species. The first objective would be to examine upstream/downstream fish passage needs and options for resident species present in the project area. The second objective would be to investigate longer-term options for upstream/downstream passage of migratory species (American Eel, Striped Bass), should downstream barriers be overcome by these species.
2. *Agency Resource Management Goals* – The Dept. of Game and Inland Fisheries is the state agency responsible for managing fish and wildlife resources within the Commonwealth, including listed species. For this study request, the agency goals will be to restore connectivity in this segment of the Dan River for resident and migratory fish species.
3. *Public Interest Considerations (non-resource agency)* – n/a
4. *Existing Information and Need* – Currently, no specific data exist regarding options for fish passage at the project. Information describing fish passage specifications exists for most of the species present in this segment of the Dan River. Additionally, resource agency experts are available to consult with the applicant regarding fish passage options.

At present, fish passage in the Dan River is available Kerr Dam to Union Street Dam (immediately downstream of the project). One additional Dam (Dan Mills/Whites Mill) exists below Union Street Dam, but this facility is not a significant fish passage barrier. Resident species are present in the project area, and migratory species are/may be present below Union Street Dam. Schoolfield Dam significantly limits upstream and downstream movement of resident species. Thus, a need exists to determine the

impact of the project on connectivity, as well as to evaluate options for passing the various species present (or potentially present in the future).

5. *Project Nexus* – The project is a significant barrier to fish passage on the Dan River. Currently, upstream passage is essentially impossible, and downstream passage is only available by going over the spillway or through the turbines. In the case of downstream passage, mortality rates are unknown, but can be assumed to be significant. Thus, the project prevents fish from moving to preferred habitat upstream, and restricts geneflow among populations to one direction, and that is likely to be limited. This has resulted in population fragmentation of resident species, as well as preventing upstream movement of migratory species.
6. *Study Methodology* – This study would be based upon the assumption that restoring connectivity is desirable and would significantly benefit both resident and migratory species. As a result, the study would focus on examining options for upstream and downstream passage for all species. Information exists regarding passage facility requirements for most of the species likely to be present. The study would utilize existing literature to evaluate fish passage options, and preliminary engineering studies to determine potential fish passage facilities and/or operational methods needed to restore connectivity.
7. *Level of Effort* – The effort required for this study would depend upon the amount of detail required to evaluate fish passage options. Information regarding the requirements of various fish passage facilities and operational methods could be obtained from the literature, and a preliminary engineering study could then evaluate the feasibility of installing the various options at the project. Estimated costs are unknown.

Recreational Use and Enhancement Assessment

1. *Study Goals and Objectives* – The goal of this study would be to determine the potential options for enhanced recreational access in the project area. The objectives would be to (1) evaluate options for developing a canoe/kayak portage around the dam; (2) evaluate options for development of an additional boat access point above the reservoir (to provide an ingress site for boaters floating downstream to the reservoir); (3) to examine the potential for bank/boat access below the dam (or in the Union Street Reservoir); and (4) to evaluate off-site recreational enhancement options, should options within the project boundary prove to be impractical.
2. *Agency Resource Management Goals* – The Dept. of Game and Inland Fisheries is the state agency responsible for managing fish and wildlife resources, as well as boating recreation, within the Commonwealth. For this study request, the agency goals will be to assess potential options within the project boundary or off-site for recreational access enhancements.
3. *Public Interest Considerations (non-resource agency)* – n/a
4. *Existing Information and Need* – The Virginia Outdoors Plan and Demand Survey have identified a need for additional water-based recreational opportunities in the Danville

area. Currently, access to the project area is limited to bank/boating access at Abreau Grogan Park, but there is no way to portage the dam, and no downstream access. Given the project's location in a metropolitan area, demand for access is expected to be very high. Better access is needed upstream of the reservoir and below the dam. An evaluation of possible options for enhancing access is needed, along with contingency plans for off-site access enhancements should these prove to be impractical in the project area.

5. *Project Nexus* – Currently, the project offers boating access opportunities in the pool, with limited bank fishing opportunities. No access opportunities are present below the dam. The presence of the dam effectively blocks boat traffic through this reach of the river, as no portage is available. Access demands are not being fully met at the project.
6. *Study Methodology* –Exact methodologies would be determined via consultation among stakeholders and the applicant, but would include methods to evaluate options within and outside the project boundary for recreational access enhancement facilities (e.g., boat access points, bank fishing area development, parking, etc.). This would be done in consultation between the applicant and stakeholders.
7. *Level of Effort* – The effort required for this study would be relatively low. The evaluation of recreational enhancement options would involve a relatively modest level of effort, but would require expertise in trail and boating access development, as well as some level of engineering expertise. Costs for this study are unknown.

Thank you again for the opportunity to provide input. Should there be any questions, or the need for additional information, please contact Scott M. Smith, Regional Fisheries Manager at scott.smith@dgif.virginia.gov or 434/525-7522.

Sincerely,



Scott M. Smith
Regional Fisheries Manager

Cc: Ernie Aschenbach – VDGIF
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DRAFT STUDY PLAN

SCHOOLFIELD HYDROELECTRIC PROJECT (FERC No. 2411)

April 2020



Prepared for:

STS Hydropower, LLC
a subsidiary of



&

City of Danville,
Virginia



Prepared by:



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1.0 INTRODUCTION

STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, and the City of Danville, VA are co-Licensees (Licensees) and are licensed by the Federal Energy Regulatory Commission (FERC or Commission) to operate the 4.5-Megawatt (MW) Schoolfield Hydroelectric Project (Project, FERC No. 2411) located on the Dan River in Pittsylvania County, Virginia. The current license to operate the Project was issued on August 26, 1994 for a 30-year term. Therefore, the current license expires on July 31, 2024.

On May 31, 2019, the Licensees initiated Project relicensing by filing, with the Commission, a Notice of Intent (NOI) to File Application for New License, a request to relicense the Project using the Commission's Traditional Licensing Process (TLP), accompanied by a Pre-Application Document (PAD). On July 24, 2019 FERC approved the Licensees' request to use the TLP; therefore, the Licensees are pursuing a New License for the Project following the TLP, as specified in 18 CFR §16.8.

In accordance with the TLP, the Licensees held a Joint Agency Meeting and Site Visit on September 18, 2019. Subsequent to the Joint Agency Meeting and Site Visit, resource agencies submitted study requests.¹ In total, ten study requests were collectively received from the U.S. Fish and Wildlife Service (FWS), the Virginia Department of Game and Inland Fish (VDGIF), and the North Carolina Wildlife Resource Commission (NCWRC). The requested studies include:

- Water Quality Study (FWS);
- Flow Assessment Study (NCWRC, VDGIF);
- Aquatic Fauna Survey (NCWRC);
- Fish Survey (FWS, VDGIF);
- Mussel Survey (FWS, VDGIF);
- Fish Passage and Protection Assessment (FWS, VDGIF);
- Entrainment and Impingement Study (FWS);
- Roanoke Logperch (RLP) Assessment (VDGIF);
- Recreation Use and Enhancement Assessment (VDGIF); and,
- Bald Eagle Nest Survey (FWS).

There is no requirement to prepare a formal study plan as is required by the Integrated Licensing Process (ILP), and therefore, there is no subsequent study plan determination by FERC. Nonetheless, the Licensees prepared this Draft Study Plan to facilitate consultation with the resource agencies so that a set of specific individual study plans is agreed upon among the

¹ Letters providing the study requests from the FWS, VDIGF, and NCWRC are filed with the Commission. See Accession Nos. 20191115-5067 (FWS), Accession No. 20191115-5234 (VDGIF), and Accession No. 20191115-5099 (NCWRC).

agencies and Licensees. The intent of these specific individual study plans is to form the Final Study Plan document, guiding the collection of additional information to support the relicensing process. To support this goal, in Section 2, the Licensees present the rationale for adopting, adopting with modification, or not adopting the study requests received. In Section 3, the Licensees provide specific individual study plans for the adopted studies to support the relicensing process.

2.0 RESPONSE TO STUDY REQUESTS

The purpose of relicensing studies is to supplement existing, relevant, and reasonably available information so that the Commission and other licensing participants have an adequate factual record to assess Project effects and to inform proposed requirements in the new license. In developing this Draft Study Plan, the Licensees evaluated the merits of each study request submitted by the stakeholders based on the seven study criteria set forth in §5.9(b) of the Commission's ILP regulations. These criteria are designed to ensure that requested studies are needed to help focus the evaluation of Project effects (FERC, 2012).

The Licensees propose to adopt, but with modification, the requested Water Quality Study, Flow Assessment Study, Mussel Survey, Entrainment and Impingement Study, RLP Assessment, and Bald Eagle Nest Survey. The Licensees justification for adopting these studies, but with modification are provided in Section 2.1. Individual study plans for proposed studies are presented in Section 3. The Licensees do not propose to perform, as requested, the recommended: Aquatic Fauna Survey, Fish Survey, Fish Passage and Protection Assessment, and the Recreation Use and Enhancement Assessment. The Licensees' justification for not performing these studies is provided in Section 2.2.

2.1 Studies Adopted with Modification by the Licensees

2.1.1 *Water Quality Study*

The water quality study requested by the FWS aims to assess Project effects on water quality, with an emphasis during non-spill low flow conditions. The FWS states that because there is sparse continuous water temperature and dissolved oxygen data available for Project-affected reaches of the Dan River the existing water quality information is not sufficient to evaluate Project effects on water resources (§5.9(b)(4)). The FWS recommends the Licensees collect water quality data using scientific water quality sampling techniques used in most hydropower licensing proceedings. The FWS also recommends the study be performed during the spring, summer, and fall with monitoring stations upstream of the Project reservoir, in the reservoir, and downstream of the Project powerhouse. The FWS also recommends the study include a provision for an additional year of study, if the FWS determines the data collected is inadequate or if river flows are atypical for the initial study year.

According to the USGS Gage 02075045 Dan River at STP near Danville, VA, river flows are generally variable with some spates during the spring, progressively decreasing through the summer, and are near their lowest during the early-fall. The Licensees propose to collect continuous water quality data during the period June 1 through September 30, 2020, which will capture flow variability, including non-spill and spill conditions. This time period will also capture the period when water temperature and dissolved oxygen conditions are most limiting for aquatic resources, due to higher water temperatures and low oxygen solubility of water. Therefore, rather than collect continuous data during the entire spring, summer, and fall season, as recommended by the FWS, the Licensees propose June 1 through September 30 as the monitoring period.

The FWS requested water temperature and dissolved oxygen data be collected at a location upstream of the Project reservoir, and outside of the Project boundary, which would serve as a

reference site. The Licensees are proposing to monitor water quality at a location near the upper extent of the reservoir. Section 3 describes the proposed monitoring stations for the water quality study.

In regard to repeating the study over a second study season if the FWS determines the data that is collected is inadequate or if river flows are atypical, Commission regulations allow for resource agencies to request additional scientific studies (§4.32(b)(7)). In addition, the FWS does not specify how they would judge the data to be adequate or inadequate, nor does the FWS specify what would be considered atypical river flows. Therefore, the Licensees respectfully declines to commit to a second study season in the water quality study plan because a provision for additional scientific study is already in Commission regulations, and the ambiguous nature of the FWS's decision criteria. in determining the inadequacy of the data and what river flows would be considered atypical. Nonetheless, the Licensee's aim to distribute to the resources agencies the draft study reports during the first quarter of 2021 for review and comment. As part of the review and comment portion of the draft report review, the Licensees would consult with the agencies regarding the results of the study and the conditions under which they were recorded and would consider a request for additional study at that time should a request be necessary..

2.1.2 Flow Assessment Study

NCWRC and VDGIF state that rapid and frequent fluctuations in Project discharge can impact fish and mussel populations, particularly in riffles and other shallow habitats. Data from the downstream USGS Gage 02075045 Dan River at STP near Danville, VA indicate that the Project potentially causes flows in the Dan River to fluctuate downstream of the Project. In addition, both NCWRC and VDGIF suggest that the fluctuation flows observed at the downstream gage may be the result of hydropower projects upstream of the Project, such as the U.S. Army Corp of Engineers Philpott Hydroelectric Project on the Smith River. NCWRC's goal for the study is to understand Project operations under a range of inflow conditions and the resulting effects on downstream flows. VDGIF's goal for the study is to fully assess the effect of Project operations on downstream flows and evaluate options for utilizing the Project to attenuate highly altered inflows to mimic a more natural flow regime. NCWRC recommends the Licensees collect fine-scale reservoir and tailwater elevation data over a 12-month period. VDGIF does not recommend a study methodology, but rather defers to additional consultation.

The Licensees agree that the downstream USGS gage does suggest that the Project may regulate to some extent flows of the Dan River. However, the Project is licensed to operate as a run-of-river facility. The Project operator assures run-of-river operations by monitoring set-points and alarms of reservoir water level readings from a headwater level transducer and inflow to manually operate each of the six fixed-output turbines. Therefore, as inflows fluctuate, the operator maintains a relatively constant reservoir water level by adjusting turbine discharge. To elucidate this operation regime, the Licensee propose a flow assessment study, with the following modifications. Section 3 describes the proposed water level monitoring locations for the flow assessment study.

In their study request letter VDGIF states, "inflows to the [P]roject are highly altered by upstream projects." Because the waters of the Dan River upstream of the Project are influenced by other developmental activities that are not Project related there is no reasonable Project nexus to flow of the Dan River upstream of the Project reservoir (§5.9(b)(5)). In addition, there can be

no license requirement that requires the Licensees to mitigate a non-Project related effect, such as flow alterations caused by an upstream Project or activity, and outside of the influence of the Schoolfield Project (§5.9(b)(5)). The Licensees, therefore, respectfully decline to study the feasibility to use the Project to attenuate inflow into the Project to match a more natural flow regime.

NCWRC recommends the Licensees collect fine-scale reservoir and tailwater elevation data over a 12-month period. However, Project impacts on downstream river flow would only occur when the river flows are less than the Project's hydraulic capacity of 2,160 cfs. This typically occurs in the late spring, summer, and fall. During this time period spates also occur. Therefore, the Licensees proposed to collect the requested data over a shorter time period, June 1 through September 30 concurrent with other field studies, which would reduce the level of effort and cost of the study (§5.9(b)(4) and §5.9(b)(7)).

2.1.3 Mussel Survey

VDGIF and FWS requested a freshwater mussel assessment to include the identification of suitable mussel habitat, the species present, and an evaluation of mussel population trends, including upstream of the Project reservoir. VDGIF and FWS state the study is needed because there is no freshwater mussel data of the Project reservoir and downstream of the Project dam, and existing mussel data from the Dan River are insufficient to assess Project effects on freshwater mussels and their habitat in the Project area. To collect this data, VDGIF and FWS recommend an approved surveyor perform surveys for mussels in and upstream of the Project reservoir.

The Project reservoir extends approximately 6 river miles upstream of the Project dam, which represents the maximum upstream extent of Project impacts. Because the Dan River upstream of the Project reservoir is not influenced by Project operations, but rather by other non-Project related activities, there can be no license requirement to require mitigation of a non-Project effect (§5.9(b)(5)). For the reasons discussed above, the Licensees propose to conduct a Freshwater Mussel Survey within the Project reservoir and tailwater, as described in Section 3.

The FWS also recommends, as a study objective, the Licensees use the study to establish a baseline to measure changes in mussel occurrence over time. According to FERC (2012), the Commission uses the current condition, the environment as it exists at the time of licensing, as its baseline for evaluating Project effects. Nonetheless, Licensees are proposing to perform a Freshwater Mussel Survey to characterize baseline conditions; the scope of which is described in Section 3.

2.1.4 Entrainment and Impingement Study

The entrainment and impingement study requested by the FWS seeks to determine the effect the Project has on the existing fish community. Specifically, the FWS requests the Licensees provide information on survival rates of all species and life stages that may become impinged on the Project's trashracks, entrained into the Project turbines, and provide estimates of annual mortality rates. The FWS also requests that the Licensees provide estimates of indirect, latent mortality of those fish become pass through the Project turbines, and consider cumulative effects of multiple, stacked hydroelectric projects on the Dan and Roanoke Rivers. The FWS states the

study is needed because there is no recent, existing levels of entrainment and turbine mortality at the Project, and such data are needed to assess Project effects. The FWS recommends the Licensees perform the study following methods used in other hydropower relicensing entrainment and impingement studies.

In general, the Licensees propose to adopt the entrainment and impingement study, as recommended by the FWS, with the following modifications: not including an analysis of indirect, latent mortality and a cumulative effects analysis. FERC uses the Council of Environmental Quality (CEQ) definition of direct, indirect, and cumulative effects in determining effects of existing Projects.² CEQ defines an indirect effect as, "effects, which are caused by the action and are later in time or farther removed in distance, but are reasonably foreseeable." Mortality at a later date from predation, disease, or physiological stress may not be reasonably foreseeable or certain to occur. For a study that investigates an indirect effect, the study proponent should show that such indirect effects are reasonably certain to occur, the effects would be attributable to the licensing action, the Project's contribution to the indirect effects are measurable and would be significant enough to warrant the cost of the study, and the results would contribute to a meaningful license condition (FERC, 2012). Often, indirect effects are speculative, and analysis of such is not likely to be meaningful (FERC, 2012). Nonetheless, studying direct effects first may reveal that indirect effects may be possible and necessary. Therefore, the Licensees do not adopt the study goal of analyzing effects of indirect effects and latent mortality at this time, but rather a Desktop Entrainment and Mortality Study that would provide additional information on potential direct project effects.

With regard to cumulative effects, FERC staff considers such effects in their environmental document (e.g., Environmental Assessment) when appropriate. If the Project contributes to cumulative effects, FERC staff may require the Licensees to provide additional information to support their environment analysis. In a TLP proceeding, this would likely be in the form of an Additional Information Request (AIR) after the final license application is filed. FERC, however, would not require an applicant to study effects related to other, non-Project activities. In summary, "a potential applicant would not be responsible for conducting studies to gather data on other projects that may be necessary to assess cumulative environmental impacts of those projects and the potential applicant's project."³ For these reasons, the Licensee does not propose to study cumulative effects.

2.1.5 Roanoke Logperch Assessment

The goal of the Roanoke logperch (RLP) assessment requested by VDGIF is to determine the status of the RLP in areas affected by the Project. VDGIF indicates the study is needed because there has been no targeted RLP survey in the Virginia segment of the Dan River, and such information is needed to determine the effect Project operations may have on the species. VDGIF recommends an approved RLP expert perform a survey for the RLP upstream of the

² On January 10, 2020 CEQ published in the Federal Register (85 Fed. Reg. 1684) a proposal to update regulations implementing the procedural provision of the National Environmental Policy Act (NEPA), a provision of which is to eliminate an analysis of cumulative effect in the NEPA process.

³ See FERC Statutes and Regulations, Hydroelectric Relicensing Regulations Under the Federal Power Act; Order on Rehearing, Order No. 513-A, December 26, 1989, (RM87-33-001) 55 F.R. 4, [¶30,869] at p. 31,615.

Project reservoir, within the Project reservoir, and downstream of the Project dam using backpack electrofishing, SCUBA and/or snorkeling areas of suitable habitat. The Licensees propose to perform the RLP assessment within the Project tailwater. As discussed above, the Dan River upstream of the Project is influenced by other developmental activities that are not Project related; therefore, there is no Project nexus to RLP in the Dan River upstream of the Project reservoir (§5.9(b)(5)). Additionally, Duke (2019) sampled suitable RLP habitat in the Dan River upstream of the Project that is similar in habitat of the upper Project reservoir using appropriate methods over three years, and no RLP were collected. This postulate is also supported by Roberts (2012). Roberts (2012) reported that the only known extant RLP population in Virginia reside in the Smith River, which is far upstream of the Project. To determine if RLP reside in other tributaries of the Dan River in Virginia, Roberts (2012) sampled the Dan River mainstem in Patrick County and numerous tributaries of the Dan River from Patrick County to the Kerr Reservoir, including the Sandy River, which is located one-mile downstream of the Project dam. In summary, Roberts (2012) collected no RLP. Because recent sampling efforts that targeted suitable RLP habitat in the Dan River basin, the RLP is very likely not present in the Project reservoir, primarily due to the lack of suitable habitat.⁴

2.1.6 *Bald Eagle Nest Survey*

The FWS recommended the Licensees survey for bald eagle nests within the Project area to determine if bald eagles are affected by Project operations or activities. However, the FWS does not provide a bald eagle nest survey study request. Nonetheless, the Licensees propose to survey for bald eagle nests to support the FWS Project review process. The Licensees propose a bald eagle survey in Section 3.

2.2 Studies Not Adopted by the Licensees

2.2.1 *Aquatic Fauna Survey and Fish Survey*

The Aquatic Fauna Survey, as requested by NCWRC, includes four study components: a baseline fish survey, a freshwater mussel survey, a RLP assessment, and a benthic species survey. The FWS and VDGIF also requested a fish survey. The Licensees are proposing to perform a freshwater mussel survey and a RLP Assessment (see Sections 2.1, 3.4, and 3.6). The Licensees do not propose to conduct fish or benthic species surveys for the reasons described below.

The purpose of the fish survey would be to collect baseline data to characterize the occurrence, distribution, and relative abundance of fish species upstream of the Project reservoir, the Project reservoir, and downstream of the Project using multiple gear types. NCWRC, FWS, and VDGIF indicate that such a fish survey is needed because an assessment of Project aquatic fauna is lacking, the existing data presented in the PAD is outdated, and the species that comprise the existing fish community needs to be known so impacts on the fish community can be analyzed.

⁴ Suitable RLP consists of medium-to-large, warm, usually clear streams and small rivers of moderate to low gradient with exposed, silt free gravel substrate (FWS, 2010).

The fish community information presented in the PAD is based on various sources, but not recent site-specific data. Since the filing and distribution of the PAD, Duke Energy made publicly available their *Dan River Long-Term Environmental Monitoring Report* (Duke, 2019).⁵ The report summarizes three years of intensive fisheries sampling (2015 through 2017) using multiple gear types, including upstream of the Project reservoir and within the Project reservoir. Within the Project reservoir, boat electrofishing was performed four times per year for three years along two transects parallel to each shore with three 200-300 m long stations per transect. In addition, in riffle or shoal areas of the Dan River upstream and downstream of the Project, other gear types were used, including fyke nets, hoop nets, backpack electrofishers, and seines. The data provided consists of species, lengths, weight, and presence of parasites, disease, abnormalities. Overall, Duke (2019) provides recent information regarding the fish community of the Dan River in the Project area that adequately characterizes the Project's fish community; therefore, there is no need to collect additional information (§5.9(b)(4)). The Licensees present the results of Duke (2019) fish sampling of the Project's reservoir in Appendix A.

Benthic macroinvertebrate samples were also collected as part of the Dan River long-term monitoring effort (Duke, 2019). This effort included sampling six locations once per year for three years (2015 through 2017) throughout the Dan River, including upstream of and within the Project reservoir, following the methods for wadeable and non-wadeable areas as described in North Carolina Division of Water Resources (NCDWR) (2016). Overall, the data collected were used to characterize the existing benthic macroinvertebrate community of the Dan River, including the vicinity of the Project (§5.9(b)(4)), which is summarized in Appendix B. Duke (2019) adequately characterizes the benthic macroinvertebrate community within the Project area; therefore, there is no need to collect additional information.

NCWRC, FWS, and VDGIF also asked that the surveys include the area upstream of the Project reservoir. The Dan River upstream of the Project reservoir is not influenced by Project operations, but rather by other non-Project related activities; therefore, there is no Project nexus (§5.9(b)(5)). For this reason, areas upstream of the Project's operational influence will not be studied.

2.2.2 Fish Passage and Protection Assessment

The fish passage assessment, as requested by VDGIF and FWS, seeks to enhance upstream and downstream fish passage at the Project for all species. VDGIF indicates their resource management goal is to restore river connectivity in the segment of the Dan River occupied by the Project, while FWS states their resource management goal is to provide safe, timely, and effective passage to migratory species affected by the Project. The requested study would include a literature search of available passage designs, and an evaluation of those designs that would include an engineering component to inform what fish passage facility design and Project operations would to facilitate passage.

⁵ A copy of Duke (2019) is available at: https://www.duke-energy.com/_media/pdfs/our-company/ash-management/dan-river-ltmp-report.pdf.

VDGIF and FWS indicates the dam significantly limits upstream fish passage and potentially results in mortality through turbine passage. VDGIF states there are no diadromous fish present in the Project area. This statement is supported by the fish assemblage data collected by Duke (2019). Furthermore, the two downstream low-head dams on the Dan River, also within the City of Danville, are known barriers to upstream fish passage. Therefore, there is no nexus to Project effects germane to upstream fish passage for obligate migratory species (§5.9(b)(5)).

Furthermore, the study requests appear to be based on assumptions that the dam is a significant barrier to fish passage and that turbine mortality needs to be mitigated. However, these assumptions are provided without supporting, site-specific information (§5.9(b)(4)). In summary, the study requests seek to mitigate a Project effect without knowing the extent of the effect, if any, and is pre-mature because no protective, mitigation, or enhancement measures could be developed without first understanding the effect the Project has on the resource. To develop this understanding, the Licensees propose a Desktop Entrainment and Turbine Mortality Study in Section 3.3.

2.2.3 Recreation Use and Enhancement Assessment Study

The recreation use and enhancement assessment, as requested by VDGIF seeks the enhancement of recreation access at the Project, or at a location outside the Project boundary, if enhancements within the Project boundary are not feasible. VDGIF suggests the study is needed because there is a demand for water-based recreation in the Danville, Virginia area. Specifically, VDGIF states there is a need for access to the Dan River upstream of the Project reservoir, downstream of the Project dam, and a canoe portage. The study request does not propose a methodology, but rather defers to consultation regarding potential enhancements.

Within the FERC-licensed Project area, there are opportunities for the public to access Project lands and waters. In addition, the City of Danville maintains a trail system that parallels the Dan River downstream of the Project. This trail system follows the Dan River from the Piedmont Driver Bridge immediately downstream of the Project, approximately 6 river miles downstream to near the VA-NC border. The City of Danville is also planning to provide water-based recreation downstream of the Riverside and Long Mill Dams, which would enhance downstream water-based recreation (City, 2020). With this addition, there is no need to enhance downstream water-based recreation at the Project.

Article 407 of the current FERC Project license required the Licensees to file a plan to provide a canoe portage at the Schoolfield Project. After consultation with agencies and other interested parties, however, it was decided in the mid-1990s that there is no appropriate portage location or path at the Project due to topography of the area, and layout project facilities and infrastructure. In lieu of constructing the canoe portage required by Article 407, VDGIF and VDCR recommended the Licensee fund improvements to a City-owned park (currently named the Abreu-Grogan Park) upstream of the Project that would include improvements to the existing access road, parking area, and the construction of a new boat ramp. The Licensee and the resource agencies then discussed entering into a Memorandum of Understanding to provide those improvements in lieu of constructing a canoe portage at the Project. As such, Article 407 requiring construction of the canoe portage was deleted by the Commission in an order issued on

November 9, 1995.⁶ That order instead required the Licensees to contribute money in lieu of construction of a canoe portage for improvements at a Abreu-Grogan Park, where there is currently a boat launch, picnic area, boat dock, and canoe rental operation. This recreation site is not part of the Project license; however, it does contribute to some of the boating activity in and around the project. Because public access to Project lands and waters currently exists, the Commission previously determined that a canoe portage around Schoolfield Dam is not feasible, and circumstances regarding the reasons why a portage at the Project is not feasible have not changed. As such, there is no need to study recreation use and access at the Project.

⁶ See Accession No. 19951117-0018.

3.0 DRAFT STUDY PLANS

3.1 Baseline Water Quality Monitoring Study

3.1.1 Goals and Objectives

The goals of the study are to 1) collect baseline water temperature and dissolved oxygen data to document the existing water quality conditions of the Dan River in the Project area; and, 2) determine whether the water quality of Project-effected reaches of the Dan River are consistent with Virginia water quality standards and designated uses. To accomplish these goals the study would have the following objectives:

- 1) Collect continuous baseline water temperature and dissolved oxygen data at representative locations within a riverine area of upper reservoir, forebay area, and tailrace from June 1 through September 30;
- 2) Characterize the baseline water temperature and dissolved oxygen data collected in Project area;
- 3) Analyze the continuous water temperature and dissolved oxygen data in comparison to Virginia surface water quality standards, inflow, and Project operations (headwater and tailwater elevation (ft), and generation (cfs and kW)).

3.1.2 Existing Information and Need for Additional Information

Existing water quality information in the Project area consists of various grab sample data and some continuous water temperature and specific conductivity data. The existing grab sample data is not collected at a frequency sufficient to assess effects of Project operations. Furthermore, the continuous data was collected downstream of the Project reservoir; thus those data do not lend themselves to an assessment of Project operations. Therefore, a need exists to collect water quality data at a frequency sufficient to assess effects of Project operations, and determine consistency with state surface water quality standards.

3.1.3 Project Nexus

Operation of the Project results in the discharge of waters impounded by the Project dam for the purpose of electrical generation, which may affect water quality within Project-affected reaches.

3.1.4 Methodology

Study Area

The proposed study area includes Project reservoir downstream to the Project tailwater. Figure 3.1.4-1 depicts the proposed monitoring station locations within the proposed study area.

Continuous Water Temperature and Dissolved Oxygen Monitoring

Continuous water quality data will be collected *in situ* at 15-minute intervals by deploying at each station U26-001 HOB0® Dissolved Oxygen Loggers (Onset Computer Corporation). Parameters to be measured include: water temperature (°C) and dissolved oxygen (mg/L and percent saturation). Calculation of dissolved oxygen percent saturation requires barometric pressure; therefore, a data logger that records barometric pressure, such as the U20L HOB0® Water Level Recorder (Onset Computer Corporation), will be installed out of water at the Project powerhouse. Each logger will be calibrated following the manufacturer's instructions and deployed at a representative location in the vicinity of the proposed sampling stations: one station in the upper reservoir, forebay, and tailrace (Figure 3.1.4-1). The upper reservoir and tailrace loggers will be tethered to shore and anchored by cinderblocks, whereas the forebay logger will be deployed at approximately 25% depth from the water surface when set, and suspended from a buoy that is anchored to the riverbed also by cinderblocks. The instruments will be deployed during a four month period from June 1 through September 30 to document baseline water quality conditions during the summer period. Each station will be visited every two weeks to off-load data; perform replicate fouling and calibration measurements per the manufacturer's instructions to assist in data correction; and clean, inspect, calibrate, and redeploy the instruments. It may be necessary to visit the stations to service the instruments weekly depending on the degree of fouling; however, we assume biweekly sampling would be sufficient. Fouling and calibration measurements will be collected using a recently calibrated water quality meter (e.g., YSI ProSolo or similar). Prior to redeployment, the data series will be visually examined in the field for any aberrant measurements that would indicate an instrument is malfunctioning, warranting further troubleshooting and/or replacement. All data will be recorded on field datasheets or recorded within the instruments' internal memory

Weather, River Flow, and Operations Data

Weather, river flow, and operations data will also be collected to add context to the water quality data. Weather data will be obtained from NOAA Station US1VALYC007, located 2.1 miles WSW of the Project. River flow data would be obtained from USGS Gage 02075045 Dan River at STP near Danville, VA, located approximate 5.2 river miles upstream of the Project dam. Operations data, such as turbine discharge (cfs) and generations (kW), will be provided by the Licensees.

Data Analysis

All field-collected data will undergo a thorough QA/QC review process to ensure the accuracy and completeness of the dataset prior to analysis. Data quality targets for this study include actual measurements obtained pre- and post-deployment in comparison to the field replicate data collected with a recently calibrated water quality meter should a relative percent difference (RPD) of $\leq 10\%$; and 80 % of all measurements collected must pass the QA/QC process. For dissolved oxygen (mg/L), RPD would be calculated as:

$$RPD = [|(a_i - b_i)| / ((a_i + b_i) / 2)] * 100$$

where;

a_i = actual measurement from the data logger at site visit i

b_i = side-by-side replicate reading from the handheld water quality meter at site visit i

The continuous temperature and dissolved oxygen datasets will be initially reviewed and analyzed for outliers, aberrant measurements, and missing data to ensure the collected data are valid. Corresponding field calibration measurements will then be used to determine if data correction is required for a specific deployment period. Correction of the data will occur *post-hoc* and will be performed using the Dissolved Oxygen Assistant within the manufacturer's HOBOWare software. Any data point that does not pass QA/QC review and cannot be corrected will be flagged and removed from the final dataset prior to analysis.

The final water temperature and dissolved oxygen dataset will be summarized (e.g., mean, median, maximum, and minimum) and compared to applicable Virginia surface water quality standards. The final dataset will also be compared with Project operation data by plotting the water temperature and dissolved oxygen time series with operations.

Reporting

Results of the Baseline Water Quality monitoring Study will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment. The report would provide the methods and results of the study.

3.1.5 *Consistency with Generally Accepted Scientific Practice*

Data collection will be in accordance with methodology and instrumentation generally accepted by the scientific community. The data will be evaluated to determine Project effects on water quality.

3.1.6 *Study Schedule*

The Licensees anticipate this study would be implemented during the 2020 study season, between June 1 and September 30, during conducive and safe flow conditions. Further, the Licensees also anticipates to provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

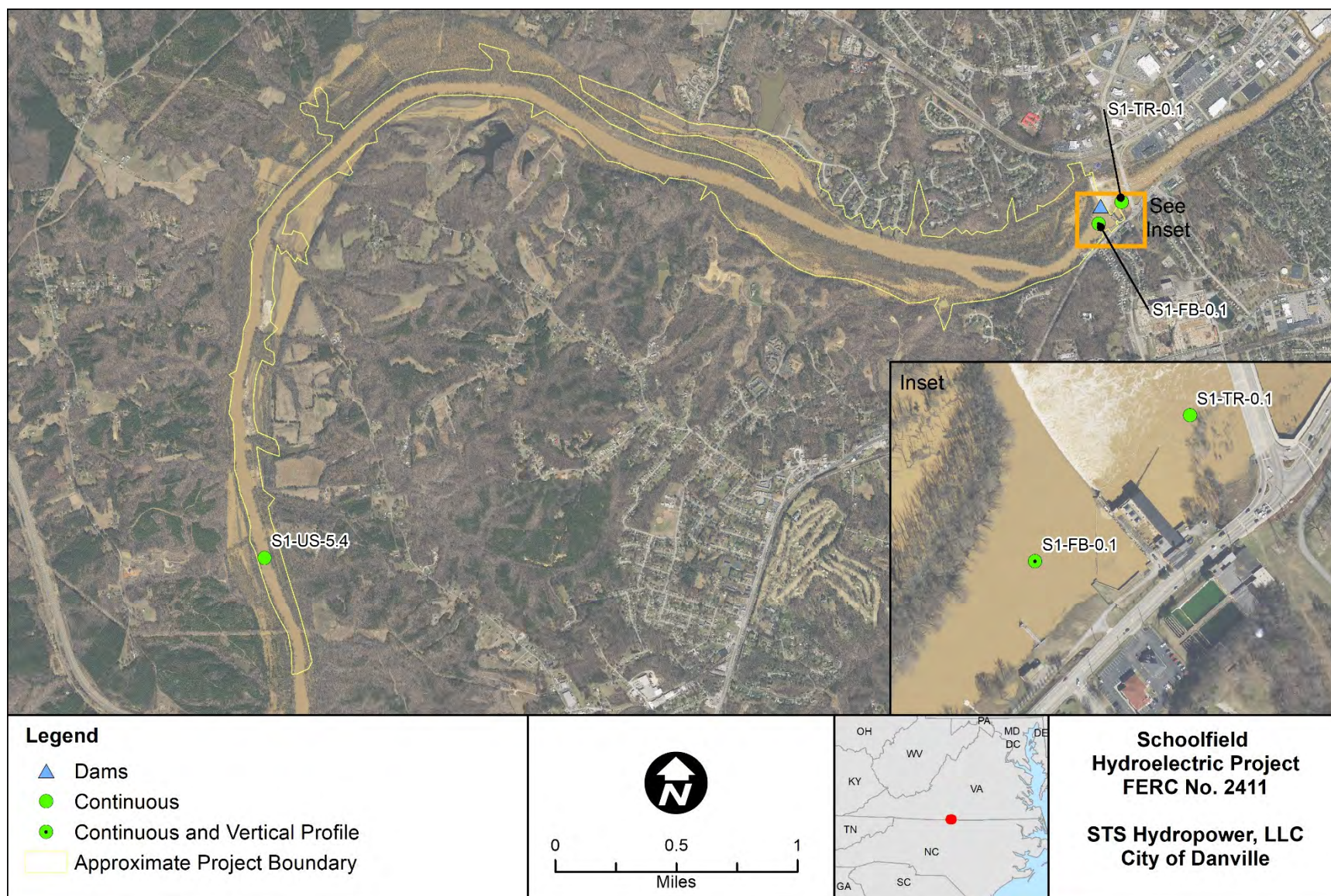


Figure 3.1.4-1. Proposed water quality monitoring study area and monitoring stations.

3.2 Operations and Inflow Assessment Study

3.2.1 Goals and Objectives

The goal of the Operations and Inflow Assessment Study is to document the effect inflows have on Project operations. To accomplish this goal, the study has the following objectives:

- 1) Describe how the Project's six fixed-output turbines and three generators are typically operated;
- 2) Collect continuous water level data at a representative location upstream of the Project reservoir, and downstream of the Project dam; and,
- 3) Characterize and compare water levels of the Dan River upstream of the Project reservoir, with operations and water levels downstream.

3.2.2 Existing Information and Need for Additional Information

Downstream data collected at the USGS Gage 02075045 Dan River at STP near Danville, VA indicate that the Project potentially causes flows in the Dan River to fluctuate downstream of the Project. However, the apparent flow fluctuations may be an artifact of inflows to the Project and the nature of the Project's run-of-river operations. To discern the difference, a need exists to monitor water levels in the Project area.

3.2.3 Project Nexus

Aquatic habitat downstream of the Project may be affected by Project operations and fluctuating discharges. Results from this study could be used to inform the development of protection, mitigation, and/or enhancement measures for aquatic resource protection in the Project tailwater.

3.2.4 Methodology

Study Area

The proposed study area is the Dan River upstream of the Project reservoir through the Project tailwater (Figure 3.2.4-1).

Describe Existing Operations and Operations Data

The Project has three generators and six, fixed-output turbines. The Licensees will describe the operating regime of the six turbines and will summarize: headwater (ft), tailwater (ft), turbine discharge (cfs), and generation (kW) data for the study period June 1 through September 30.

Collect Water Level and Flow Data

The Licensees will collect upstream and downstream water level data on 15-minute continuous basis from June 1 through September 30. Exact site locations will be determined in the field, but the two water level monitoring locations will be located at sites that exhibit similar channel morphology (e.g., width, depth, etc.), so that upstream and downstream water levels would be

comparable. Water levels will be monitored in situ by deploying a U20-001 HOBO® Water Level Recorder at each station. Data from each water level recorder will be offloaded on a near bi-weekly basis (i.e., every two weeks) concurrent with other field studies. At the beginning and end of each deployment period (i.e., bi-weekly period) reference water level measurements will be made relative to a benchmark established in the vicinity of each station that has an arbitrary elevation of 100 feet. Because the selected water level recorders collect absolute water pressure data, which changes in response to variability in air pressure, a separate water level recorder will be installed at the powerhouse to collect atmospheric barometric pressure data so water levels will be accurate.

Data Analysis

Water levels will be expressed as water surface elevations relative to the respective benchmark. Water surface elevation of each location and operations time series will be plotted at weekly intervals to depict spatial and temporal trends in water surface fluctuations and operations.

Reporting

Results of the Operations and Inflow Assessment Study will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment. The report would provide the study methods and results.

3.2.5 Consistency with Generally Accepted Scientific Practice

Water elevation data will be collected in accordance with methods generally accepted by the scientific community, and typically used in other hydroelectric project relicensing studies.

3.2.6 Study Schedule

The Licensees anticipates this study would be implemented during the 2020 study season, and would target June 1 through September 30 for field work. Further, the Licensees also anticipate to provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

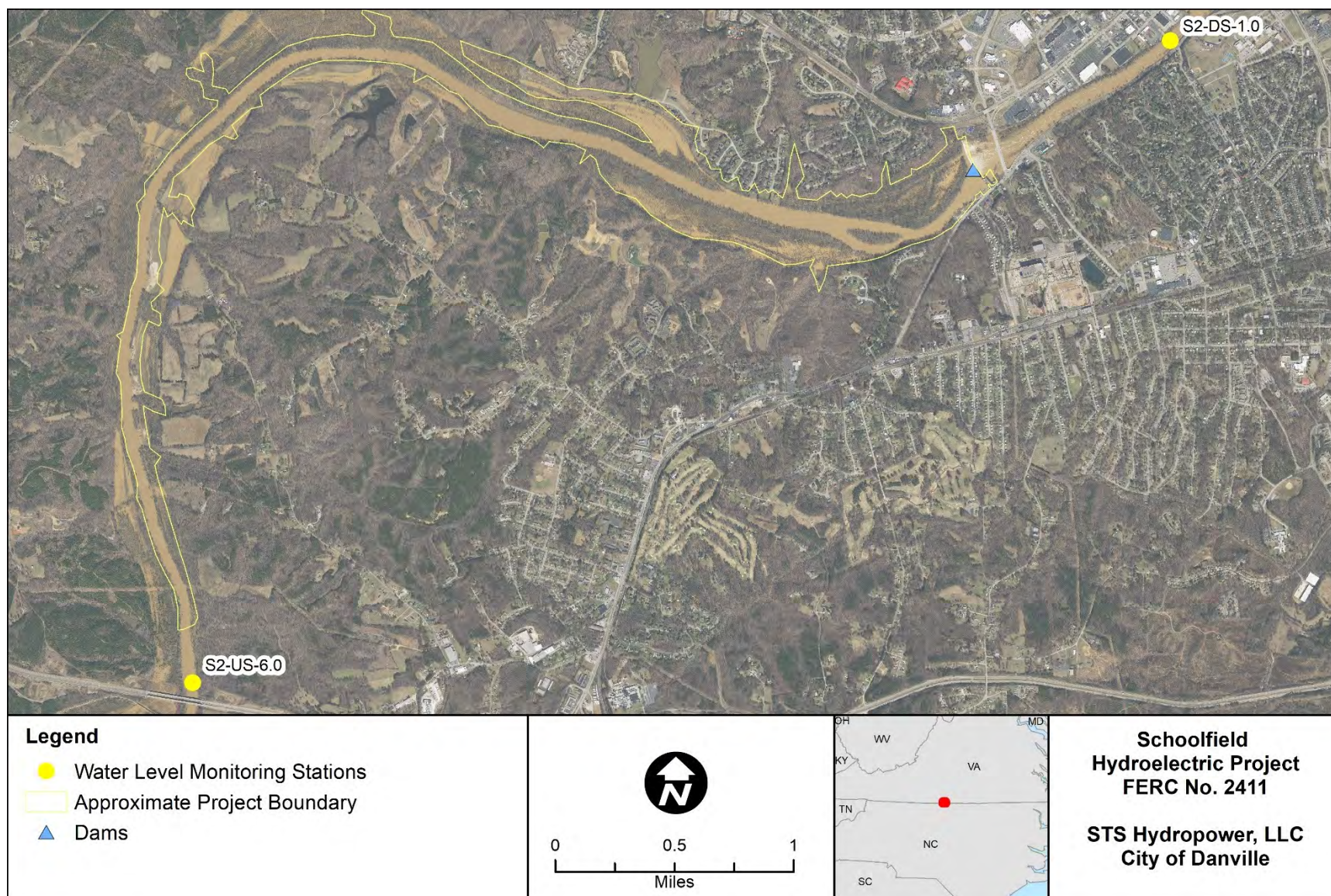


Figure 3.2.4-1. Operations and inflow assessment study area.

3.3 Desktop Entrainment and Turbine Mortality Study

3.3.1 Goals and Objectives

The goal of the Desktop Entrainment and Turbine Mortality Study is to evaluate the seasonal and annual fish entrainment and turbine mortality at the Project. The goal of the study will be met by achieving the following objectives:

- 1) Describe the existing physical, operational, and environmental characteristics of the Project;
- 2) Characterize the species composition of the fish community in the vicinity of the Project;
- 3) Select target species and life-stages in consultation with the Agencies;
- 4) Describe species specific information that includes life-history and habitat requirements, and swimming performance criteria for the target species and life stages;
- 5) Qualitatively assess entrainment and impingement potential for each target species and life stage by comparing physical, operational and environmental attributes of the Project with species-specific information;
- 6) Estimate the potential seasonal and annual entrainment for each target species;
- 7) Estimate the seasonal and annual turbine mortality for each target species based on turbine mortality estimates from similar projects; and,
- 8) Discuss impacts to the fish community and populations of the Dan River resulting from entrainment, impingement, and turbine mortality.

3.3.2 Existing Information and Need for Additional Information

There is no known existing data that quantifies the level of impingement, entrainment and turbine mortality at the Project. A Desktop Entrainment and Turbine Mortality Study will fill this data gap.

3.3.3 Project Nexus

The fish community and population structure of the Dan River in the Project area may be affected by operation of the Project through entrainment, mortality from impingement or passage through the Project turbines. Results from this study could be used to inform fisheries protection, mitigation, and/or enhancement measures.

3.3.4 Methodology

Study Area

The proposed study area includes the Project reservoir, intake/forebay area, and powerhouse.

Entrainment and Turbine Mortality Evaluation

The Entrainment and Turbine Mortality Study will follow a step-wise process:

- 1) Describe and discuss the Project characteristics that may influence entrainment and turbine mortality. This includes: the physical characteristics of the trashracks, turbines specifications, river hydrology, Project operations, and water quality and aquatic habitat near the intakes.
- 2) Characterize the existing fish community and select target species in consultation with the Resource Agencies. Characterizing the fish community typically involves summarizing existing fishery survey data (species and abundance) collected by the Agencies or the Licensees in the Project area. For the Dan River, this information is available from Duke (2019). After the species community is characterized, target species will be proposed and submitted to the Agencies for their concurrence. The target species will typically be either those of ecological significance or recreationally important. The target species will be a suite of species that undergo the subsequent entrainment and turbine mortality evaluations.
- 3) Perform a qualitative entrainment and impingement evaluation to determine the overall susceptibility of the target species to entrainment and impingement on the trashracks. The purpose of this qualitative evaluation is to winnow down the number of target species that could be susceptible to entrainment. The information compared typically is the overall size, habitat requirements, life history, and swimming ability of the target species to the habitat near the intakes, the intake velocity, and the trashrack configuration. Based on these factors, the susceptibility is qualitatively determined to be none, low, moderate, or high. Only those target species that have an entrainment susceptibility of low to high are considered for the quantitative entrainment and turbine mortality assessment.
- 4) Estimate the number of target species entrained at the Project on a seasonal and annual basis. This step is completed by first selecting representative projects within the EPRI 1997 entrainment database that are similar to the Project. The EPRI 1997 database has entrainment rates based on actual field studies, expressed as number of fish per unit volume passed through the turbine. These entrainment rates would then be used to estimate the number of fish by multiplying the entrainment rate of the selected projects by the flow through the Project turbines.
- 5) Estimate the number of target species that experience turbine mortality at the Project. The first step to determine number of fish that experience turbine mortality is to review the EPRI 1997 turbine survival database and select representative projects that are similar to the Project to obtain a turbine mortality rate. Then, the turbine mortality rate is multiplied by the entrainment estimate to yield the number of fish that would experience turbine mortality.

Data Analysis and Reporting

Data analysis is implicit in the methods discussed above and would be detailed in the study report. Results of the Desktop Entrainment and Turbine Mortality Study will be presented in a

draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

3.3.5 Consistency with Generally Accepted Scientific Practices

This study involves the application of known fish community data with entrainment and impingement data following the methods and procedures generally accepted by the scientific community.

3.3.6 Study Schedule

Because the study is a desktop exercise, the Licensees anticipate performing the study during the first quarter of the 2021 study season. Further, the Licensees also anticipates to provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

3.4 Downstream Roanoke Logperch Assessment

3.4.1 Goals and Objectives

The goals of the Downstream Roanoke Logperch Assessment are to: 1) determine whether suitable RLP habitat is present downstream between the Project dam and the upper extent of the Union Mills dam impoundment; 2) evaluate the presence/absence of the RLP is present between the Project dam and the upper extent of the Union Mills dam impoundment; and 3) collect information to support the Endangered Species Act (ESA) Section 7 consultation process. To attain these goals, the study has the following objectives:

- 1) Examine aerial photography and recent site photographs to select target areas between the Project dam and the upper extent of the Union Mills dam impoundment that may have potential RLP suitable habitat;
- 2) Perform a habitat assessment of the target areas identified in Objective 1; and,
- 3) Perform a reconnaissance-level survey for RLP at the targeted areas identified in Objective 1.

3.4.2 Existing Information and Need for Additional Information

Duke (2019) and Roberts (2012) indicate that RLP are very unlikely to occur in the Project area. Nonetheless there has been no survey for the RLP on the mainstem of the Dan River downstream of the Project dam. This information is needed to support the Section 7 ESA consultation process.

3.4.3 Project Nexus

If RLP are downstream of the Project dam, Project operations may impact the species and its habitat.

3.4.4 Methodology

Study Area

The proposed study area is the Dan River from the Schoolfield Dam downstream to the upper extent of the Union Mills dam impoundment (Figure 3.4.4-1).

USFWS Approved Surveyor

The Virginia Field Office of the FWS requires that any habitat assessments and sampling for endangered species, such as the RLP, must be performed by an approved surveyor. The Licensees have retained Alderman Environmental Services, Inc. who employs biologists that have collected RLP in the past and qualify as an approved surveyor.

Obtain VA Threatened & Endangered Species Collections Permit

VDGIF issues Threatened & Endangered Species Collections Permit only for individual projects. The Licensees will apply for the required collections permit immediately after the development of the Final Study Plan to allow for VDGIF's three to four-week application processing time prior to any field sampling.

Downstream RLP Habitat Assessment

The purpose of this assessment is to determine if suitable RLP habitat is present downstream of the Project dam. This assessment will be completed following a step-wise process. The first step would be to select potential habitat assessment sites based on RLP general habitat requirements. In the Roanoke River basin, RLP usually occupy runs and riffles greater than 20 cm in depth with exposed, silt-free gravel-boulder substrate (Lahey and Angermeier, 2006; FWS, 2010). This site selection would be done using aerial imagery and other site photographs (e.g., Google street view; obtained from other site-specific studies) between the Schoolfield Dam and upper extent of the Union Mills Dam impoundment. The approved surveyor would then review existing aerial imagery and recent photographs of the downstream river reach to identify possible run and riffle areas that appear consist with RLP habitat requirements. At the targeted areas field staff and the approved surveyor will collect depth (ft), velocity (fps at 0.6 depth), substrate, and percent silt-covered at the targeted areas of potential suitable habitat. This sampling will likely occur between September and October near suitable (base flow) and safe flow conditions (wadeable) (USGS, 2012; Anderson et al., 2014).

RLP Reconnaissance Survey

Concurrent with the habitat assessment, the approved surveyor would perform a reconnaissance-level survey for the RLP. This would involve employing either SCUBA, bathyscopes, and potentially electrofishing and seining to determine the presence/absence of the species. Observed species would be noted, but not measured or enumerated. Prior to this survey, VDGIF would be notified as per the VA Threatened & Endangered Species Collections Permit requirements.

Data Analysis

Data analysis would consist of calculating habitat suitability index (HSI) scores from the habitat assessment and summarizing the list of fish species observed during the RLP reconnaissance survey. The calculated HSI scores for each potential habitat site would follow Anderson (2016), which consist of taking the product of the four preference values (from Appendix B in Anderson (2016)) for depth, velocity, substrate, and silt raising the product to the 0.25 power; and multiplying the outcome by 100. Then, associating the HSI score with the corresponding habitat suitability category: Unsuitable (HSI = 0), Poor (HSI = >0-25), Fair (HSI = >25-50), Good (HSI = >50-75) and Excellent (>75). Summarizing the fish observed from the RLP reconnaissance survey would involve a tally of the species observed by location and noting whether RLP are present or absent downstream of the Project.

Reporting

The report will present the methods, analyses, and results of the study. Results of the Downstream Roanoke Logperch Assessment will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

3.4.5 Consistency with Generally Accepted Scientific Practice

This study involves the survey of RLP habitat, and recording observation of RLP following methods and procedures generally accepted by the scientific community.

3.4.6 Study Schedule

The Licensees anticipates this study would be implemented during the 2020 study season. The study will commence by June 1, or as soon as flow conditions allow, and will continue through October. Further, the Licensees also anticipate to provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

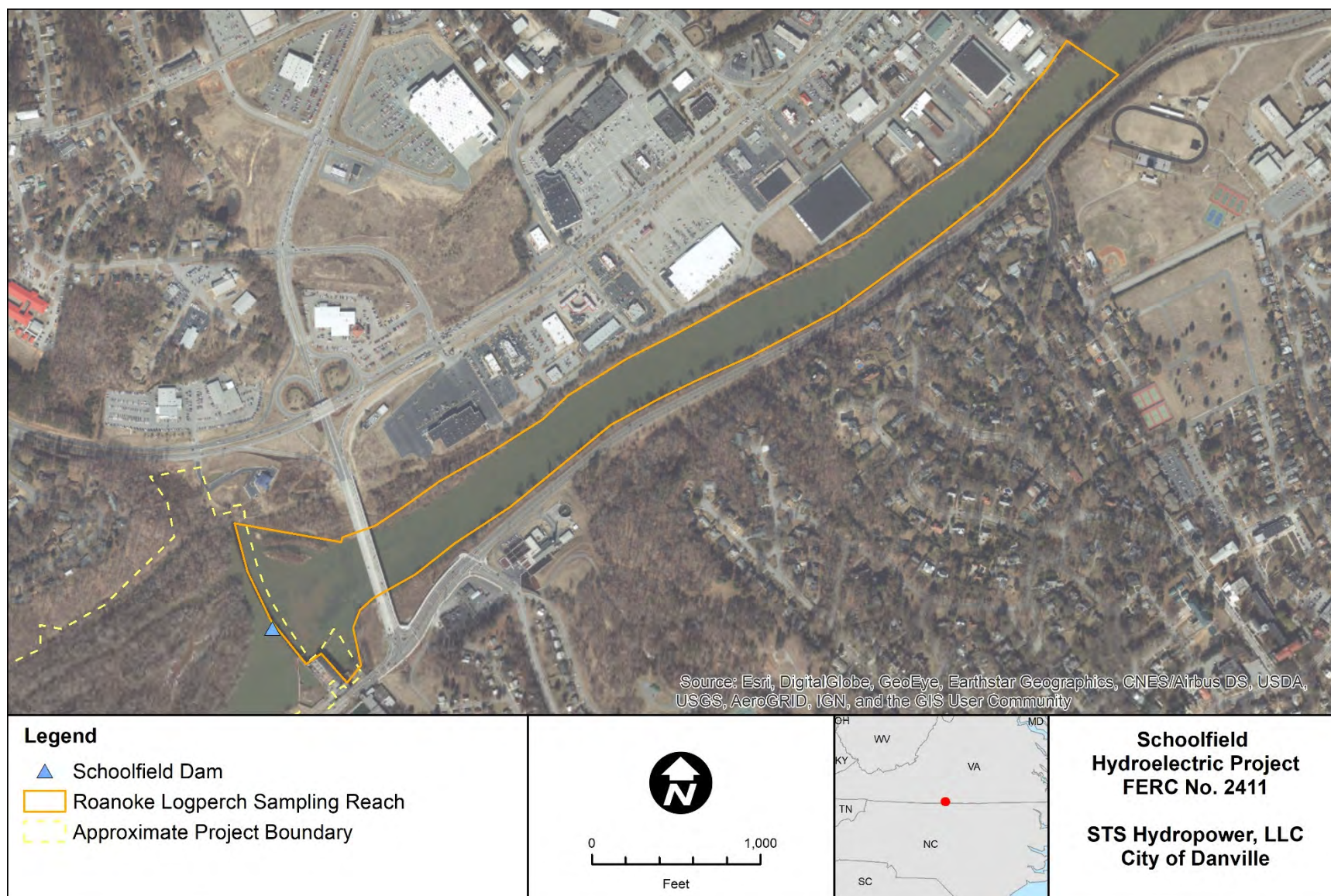


Figure 3.4.4-1. Proposed Roanoke logperch sampling reach.

3.5 Bald Eagle Nest Survey

3.5.1 Goals and Objectives

The goal of the Bald Eagle Nest Survey is to determine whether bald eagles nest within the Project boundary. The study goal will be achieved by accomplishing the following objective:

- 1) Document the location, condition, and status, of nesting pairs on lands within an approximate 0.5-mile buffer of the Dan River centerline within the Project boundary.

3.5.2 Existing Information and Need for Additional Information

The VDGIF's Bald Eagle Search Map, indicates a potential nest with unknown activity is adjacent to the Project boundary (Figure 3.5.2-1). This potential nest suggests that bald eagles may occur in the Project area. Information is needed to determine if bald eagles are present and nesting in the Project area.

3.5.3 Project Nexus

Bald eagles are protected under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act. These Acts require eagles to be protected from disturbance, including human-induced alterations around nesting sites. Actions associated with normal maintenance and operation of the hydroelectric projects have the potential to disturb bald eagle nesting. Therefore, measures may be needed to protect eagles from Project operations and activities.

3.5.4 Methodology

Study Area

The proposed study area includes lands within a 0.5-mile buffer around the Dan River center line including the Project boundary (Figure 3.5.2-1).

Bald Eagle Survey

The Licensees retained The Center for Conservation Biology at the College of William and Mary to survey all lands, within an approximate 0.5-mile buffer surrounding the Project for evidence of eagle presence (Figure 3.5.2-1). A high-wing Cessna 172 aircraft will be used to systematically overfly the land surface at an altitude of approximately 100 m to detect eagle nests. Flights will systematically move between the shoreline and approximately 0.5 miles inland to cover the most probable breeding locations. All nests detected will be plotted using a GPS-enabled notebook loaded with recent aerial photography and will be given a unique alpha-numeric code. Each nest will also be examined to determine its structural condition, the type and condition of nest tree, and the condition of the surrounding landscape. The nest survey will be conducted between mid-March and late April. Surveys during this period will coincide with the expected nesting chronology of late incubation through chicks prior to fledging.

Data Analysis

Data analysis would consist of providing information such as nest and tree condition, other habitat characteristics, and mapping nesting locations.

Reporting

The report will present the methods, analyses, and results of the study. Elements to be included in the report are 1) a record and associated maps of all known active pairs of bald eagles, 2) a table of nest condition, and nest tree condition, 3) and a record of any significant habitat characteristics or disturbances pertinent to future bald eagle management. Results of the study will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

3.5.5 Consistency with Generally Accepted Scientific Practice

The study involves the survey of the Project area using a ged aircraft operated by authorized biologists trained in survey techniques, which is consistent with generally accepted scientific practice and National Bald Eagle Management Guidelines (FWS, 2007).

3.5.6 Study Schedule

The study is anticipated to commence as soon as approved by the Resource Agencies during the 2020 study season. Results of the study will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

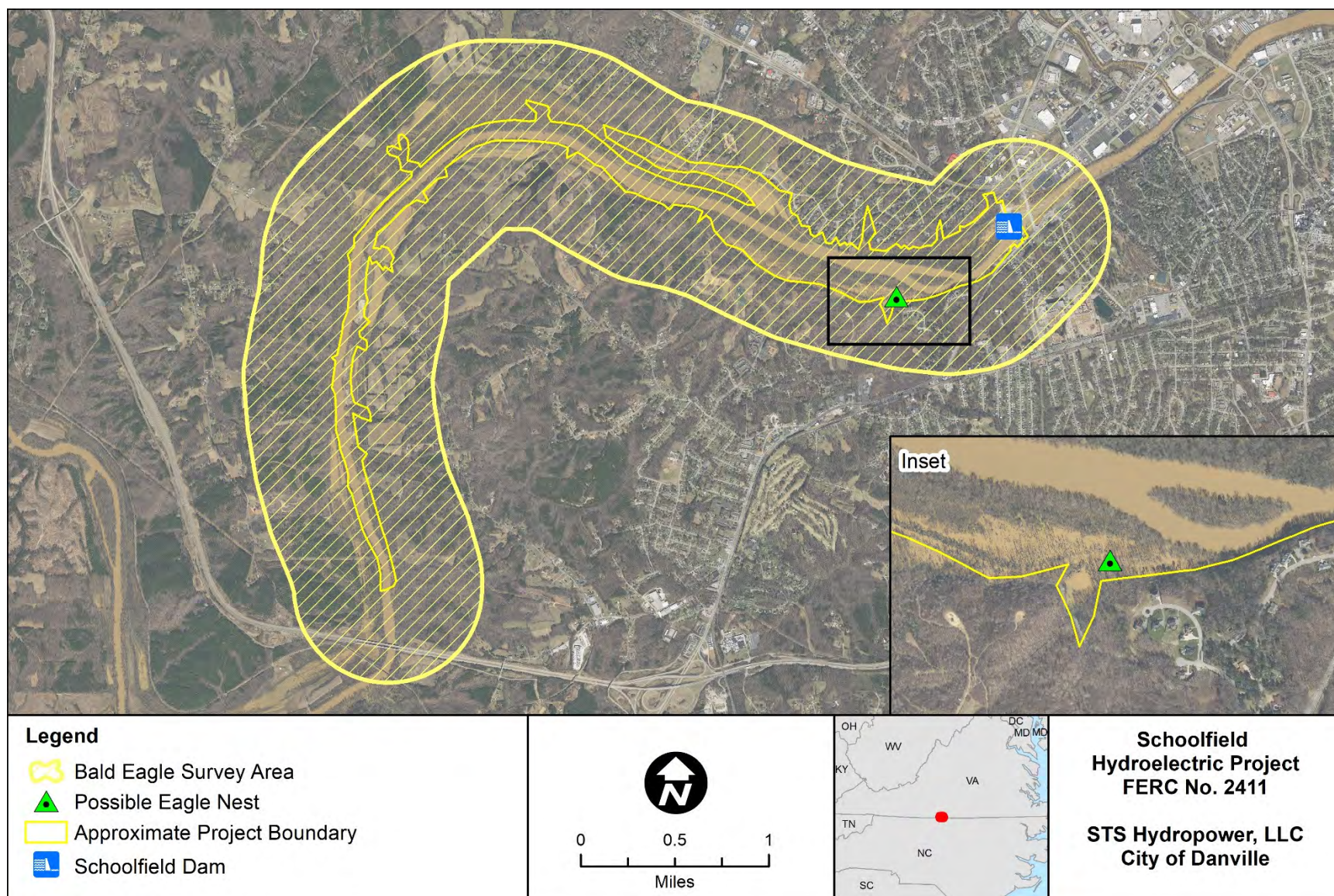


Figure 3.5.2-1. Proposed Bald Eagle survey area.

3.6 Freshwater Mussel Survey

3.6.1 Goals and Objectives

The goal of the Freshwater Mussel Survey is to document potential mussel habitat, determine the species of freshwater mussels present and their relative abundance in the Project area. These goals will be accomplished by achieving the following study objectives:

- 1) Conduct a literature review to determine the freshwater mussel species likely to occur within the Dan River in the Project area and describe their physical habitat requirements;
- 2) Describe existing potential mussel habitat within the Project reservoir and downstream of the Project based on Alderman (2014);
- 3) If suitable mussel habitat potentially occurs in the Project area, as determined from Objective 2, identify a single representative sampling location within the Project reservoir and downstream of the Project dam to the upper extent of the Union Mills Dam impoundment;
- 4) Conduct a qualitative mussel survey to determine the presence and abundance of freshwater mussels at the location selected in Objective 4; and,
- 5) Describe the physical habitat surveyed.

3.6.2 Existing Information and Need for Additional Information

A freshwater mussel survey was performed throughout the Dan River by Alderman (2014) as a part of Duke Energy's coal ash spill response. However, the Alderman survey did not include the Project reservoir or the area downstream of the Project dam. Therefore, a need exists to document the existing mussel community within the Project reservoir and downstream of the Project dam.

3.6.3 Project Nexus

Freshwater mussel distribution and abundance is dependent on suitable habitat. Some mussel species, such as the Atlantic pigtoe, are sensitive to sedimentation, sediment scour, and water quality alterations that may result from hydropower operations. Operation of the Project impounds and utilizes flows of the Dan River for electrical generation, which may affect water quality and aquatic habitat suitable for freshwater mussels. Therefore, the distribution and abundance of freshwater mussels may be affected within Project-affected reaches of the Dan River.

3.6.4 Methodology

Study Area

The proposed study area includes the Project reservoir and downstream of the Project dam (Figure 3.6.4-1).

Literature Review

A review of relevant scientific literature will be performed to identify and develop a list of the freshwater mussel species likely to occur in the Dan River in the Project area. For the freshwater mussel species identified, their habitat requirements will be described, which will guide field data collection efforts.

Selection of Sampling Locations

Based upon the habitat requirements of the freshwater mussel species that are likely to occur in the Project area and the aquatic habitat available in the Project reservoir and tailwater, a qualified malacologist will identify and propose two representative sampling locations for a field survey (Carlson et al. 2008). One location will be in the upper reservoir and the other downstream of the Project dam. The selected sampling locations will be communicated to the Resource Agencies for comment and their concurrence. However, the final site selection will be determined in the field based on the professional judgment of a qualified malacologist. In the field, the spatial expanse of the sampling locations will be determine using a handheld GPS.

Qualitative Mussel Survey and Physical Habitat Descriptions

To perform the qualitative mussel survey, a scientific collections permit will be obtained from VDGIF upon approval of the study plan (USFWS and VDGIF, 2018).

Qualitative mussel surveys are presence/absence surveys using tactile and visual search methods, where a catch-per-unit-effort (CPUE) can be calculated based on the search area and time spent searching. A qualified malacologist will perform a qualitative survey for freshwater mussels at each sampling location along a 100-m transect when water conditions are of appropriate clarity (Carlson et al. 2008; USFWS and VDGIF, 2018). The transects will be parallel to shore in waters no deeper than 15 feet. The qualitative survey will include a visual examination along the transect for dead shells, as well as along shorelines and exposed areas (Carlson et al. 2008). Along each transect the survey will be conducted by visually examining the substrate and/or gentle probing (1 to 2 inches deep) and feeling the substrate for mussels. Depending on water depth, snorkeling or SCUBA will be used to examine the substrate; in general, water depths greater than one arm's length would require SCUBA (Carlson et al. 2008). All mussels discovered, either live or dead, will be identified to species and counted. The first 100 live individuals of each species encountered will be measured for total length, defined as the maximum distance between the posterior and anterior shell margins, with calipers to the nearest 0.1-mm and recorded (Carlson et al. 2008). Representative photographs of each species collected at each sampling location will be taken. All mussels (live or dead) that are collected will be re-bedded into the substrate in a posterior up position or gently placed on the substrate surface so as to allow the mussel to burrow and orient itself in the correct direction (Carlson et al. 2008). In addition, the total amount of time each person spent searching, weather, discharge at the beginning and end of sampling, and generation will be recorded.

Concurrent with the qualitative survey, the physical habitat along the survey transects will be described and representative site photographs will also be taken. Physical habitat descriptions would consist of: the mesohabitat type (run, riffle, pool), approximate total area of run, riffle, and

pool habitat, average depth, typical water velocity, and substrate (boulder, cobble, pebble, gravel, sand, silt and clay).

Data Analysis

Species richness will be determined for each sampling location and catch-per-unit-effort (CPUE) will be calculated for each species encountered by location. Basic summary statistics will be calculated based on the size data collected for each species and location. Length-frequency histograms will also be prepared to illustrate variations in species, size, and location.

Reporting

Results of the Freshwater Mussel Survey will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment. The report will present the methods, analyses, and results of the study.

3.6.5 *Consistency with Generally Accepted Scientific Practice*

This study involves the collection of freshwater mussel presence/absence and abundance data following the methods and procedures generally accepted by the scientific community.

3.6.6 *Study Schedule*

The Licensees anticipate this study would be implemented during the 2020 study season, targeting between April 1 and October 31, during conducive and safe flow conditions (USFWS and VDGIF, 2018). Further, the Licensees also anticipates to provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.



Figure 3.6.4-1. Proposed freshwater mussel sampling locations.

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**APPENDIX A:
FISH COMMUNITY DATA FOR THE PROJECT AREA**

Table A-1: Fish taxa collected from the Project reservoir by Duke (2019) in 2015, 2016, and 2017.

Scientific Name	Common Name	2015		2016		2017		Total N
		N	%	N	%	N	%	
Lepisosteidae								
Lepisosteus osseus	Longnose Gar	1	0.1	0	0	0	0	1
Clupeidae								
Dorosoma cepedianum	Gizzard Shad	45	5	73	8.1	76	8.5	194
Cyprinidae								
Nocomis leptocephalus	Bluehead Chub	0	0	2	0.2	0	0	2
N. raneyi	Bull Chub	11	1.2	1	0.1	9	1	21
Notropis amoenus	Comely Shiner	14	1.6	78	8.7	38	4.2	130
N. hudsonius	Spottail Shiner	146	16.3	90	10	99	11	335
Cyprinus carpio	Common Carp	40	4.5	80	8.9	54	6	174
Hybognathus regius	Est. Silvery Minnow	2	0.2	0	0	0	0	2
Notemigonus crysoleucas	Golden Shiner	1	0.1	2	0.2	1	0.1	4
C. analostana	Satinfin Shiner	8	0.9	10	1.1	4	0.4	22
Lythrurus ardens	Rosefin Shiner	33	3.7	12	1.3	0	0	45
Luxilus albeolus	White Shiner	27	3	17	1.9	3	0.3	47
Ctenopharyngodon idella	Grass Carp	0	0	0	0	1	0.1	1
Unidentified cyprinids	Unknown	51	5.7	0	0	0	0	51
Catostomidae								
Carpiodes cyprinus	Quillback	3	0.3	96	10.7	24	2.7	123
Catostomus commersonii	White Sucker	6	0.7	2	0.2	0	0	8
Unidentified Maxostoma	Unknown	0	0	0	0	1	0.1	1
M. erythrurum	Golden Redhorse	82	9.2	134	15	183	20.4	399
M. collapsum	Notchlip Redhorse	1	0.1	11	1.2	1	0.1	13
M. pappillosum	V-Lip Redhorse	4	0.4	3	0.3	13	1.5	20
Hypentelium nigricans	Northern Hog Sucker	5	0.6	0	0	0	0	5
Ictaluridae								
Ameiurus brunneus	Snail Bullhead	0	0	7	0.8	3	0.3	10
A. catus	White Catfish	0	0	6	0.7	5	0.6	11
A. nebulosus	Brown Bullhead	2	0.2	4	0.4	7	0.8	13
Ictalurus furcatus	Blue Catfish	0	0	0	0	1	0.1	1
I. punctatus	Channel Catfish	15	1.7	48	5.4	65	7.3	128

Scientific Name	Common Name	2015		2016		2017		Total N
		N	%	N	%	N	%	
Poeciliidae								
Gambusia holbrooki	Eastern Mosquitofish	1	0.1	0	0	1	0.1	2
Centrarchidae								
Lepomis macrochirus	Bluegill	158	17.6	212	23.7	248	27.7	618
L. cyanellus	Green Sunfish	2	0.2	11	1.2	3	0.3	16
L.gibbosus	Pumpkinseed	1	0.1	1	0.1	1	0.1	3
L. auritus	Redbreast Sunfish	94	10.5	180	20.1	135	15.1	409
L. microlophus	Redear Sunfish	39	4.4	138	15.4	95	10.6	272
L. (Hybrid)	Sunfish (Hybrid)	1	0.1	4	0.4	0	0	5
L. gulosus	Warmouth	1	0.1	2	0.2	0	0	3
Micropterus salmoides	Largemouth Bass	67	7.5	63	7	58	6.5	188
M. dolomieu	Smallmouth Bass	1	0.1	3	0.3	6	0.7	10
Pomoxis nigromaculatus	Black Crappie	28	3.1	29	3.2	0	0	57
P. annularis	White Crappie	5	0.6	8	0.9	1	0.1	14
Percidae								
Perca flavescens	Yellow Perch	1	0.1	6	0.7	3	0.3	10
Number of Taxa		33	–	31	–	29	–	39
Total Catch		896	–	1,333	–	1,139	–	3,368

Source: Appendices II, JJ, and KK in Duke (2019), as modified by the Licensees.

**APPENDIX B:
BENTHIC MACROINVERTEBRATE DATA FOR THE PROJECT AREA**

Table B-1. Benthic macroinvertebrate descriptive metrics of the Project area for 2015, 2016, and 2017.

Descriptor	Year		
	2015	2016	2017
Total number of taxa	44	42	43
Total number of <i>Ephemeroptera</i>	6	6	8
Total number of <i>Plecoptera</i>	0	0	1
Total number of <i>Trichoptera</i>	3	4	2
Total number of EPT	9	10	11
Percent EPT of total taxa	20.5%	23.8%	25.6%
Total number of Intolerant taxa (0.0 - ≤ 3.3 TV)	3	2	2
Percent Intolerant taxa of total taxa	6.8%	4.8%	4.7%
Total number of Intermediate taxa (3.3 - ≤ 6.7-TV)	15	16	20
Percent Intermediate taxa of total taxa	34.1%	38.1%	46.5%
Total number of Tolerant taxa (6.8 - ≤ 10-TV)	13	12	11
Percent Tolerant taxa of total taxa	29.5%	28.6%	25.6%
Number of taxa with no established TV	13	11	14
Percent total taxa with no TV	29.5%	26.2%	32.6%
Number of EPT with no TV	1	2	2

Source: Appendix HH in Duke (2019).



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061



May 12, 2020

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

Re: Schoolfield Hydroelectric Project (FERC #2411),
Danville, VA, Review of the Draft Study Plan

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Study Plan (DSP) provided by Matthew Burak of WSP via email on April 16, 2020, on behalf of STS Hydropower, LLC (a wholly-owned subsidiary of Eagle Creek Renewable Energy) and the City of Danville (Licensees) for the Schoolfield Hydroelectric Project (Federal Energy Regulatory Commission [Commission; FERC] No. 2411) (Project). The Service also participated in the Joint Meeting and site visit held on September 18, 2019 in Danville, VA and in the DSP Agency Conference Call on April 23, 2020. The Project is located on the Dan River at approximately river mile 60.1 in the City of Danville, Pittsylvania County, VA. The Service filed comments on the Notice of Intent and Pre-Application Document (PAD), and Request for Studies, on November 15, 2019. The Service offers the following comments on the DSP.

Section 2.1.1, Studies Adopted with Modification by the Licensees, Water Quality Study: This section states water quality data will be collected from June 1 until September 30. According to the flow duration curves in the PAD, October is part of the low flow season when Project effects on water quality are most likely to occur; therefore, the Service recommends that water quality data collection be extended through October until October 31.

Section 2.1.2, Studies Adopted with Modification by the Licensees, Flow Assessment Study: This section states Project impacts on downstream river flow would only occur when the river flows are less than the Project's hydraulic capacity of 2,160 cubic feet per second. This typically occurs in the late spring, summer, and fall. Therefore, the Licensees proposed to collect the elevation data from June 1 through September 30, concurrent with other field studies. However, per the original study request by the North Carolina Wildlife Resources Commission (NCWRC), the data should be collected for at least 12 months to capture a variety of flow conditions.

Section 2.1.3, Studies Adopted with Modification by the Licensees, Mussel Surveys: This section states because the Dan River upstream of the Project reservoir is not influenced by Project operations, but rather by other non-Project related activities, no mussel surveys will be conducted upstream of the project. The Service does not agree with this approach. Mussel surveys upstream of the reservoir would be used as a reference to

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assess the impact of the project on mussel populations downstream of the dam. Mussels located upstream can also be impacted by the project as juvenile mussels from upstream areas can be washed downstream into the reservoir or glochidia can be released from host fish into the reservoir. Because the reservoir provides lower quality habitat for many mussel species, recruitment of mussels into the population could be affected by the Project. Therefore, the Service recommends that suitable habitat upstream of the reservoir be surveyed for mussels.

Section 2.1.5, Studies Adopted with Modification by the Licensees, Roanoke Logperch Assessment: This section states the Dan River upstream of the Project is influenced by other developmental activities that are not Project related; therefore, there is no Project nexus to Roanoke logperch (*Percina rex*) (RLP) in the Dan River upstream of the Project reservoir. RLP surveys upstream of the reservoir would be used as a reference to assess the impact of the project on RLP populations downstream of the dam. While the Service recognizes that FERC defines the baseline as the existing conditions at the Project at the time of relicensing, under the Endangered Species Act (ESA) the Service considers both past and present impacts [50 CFR § 402.02]. If adult RLP are present upstream of the project, larval RLP can drift into and through the Project in the spring during spawning. Thus, the Project can impact resources upstream of the Project including RLP. Therefore, the Service recommends that suitable habitat upstream of the reservoir be surveyed for RLP.

This section states that Roberts (2012) reported that the only known extant RLP population in the Dan River watershed in Virginia resides in the Smith River, which is far upstream of the Project. Rosenberger (2007) reported that among Virginia tributaries to the Dan River, RLP are known only from the Smith River system, including Rockcastle Creek, Town Creek, and three disjunct sections of the mainstem Smith River. The licensees use this information as part of their rationale for not conducting RLP surveys upstream of the Project. However, Roberts (2012) also reported that RLP had been found in several tributaries to the Dan River in Rockingham County, NC, including the Mayo River, Big Beaver Island Creek, Cascade Creek, and Wolf Island Creek. In 2007, RLP were discovered in the mainstem Dan River, near Eden, NC (Roberts 2012). RLP were recently (2017) documented in the Dan River near the town of Berry Hill, NC, approximately 10 miles upstream of the head of the Project reservoir (NCWRC, personal communication). The species may also have expanded its range since the surveys were conducted by Roberts (2012). As stated previously, if the species does occur more immediately upstream of the Project reservoir, the Project may be directly impacting RLP larvae that may drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment, either of which requires Section 7 consultation with the Service under the ESA.

Section 2.1.6, Studies Adopted with Modification by the Licensees, Bald Eagle Nest Survey: The Service appreciates the licensees' proposal to conduct a bald eagle (*Haliaeetus leucocephalus*) nest survey, in response to the Service's previous comments. While the Service recommends ensuring that future project activities do not disturb or harm bald eagles, we would prefer that the resources for conducting this survey be reallocated in support of (1) improving the mussel survey design to significantly increase the probability of detecting all mussel species present in the project area, including any rare species that may be present (per the recommendations of the Virginia Department of Game and Inland Fisheries [VDGIF]), and including surveys upstream of the head of the reservoir, (2) expanding the RLP study to include sufficient sampling upstream of the Project reservoir to determine RLP presence/absence, which would help to determine whether RLP larvae may be subject to entrainment into the Project reservoir or through the powerhouse, (3) expansion of the general fisheries study to include sufficient survey effort downstream of the Project dam and powerhouse, (4) extending the water quality monitoring period through October which is also part of the low-flow season, and (5) extending the flow study to include at least 12 months of effort.

Section 2.2.1, Studies Not Adopted by the Licensees, Aquatic Fauna Survey and Fish Survey: This section states Duke (2019) provides recent information regarding the fish community of the Dan River in the Project area. This section concludes that this study adequately characterizes the Project's fish community; therefore, there is no need to collect additional information. The Service does not agree with this conclusion. The report summarizes three years of intensive fisheries sampling (2015 through 2017) using multiple gear types, including upstream of and within the Project reservoir. However, according to the report, fish surveys were only conducted upstream of the dam (transect G) in the reservoir. There were no fish surveys conducted immediately above the reservoir or in the tailwater below the dam. The closest downstream fish survey location is 55 miles downstream in the

headwaters of Kerr Reservoir, well below the dam. The area immediately below the dam between the Project dam and the Union Mill Dam lacks fish surveys necessary for an assessment of Project impacts downstream. The closest upstream transect (F) is located approximately 8 miles upstream. Therefore, the area immediately above the reservoir should also be surveyed for fish as an upstream reference to assess impacts of the Project on fish populations.

Section 2.2.2, Studies Not Adopted by the Licensees, Fish Passage and Protection Assessment: While the Service agrees that there are currently no diadromous fish species in the Project area, there is the potential for the federally listed endangered RLP to be present in the Project area, considering recent documentation of the species approximately 10 river miles upstream of the Project reservoir, and the Project may function as an isolating mechanism, preventing dispersal and genetic exchange between RLP populations. Studies demonstrating RLP dispersal include Roberts et al. (2007) in which tagged RLP were documented moving up to 3.2 kilometers (km) between study sites, and Roberts et al. (2016) that estimated a RLP median lifetime dispersal distance of 6-26 km. In addition, many non-diadromous species documented in the Project reservoir are considered migratory (Wilcox et al. 2004), including quillback (*Carpiodes cyprinus*), golden redhorse (*Moxostoma erythrurum*), white sucker (*Catostomus commersonii*) and largemouth bass (*Micropterus salmoides*), among others, and some of these species serve as freshwater mussel host fish. For example, white sucker and largemouth bass have been identified as potential hosts for the yellow lampmussel (*Lampsilis cariosa*) (Kneeland and Rhymer 2008), which occurs in the Dan River (AES 2014). Therefore, the Project may also represent a barrier to mussel dispersal and genetic exchange, including for rare mussel species, some of which may be state listed or federally listed species (as yet to be determined through the planned mussel survey). Nevertheless, the Service understands it is premature to draw conclusions regarding these possible Project effects. At a minimum, the Service requests inclusion in the entrainment analysis, an assessment of time of year and frequency of spillage over the dam as a possible downstream alternative to passage through the powerhouse, and a characterization of the adequacy of safe passage (e.g., is there an adequate plunge pool below the dam) and viability of this route.

Section 2.2.3, Studies Not Adopted by the Licensees, Recreation Use and Enhancement Assessment Study: This section states there is no need to study recreation use and access at the Project. The Service does not agree with this conclusion. Given the increased interest in river recreation since the last relicensing, the Service believes a recreation study is warranted to study how recreation can be accommodated and/or enhanced at the Project. While portage around the dam may not be feasible, there may be other opportunities to enhance recreational use in the area. The Service supports recommendations provided by the VDGIF on this issue including evaluating the need for boat access in the upper part of the reservoir.

Section 3.1.4, Draft Study Plans, Baseline Water Quality Monitoring Study, Methodology: This section states one water quality logger will be deployed in the forebay at approximately 25% depth from the water surface. An additional water quality logger should be placed deeper in the water column to capture any potential differences in water quality resulting from potential stratification of the reservoir. To even out the distribution of the two loggers in the water column, upper and lower set points for the data loggers should be at approximately one-third and two-thirds depth below normal pool elevation, respectively. In addition to continuous monitoring of temperature and DO, once per calendar month (June through October), in situ water quality measurements of temperature, dissolved oxygen (DO), pH, and specific conductance should be collected at each of the water quality logger locations to better characterize water quality in the river. At the forebay monitoring location, a depth profile of temperature and DO should be collected each month. The depths of the forebay data loggers should be adjusted, if necessary to capture any stratification, during the study period based on a comparison of the continuous temperature and DO results with the monthly depth profile measurements. Individual water quality measurements (temperature, DO, pH, conductivity) should also be collected during fisheries (including RLP surveys) and mussel field sampling events.

This section states weather, river flow, and operations data will also be collected to add context to the water quality data, and that operations data used as part of the analysis will include turbine discharge and power generations. Analysis should also address how water quality is affected by different river flows and flow allocations (through the turbines versus over the dam crest). Of particular interest is whether water quality is affected during periods of no spillage over the dam crest.

Section 3.3.1, Draft Study Plans, Desktop Entrainment and Turbine Mortality Study, Goals and

Objectives: This section states the goal of the study is to evaluate the seasonal and annual fish entrainment and turbine mortality at the Project. Seasonal fish surveys are needed to determine species and seasonal abundance of fish that are in the vicinity of the Project and would be susceptible to impingement or entrainment. Duke (2019) collected some seasonal data in the reservoir; however this data is not provided in their report. Therefore, unless the Licensees can obtain this data from Duke, it is unclear how a seasonal assessment will be performed. The Service is interested in how impingement and entrainment varies across seasons.

Section 3.3.4, Draft Study Plans, Desktop Entrainment and Turbine Mortality Study, Methodology, 3)

Entrainment susceptibility: Entrainment susceptibility should also consider whether a particular species/life stage may be motivated to move downstream at a certain time of year (e.g., fall migration period; young-of-year dispersal); swim speed/ability (i.e., ability to escape the powerhouse intake flow) may not be the only factor determining whether a fish is susceptible to entrainment.

Section 3.4.4, Draft Study Plans, Downstream Roanoke Logperch Assessment, Methodology, USFWS

Approved Surveyor: This section states the Licensees have retained Alderman Environmental Services, Inc. (AESI) who employs biologists that have collected RLP in the past and qualify as an approved surveyor. No one from AESI is currently on the list of approved surveyors for RLP in Virginia. The list of approved surveyors for RLP and instructions for adding individuals to the approved surveyor list can be found at <https://www.fws.gov/northeast/virginiafield/endangered/surveyors.html>. The qualifications of the individual seeking approval as a surveyor should be provided to the Service at least 60 days prior to the start of the survey.

Section 3.4.4, Draft Study Plans, Downstream Roanoke Logperch Assessment, Methodology, RLP

Reconnaissance Survey: This section states that a reconnaissance level survey for the RLP will be performed in the downstream area. A more quantitative-level survey, than described in this Section, is needed downstream to better enable the Service to assess effects to RLP during the Section 7 consultation process. This increased level of effort will also assist FERC in making their Section 7 effects determination when they prepare their Environmental Assessment. It may not be possible to make an informed effects determination unless a more comprehensive RLP survey is performed downstream of the dam. If the species is present downstream, within the Potentially Affected Area, there is potential for Project operations to affect RLP spawning and nesting (e.g., adults could be pushed off of preferred riffle habitats, or shear stress related to Project discharge could disturb nests and push eggs downstream). The Service recommends that the Licensee work with the resource agencies to develop a RLP survey methodology that is adequate to detect the species and quantify the population so that an appropriate assessment of effects can be performed.

This study should not be limited to the downstream portion of the Project area. For the Service to analyze potential Project affects to RLP, and to quantify incidental take if there are adverse effects from the Project, information on presence/absence of the species immediately upstream of the Project reservoir is also needed. If the species is found upstream of the reservoir, then there is the potential for larvae to drift into the reservoir and/or through the powerhouse, either of which may impact the RLP. In the absence of data for the reach of the Dan River immediately upstream of the reservoir, based on recent documentation of the species approximately 10 miles upstream of the head of the reservoir (NCWRC, personal communication), the Service assumes the species is present upstream of the Project, in which case an additional larval drift study will be recommended. Methods have recently been developed for the collection and identification of RLP larvae (Buckwalter et al. 2019).

Section 3.4.4, Draft Study Plans, Downstream Roanoke Logperch Assessment, Methodology, Downstream

RLP Habitat Assessment and Data Analysis: These sections indicate that habitat suitability index (HSI) scores will be calculated from the habitat assessment. However, the proposed habitat assessment methodology is not systematic or rigorous enough to achieve this objective. For example, one velocity and depth measurement (i.e., under a single flow) is not sufficient for determining habitat suitability for RLP. If HSI scores are going to be used to determine whether the area below the dam is suitable for RLP, a more comprehensive analysis of the habitat conditions in the river will be needed.

Section 3.4.6, Draft Study Plans, Downstream Roanoke Loggerch Assessment, Study Schedule: This section states the Licensees anticipate this study would be implemented during the 2020 study season and will commence by June 1. The Service recommends that RLP surveys be initiated after June 30 to protect RLP during breeding.

Section 3.6.4, Draft Study Plans, Freshwater Mussel Survey, Methodology, Selection of Sampling Locations: This section states two locations will be surveyed for freshwater mussels. One location will be in the upper reservoir and the other downstream of the Project dam. This level of effort is insufficient to determine whether rare or state listed or federally listed mussel species are present as the detection probability of these species is low. All mussel habitat below the dam should be surveyed with sufficient effort to confidently determine whether these species are present or not. In addition, the large area of the reservoir necessitates a much larger survey area. The higher quality habitat downstream of the dam also necessitates a more thorough survey to detect if these mussel species are present. Therefore, the Service recommends an approach that involves increasing the number of transects and associated survey effort, sufficient to allow development of a species richness curve, where search effort continues until no new species are found. As stated previously, a mussel survey upstream of the reservoir is needed as a reference to assess impacts from the Project. This increased level of effort is justified because federally listed mussel species may occur in this part of the Dan River and FERC will need to make a Section 7 effects determination for any federally listed species when they prepare their Environmental Assessment. It may not be possible to make an informed effects determination unless a more comprehensive mussel survey is performed downstream of the dam. The Service recommends that mussel survey methods be approved by the VDGIF prior to implementation, and the Service defers to VDGIF for determining the appropriate level of effort.

Thank you for the opportunity to comment on the DSP. If you have any questions, please contact John McCloskey of this office at (804) 824-2404 or via email at john_mccloskey@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

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☐ North Carolina Wildlife Resources Commission ☐

Gordon Myers, Executive Director

May 13, 2020

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Subject: Draft Study Plan
Schoolfield Hydroelectric Project, FERC Project No. 2411

Dear Secretary Bose:

The North Carolina Wildlife Resources Commission (NCWRC) has reviewed the Draft Study Plan (DSP) submitted to interested parties by STS Hydropower, LLC (STS) and the City of Danville, Virginia (Danville) on April 16, 2020. Although the project is located in Virginia, because the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. These comments and recommendations are provided in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The NCWRC has been engaged in this relicensing process from the start. We provided comments on the Notice of Intent on June 21, 2019, attended the joint meeting and site visit on September 18, 2019, provided study requests on November 15, 2019 (attached), and attended the virtual meeting reviewing the DSP on April 23, 2020.

The DSP addresses some of the interests we raised in our study request letter, but we believe additional study details and sampling effort are needed to provide adequate information for use in the draft license application and environmental analysis. We concur with the comments of the U.S. Fish and Wildlife Service submitted to the Commission on May 12, 2020 (accession number 20200512-5132) and provide the following additional comments.

Section 2.1 – Studies Adopted with Modification by the Licensees

Section 2.1.2 – Flow Assessment Study: While we agree that Project impacts on downstream streamflow occur when streamflows are less than 2,000 cfs, such events are not limited to summer and fall months. As we illustrated in our study request, flow fluctuations have occurred

in February, March and November. As our examples point out, some of the flow fluctuations are rapid declines, others are flow dampenings, while others are peaking events. The months the data are collected is less important than providing sufficient monitoring to capture enough of those events to be able to discern whether the cause is due to fluctuations from upstream sources, the Project, or a combination of the two. Also, the summer of 2020 may not provide flows less than 2,000 cfs. For these reasons, that is why we requested that the data be collected for at least 12 months to capture a variety of flow conditions resulting from ambient conditions and flow manipulation by upstream entities.

Section 2.1.5 – Roanoke Logperch Assessment: This section concludes that Roanoke Logperch are not likely to occur in the project area because they were not collected during other survey efforts. We note that Roanoke Logperch are difficult to collect without using appropriate gear specifically targeted in their preferred habitats. We also indicated in our study request letter that Roanoke Logperch were collected since 2017 in the North Carolina portion of Dan River upstream of the Project. More specifically, the species was observed by NCWRC biologists using snorkeling gear in October 2017 approximately 2 miles upstream of the North Carolina-Virginia border near the town of Berry Hill, VA.

Section 3.2 – Operations and Inflow Assessment Study

We recommend that the study title be adjusted to “Operations and Flow Assessment Study” because the intent is not to just assess inflow, but inflow to and outflow from the Project. We also point out that the location of the downstream river stage monitor be located upstream of any backwater effect from the Union Street Dam impoundment. Finally, we recommend that the study not be limited to the four-month period of June through September, but be expanded up to 12 months. If sufficient examples of flow fluctuations can be obtained in less time, we are agreeable to reducing the term of the study. We recommend that the data be downloaded and reviewed every few months and shared with the agencies to determine, with the Licensees, when the study can be ended.

We appreciate the opportunity to comment on the DSP. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

Sincerely,



Christopher Goudreau
Hydropower Licensing Coordinator



☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

November 15, 2019

Mr. Michael Scarzello
Eagle Creek Renewable Energy, LLC
116 State Street
Neshkoro, WI 54960
michael.scarzello@eaglecreekre.com

Via Email

Subject: First Stage Consultation Comments and Study Requests
Schoolfield Hydroelectric Project (P-2411-028)

Dear Mr. Scarzello:

This letter contains First Stage Consultation comments and study requests of the North Carolina Wildlife Resources Commission (NCWRC) pursuant to the regulations governing the relicensing of a hydroelectric project by the Federal Energy Regulatory Commission (FERC) under the Traditional Licensing Process (18 CFR 16.8). The project is located on the Dan River in Danville, Virginia. However, due to the fact that the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. The NCWRC provides these comments in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

On May 31, 2019 STS and Danville (co-Licensees or applicant) submitted a Pre-Application Document (PAD) and request to use the Traditional Licensing Process (TLP). STS and Danville propose to continue operating the existing dam, reservoir and powerhouse in a run-of-river mode to generate electricity. The PAD also states that no studies are planned by the applicant. On June 21, 2019 the NCWRC provided comments on the PAD. On July 24, 2019 the FERC granted the co-Licensees authority to use the TLP. A public meeting and site visit were held on September 18, 2019 which were attended by the NCWRC.

The NCWRC does not have a fish and wildlife management plan specific to the Roanoke River basin but we have prepared a Wildlife Action Plan (<https://www.ncwildlife.org/plan>) which focuses on rare, threatened and endangered species, and addresses fish and wildlife generally. The Wildlife Action Plan has been accepted by FERC as a comprehensive plan. Our

management goals are: 1) to protect and improve the overall aquatic ecology and important fisheries of the Roanoke basin, including listed species of fish, mussels, crayfish, snails, and amphibians; and, 2) to improve populations of diadromous fish species, including American eels.

Pursuant to 18 CFR 16.8(b)(5) we submit the following study requests in order to more fully understand the natural resources of the project vicinity and the potential impacts of project operation on them.

Study Request #1 – Aquatic Fauna Surveys

1. Study or information request

Aquatic biota sampling of the Dan River in the immediate vicinity of the project and upstream and downstream of the project are necessary to adequately characterize the occurrence, distribution, and relative abundance of fish, mussel, and other aquatic taxa of the river. At a minimum, surveys should be conducted at three locations – downstream of the Schoolfield dam, in the project impoundment, and in riverine habitat upstream of the Schoolfield impoundment (above US 58). The downstream location should include areas immediately below the powerhouse, between the dam and Piedmont Drive bridge, and downstream of the bridge. Within the Schoolfield impoundment a variety of habitats should be targeted.

Additional sampling locations should be included to characterize the general faunal conditions of the Dan River in the vicinity of the project. These areas include the reaches downstream of the Union Street dam and the Dan Mills (Whites Mill) dam, respectively about 2.5 and 2.9 miles downstream of Schoolfield dam.

Different sampling methods should be used to target fish and mussels. Fish sampling should include boat, backpack or tote-barge electrofishing and seining. We are particularly interested in collecting small, benthic species that typically are not adequately sampled using just boat electrofishing methods. Fish collection should take place under normal to low flow conditions, between May and June to determine if any migratory fishes are present (i.e., spring spawning run of suckers) and in late summer or early fall.

Qualitative mussel sampling (presence/absence) should be conducted by visual (snorkel, SCUBA, or view scope) and tactile surveys. Areas immediately below the Union Street and Dan Mills dams and in the vicinity of Reedy Island also provide suitable habitats for benthic fishes and mussels.

All surveys should be conducted in a variety of habitat types at each site and be timed to provide catch-per-unit effort (CPUE). Temperature and dissolved oxygen should be measured at each site. Organisms collected should be identified to species, enumerated and measured.

2. *Basis for study request*

A thorough and comprehensive assessment of the aquatic fauna present in the vicinity of the project is lacking. The information on aquatic fauna provided in the PAD is generally not in close proximity to the Schoolfield project. The PAD indicates that the data source for most fish species in Table 4.4.1-1 is from fishmap.org which provides data at a HUC 8 scale, so it is not clear which of these species are actually found near the project. Also, previous fish sampling efforts do not appear to have targeted small or benthic species in the vicinity of the project, so it is possible that such species occur nearby.

Similarly, the mussel surveys conducted by Alderman Environmental Services in 2014 did not include the areas immediately downstream of the Schoolfield, Union Street or Dan Mills dams. The nearest mussel survey locations were 1.5 miles upstream of the upper end of the Schoolfield impoundment and 4.8 miles downstream of the Schoolfield dam. Areas downstream of dams typically provide suitable habitat for mussels because they often contain substrates that are less embedded with silt and sand. Therefore, the aquatic fauna in the reach downstream of Schoolfield dam is of particular interest.

3. *Resource issues and agency goals for these resources*

The NCWRC is charged with protecting and enhancing fish and wildlife, including rare, threatened and endangered species. Schoolfield dam and other dams in the area are likely fragmenting populations of rare fish and mussels. Our goal is to recover these species such that they are no longer listed as threatened or endangered. According to our records the following listed species have been collected since 2017 in the North Carolina portion of Dan River downstream of Duke Energy's Dan River steam station dam and may occur in the vicinity of the project:

Common Name	Scientific Name	State Status	Federal Status
Atlantic Pigtoe	Fusconaia masoni	Endangered	Proposed Threatened
Green Floater	Lasmigona subviridis	Endangered	
James Spiny mussel	Parvaspina collina	Endangered	Endangered
Notched Rainbow	Villosa constricta	Threatened	
Roanoke Logperch	Percina rex	Endangered	Endangered
Yellow Lampmussel	Lampsilis cariosa	Endangered	

Although diadromous fish species may not currently occupy the Dan River near the Project, they may obtain access to Project waters during the course of the next license period. Current efforts at the Roanoke Rapids and Gaston dams are moving American eels upstream. Should eels gain access above Kerr dam, they are very likely to pass the other low head dams downstream of Schoolfield.

4. *Why the study methodology is more appropriate than any other available methodology alternatives, including those identified by the applicant in the PAD*

According to the PAD, the applicant does not plan to conduct any studies.

5. *Documentation that the study methodology is a generally accepted practice*

These are standard fish and mussel surveys typically conducted for all hydropower relicensings.

6. *How the study/information request will be useful to the agency in furthering its resource goals and objectives practice*

Understanding how the project affects the rare aquatic fauna will assist the NCWRC and other resource agencies in developing operational and mitigation recommendations for the hydro project to minimize impacts to fish and wildlife resources.

Study Request #2 – Effects of Project Operation on Downstream Flows

1. *Study or information request*

Fine-scale data on reservoir and tailwater water surface elevations and hydropower generation should be provided to better understand project operations under a range of inflow conditions and the resulting effects on downstream flows. These data can be collected with water level loggers and should be provided at 15-minute intervals so comparisons can be made with USGS gage data. The data should be collected for at least 12 months to capture a variety of high and low flow conditions.

Also, the frequency and duration of previous instances of lowering and refilling the reservoir for maintenance or emergencies should be provided. Together, these data will be used to determine project impacts and assist in developing operating protocols to protect aquatic resources.

2. *Basis for study request*

Rapid and frequent fluctuations in flow can impact fish and mussel populations, particularly in riffles and other shallow habitats. Analysis of the USGS stream gages Dan River near Wentworth, NC (02071000), Smith River at Eden, NC (02074000), and Dan River at STP near Danville, VA (02075045) indicates that flows may be regulated by the Schoolfield project or other facilities in the intervening reaches. See attached figures for examples of apparent flow regulation of the Dan River. Because of the distances between the gages and the unknown operations of Schoolfield and the other facilities, it is unclear if, and to what extent, the flow regulation is due to Schoolfield or another facility. Providing detailed reservoir level and hydro generation data from Schoolfield will assist in determining its influence on downstream flows.

3. *Resource issues and agency goals for these resources*

The NCWRC is charged with protecting and enhancing fish and wildlife, including rare, threatened and endangered species. See the Wildlife Action Plan for more details. Furthermore, it is our goal to re-establish or expand migrations and populations of native, naturally reproducing target species, particularly American eel.

4. *Why the study methodology is more appropriate than any other available methodology alternatives, including those identified by the applicant in the PAD*

According to the PAD, the applicant does not plan to conduct any studies.

5. *Documentation that the study methodology is a generally accepted practice*

Documenting the effects of project operations on downstream flows and habitat is routinely conducted for hydropower relicensings.

6. *How the study/information request will be useful to the agency in furthering its resource goals and objectives practice*

The results will allow the NCWRC and other resource agencies to isolate the influence of Schoolfield on downstream flow fluctuations and determine necessary operational changes or mitigation options.

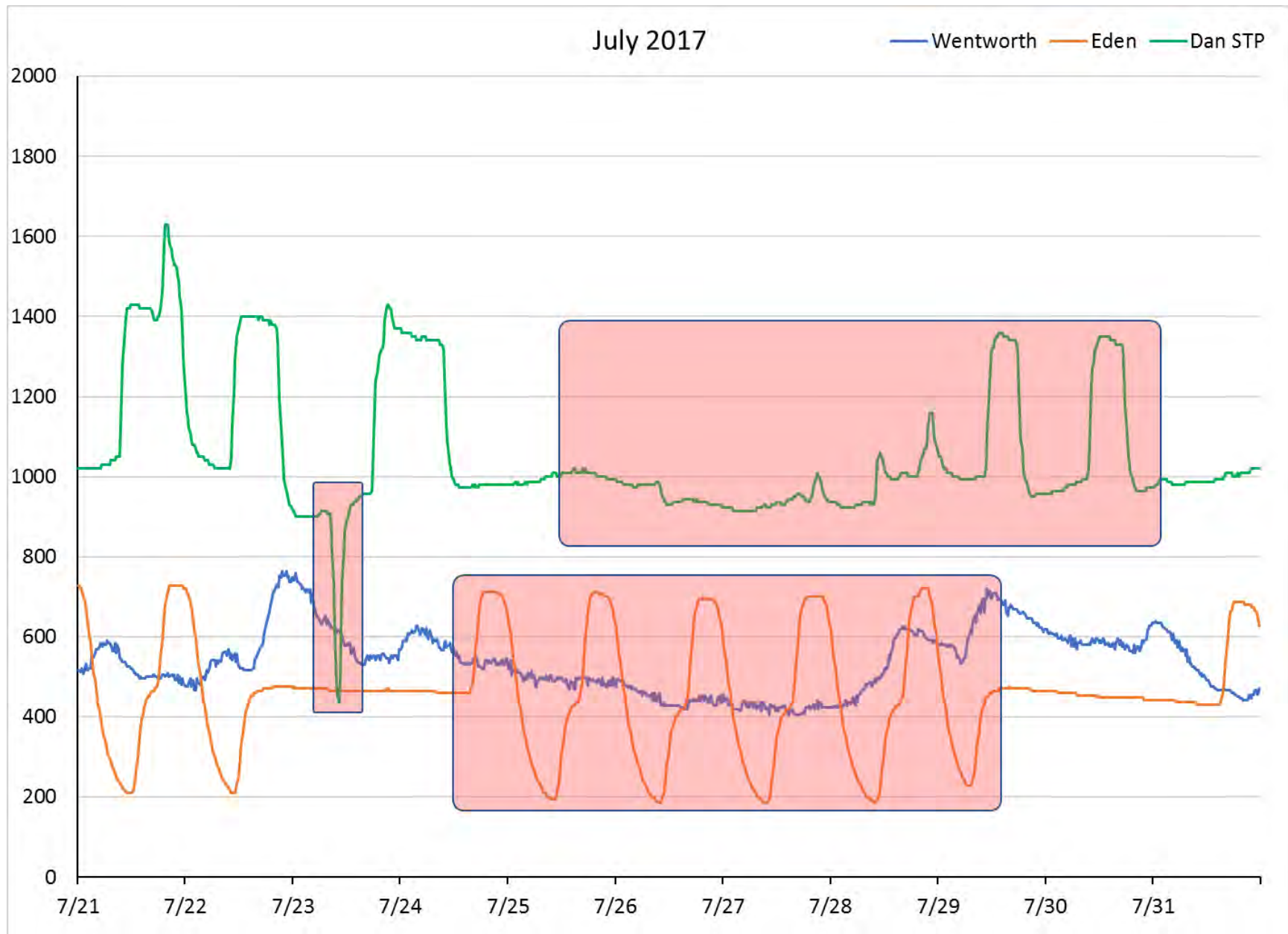
We appreciate the opportunity to provide these comments. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

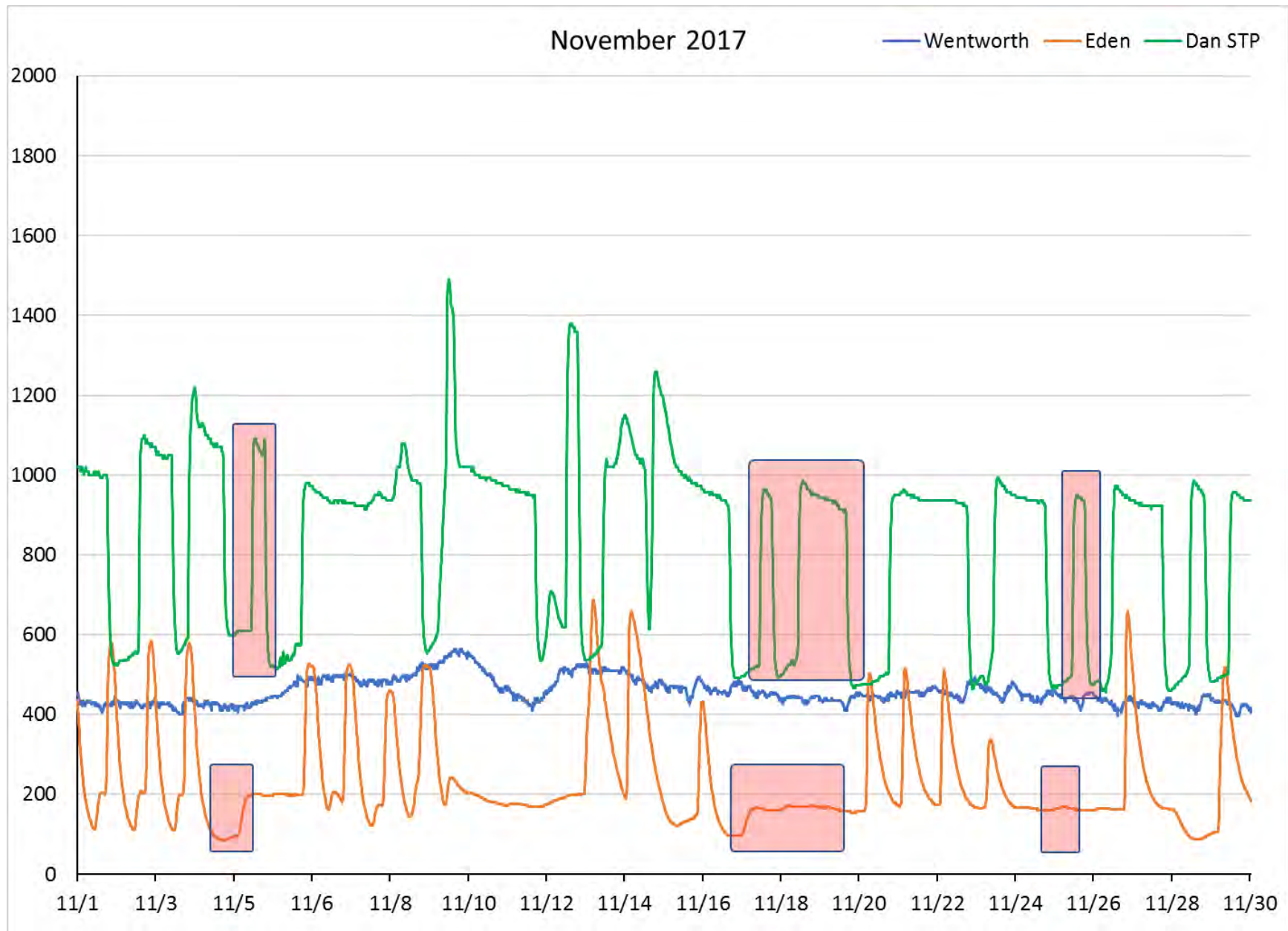
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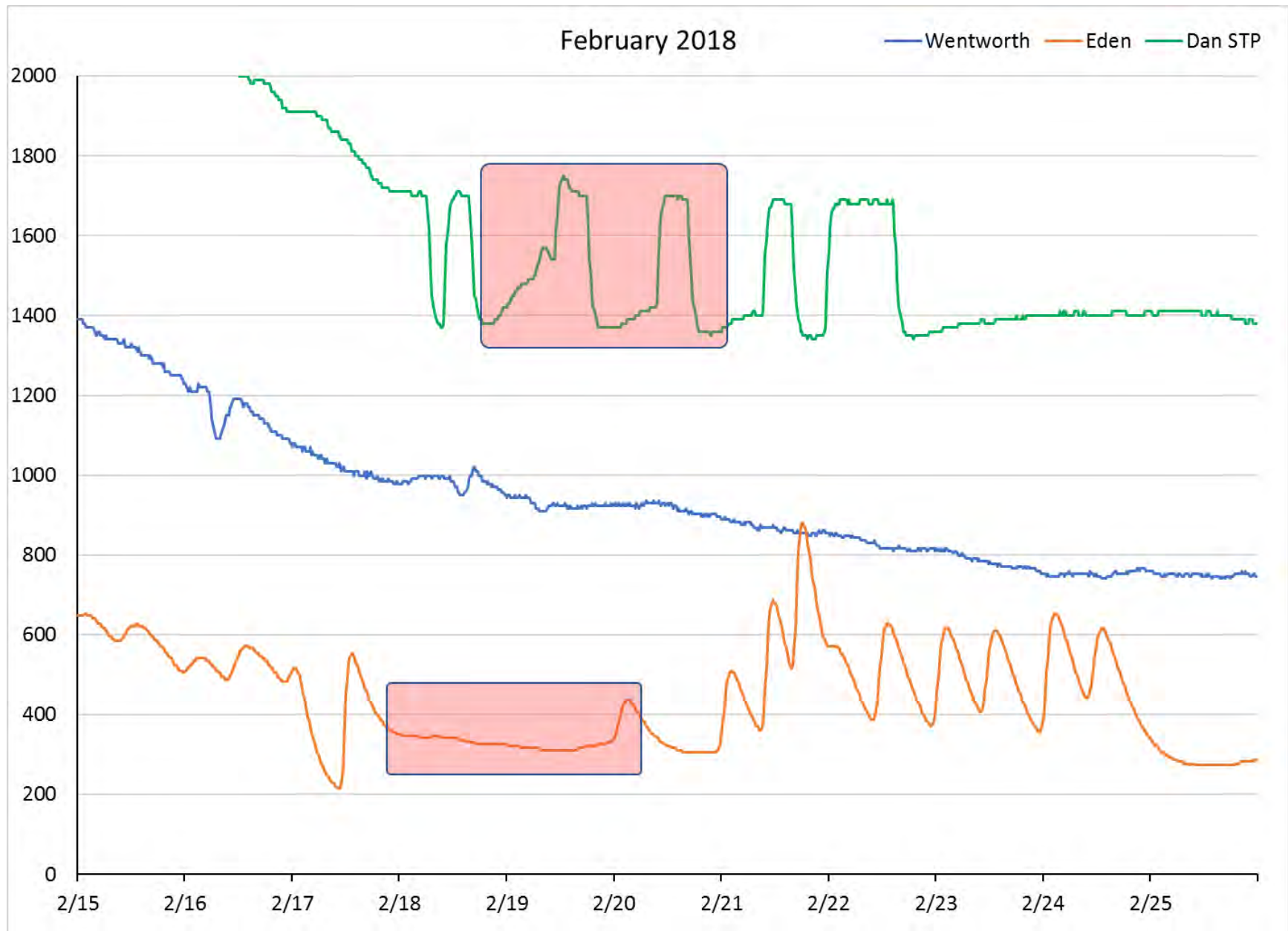


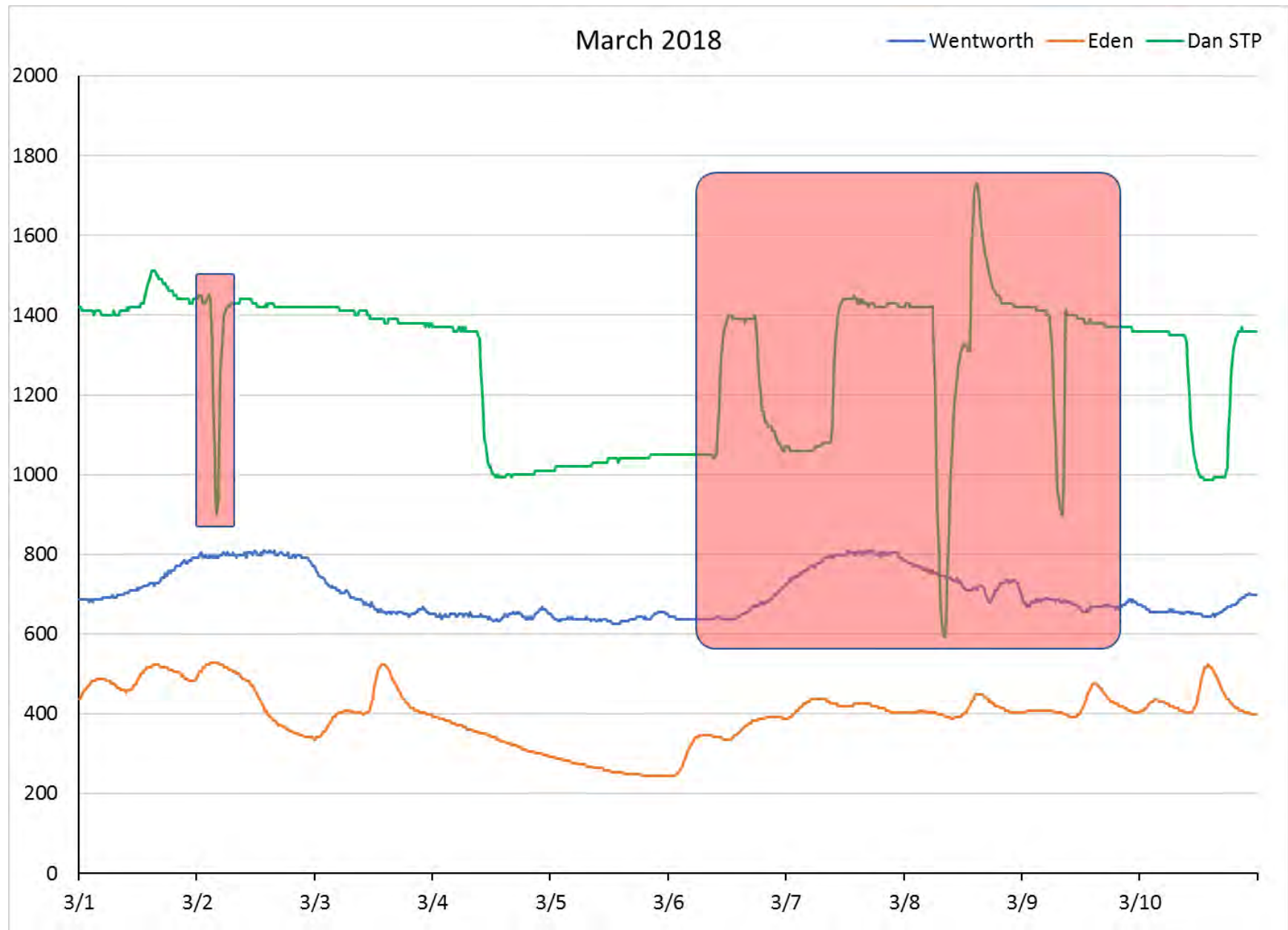
Christopher Goudreau
Hydropower Licensing Coordinator

cc: Scott Smith, VDGIF
John McCloskey, USFWS
Fred Tarver, NCDWR











Matthew J. Strickler
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

Ryan J. Brown
Executive Director

May 14, 2020

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 201426

**Re: Schoolfield Hydroelectric Project (P-2411) – Application for New License
Virginia Dept. of Game and Inland Fisheries Comments Draft Study Plans**

Dear Secretary Bose:

Thank you for the opportunity to provide input into the relicensing process for the Schoolfield Hydroelectric Project (P-2411). The mission of the Virginia Dept. of Game and Inland Fisheries (VDGIF) is to conserve and manage wildlife populations and habitat, connect people to Virginia's outdoors, and protect people and property by promoting safe outdoor experiences. Additionally, VDGIF is the state agency responsible for managing aquatic and terrestrial wildlife resources, including rare/listed species of fish and wildlife.

VDGIF has reviewed the Draft Study Plan (DSP) for the Schoolfield Hydroelectric Project (Project) as submitted for Eagle Creek Reusens Hydro, LLC (Applicant). In addition, we participated in a conference call held on 23 April 2020, with the applicant and interested stakeholders. During this call, VDGIF expressed several areas of concern regarding the DSP. The DSP does address multiple areas of concern to our agency, but some of the issues we raised in the initial scoping process are not addressed by the DSP. In addition, using our best professional judgement, several of the proposed studies lack the necessary scope and/or intensity to adequately address project impacts.

We have also reviewed the comments regarding the DSP as submitted by the U.S. Fish and Wildlife Service (USFWS) and the North Carolina Wildlife Resources Commission (NCWRC). We concur with and support all comments provided by those two agencies.

Studies Not Proposed by the Applicant:

2.2.1 Aquatic Fauna Survey – The Applicant states that by agreeing to conduct freshwater mussel and Roanoke Logperch surveys, that extant data on other fish species is sufficient for the relicensing process. We agree that the data cited by the applicant are a useful starting point, and may be sufficient for describing the fish community of the impoundment. However, they are completely inadequate for describing the fish community below the dam, in the reach impacted by project operations. The data being cited to assess downstream impacts came from an area many miles downstream, from a reach with very different habitat conditions. Finally, in order to

provide some frame of reference, an assessment of the fish community upstream from the project is also necessary. Without these basic data, the determination of project impacts and suitable mitigation measures will be exceedingly difficult.

2.2.3 Recreation Use and Enhancement – The Applicant states that no additional recreational access facilities are needed, thus obviating the need for additional study of this component. The Applicant points to facilities present in Abreu Grogan Park and the potential for additional access development by the City of Danville downstream. We concur that access needs in the impounded reach are being met by the Abreu Grogan Park facilities, and that a canoe portage around the dam may not be a practical option. However, we also recognize the need for access facilities downstream from Schoolfield Dam, as well as the need for access immediately above the impoundment. The Applicant notes that the City of Danville may provide some unspecified level of access below the impoundment in some unspecified timeframe. Since no access is currently available between Schoolfield and Union Street dams, a need is clearly defined. Additionally, the Applicant has not addressed the need to measure access demands in the project area. Thus, no determination can be made regarding the sufficiency of current access facilities without an examination of need and potential enhancement options. Thus, a recreation study is necessary in order to evaluate current access facilities and potential mitigation options.

Proposed Studies

3.4 Downstream Roanoke Logperch Assessment – The DSP outlines a proposed survey for Roanoke Logperch downstream from Schoolfield Dam. We are in agreement that this work is necessary, but are uncertain of the level of effort proposed by the Applicant. Since the Roanoke Logperch is a small, cryptic, and rare species; a considerable amount of sampling may be necessary in order to accurately determine the status of the species in the project area. We recommend that capture (detection) probabilities be utilized to determine the appropriate level of effort. These probabilities can be generated in consultation with Roanoke Logperch experts. In addition, the Applicant does not propose to sample for this species above the impoundment. We agree that the presence of Roanoke Logperch is unlikely in the impoundment, but suitable habitat exists immediately upstream from the impoundment. Any logperch present could potentially utilize the upper impoundment on an intermittent basis. In addition, larval or juvenile logperch could migrate into the impoundment (or be washed in during high flow events). Given the habitat conditions in the impoundment, anything other than short-term residence time for this species in the impoundment could lead to high levels of mortality. Thus, the status of this species above the impoundment needs to be assessed in order to evaluate the impacts of project operations on this listed species, as well as to determine appropriate mitigation measures, if needed. In summary, we tentatively concur with the downstream sampling plans, pending additional detail regarding level of effort, but we have also determined that additional sampling is necessary upstream from the impounded area.

3.6 Freshwater Mussel Survey – We have determined that the mussel survey proposed in the DSP is inadequate to fully describe the mussel fauna present within the project impact area. The applicant is proposing to sample 2 x 100 m transects (one in the reservoir and one below the dam) to determine the presence/abundance of mussel species. Based upon detection probability estimates performed by VDGIF and others (based upon detection probability of individual mussels and the density of rare mussel species), the level of effort needed for this work would be 15-20 x 100 m transects for each area (above and below the dam). This would provide an approximately 95+% probability of detecting rare species.

The Applicant may wish to stratify these sampling transects by area in order to reduce sampling variability. We are willing to assist the applicant with selection of sampling transect locations in

order to get adequate coverage of the project area. In order to determine the presence of rare mussel species, a significantly more robust sampling effort is needed. The level of effort proposed by VDGIF should provide an acceptable level of detail needed to determine project impacts and potential mitigation needs.

In summary, we have identified a need and a nexus to the project for both a fish community assessment and a recreation enhancement study. Furthermore, we have identified shortcomings to the proposed Roanoke Logperch assessment and the freshwater mussel survey, and have provided additional detailed recommendations for each of these studies. The fish community and recreational enhancement studies are necessary to evaluate project impacts and to determine potential mitigation measures for said impacts. The modifications to the Roanoke Logperch and freshwater mussel studies are needed for similar assessments.

Thank you for the opportunity to provide comments to the Draft Study Plans for this project. If there are any questions or if further information is needed, please contact Scott M. Smith at scott.smith@dgif.virginia.gov.

Sincerely,


Scott M. Smith
Regional Fisheries Manager

Cc: D. Michaelson (VDGIF)
H. Hatcher (VDGIF)
E. Aschenbach (VDGIF)
B. Watson (VDGIF)
M. Pinder (VDGIF)
C. Goudreau (NCWRC)
J. McCloskey (USFWS)
R. McCorkle (USFWS)
A. Cario (VDEQ)

FINAL STUDY PLAN

SCHOOLFIELD HYDROELECTRIC PROJECT (FERC No. 2411)

July 2020



Prepared for:

STS Hydropower, LLC
a subsidiary of



&

City of Danville,
Virginia



Prepared by:



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1.0 INTRODUCTION

STS Hydropower, LLC (STS), a subsidiary of Eagle Creek Renewable Energy, and the City of Danville, VA are co-Licensees (Licensees) and are licensed by the Federal Energy Regulatory Commission (FERC or Commission) to operate the 4.5-Megawatt (MW) Schoolfield Hydroelectric Project (Project, FERC No. 2411) located on the Dan River in Pittsylvania County, Virginia. The current license to operate the Project was issued on August 26, 1994 for a 30-year term. Therefore, the current license expires on July 31, 2024.

The Licensees are currently relicensing the Project following FERC's Traditional Licensing Process (TLP), and is in the study planning and implementation phase of the process. On March 26, 2020 the Licensees distributed to interested parties a Draft Study Plan (DSP) that contained a suite of site-specific study plans for those studies proposed and adopted by the Licensees. The DSP also presented the rationale for adopting, adopting with modification, or not adopting those studies requested by the resource agencies. The Licensees then held a conference call meeting with stakeholders to discuss the DSP on April 23, 2020. Comments letters were then received from the Virginia Department of Environmental Quality (VDEQ), the U.S. Fish and Wildlife Service (FWS), the North Carolina Wildlife Resources Commission (NCWRC), and the Virginia Department of Game and Inland Fisheries (VDGIF). Copies of these comment letters are provided in Appendix A.

There is no requirement to prepare a formal study plan, as is required by the Integrated Licensing Process (ILP), and; therefore, there is no subsequent study plan determination by FERC. The purpose of this Final Study Plan (FSP) is to: (1) address comments received from the resource agencies on the DSP; and, (2) provide the resource agencies a revised set of individual study plans for those studies adopted by the Licensees. To support these goals, Section 2 of this FSP presents the Licensees response to comments received from the stakeholders on the DSP, and in Section 3, the Licensees provide revised individual study plans for those studies adopted by the Licensees.

2.0 RESPONSE TO COMMENTS ON THE DRAFT STUDY PLAN

STS and the City distributed the Draft Study Plan (DSP) to interested stakeholders on April 16, 2020 for review and comment and hosted a conference call to review the DSP on April 23, 2020. Comment letters in response to the Licensees DSP were received from the VDEQ, FWS, NCWRC, and the VDGIF (Appendix A). The letters contain both general comments on the DSP as well as specific comments and recommendations on studies not adopted and adopted by the Licensees. In Table 2.0-1, the Licensees provide responses to the comments received on the DSP. In response to these comments, STS and the City have incorporated changes to the level of effort associated with the mussel study, committed to recording incidental fish observed during the RLP survey; agreed to consultation associated with the operations and flow assessment study, and the added parameters and duration of the field effort to the water quality study.

Table 2.0-1: Licensees response to comments received on the Draft Study Plan.

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
Comments on Studies Not Adopted			
<i>Aquatic Fauna Survey and Fish Survey</i>			
1	FWS/ May 12, 2020	FWS disagrees with STS position that existing data is sufficient and clarifies that Duke Energy did not conduct fish surveys immediately above the reservoir or in the tail water below the dam. FWS noted that the area immediately below the dam between the Project dam and the Union Mills dam lacks fish surveys necessary for an assessment of Projects impacts downstream. The closest upstream transect is located about 8 miles upstream.	The FWS is correct that Duke did not sample the Dan River downstream of the Project Dam. Nonetheless, the Duke report definitively showed a longitudinal succession of fish species assemblages, with sites spatially closer to each other (by stream distance) have similar fish communities than those that are further apart. The findings by Duke are also corroborated by Rhode et al. 2001, whom compiled and analyzed fish assemblage data in the Dan River from 1968 through 2000 over the same geographic extent as Duke. Therefore, given the findings by Duke and Rhode et al. (2001) a reasonable inference can be made that the fish community downstream of the Project dam is similar to that of the Project's reservoir and the downstream impoundment. This is because the area downstream of the Project dam can only be colonized by fish that become entrained by the Project and survive turbine passage, spill over the dam, or move upstream from the downstream impoundment. In addition, we also note that fish community downstream of the Project dam would be comprised of those species that are not "reservoir" specialists because the area downstream of the Project is riverine. As such, those species present in the Project reservoir that are habitat generalists would most likely be found downstream of the Project. Overall, the Licensees respectfully decline to perform a dedicated fish survey downstream of the Project dam in order to determine those species that are present because sufficient

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
			information exists to make a reasonable inference as to what fish species comprise the fish community downstream of the Project. With regard to the nearest upstream Duke sample site, the Licensee would like to clarify the nearest Duke site is 3.8 river miles upstream of the Project reservoir.
2	FWS/ May 12, 2020	FWS recommends the area immediately above the reservoir should also be surveyed for fish as an upstream reference to assess impacts of the Project on fish populations.	The Licensees have not adopted the FWS recommendation to sample the fish community upstream of the Project for the reasons discussed in Section 2.1.3 of the DSP. In addition, the approach the FWS recommends is a comparison to a reference site to assess Project effects. That approach seeks to recreate pre-project conditions in order to assess project effects. The Commission's baseline for evaluating Project effects is the environment as it exists at the time of licensing. This does not include pre-Project conditions, which the courts have affirmed (See <i>American Rivers v. FERC</i> , 187 F.3d 1007, amended and rehearing denied, 201 F.3d 1186 (9th Cir, 1999); <i>Conservation Law Foundation v. FERC</i> , 216 F.3d 41 (D. C. Cir. 2000).
3	VDGIF/ May 14, 2020	We agree that the data cited by the applicant [Duke 2019] are a useful starting point, and may be sufficient for describing the fish community of the impoundment. However, they are completely inadequate for describing the fish community below the dam, in the reach impacted by project operations. The data being cited to assess downstream impacts came from an area many miles downstream, from a reach with very different habitat conditions.	The Licensees disagree with VDGIF for the reasons discussed in section 2.2.1 of the DSP and in comment 2 above. We would like to clarify that the Licensees never stated the data to be used to describe the downstream fish community would be those collected by Duke (2019) more than 50 miles downstream of the Project. As such, Licensees affirm existing information is sufficient for the purposes of relicensing the Schoolfield Project because Licensees are not proposing any changes from the current run-of-river operations and will be

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
			noting the observed as part of the field investigation for the Roanoke Logperch, discussed in section 3.
<i>Fish Passage and Protection Assessment</i>			
4	FWS/ May 12, 2020	The FWS comment that although there are no diadromous fish species in the Project area, there is potential for the non-diadromous fish known to exhibit migratory behavior in the Project area, some of which serve as freshwater mussel host fish. FWS suggests the Project may represent a barrier to mussel dispersal preventing fish passage, but understands it is premature to draw conclusions regarding these possible Project effects. The FWS requests inclusion in the entrainment analysis, an assessment of time of year and frequency of spillage over the dam as a possible downstream alternative to passage through the powerhouse, and a characterization of the adequacy of safe passage (e.g., is there an adequate plunge pool below the dam) and viability of this route.	The Licensees understand the FWS's concern regarding analyzing possible downstream passage routes. Licensees believe that such an analysis, as recommended by the FWS, is outside the scope of the proposed desktop entrainment and turbine mortality study. However, the Licensees believe a more appropriate document for such an analysis is the Draft License Application (DLA). Therefore, the Licensees will include in the DLA an assessment of time of year and frequency of spillage over the dam, and a characterization of the adequacy of safe passage and viability of that route.
<i>Recreation Use and Enhancement Assessment Study</i>			
5	FWS/ May 12, 2020	The FWS disagrees with the Licensees statement that there is no need to study recreation use and access at the Project. The FWS notes an increased interest in river recreation since the last relicensing and believes a study is warranted to study how recreation can be accommodated and/or enhanced at the Project.	The Licensees affirm that there is no need for a recreation use and access study for the reasons described in section 2.2.3 of the DSP. The Licensees also believe the interest of increased recreation needs of the area has been met by the City of Danville (co-Licensee) through the improvements and maintenance of Abreu-Grogan Park that provides access to Project lands and waters by a fishing platform, shoreline fishing, a boat ramp, picnic area, kayak rental, and kayak launch, the construction of a river walk trail downstream of the Project, and a proposed Riverfront Park downstream of the Project.

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
6	FWS/ May 12, 2020	The FWS recognizes that while portage around the dam may not be feasible, the FWS states there may be other opportunities to enhance recreation use in the area. The FWS supports the VDGIF recommendation on this issue including to evaluate the need for boat access in the upper part of the reservoir.	The Licensees agree with the FWS assessment that canoe portage around the dam is not feasible and conditions have not materially changed since the last relicensing to warrant another investigation into portage. The Licensees disagree regarding the need to evaluate the need for boat access to the upper part of the reservoir for the reasons provided in section 2.2.3 of the DSP. In addition, the upper extent of the reservoir is 5.7 river miles upstream of the existing boat ramp and already is accessible by boat from the existing ramp; therefore, there is no need for boat access in the upper reservoir.
7	VDGIF/ May 14, 2020	VDGIF recognize the need for access facilities downstream from Schoolfield Dam, as well as the need for access immediately above the impoundment. The Applicant notes that the City of Danville may provide some unspecified level of access below the impoundment in some unspecified timeframe. Since no access is currently available between Schoolfield and Union Street dams, a need is clearly defined. Additionally, the Applicant has not addressed the need to measure access demands in the project area. Thus, no determination can be made regarding the sufficiency of current access facilities without an examination of need and potential enhancement options. Thus, a recreation study is necessary in order to evaluate current access facilities and potential mitigation options.	VDGIF is incorrect that there is no specified level of access downstream of the Project between Schoolfield and Union Street Dam. The City of Danville currently has a river walk trail along the river left bank that extends from the Piedmont Drive Bridge 0.1 miles downstream of the Project dam approximately 6 miles downstream, terminating at a boat ramp. This trail systems provide patrons with a paved trail for walking, running, cycling, and views of the river. VDGIF maybe referring to City's proposed Riverfront Park, which would provide additional recreation downstream of the Project. The timeframe of this proposed park is unknown at this time. In regard to access above reservoir, see the response to comment 6. Overall, for the reasons discussed above, the Licensees believe the current recreation facilities in the Project area are sufficient.
Comments on Studies Proposed and Adopted with Modification			
<i>Water Quality Study</i>			

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
8	VDEQ/ May 8, 2020	VDEQ recommends water quality studies adhere as much as possible to DEQ's lake monitoring protocols in that VDEQ typically monitor lakes for a seven month period (April - October) so that VDEQ can track the seasonal changes in temperature, dissolved oxygen, nutrients, etc. from spring through fall.	The water quality study has been revised to include the collection of vertical profiles in the forebay area, Secchi disk measurements and pH monitoring, and to extend the monitoring period from June 1 through October 31. The monitoring period of June 1 through October 31 was selected because that is the time of year when effects of Project operations are most apt to be observed and when water quality conditions are most stressful to aquatic biota. The incorporation of nutrient sampling was not adopted because hydropower effects germane to nutrients are primarily limited to residence time effects related to storage and release hydropower operations, not run-of-river operations.
9	VDEQ/ May 8, 2020	In addition to the length of time each sampling year, DEQ samples reservoirs for a minimum of two consecutive years during each assessment cycle. One reason VDEQ does is to have a minimum of 12 data points for the 305(b) assessment. Another reason is that VDEQ knows from experience that rarely do we have two or more consecutive years of average rainfall and streamflow. VDEQ have recently seen the low flows in fall 2017 were followed by record rainfall and high flows for all of 2018 into the spring of 2019. A similar pattern was seen (at least in BRRO) in the drought that occurred around 1999 - 2001 which was followed by high rainfall and flooding in late 2002-2003. Therefore, VDEQ suggest a minimum of two consecutive years of monitoring.	The Licensees believe one season of water quality data collection from June through October is sufficient to document the existing condition of water quality of the Dan River in the Project area. The Licensees understand VDEQ has EPA reporting requirements and sometimes capitalizes on the efficiency of requesting licensees of hydroelectric projects to collect data to support their own regulatory reporting requirements. However, relicensing studies are intended to document the existing condition to support an analysis of Project effects; therefore, the water quality study was designed following standard scientific practices to support such an analysis. Furthermore, the Licensees understand the weather and flow conditions may not be "average" for this study year. However, FERC would likely not require a licensee to repeat a study simply because the data collected wasn't collected during an "average" year. FERC would require a licensee to repeat a study if the data collected occurred during anomalous environmental conditions or the

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
			environmental conditions have changed in a material way. Therefore, the Licensees have not incorporated a second year of data collection into the water quality study.
10	VDEQ/ May 8, 2020	The Schoolfield impoundment has other dams above and below it, which makes establishing true upstream reference and downstream impact stations difficult. There is no way around locating better upstream stations: however, the downstream stations being located almost directly in the turbine discharge reach is problematic. Low flow can be critical below dams therefore VDEQ suggests a fourth T/DO station in the main channel at a point before the river becomes impounded by the downstream dam.	The monitoring station in the tailrace - where the majority of the flow of the river occurs - would detect whether waters depleted of dissolved oxygen are being passed from the reservoir to downstream reaches. Therefore, the licensee respectfully does not adopt incorporating into the study another downstream station.
11	VDEQ/ May 8, 2020	A more thorough look into the impact of the dam on water quality would be to add a monthly temp/DO profile in the middle of the forebay or another deep location above the dam which would have to be done from a boat. This would include our methods of measuring temp, DO, pH and SpC at 0.3 meters below the surface and every meter down to the bottom.	The Licensees added a bi-weekly water temperature and DO vertical profile to the study. A pH vertical profile would also be collected monthly. Specific conductivity will not be collected because there is no state surface water quality standard for specific conductivity and no nexus to the Project has been demonstrated.
12	VDEQ/ May 8, 2020	pH is an important parameter since high temperatures, high primary production and high DO can result in pH values over 9 which can be stressful to fish.	See response to comment 11.
13	FWS/ May 12, 2020	Section 2.1.1, Studies Adopted with Modification by the Licensees, Water Quality Study of the DSP indicates water quality data will be collected from June 1 until September 30. According to the flow duration curves in the PAD, October is part of the low flow season when	The water quality study has been extended through October.

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		Project effects on water quality are most likely to occur; therefore, the FWS recommends that water quality data collection be extended through October until October 31.	
14	FWS/ May 12, 2020	The DSP states one water quality logger will be deployed in the forebay at approximately 25% depth from the water surface. An additional water quality logger should be placed deeper in the water column to capture any potential differences in water quality resulting from potential stratification of the reservoir. To even out the distribution of the two loggers in the water column, upper and lower set points for the data loggers should be at approximately one-third and two-thirds depth below normal pool elevation, respectively.	Water temperature, dissolved oxygen, and pH vertical profiles have been incorporated into the study to determine if and for how long the reservoir may stratify; therefore, there is no need to deploy continuous datalogger at separate set points.
15	FWS/ May 12, 2020	In addition to continuous monitoring of temperature and DO, once per calendar month (June through October), in situ water quality measurements of temperature, dissolved oxygen (DO), pH, and specific conductance should be collected at each of the water quality logger locations to better characterize water quality in the river.	Separate water temperature and dissolved oxygen discrete data measurements at each of the continuous monitoring stations is not needed because those data would be redundant. However, monthly discrete pH measurements at each of the continuous water quality monitoring stations has been incorporated into the study. Specific conductivity has not been incorporated into the study because there is no state surface water quality standard for specific conductivity and no nexus to Project operations has been demonstrated.
16	FWS/ May 12, 2020	At the forebay monitoring location, a depth profile of temperature and DO should be collected each month. The depths of the forebay data loggers should be adjusted, if necessary to capture any stratification, during the study period based on a comparison of the continuous temperature and DO results with the monthly depth profile measurements.	Vertical profiles of water temperature and dissolved oxygen on a bi-weekly basis has been incorporated into the study whereas pH vertical profiles have been incorporated into the study on a monthly basis. The forebay logger will be deployed at either 25% depth if the water column is not thermally stratified. If the water column is thermally stratified, the logger will be placed at

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			the bottom of the epilimnion.
17	FWS/ May 12, 2020	Individual water quality measurements (temperature, DO, pH, conductivity) should also be collected during fisheries (including RLP surveys) and mussel field sampling events.	Separate measurements of water quality have not been incorporated into the Roanoke Logperch study because the water quality study is designed following accepted scientific methods and practices to document the baseline water quality conditions of Project affected reaches of the Dan River.
18	FWS/ May 12, 2020	Weather, river flow, and operations data will also be collected to add context to the water quality data, and that operations data used as part of the analysis will include turbine discharge and power generations. Analysis should also address how water quality is affected by different river flows and flow allocations (through the turbines versus over the dam crest). Of particular interest is whether water quality is affected during periods of no spillage over the dam crest.	The analysis of the river flow and operations with water quality will include a discussion of whether water quality is affected by spill and non-spill operations.
<i>Operations and Flow Assessment Study</i>			
19	FWS/ May 12, 2020	The Licensees proposed to collect the elevation data from June 1 through September 30, concurrent with other field studies. However, per the original study request by the North Carolina Wildlife Resources Commission (NCWRC), the data should be collected for at least 12 months to capture a variety of flow conditions.	The Licensees selected the proposed four month period of flow data collection after review of the hydrologic record indicates variable flows that are representative of the calendar can occur from June through September; therefore, capturing the range of flows of interest to the stakeholders. To ensure the data does capture the variability NCWRC alludes to, STS and the City will share the data and consult with the stakeholders as recommended. The most appropriate time for this consultation will be at the end of September. The data loggers will remain in place through the water quality study schedule (end of October) at a minimum.

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
20	NCWRC/ May 13, 2020	While we agree that Project impacts on downstream streamflow occur when streamflows are less than 2,000 cfs, such events are not limited to summer and fall months. As we illustrated in our study request, flow fluctuations have occurred in February, March and November. As our examples point out, some of the flow fluctuations are rapid declines, others are flow dampenings, while others are peaking events. The months the data are collected is less important than providing sufficient monitoring to capture enough of those events to be able to discern whether the cause is due to fluctuations from upstream sources, the Project, or a combination of the two. Also, the summer of 2020 may not provide flows less than 2,000 cfs. For these reasons, that is why we requested that the data be collected for at least 12 months to capture a variety of flow conditions resulting from ambient conditions and flow manipulation by upstream entities.	Please see our response to Comment 19.
21	NCWRC/ May 13, 2020	NCWRC recommends the title of the study be adjusted to “Operations and Flow Assessment Study” because the intent is not to just assess inflow, but inflow to and outflow from the Project.	The Licensees changed the title of study as recommended.
22	NCWRC/ May 13, 2020	NCWRC points out that the downstream monitor should be located upstream of any backwater effect from the Union Street Dam impoundment.	The Licensees will deploy the monitoring equipment upstream of the effects of the downstream impoundment.
23	NCWRC/ May 13, 2020	NCWRC recommends the study not limit the duration of data collection to four months, June-September, but expanded up to 12 months. NCWRC does recognize that if sufficient examples of flow fluctuations can be obtained in less time, they are agreeable to reducing the	Please see the response to Comment 19

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		term of the study. NCWRC recommends that the data be downloaded and reviewed regularly and shared with the stakeholders for consultation on when the study can end.	
<i>Mussel Survey</i>			
24	FWS/ May 12, 2020	The DSP Section 2.1.3, Studies Adopted with Modification by the Licensees, Mussel Surveys: This section states because the Dan River upstream of the Project reservoir is not influenced by Project operations, but rather by other non-Project related activities, no mussel surveys will be conducted upstream of the project. The FWS does not agree with this approach. Mussel surveys upstream of the reservoir would be used as a reference to assess the impact of the project on mussel populations downstream of the dam. Mussels located upstream can also be impacted by the project as juvenile mussels from upstream areas can be washed downstream into the reservoir or glochidia can be released from host fish into the reservoir. Because the reservoir provides lower quality habitat for many mussel species, recruitment of mussels into the population could be affected by the Project. Therefore, the FWS recommends that suitable habitat upstream of the reservoir be surveyed for mussels.	The Licensees have not adopted the FWS recommendation for the reasons discussed in Section 2.1.3 of the DSP. In addition, the approach the FWS recommends is a comparison to a reference site to assess Project effects. That approach seeks to recreate pre-project conditions in order to assess project effects. The Commission's baseline for evaluating Project effects is the environment as it exists at the time of licensing. This does not include pre-Project conditions, which the courts have affirmed (See <i>American Rivers v. FERC</i> , 187 F.3d 1007, amended and rehearing denied, 201 F.3d 1186 (9th Cir, 1999); <i>Conservation Law Foundation v. FERC</i> , 216 F.3d 41 (D. C. Cir. 2000).
25	FWS/ May 12, 2020	The level of effort is insufficient to determine whether rare or state listed or federally listed mussel species are present as the detection probability of these species is low. All mussel habitat below the dam should be surveyed with sufficient effort to confidently determine whether these species are present or not. In addition, the large area of the reservoir necessitates a much larger survey area. The higher quality habitat downstream of the	The Licensees have contracted with Alderman Environmental Services Inc. (Alderman) to perform the mussel surveys. Alderman is extremely familiar with the Dan River and mussel species that occur, or are likely to occur, throughout the region. As part of the informal consultation associated with securing a state sampling permit associated with this work, Alderman invited the state biologist, Brian Watson, to assist with the survey

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		<p>dam also necessitates a more thorough survey to detect if these mussel species are present. Therefore, the FWS recommends an approach that involves increasing the number of transects and associated survey effort, sufficient to allow development of a species richness curve, where search effort continues until no new species are found. As stated previously, a mussel survey upstream of the reservoir is needed as a reference to assess impacts from the Project. This increased level of effort is justified because federally listed mussel species may occur in this part of the Dan River and FERC will need to make a Section 7 effects determination for any federally listed species when they prepare their Environmental Assessment. It may not be possible to make an informed effects determination unless a more comprehensive mussel survey is performed downstream of the dam. The FWS recommends that mussel survey methods be approved by the VDGIF prior to implementation, and the FWS defers to VDGIF for determining the appropriate level of effort.</p>	<p>and committed Alderman's survey team will conduct 90 person hours of active survey time in areas most likely to support mussels, including downstream of Schoolfield dam. These proposed changes to the study plan were satisfactory to VDGIF at the time the permit was issued. As such, the Licensees have refined the methodology in this FSP to remove any discussion of transects; confirm invitations to agency mussel specialists will be sent and field dates will be jointly coordinated so the biologists can work side by side with Alderman during the survey; and the survey will include 90 person hours of active survey time within the reservoir and downstream areas.</p>
26	VDGIF/ May 14, 2020	<p>We have determined that the mussel survey proposed in the DSP is inadequate to fully describe the mussel fauna present within the project impact area. The applicant is proposing to sample 2 x 100 m transects (one in the reservoir and one below the dam) to determine the presence/abundance of mussel species. Based upon detection probability estimates performed by VDGIF and others (based upon detection probability of individual mussels and the density of rare mussel species), the level of effort needed for this work would be 15-20 x 100 m transects for each area (above and below the dam). This would provide an approximately 95+% probability of</p>	<p>Please see the response to Comment 25.</p>

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		detecting rare species. The Applicant may wish to stratify these sampling transects by area in order to reduce sampling variability. We are willing to assist the applicant with selection of sampling transect locations in order to get adequate coverage of the project area. In order to determine the presence of rare mussel species, a significantly more robust sampling effort is needed. The level of effort proposed by VDGIF should provide an acceptable level of detail needed to determine project impacts and potential mitigation needs.	
<i>Entrainment and Impingement Study</i>			
27	FWS/ May 12, 2020	The FWS notes that one of the goals of the proposed study is to evaluate seasonal and annual fish entrainment and turbine mortality at the Project. Duke (2019) collected some seasonal data in the reservoir; however this data is not provided in their report. The FWS states that without the data from Duke it's unclear how the seasonal assessment will be performed as the FWS confirms their interested in how impingement and entrainment varies across seasons.	The seasonal component of the study depends on flow through the Project turbine, which the Licensees collect, and selected entrainment studies within the EPRI (1997) database. These data are used to develop average monthly and average seasonal entrainment rate estimates expressed as the number of fish entrained per cubic million feet of water passed through the tested turbine(s) in the EPRI database. This is done by multiplying the flow through the Project's turbines and the monthly and seasonal entrainment rates from the EPRI database. Seasonal fisheries data is not necessary to perform the study, but would likely result in a more robust analysis. Therefore, the Licensees proposed in the DSP to request such data from Duke.
28	FWS/ May 12, 2020	The FWS recommends the study should also consider whether a particular species/life stage may be motivated to move downstream at a certain time of year (e.g., fall migration period; young-of-year dispersal); swim speed/ability (i.e., ability to escape the powerhouse intake	The study plans states entrainment susceptibility will also be based on life history. Implicit in this aspect of the study is life-stage and movement patterns. Therefore, the FWS recommendation is already incorporated into the study.

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		flow) may not be the only factor determining whether a fish is susceptible to entrainment.	
<i>Roanoke Logperch Assessment</i>			
29	FWS/ May 12, 2020	The FWS raise issue with the licensees proposal in the DSP to not survey upstream of the Project reservoir. The FWS recognizes that FERC defines the baseline as the existing conditions at the Project at the time of relicensing, under the Endangered Species Act, the FWS considers both past and present impacts. If the RLP are present upstream of the Project, larval RLP could drift into and through the Project in the spring during spawning. Thus, the FWS asserts that the Project could have impact resources occurring upstream of the reservoir and the FWS recommends suitable habitat upstream of the reservoir be surveyed for RLP.	The Project does not directly or indirectly affect resources of the Dan River upstream of the upper extent of the Reservoir. Furthermore, once a resource, such as RLP drift downstream into the reservoir, that resource cannot be considered an upstream resource because those RLP are no longer located upstream. In summary, the Licensees affirm there is no nexus to RLP upstream of the Project for the reasons mentioned above and those discussed in section 2.1.5 of the DSP. Nonetheless, the Licensees added additional survey effort to survey the upstream most riffle section of the upper reservoir to discern if RLP is present in Project-affected waters upstream of the Project dam. The Licensees also anticipate adding as a target species for the entrainment study RLP. This would provide analysis of the effect that Project may have on RLP that pass through the Project.
30	FWS/ May 12, 2020	As stated previously, if the species does occur more immediately upstream of the Project reservoir, the Project may be directly impacting RLP larvae that may drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment, either of which requires Section 7 consultation with the Service under the ESA.	Please see the response to Comment 29.
31	FWS/ May 12, 2020	This section states the Licensees have retained Alderman Environmental Services, Inc. (AESI) who employs biologists that have collected RLP in the past and qualify as an approved surveyor. No one from AESI is currently	The Licensees appreciate the FWS sharing the approval information. The Licensees contractors have received the necessary approvals and are in possession of a sampling permit. Informal consultation between the contracted

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		<p>on the list of approved surveyors for RLP in Virginia. The list of approved surveyors for RLP and instructions for adding individuals to the approved surveyor list can be found at https://www.fws.gov/northeast/virginiafield/endangered/surveyors.html. The qualifications of the individual seeking approval as a surveyor should be provided to the Service at least 60 days prior to the start of the survey.</p>	<p>biologists and the state biologists during pursuit of the permit solidified the methods that if RLP were observed during snorkeling then no further surveys are needed.</p>
32	FWS/ May 12, 2020	<p>FWS raises concerns that the proposed methodology in the DSP will not be sufficient to assess effects to RLP during the Section 7 consultation process or the FERC NEPA process. FWS specifically notes that if RLP is present downstream, within the potentially affected area, there is potential for Project operations to affect RLP spawning and nesting (e.g., adults could be pushed off of preferred riffle habitats, or shear stress related to Project discharge could disturb nests and push eggs downstream). FWS specifically recommends the Licensees work with the resource agencies to develop a RLP survey methodology that is adequate to detect the species and quantify the population so that an appropriate assessment of effects can be performed.</p>	<p>The Licensees are proposing approximately 90 hours of survey time using methods accepted by the scientific community as appropriate for RLP surveys. The Licensees appreciate the FWS concerns for better understanding the presence/absence and abundance of the RLP in the Dan River; however, the study is intended to support the Section 7 consultation process, which is based on the presence/absence of suitable habitat and the species, not quantify the population; therefore, the level of effort and the methods the Licensees believe is commensurate with the purpose of the study.</p>
33	FWS/ May 12, 2020	<p>FWS recommends that the study should also include information on presence/absence of the species immediately upstream of the Project reservoir. In the absence of data for the reach of the Dan River immediately upstream of the reservoir, the FWS assumes the species is present upstream of the Project, in which case an additional larval drift study will be recommended.</p>	<p>Please see the response to Comment 32.</p>

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
34	FWS/ May 12, 2020	The FWS notes that the DSP proposes to calculate habitat suitability index scores from the habitat assessment and that the proposed habitat assessment methodology is not systematic or rigorous enough to achieve this objective. FWS recommends a more comprehensive analysis of the habitat conditions in the river will be needed to accomplish this.	The Licensees will calculate Habitat Suitability Index scores based on existing Habitat Suitability Indices published in the scientific literature. The licensees will obtain multiple replicate depth, velocity, substrate, and silt cover observations at each area where the qualified survey determines is most appropriate for survey, both within the upper reservoir and downstream of the Project. Therefore, habitat suitability at each location will not be based on one measurement of each variable. The survey is planned for four days targeting baseflow for safety reasons and to have optimal water clarity for observation, which would enhance the probability of observing RLP, which is consistent with generally accepted scientific practice.
35	FWS/ May 12, 2020	The FWS recommends the RLP surveys occur after June 30 to protect RLP during breeding.	The Licensees will adjust the proposed sampling schedule and not sample prior to June 30 to protect potential RLP during spawning.
36	NCWRC May 13, 2020	We note that Roanoke Logperch are difficult to collect without using appropriate gear specifically targeted in their preferred habitats. We also indicated in our study request letter that Roanoke Logperch were collected since 2017 in the North Carolina portion of Dan River upstream of the Project. More specifically, the species was observed by NCWRC biologists using snorkeling gear in October 2017 approximately 2 miles upstream of the North Carolina-Virginia border near the town of Berry Hill, VA.	The Licensees requested clarification regarding the occurrence of RLP upstream of the Project from NCWRC. NCWRC responded by e-mail dated May 19, 2020, which confirmed that one RLP was observed 2 miles upstream of the VA-NC border near Berry Hill, VA. The communication indicated the observation was incidental during a mussel survey in October 2017 during low flow, and no voucher photographs were obtained.
37	VDGIF May 14, 2020	Since the Roanoke Logperch is a small, cryptic, and rare species; a considerable amount of sampling may be necessary in order to accurately determine the status of	The level of effort of the study has been increased to 90 survey hours over 4 days after consulting with a qualified RLP surveyor.

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
		the species in the project area. We recommend that capture (detection) probabilities be utilized to determine the appropriate level of effort. These probabilities can be generated in consultation with Roanoke Logperch experts.	
38	VDGIF May 14, 2020	In addition, the Applicant does not propose to sample for this species above the impoundment. We agree that the presence of Roanoke Logperch is unlikely in the impoundment, but suitable habitat exists immediately upstream from the impoundment. Any logperch present could potentially utilize the upper impoundment on an intermittent basis. In addition, larval or juvenile logperch could migrate into the impoundment (or be washed in during high flow events). Given the habitat conditions in the impoundment, anything other than short-term residence time for this species in the impoundment could lead to high levels of mortality. Thus, the status of this species above the impoundment needs to be assessed in order to evaluate the impacts of project operations on this listed species, as well as to determine appropriate mitigation measures, if needed.	Please see the response to Comment 29.
40	NCWRC/ May 13, 2020	NCWRC notes that although RLP are difficult to collect without using appropriate gear specifically targeted in their preferred habitats; NCWRC biologists using snorkeling gear in October 2017 observed RLP in the Dan River in North Carolina near the town of Berry Hill, VA.	The licensees contracted biologists are familiar with the RLP preferred habitats and methods to collect them and continue to propose snorkeling as the primary survey method. The licensees are not proposing to survey upstream of the reservoir.
<i>Bald Eagle Nest Survey</i>			
39	FWS/	The FWS expressed appreciation for the licensees proposing to survey for Bald Eagle nests in the DSP;	The licensees plan to reallocate the modest amount of resources dedicated to the Bald Eagle surveys to other

No.	Agency/ Date of Letter	Summary of Comment/Recommendation	Licensees Response
	May 12, 2020	however the FWS recommends the resources for conducting this survey be reallocated in support of their recommendations for expanding or conducting studies of other resources. Specifically, the FWS recommends the funds be used to support (1) increased effort during mussel surveys; (2) increased effort during the RLP survey; (3) expansion of the general fisheries study downstream of the powerhouse; (4) extending the water quality study period; and (5) extending the flow study effort.	study efforts most notably by expanding the level of effort for the mussel and RLP surveys.

3.0 FINAL STUDY PLANS

3.1 Baseline Water Quality Monitoring Study

3.1.1 Goals and Objectives

The goals of the study are to 1) collect baseline water temperature and dissolved oxygen data to document the existing water quality conditions of the Dan River in the Project area; and, 2) determine whether the water quality of Project-effected reaches of the Dan River are consistent with Virginia water quality standards and designated uses. To accomplish these goals the study would have the following objectives:

- 1) Collect continuous baseline water temperature and dissolved oxygen data at representative locations within a riverine area of the upper reservoir, forebay area, and tailrace from June 1 through October 31;
- 2) Collect on a bi-weekly basis vertical profiles of water temperature and dissolved oxygen within the forebay area to determine whether the Project reservoir undergoes thermal and dissolved oxygen stratification from June 1 through October 31;
- 3) Collect on a bi-weekly basis Secchi disk transparency measurements within the forebay area to document the depth of the euphotic zone and trophic state of the Project reservoir;
- 4) Collect on a monthly basis single grab measurements of pH at the upstream riverine and tailwater areas, and a vertical profile of pH within the forebay area;
- 5) Characterize the baseline water quality data collected in Project area;
- 6) Analyze the continuous water temperature and dissolved oxygen data in comparison to Virginia surface water quality standards, inflow, and Project operations (headwater and tailwater elevation (ft), and generation (cfs and kW)).

3.1.2 Existing Information and Need for Additional Information

Existing water quality information in the Project area consists of various grab sample data and some continuous water temperature and specific conductivity data. The existing grab sample data is not collected at a frequency sufficient to assess effects of Project operations. Furthermore, the continuous data was collected downstream of the Project reservoir; thus those data do not lend themselves to an assessment of Project operations. Therefore, a need exists to collect water quality data at a frequency sufficient to assess effects of Project operations, and determine consistency with state surface water quality standards.

3.1.3 Project Nexus

Operation of the Project results in the discharge of waters impounded by the Project dam for the purpose of electrical generation, which may affect water quality within Project-affected reaches.

3.1.4 *Methodology*

Study Area

The proposed study area includes Project reservoir downstream to the Project tailwater. Figure 3.1.4-1 depicts the proposed monitoring station locations within the proposed study area.

Continuous Water Temperature and Dissolved Oxygen Monitoring

Continuous water quality data will be collected in situ at 15-minute intervals by deploying U26-001 HOBO® Dissolved Oxygen Loggers (Onset Computer Corporation). Parameters to be measured include: water temperature (°C) and dissolved oxygen (mg/L and percent saturation). Calculation of dissolved oxygen percent saturation requires barometric pressure; therefore, a data logger that records barometric pressure, such as the U20L HOBO® Water Level Recorder (Onset Computer Corporation), will be installed at the Project powerhouse. Each logger will be calibrated following the manufacturer's instructions and deployed at a representative location in the vicinity of the proposed sampling stations: one station upstream, forebay, and tailrace (Figure 3.4.4-1). The upper reservoir and tailrace loggers will be tethered to shore and anchored, whereas the forebay logger will be deployed at approximately 25% depth from the water surface when set, and suspended from a buoy that is anchored to the riverbed. If the forebay area becomes stratified, the logger will be suspended approximately near the bottom of the epilimnion but above the metalimnion. The instruments will be deployed during a five-month period from June 1 through October 31 to document baseline water quality conditions during the summer period and low flow period.

Each station will be visited every two weeks to download data; perform replicate fouling and calibration measurements per the manufacturer's instructions to assist in data correction; and clean, inspect, calibrate, and redeploy the instruments. It may be necessary to visit the stations to service the instruments weekly depending on the degree of fouling; however, we assume bi-weekly sampling would be sufficient. Fouling and calibration measurements will be collected using a recently calibrated water quality meter (e.g., YSI ProSolo or similar). Prior to redeployment, the data series will be visually examined in the field for any aberrant measurements that would indicate an instrument is malfunctioning, warranting further troubleshooting and/or replacement. All data will be recorded on field datasheets or recorded within the instruments' internal memory.

Water Temperature and Dissolved Oxygen Vertical Profiles

Concurrent with the maintenance of the continuous water temperature and dissolved oxygen data loggers, a water temperature and dissolved oxygen vertical profile will be collected bi-weekly at the forebay station from June 1 through October 31. The vertical profile will be collected using a recently calibrated portable temperature and dissolved oxygen meter (YSI ProSolo or similar) with a data cable of sufficient length to reach the reservoir bottom (~35-feet ft). At the forebay station the vertical profile will be collected from a boat that is allowed to drift downstream to control the depth of the instrument and sample the same parcel of water as the instrument is lowered through the water column. Starting at the water surface (~0.3 m depth), the profile will be collected by taking temperature and dissolved oxygen measurements at 1-meter depth

increments, with the last reading taken approximately 0.5 m above the river bottom. Depth of the station would be determined using a HONDEX® portable depth sounder. Readings will be allowed to stabilize before a measurement is taken and before proceeding to the next depth increment. At least once per profile a replicate measurement will be collected at a random depth interval selected *a priori*. All data, along with approximate locations of the thermocline (if present), will be recorded on field datasheets or recorded within the instruments' internal memory.

pH Monitoring

A recently calibrated multiparameter meter (YSI 6920 v2 sonde or similar) equipped with a pH sensor and data cable of sufficient length to reach the reservoir bottom (~35-feet ft) to collect a vertical profile at the forebay station following the procedure described above for the water temperature and dissolved oxygen profile. In addition, grab measurements of pH will be collected at the upstream and tailrace stations. This effort would occur once per month over the proposed study period (June 1 through October 31). All data will be recorded on field datasheets or recorded within the instruments' internal memory.

Secchi Disk Transparency

A Secchi disk is a black and white patterned disk commonly used to measure the clarity of water based on the distance the disk can be seen when it is lowered into the water column. The Secchi disk measurement is used to estimate the euphotic zone depth, which is generally defined as two times the Secchi disk depth. This measurement would be collected at the same location as the vertical profile. The Secchi disk depth will be collected following the guidance described in EPA (2017). To collect the Secchi disk depth, the Secchi disk would be lowered on the shaded side of the boat until it disappears from view without the aid of sunglasses or view scopes. To record the disappearance depth, the depth of the lowering line (demarcated in 0.1 m intervals) would then be noted to the nearest 0.1 m in a field notebook or datasheet. The disk would then be lowered out of sight and then raised until it reappears. The reappearance depth would then be recorded in field notebook or datasheet. The depth of the euphotic zone would then be determined by multiplying the reappearance depth by two.

Weather, River Flow, and Operations Data

Weather, river flow, and operations data will also be collected to add context to the water quality data. Weather data will be obtained from NOAA Station USC00442245, located 4.0 miles ESE of the Project. River flow data would be obtained from USGS Gage 02075045 Dan River at STP near Danville, VA, located approximately 5.2 river miles upstream of the Project dam. Operations data, such as turbine discharge (cfs) and generation (kW), will be provided by the Licensees.

Data Analysis

All field-collected data will undergo a thorough QA/QC review process to ensure the accuracy and completeness of the dataset prior to analysis. Data quality targets for the continuous data include actual measurements obtained pre- and post-deployment in comparison to the field replicate data collected with a recently calibrated water quality meter should a relative percent

difference (RPD) of $\leq 10\%$; and 80% of all measurements collected must pass the QA/QC process. For dissolved oxygen (mg/L), RPD would be calculated as:

$$\text{RPD} = [| (a_i - b_i) | / ((a_i + b_i) / 2)] * 100$$

where;

a_i = actual measurement from the data logger at site visit i

b_i = side-by-side replicate reading from the handheld water quality meter at site visit i

The continuous temperature and dissolved oxygen datasets will be initially reviewed and analyzed for outliers, aberrant measurements, and missing data to ensure the collected data are valid. Corresponding field calibration measurements will then be used to determine if data correction is required for a specific deployment period. Correction of the data will occur post-hoc and will be performed using the Dissolved Oxygen Assistant within the manufacturer's HOBOWare software. Any data point that does not pass QA/QC review and cannot be corrected will be flagged and removed from the final dataset prior to analysis.

The final water quality dataset will be summarized (e.g., mean, median, maximum, and minimum) and compared to applicable Virginia surface water quality standards. The final dataset will also be compared with Project operation data by plotting the continuous water temperature and dissolved oxygen time series with operations.

To characterize the trophic state of the reservoir a trophic state index (TSI) will be calculated following Wetzel (2001), such that:

$$\text{TSI}(SD) = 60 - (14.41 * \ln(SD))$$

where;

SD = Secchi depth in m ;

Then, to define the trophic state of the reservoir, a TSI of < 30 would indicate oligotrophy, a TSI between 30 and 50 would indicate mesotrophy, and a TSI > 50 would indicate eutrophy (Wetzel, 2001).

Reporting

Results of the Baseline Water Quality monitoring Study will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment. The report would provide the methods and results of the study.

3.1.5 *Consistency with Generally Accepted Scientific Practice*

Data collection will be in accordance with methodology and instrumentation generally accepted by the scientific community. The data will be evaluated to determine Project effects on water quality.

3.1.6 *Study Schedule*

The Licensees anticipate this study would be implemented during the 2020 study season, between June 1 and October 31, during conducive and safe flow conditions. Further, the Licensees will provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.



Figure 3.1.4-1. Proposed water quality monitoring study area and monitoring stations.

3.2 Operations and Inflow Assessment Study

3.2.1 Goals and Objectives

The goal of the Operations and Inflow Assessment Study is to document the effect inflows have on Project operations. To accomplish this goal, the study has the following objectives:

- 1) Describe how the Project's six fixed-output turbines and three generators are typically operated;
- 2) Collect continuous water level data at a representative location upstream of the Project reservoir, and downstream of the Project dam; and,
- 3) Characterize and compare water levels of the Dan River upstream of the Project reservoir, with operations and water levels downstream.

3.2.2 Existing Information and Need for Additional Information

Downstream data collected at the USGS Gage 02075045 Dan River at STP near Danville, VA indicate that the Project potentially causes flows in the Dan River to fluctuate downstream of the Project. However, the apparent flow fluctuations may be an artifact of inflows to the Project and the nature of the Project's run-of-river operations. To discern the difference, a need exists to monitor water levels in the Project area.

3.2.3 Project Nexus

Aquatic habitat downstream of the Project may be affected by Project operations and fluctuating discharges. Results from this study could be used to inform the development of protection, mitigation, and/or enhancement measures for aquatic resource protection in the Project tailwater.

3.2.4 Methodology

Study Area

The proposed study area is the Dan River upstream of the Project reservoir through the Project tailwater (Figure 3.2.4-1).

Describe Existing Operations and Operations Data

The Project has three generators and six, fixed-output turbines. The Licensees will describe the operating regime of the six turbines and will summarize: headwater (ft), tailwater (ft), turbine discharge (cfs), and generation (kW) data for the study period June 1 through September 30.

Collect Water Level and Flow Data

The Licensees will collect upstream and downstream water level data on 15-minute continuous basis from June 1 through October 31. Exact site locations will be determined in the field, but the two water level monitoring locations will be located at sites that exhibit similar channel morphology (e.g., width, depth, etc.), so that upstream and downstream water levels would be

comparable. The upstream water level logger would be installed at a sufficient distance upstream of the influence of the Project reservoir. Similarly, the downstream water level logger would be installed no further downstream than the Dan River's confluence with the Sandy River (approximately 1.1 river miles downstream of the Project dam) to avoid backwater effects of the impoundment created by the Union Mills Dam. Water levels will be monitored *in situ* by deploying a U20-001 HOB0® Water Level Recorder at each station. Data from each water level recorder will be offloaded on a near bi-weekly basis (i.e., every two weeks) concurrent with other field studies. At the beginning and end of each deployment period (i.e., bi-weekly period) reference water level measurements will be made relative to a benchmark established in the vicinity of each station that has an arbitrary elevation of 100 feet. Because the selected water level recorders collect absolute water pressure data, which changes in response to variability in air pressure, a separate water level recorder will be installed at the powerhouse to collect atmospheric barometric pressure data so water levels will be accurate.

Data Analysis

Water levels will be expressed as water surface elevations relative to the respective benchmark. Water surface elevation of each location and operations time series will be plotted at weekly intervals to depict spatial and temporal trends in water surface fluctuations and operations.

Reporting

Shortly before the scheduled conclusion of the study, the water levels data may be sent to the resource agencies to confirm no more additional water level data is needed. Results of the Operations and Inflow Assessment Study will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment. The report would provide the study methods and results.

3.2.5 *Consistency with Generally Accepted Scientific Practice*

Water elevation data will be collected in accordance with methods generally accepted by the scientific community, and typically used in other hydroelectric project relicensing studies.

3.2.6 *Study Schedule*

The Licensees anticipates this study would be implemented during the 2020 study season, and would target June 1 through September 30 for field work. Further, the Licensees will provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

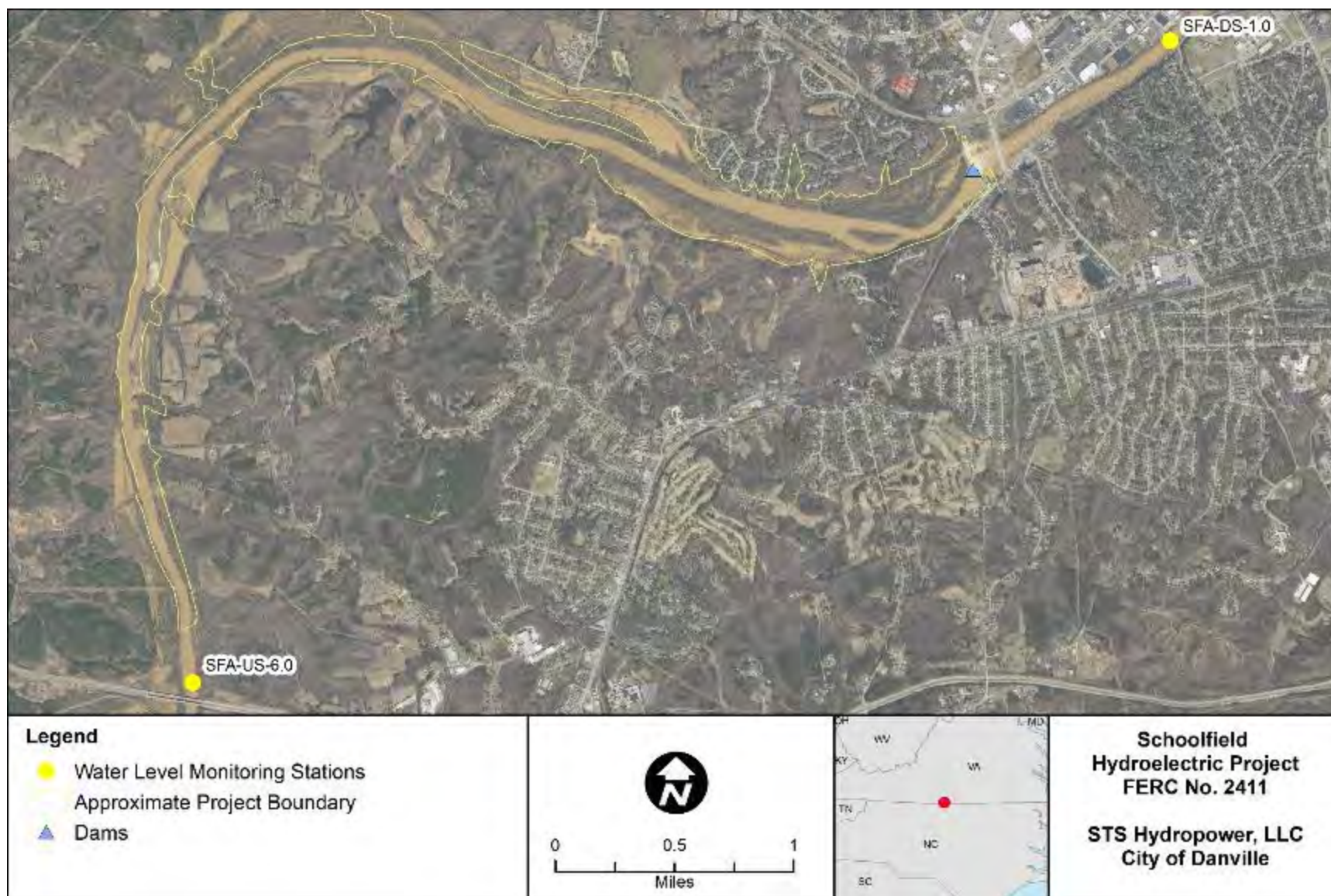


Figure 3.2.4-1. Operations and inflow assessment study area.

3.3 Desktop Entrainment and Turbine Mortality Study

3.3.1 Goals and Objectives

The goal of the Desktop Entrainment and Turbine Mortality Study is to evaluate the seasonal and annual fish entrainment and turbine mortality at the Project. The goal of the study will be met by achieving the following objectives:

- 1) Describe the existing physical, operational, and environmental characteristics of the Project;
- 2) Characterize the species composition of the fish community in the vicinity of the Project;
- 3) Select target species and life-stages in consultation with the Agencies;
- 4) Describe species specific information that includes life-history and habitat requirements, and swimming performance criteria for the target species and life stages;
- 5) Qualitatively assess entrainment and impingement potential for each target species and life stage by comparing physical, operational and environmental attributes of the Project with species-specific information;
- 6) Estimate the potential seasonal and annual entrainment for each target species;
- 7) Estimate the seasonal and annual turbine mortality for each target species based on turbine mortality estimates from similar projects; and,
- 8) Discuss impacts to the fish community and populations of the Dan River resulting from entrainment, impingement, and turbine mortality.

3.3.2 Existing Information and Need for Additional Information

There is no known existing data that quantifies the level of impingement, entrainment and turbine mortality at the Project. A Desktop Entrainment and Turbine Mortality Study will fill this data gap.

3.3.3 Project Nexus

The fish community and population structure of the Dan River in the Project area may be affected by operation of the Project through entrainment, mortality from impingement or passage through the Project turbines. Results from this study could be used to inform fisheries protection, mitigation, and/or enhancement measures.

3.3.4 Methodology

Study Area

The proposed study area includes the Project reservoir, intake/forebay area, and powerhouse.

Entrainment and Turbine Mortality Evaluation

The Entrainment and Turbine Mortality Study will follow a step-wise process:

- 1) Describe and discuss the Project characteristics that may influence entrainment and turbine mortality. This includes: the physical characteristics of the trashracks, turbines specifications, river hydrology, Project operations, and water quality and aquatic habitat near the intakes.
- 2) Characterize the existing fish community and select target species in consultation with the resource agencies. Characterizing the fish community typically involves summarizing existing fishery survey data (species and abundance) collected by the agencies or the Licensees in the Project area. For the Dan River, this information is available from Duke (2019). After the species community is characterized, target species will be proposed and submitted to the agencies for their concurrence. The target species will typically be either those of ecological significance or recreationally important. The target species will be a suite of species that undergo the subsequent entrainment and turbine mortality evaluations.
- 3) Perform a qualitative entrainment and impingement evaluation to determine the overall susceptibility of the target species to entrainment and impingement on the trashracks. The purpose of this qualitative evaluation is to winnow down the number of target species that could be susceptible to entrainment. The information compared typically is the overall size, habitat requirements, life history, and swimming ability of the target species to the habitat near the intakes, the intake velocity, and the trashrack configuration. Based on these factors, the susceptibility is qualitatively determined to be none, low, moderate, or high. Only those target species that have an entrainment susceptibility of low to high are considered for the quantitative entrainment and turbine mortality assessment.
- 4) Estimate the number of target species entrained at the Project on a seasonal and annual basis. This step is completed by first selecting representative projects within the EPRI 1997 entrainment database that are similar to the Project. The EPRI 1997 database has entrainment rates based on actual field studies, expressed as number of fish per unit volume passed through the turbine. These entrainment rates would then be used to estimate the number of fish by multiplying the entrainment rate of the selected projects by the flow through the Project turbines.
- 5) Estimate the number of target species that experience turbine mortality at the Project. The first step to determine number of fish that experience turbine mortality is to review the EPRI 1997 turbine survival database and select representative projects that are similar to the Project to obtain a turbine mortality rate. Then, the turbine mortality rate is multiplied by the entrainment estimate to yield the number of fish that would experience turbine mortality.

Data Analysis and Reporting

Data analysis is implicit in the methods discussed above and would be detailed in the study report. Results of the Desktop Entrainment and Turbine Mortality Study will be presented in a

draft study report to the agencies during the first or second quarter of 2021 for a 30-day period of review and comment.

3.3.5 Consistency with Generally Accepted Scientific Practices

This study involves the application of known fish community data with entrainment and impingement data following the methods and procedures generally accepted by the scientific community.

3.3.6 Study Schedule

Because the study is a desktop exercise, the Licensees anticipate performing the study during the first or second quarter of the 2021 study season. Further, the Licensees will provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

3.4 Roanoke Logperch Assessment

3.4.1 Goals and Objectives

The goals of the Roanoke Logperch Assessment are to: 1) determine whether suitable RLP habitat is present downstream between the Project dam and the upper extent of the Union Mills dam impoundment; 2) evaluate the presence/absence of the RLP between the Project dam and the upper extent of the Union Mills dam impoundment; and 3) collect information to support the Endangered Species Act (ESA) Section 7 consultation process. To attain these goals, the study has the following objectives:

- 1) Examine aerial photography and recent site photographs to select target areas between the Project dam and the upper extent of the Union Mills Dam impoundment that may have potential RLP suitable habitat;
- 2) Perform a habitat assessment of the target areas identified in Objective 1; and,
- 3) Perform a reconnaissance-level survey for RLP at the targeted areas identified in Objective 1.

3.4.2 Existing Information and Need for Additional Information

Duke (2019) and Roberts (2012) indicate that RLP are very unlikely to occur in the Project area. Nonetheless there has been no survey for the RLP on the mainstem of the Dan River downstream of the Project dam. This information is needed to support the Section 7 ESA consultation process.

3.4.3 Project Nexus

If RLP are downstream of the Project dam, Project operations may impact the species and its habitat.

3.4.4 Methodology

Study Area

The proposed study area is the Dan River (1) the upper most riffle section of the upper Project reservoir (Figure 3.4.4-1) and (2) the 1.1 mile reach of river from the Schoolfield Dam downstream to the upper extent of the Union Mills dam impoundment (Figure 3.4.4-2).

USFWS Approved Surveyor

The Virginia Field Office of the FWS requires any habitat assessments and sampling for endangered species, such as the RLP, must be performed by an approved surveyor. The Licensees have retained Alderman Environmental Services, Inc. who employs biologists that have collected RLP in the past and would qualify as an approved surveyor.

Obtain VA Threatened & Endangered Species Collections Permit

VDGIF issues Threatened & Endangered Species Collections Permit only for individual projects. The Licensees will apply for the required collections permit immediately after the development of the Final Study Plan to allow for VDGIF's three to four-week application processing time prior to any field sampling.

Upstream and Downstream RLP Habitat Assessment

The purpose of this assessment is to determine if suitable RLP habitat is present within the first riffle section upstream of the Project reservoir, and within the 1.1 river mile stretch of river downstream of the Project dam. This assessment will be completed following a step-wise process. The first step would be to select potential habitat assessment sites based on RLP general habitat requirements. In the Roanoke River basin, RLP usually occupy runs and riffles greater than 20 cm in depth with exposed, silt-free gravel-boulder substrate (Lahey and Angermeier, 2006; FWS, 2010). This site selection would be done using aerial imagery and other site photographs (e.g., Google street view; obtained from other site-specific studies). The approved surveyor would then review existing aerial imagery and recent photographs of the respective river reaches to identify possible run and riffle areas that appear consist with RLP habitat requirements. At the targeted areas field staff and the approved surveyor will collect depth (ft), velocity (fps at 0.6 depth), substrate, and percent silt-covered at the targeted areas of potential suitable habitat. This sampling effort will target a 4-day period no sooner than June 30 and no later than October 31, when near suitable (base flow) and safe flow conditions (wadeable) (USGS, 2012; Anderson et al., 2014).

RLP Reconnaissance Survey

Concurrent with the habitat assessment, the approved surveyor would perform a reconnaissance-level survey for the RLP, consisting of up to 90 person hours of effort over the same 4-day period. This would involve employing either snorkel, SCUBA, bathyscopes, and potentially electrofishing and seining to determine the presence/absence of the species. Observed species would be noted, but not measured or enumerated. Prior to this survey, VDGIF would be notified as per the VA Threatened & Endangered Species Collections Permit requirements and would be invited to assist in the field survey efforts.

Data Analysis

Data analysis would consist of calculating habitat suitability index (HSI) scores from the habitat assessment and summarizing the list of fish species observed during the RLP reconnaissance survey. The calculated HSI scores for each potential habitat site would follow Anderson (2016), which consist of taking the product of the four preference values (from Appendix B in Anderson (2016)) for depth, velocity, substrate, and silt raising the product to the 0.25 power; and multiplying the outcome by 100. Then, associating the HSI score with the corresponding habitat suitability category: Unsuitable (HSI = 0), Poor (HSI = >0-25), Fair (HSI = >25-50), Good (HSI = >50-75) and Excellent (>75). Summarizing the fish observed from the RLP reconnaissance survey would involve a tally of the species observed by location and noting whether RLP are

present or absent downstream of the Project. In addition, the amount of effort extending searching for RLP would also be summarized.

Reporting

The report will present the methods, analyses, and results of the study. Results of the Downstream Roanoke Logperch Assessment will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

3.4.5 *Consistency with Generally Accepted Scientific Practice*

This study involves the survey of RLP habitat, and recording observation of RLP following methods and procedures generally accepted by the scientific community.

3.4.6 *Study Schedule*

The Licensees anticipates this study would be implemented during the 2020 study season. The study will commence no sooner than June 30 so as not to disturb RLP during breeding season, and when flow conditions allow, and will continue through October. Further, the Licensees will provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.



Figure 3.4.4-2. Proposed Roanoke logperch sampling reach downstream of Schoolfield Dam.

3.5 Freshwater Mussel Survey

3.5.1 Goals and Objectives

The goal of the Freshwater Mussel Survey is to document potential mussel habitat and determine the species of freshwater mussels present and their relative abundance in the Project area. These goals will be accomplished by achieving the following study objectives:

- 1) Conduct a literature review to determine those freshwater mussel species likely to occur within the Dan River in the vicinity of the Project and describe their physical habitat requirements;
- 2) Perform a survey of the Project reservoir periphery and tailwater for potential suitable mussel habitat and evidence of mussel presence;
- 3) Identify the freshwater mussel sampling areas within Project reservoir and Project tailwater;
- 4) Conduct a qualitative mussel survey to determine the presence and abundance of freshwater mussels in Project reservoir and Project tailwater at the selected sampling areas; and,
- 5) Summarize the mussel collections and describe the physical habitat surveyed.

3.5.2 Existing Information and Need for Additional Information

A freshwater mussel survey was performed throughout the Dan River by Alderman (2014) as a part of Duke Energy's coal ash spill response. However, the Alderman survey did not include the Project reservoir or the area downstream of the Project dam. Therefore, a need exists to document the existing mussel community within the Project reservoir and downstream of the Project dam.

3.5.3 Project Nexus

Freshwater mussel distribution and abundance is dependent on suitable habitat. Some mussel species, such as the Atlantic pigtoe, are sensitive to sedimentation, sediment scour, and water quality alterations that may result from hydropower operations. Operation of the Project impounds and utilizes flows of the Dan River for electrical generation, which may affect water quality and aquatic habitat suitable for freshwater mussels. Therefore, the distribution and abundance of freshwater mussels may be affected within Project-affected reaches of the Dan River.

3.5.4 Methodology

Study Area

The proposed study area includes the Project reservoir and the tailwater area downstream of the Project dam.

Literature Review

A review of relevant scientific literature will be performed to identify and develop a list of the freshwater mussel species likely to occur in the Dan River in the Project area. For the freshwater mussel species identified, their habitat requirements will be described, which will guide field data collection efforts.

Agency Survey Participation

Informal consultation between Alderman and Mr. Watson associated with the filing of the sampling permit application included an open invitation to Mr. Watson to assist in the field survey. Therefore, prior to mobilizing field crews Alderman Environmental Services, LLC (Alderman) will invite VDGIF's malacologist Mr. Brian Watson to participate in the survey.

Survey of the Reservoir Periphery and Tailwater

A qualified malacologist from Alderman Environmental Services, LLC would survey of the reservoir periphery up to depths of 15-feet by kayak or boat for potential suitable mussel habitat. In addition, the reservoir shoreline would also be visually surveyed for evidence of mussels (e.g., relic shells or live individuals), which would be identified to species, if possible. This survey would cover both banks of the reservoir from the Projects boat barrier to the upper extent of the reservoir, or approximately 12.0 miles. Furthermore, reservoir tailwater area would also surveyed for mussel habitat and evidence for mussel in the same manner as above. The purpose of this survey would be to locate potential quality mussel habitat to assist in the selection of areas for the qualitative mussel survey below. During this survey effort, areas and stretches of quality mussel habitat, based upon the best possible judgement of the qualified malacologist, would be mapped. Photographs of quality mussel habitat observed would be taken and descriptions of the physical habitat observed (i.e., depth, substrate, flow) would be noted on field datasheets.

Selection of Sampling Locations

Based upon the aquatic habitat surveyed along the reservoir periphery and tailwater, a qualified malacologist from Alderman Environmental Services, LLC would perform the survey. The survey would consist of up to 90 person hours of qualitative survey time based on habitat quality as determined by expert malacologists. The spatial expanse of the survey areas will be recorded using a handheld GPS.

Qualitative Mussel Survey and Physical Habitat Descriptions

To perform the qualitative mussel survey, a scientific collections permit from VDGIF is required (USFWS and VDGIF, 2018). Therefore, the appropriate scientific collections permit would be obtained. Qualified malacologists from Alderman Environmental Services, LLC are retained to perform this component of the study.

Qualitative mussel surveys are presence/absence surveys using tactile and visual search methods, where a catch-per-unit-effort (CPUE) can be calculated based on the search area and time spent searching. A qualified malacologist will perform a qualitative survey for freshwater mussels when water conditions are of appropriate clarity and flow conditions are safe, especially in the

tailwater (Carlson et al. 2008; USFWS and VDGIF, 2018). The survey will be parallel to shore in waters no deeper than 15 feet. The qualitative survey will include a visual examination for dead shells along shorelines and exposed areas (Carlson et al. 2008). The survey will be conducted by visually examining the substrate and/or gentle probing (1 to 2 inches deep) and feeling the substrate for mussels. Depending on water depth, snorkeling or SCUBA will be used to examine the substrate; in general, water depths greater than one arm's length would require SCUBA (Carlson et al. 2008). All mussels discovered, either live or dead, will be identified to species and counted. The first 100 live individuals of each species encountered will be measured for total length, defined as the maximum distance between the posterior and anterior shell margins, with calipers to the nearest 0.1-mm and recorded (Carlson et al. 2008). Representative photographs of each species collected at each sampling location will be taken. All mussels (live or dead) that are collected will be re-bedded into the substrate in a posterior up position or gently placed on the substrate surface so as to allow the mussel to burrow and orient itself in the correct direction (Carlson et al. 2008). In addition, the total amount of time each person spent searching, weather, discharge at the beginning and end of sampling, and generation would be recorded.

Concurrent with the qualitative survey, the physical habitat along the survey will be described and representative site photographs will be taken. Physical habitat descriptions would consist of: the mesohabitat type (run, riffle, pool), approximate total area of run, riffle, and pool habitat, average depth, typical water velocity, and substrate (boulder, cobble, pebble, gravel, sand, silt and clay).

Data Analysis

Species richness will be determined for each sampling location, catch-per-unit-effort (CPUE) will be calculated for each species encountered by location. Basic summary statistics will be calculated based on the size data collected for each species and location. Length-frequency histograms will also be prepared to illustrate variations in species, size, and location.

Reporting

Results of the Freshwater Mussel Survey will be presented in a draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment. The report would provide the methods and result of the study.

3.5.5 Consistency with Generally Accepted Scientific Practice

This study involves the collection of freshwater mussel presence/absence and abundance data following the methods and procedures generally accepted by the scientific community.

3.5.6 Study Schedule

The Licensees anticipate this study would be implemented during the 2020 study season, targeting between June 1 and October 31, during conducive and safe flow conditions (USFWS and VDGIF, 2018). Further, the Licensees also anticipates to provide the draft study report to the agencies during the first quarter of 2021 for a 30-day period of review and comment.

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**APPENDIX A:
AGENCY DSP COMMENT LETTERS**

Burak, Matthew

From: Cario, Anthony <anthony.cario@deq.virginia.gov>
Sent: Friday, May 8, 2020 3:38 PM
To: Burak, Matthew
Subject: Reusens and Schoolfield Dam Hydroelectric Project Relicensing - Draft Study Plan

Hi Mathew, I realize these are quite late but one of our regional biologists provided comments on the water quality portion of the study plans for Schoolfield and Reusans dam. I have pasted them below for you to review and, if you are still able to, consider as you finalize the plan and/or conduct the monitoring. I apologize for not providing these earlier.

Thank you

Tony Cario

Monitoring period and stations for both projects:

Since these are reservoirs I would suggest the water quality studies adhere as much as possible to DEQ's lake monitoring protocols in that we typically monitor lakes for a seven month period (April - October) so that we can track the seasonal changes in temperature, dissolved oxygen, nutrients, etc. from spring through fall. This was also suggested by the US Fish and Wildlife Service at the Schoolfield project. Since they are slated to begin monitoring this year it is too late to ask them to monitor in April and probably May as well; however, I would require them to sample into the month of October since that can be as critical a time of year as the warmer months due to low flows. EC has shown that they have researched data from the USGS gages at Holcomb's Rock on the James River and the Dan River at the STP near Danville. A simple query on the USGS website into flows from 2001, 2007, 2008 and 2017 show that flows at both locations were well below median into mid to late October.

In addition to the length of time each sampling year, DEQ samples reservoirs for a minimum of two consecutive years during each assessment cycle. One reason we do this is to have a minimum of 12 data points for the 305(b) assessment. Another reason is that we know from experience that rarely do we have two or more consecutive years of average rainfall and streamflow. As we have recently seen the low flows in fall 2017 were followed by record rainfall and high flows for all of 2018 into the spring of 2019. A similar pattern was seen (at least in BRRO) in the drought that occurred around 1999 - 2001 which was followed by high rainfall and flooding in late 2002-2003. Therefore, I suggest a minimum of two consecutive years of monitoring. A minimum of two years of study was also suggested by the USFWS.

Both impoundments have other dams above and below them which makes establishing true upstream reference and downstream impact stations difficult. I do not see a way around locating better upstream stations; however, I think the downstream impact stations being located almost directly in the turbine discharge reach is problematic. Low flow can be critical below dams therefore I suggest a fourth T/DO station in the main channel at a point before the river becomes impounded by the downstream dam. Additionally, a more thorough look into the impact of the dam on water quality would be to add a monthly temp/DO profile in the middle of the forebay or another deep location above the dam which would have to be done from a boat. This would include our methods of measuring T, DO, pH and SpC at 0,3 meters below the surface and every meter down to the bottom. A simple logger along the banks in the downstream section of the impoundment would not be a good indicator of the water quality in that section. Also, pH is an important parameter since high temperatures, high primary production and high DO can result in pH values over 9 which can be stressful to fish. Part of the reason for these suggestions is that in July 2018, our office investigated a small fishkill above Reusens Dam. No official cause was determined but it was likely due to heat stress as water temperatures were over 33C after several days of very high air temperature and decreasing flows in the James River.

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Tony Cario

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061



May 12, 2020

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

Re: Schoolfield Hydroelectric Project (FERC #2411),
Danville, VA, Review of the Draft Study Plan

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Study Plan (DSP) provided by Matthew Burak of WSP via email on April 16, 2020, on behalf of STS Hydropower, LLC (a wholly-owned subsidiary of Eagle Creek Renewable Energy) and the City of Danville (Licensees) for the Schoolfield Hydroelectric Project (Federal Energy Regulatory Commission [Commission; FERC] No. 2411) (Project). The Service also participated in the Joint Meeting and site visit held on September 18, 2019 in Danville, VA and in the DSP Agency Conference Call on April 23, 2020. The Project is located on the Dan River at approximately river mile 60.1 in the City of Danville, Pittsylvania County, VA. The Service filed comments on the Notice of Intent and Pre-Application Document (PAD), and Request for Studies, on November 15, 2019. The Service offers the following comments on the DSP.

Section 2.1.1, Studies Adopted with Modification by the Licensees, Water Quality Study: This section states water quality data will be collected from June 1 until September 30. According to the flow duration curves in the PAD, October is part of the low flow season when Project effects on water quality are most likely to occur; therefore, the Service recommends that water quality data collection be extended through October until October 31.

Section 2.1.2, Studies Adopted with Modification by the Licensees, Flow Assessment Study: This section states Project impacts on downstream river flow would only occur when the river flows are less than the Project's hydraulic capacity of 2,160 cubic feet per second. This typically occurs in the late spring, summer, and fall. Therefore, the Licensees proposed to collect the elevation data from June 1 through September 30, concurrent with other field studies. However, per the original study request by the North Carolina Wildlife Resources Commission (NCWRC), the data should be collected for at least 12 months to capture a variety of flow conditions.

Section 2.1.3, Studies Adopted with Modification by the Licensees, Mussel Surveys: This section states because the Dan River upstream of the Project reservoir is not influenced by Project operations, but rather by other non-Project related activities, no mussel surveys will be conducted upstream of the project. The Service does not agree with this approach. Mussel surveys upstream of the reservoir would be used as a reference to

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CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS
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VIRGINIA, WEST VIRGINIA

assess the impact of the project on mussel populations downstream of the dam. Mussels located upstream can also be impacted by the project as juvenile mussels from upstream areas can be washed downstream into the reservoir or glochidia can be released from host fish into the reservoir. Because the reservoir provides lower quality habitat for many mussel species, recruitment of mussels into the population could be affected by the Project. Therefore, the Service recommends that suitable habitat upstream of the reservoir be surveyed for mussels.

Section 2.1.5, Studies Adopted with Modification by the Licensees, Roanoke Logperch Assessment: This section states the Dan River upstream of the Project is influenced by other developmental activities that are not Project related; therefore, there is no Project nexus to Roanoke logperch (*Percina rex*) (RLP) in the Dan River upstream of the Project reservoir. RLP surveys upstream of the reservoir would be used as a reference to assess the impact of the project on RLP populations downstream of the dam. While the Service recognizes that FERC defines the baseline as the existing conditions at the Project at the time of relicensing, under the Endangered Species Act (ESA) the Service considers both past and present impacts [50 CFR § 402.02]. If adult RLP are present upstream of the project, larval RLP can drift into and through the Project in the spring during spawning. Thus, the Project can impact resources upstream of the Project including RLP. Therefore, the Service recommends that suitable habitat upstream of the reservoir be surveyed for RLP.

This section states that Roberts (2012) reported that the only known extant RLP population in the Dan River watershed in Virginia resides in the Smith River, which is far upstream of the Project. Rosenberger (2007) reported that among Virginia tributaries to the Dan River, RLP are known only from the Smith River system, including Rockcastle Creek, Town Creek, and three disjunct sections of the mainstem Smith River. The licensees use this information as part of their rationale for not conducting RLP surveys upstream of the Project. However, Roberts (2012) also reported that RLP had been found in several tributaries to the Dan River in Rockingham County, NC, including the Mayo River, Big Beaver Island Creek, Cascade Creek, and Wolf Island Creek. In 2007, RLP were discovered in the mainstem Dan River, near Eden, NC (Roberts 2012). RLP were recently (2017) documented in the Dan River near the town of Berry Hill, NC, approximately 10 miles upstream of the head of the Project reservoir (NCWRC, personal communication). The species may also have expanded its range since the surveys were conducted by Roberts (2012). As stated previously, if the species does occur more immediately upstream of the Project reservoir, the Project may be directly impacting RLP larvae that may drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment, either of which requires Section 7 consultation with the Service under the ESA.

Section 2.1.6, Studies Adopted with Modification by the Licensees, Bald Eagle Nest Survey: The Service appreciates the licensees' proposal to conduct a bald eagle (*Haliaeetus leucocephalus*) nest survey, in response to the Service's previous comments. While the Service recommends ensuring that future project activities do not disturb or harm bald eagles, we would prefer that the resources for conducting this survey be reallocated in support of (1) improving the mussel survey design to significantly increase the probability of detecting all mussel species present in the project area, including any rare species that may be present (per the recommendations of the Virginia Department of Game and Inland Fisheries [VDGIF]), and including surveys upstream of the head of the reservoir, (2) expanding the RLP study to include sufficient sampling upstream of the Project reservoir to determine RLP presence/absence, which would help to determine whether RLP larvae may be subject to entrainment into the Project reservoir or through the powerhouse, (3) expansion of the general fisheries study to include sufficient survey effort downstream of the Project dam and powerhouse, (4) extending the water quality monitoring period through October which is also part of the low-flow season, and (5) extending the flow study to include at least 12 months of effort.

Section 2.2.1, Studies Not Adopted by the Licensees, Aquatic Fauna Survey and Fish Survey: This section states Duke (2019) provides recent information regarding the fish community of the Dan River in the Project area. This section concludes that this study adequately characterizes the Project's fish community; therefore, there is no need to collect additional information. The Service does not agree with this conclusion. The report summarizes three years of intensive fisheries sampling (2015 through 2017) using multiple gear types, including upstream of and within the Project reservoir. However, according to the report, fish surveys were only conducted upstream of the dam (transect G) in the reservoir. There were no fish surveys conducted immediately above the reservoir or in the tailwater below the dam. The closest downstream fish survey location is 55 miles downstream in the

headwaters of Kerr Reservoir, well below the dam. The area immediately below the dam between the Project dam and the Union Mill Dam lacks fish surveys necessary for an assessment of Project impacts downstream. The closest upstream transect (F) is located approximately 8 miles upstream. Therefore, the area immediately above the reservoir should also be surveyed for fish as an upstream reference to assess impacts of the Project on fish populations.

Section 2.2.2, Studies Not Adopted by the Licensees, Fish Passage and Protection Assessment: While the Service agrees that there are currently no diadromous fish species in the Project area, there is the potential for the federally listed endangered RLP to be present in the Project area, considering recent documentation of the species approximately 10 river miles upstream of the Project reservoir, and the Project may function as an isolating mechanism, preventing dispersal and genetic exchange between RLP populations. Studies demonstrating RLP dispersal include Roberts et al. (2007) in which tagged RLP were documented moving up to 3.2 kilometers (km) between study sites, and Roberts et al. (2016) that estimated a RLP median lifetime dispersal distance of 6-26 km. In addition, many non-diadromous species documented in the Project reservoir are considered migratory (Wilcox et al. 2004), including quillback (*Carpiodes cyprinus*), golden redhorse (*Moxostoma erythrurum*), white sucker (*Catostomus commersonii*) and largemouth bass (*Micropterus salmoides*), among others, and some of these species serve as freshwater mussel host fish. For example, white sucker and largemouth bass have been identified as potential hosts for the yellow lampmussel (*Lampsilis cariosa*) (Kneeland and Rhymer 2008), which occurs in the Dan River (AES 2014). Therefore, the Project may also represent a barrier to mussel dispersal and genetic exchange, including for rare mussel species, some of which may be state listed or federally listed species (as yet to be determined through the planned mussel survey). Nevertheless, the Service understands it is premature to draw conclusions regarding these possible Project effects. At a minimum, the Service requests inclusion in the entrainment analysis, an assessment of time of year and frequency of spillage over the dam as a possible downstream alternative to passage through the powerhouse, and a characterization of the adequacy of safe passage (e.g., is there an adequate plunge pool below the dam) and viability of this route.

Section 2.2.3, Studies Not Adopted by the Licensees, Recreation Use and Enhancement Assessment Study: This section states there is no need to study recreation use and access at the Project. The Service does not agree with this conclusion. Given the increased interest in river recreation since the last relicensing, the Service believes a recreation study is warranted to study how recreation can be accommodated and/or enhanced at the Project. While portage around the dam may not be feasible, there may be other opportunities to enhance recreational use in the area. The Service supports recommendations provided by the VDGIF on this issue including evaluating the need for boat access in the upper part of the reservoir.

Section 3.1.4, Draft Study Plans, Baseline Water Quality Monitoring Study, Methodology: This section states one water quality logger will be deployed in the forebay at approximately 25% depth from the water surface. An additional water quality logger should be placed deeper in the water column to capture any potential differences in water quality resulting from potential stratification of the reservoir. To even out the distribution of the two loggers in the water column, upper and lower set points for the data loggers should be at approximately one-third and two-thirds depth below normal pool elevation, respectively. In addition to continuous monitoring of temperature and DO, once per calendar month (June through October), in situ water quality measurements of temperature, dissolved oxygen (DO), pH, and specific conductance should be collected at each of the water quality logger locations to better characterize water quality in the river. At the forebay monitoring location, a depth profile of temperature and DO should be collected each month. The depths of the forebay data loggers should be adjusted, if necessary to capture any stratification, during the study period based on a comparison of the continuous temperature and DO results with the monthly depth profile measurements. Individual water quality measurements (temperature, DO, pH, conductivity) should also be collected during fisheries (including RLP surveys) and mussel field sampling events.

This section states weather, river flow, and operations data will also be collected to add context to the water quality data, and that operations data used as part of the analysis will include turbine discharge and power generations. Analysis should also address how water quality is affected by different river flows and flow allocations (through the turbines versus over the dam crest). Of particular interest is whether water quality is affected during periods of no spillage over the dam crest.

Section 3.3.1, Draft Study Plans, Desktop Entrainment and Turbine Mortality Study, Goals and

Objectives: This section states the goal of the study is to evaluate the seasonal and annual fish entrainment and turbine mortality at the Project. Seasonal fish surveys are needed to determine species and seasonal abundance of fish that are in the vicinity of the Project and would be susceptible to impingement or entrainment. Duke (2019) collected some seasonal data in the reservoir; however this data is not provided in their report. Therefore, unless the Licensees can obtain this data from Duke, it is unclear how a seasonal assessment will be performed. The Service is interested in how impingement and entrainment varies across seasons.

Section 3.3.4, Draft Study Plans, Desktop Entrainment and Turbine Mortality Study, Methodology, 3)

Entrainment susceptibility: Entrainment susceptibility should also consider whether a particular species/life stage may be motivated to move downstream at a certain time of year (e.g., fall migration period; young-of-year dispersal); swim speed/ability (i.e., ability to escape the powerhouse intake flow) may not be the only factor determining whether a fish is susceptible to entrainment.

Section 3.4.4, Draft Study Plans, Downstream Roanoke Logperch Assessment, Methodology, USFWS

Approved Surveyor: This section states the Licensees have retained Alderman Environmental Services, Inc. (AESI) who employs biologists that have collected RLP in the past and qualify as an approved surveyor. No one from AESI is currently on the list of approved surveyors for RLP in Virginia. The list of approved surveyors for RLP and instructions for adding individuals to the approved surveyor list can be found at <https://www.fws.gov/northeast/virginiafield/endangered/surveyors.html>. The qualifications of the individual seeking approval as a surveyor should be provided to the Service at least 60 days prior to the start of the survey.

Section 3.4.4, Draft Study Plans, Downstream Roanoke Logperch Assessment, Methodology, RLP

Reconnaissance Survey: This section states that a reconnaissance level survey for the RLP will be performed in the downstream area. A more quantitative-level survey, than described in this Section, is needed downstream to better enable the Service to assess effects to RLP during the Section 7 consultation process. This increased level of effort will also assist FERC in making their Section 7 effects determination when they prepare their Environmental Assessment. It may not be possible to make an informed effects determination unless a more comprehensive RLP survey is performed downstream of the dam. If the species is present downstream, within the Potentially Affected Area, there is potential for Project operations to affect RLP spawning and nesting (e.g., adults could be pushed off of preferred riffle habitats, or shear stress related to Project discharge could disturb nests and push eggs downstream). The Service recommends that the Licensee work with the resource agencies to develop a RLP survey methodology that is adequate to detect the species and quantify the population so that an appropriate assessment of effects can be performed.

This study should not be limited to the downstream portion of the Project area. For the Service to analyze potential Project affects to RLP, and to quantify incidental take if there are adverse effects from the Project, information on presence/absence of the species immediately upstream of the Project reservoir is also needed. If the species is found upstream of the reservoir, then there is the potential for larvae to drift into the reservoir and/or through the powerhouse, either of which may impact the RLP. In the absence of data for the reach of the Dan River immediately upstream of the reservoir, based on recent documentation of the species approximately 10 miles upstream of the head of the reservoir (NCWRC, personal communication), the Service assumes the species is present upstream of the Project, in which case an additional larval drift study will be recommended. Methods have recently been developed for the collection and identification of RLP larvae (Buckwalter et al. 2019).

Section 3.4.4, Draft Study Plans, Downstream Roanoke Logperch Assessment, Methodology, Downstream

RLP Habitat Assessment and Data Analysis: These sections indicate that habitat suitability index (HSI) scores will be calculated from the habitat assessment. However, the proposed habitat assessment methodology is not systematic or rigorous enough to achieve this objective. For example, one velocity and depth measurement (i.e., under a single flow) is not sufficient for determining habitat suitability for RLP. If HSI scores are going to be used to determine whether the area below the dam is suitable for RLP, a more comprehensive analysis of the habitat conditions in the river will be needed.

Section 3.4.6, Draft Study Plans, Downstream Roanoke Logperch Assessment, Study Schedule: This section states the Licensees anticipate this study would be implemented during the 2020 study season and will commence by June 1. The Service recommends that RLP surveys be initiated after June 30 to protect RLP during breeding.

Section 3.6.4, Draft Study Plans, Freshwater Mussel Survey, Methodology, Selection of Sampling Locations: This section states two locations will be surveyed for freshwater mussels. One location will be in the upper reservoir and the other downstream of the Project dam. This level of effort is insufficient to determine whether rare or state listed or federally listed mussel species are present as the detection probability of these species is low. All mussel habitat below the dam should be surveyed with sufficient effort to confidently determine whether these species are present or not. In addition, the large area of the reservoir necessitates a much larger survey area. The higher quality habitat downstream of the dam also necessitates a more thorough survey to detect if these mussel species are present. Therefore, the Service recommends an approach that involves increasing the number of transects and associated survey effort, sufficient to allow development of a species richness curve, where search effort continues until no new species are found. As stated previously, a mussel survey upstream of the reservoir is needed as a reference to assess impacts from the Project. This increased level of effort is justified because federally listed mussel species may occur in this part of the Dan River and FERC will need to make a Section 7 effects determination for any federally listed species when they prepare their Environmental Assessment. It may not be possible to make an informed effects determination unless a more comprehensive mussel survey is performed downstream of the dam. The Service recommends that mussel survey methods be approved by the VDGIF prior to implementation, and the Service defers to VDGIF for determining the appropriate level of effort.

Thank you for the opportunity to comment on the DSP. If you have any questions, please contact John McCloskey of this office at (804) 824-2404 or via email at john_mccloskey@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

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Document Content(s)

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☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

May 13, 2020

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Subject: Draft Study Plan
Schoolfield Hydroelectric Project, FERC Project No. 2411

Dear Secretary Bose:

The North Carolina Wildlife Resources Commission (NCWRC) has reviewed the Draft Study Plan (DSP) submitted to interested parties by STS Hydropower, LLC (STS) and the City of Danville, Virginia (Danville) on April 16, 2020. Although the project is located in Virginia, because the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. These comments and recommendations are provided in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The NCWRC has been engaged in this relicensing process from the start. We provided comments on the Notice of Intent on June 21, 2019, attended the joint meeting and site visit on September 18, 2019, provided study requests on November 15, 2019 (attached), and attended the virtual meeting reviewing the DSP on April 23, 2020.

The DSP addresses some of the interests we raised in our study request letter, but we believe additional study details and sampling effort are needed to provide adequate information for use in the draft license application and environmental analysis. We concur with the comments of the U.S. Fish and Wildlife Service submitted to the Commission on May 12, 2020 (accession number 20200512-5132) and provide the following additional comments.

Section 2.1 – Studies Adopted with Modification by the Licensees

Section 2.1.2 – Flow Assessment Study: While we agree that Project impacts on downstream streamflow occur when streamflows are less than 2,000 cfs, such events are not limited to summer and fall months. As we illustrated in our study request, flow fluctuations have occurred

in February, March and November. As our examples point out, some of the flow fluctuations are rapid declines, others are flow dampenings, while others are peaking events. The months the data are collected is less important than providing sufficient monitoring to capture enough of those events to be able to discern whether the cause is due to fluctuations from upstream sources, the Project, or a combination of the two. Also, the summer of 2020 may not provide flows less than 2,000 cfs. For these reasons, that is why we requested that the data be collected for at least 12 months to capture a variety of flow conditions resulting from ambient conditions and flow manipulation by upstream entities.

Section 2.1.5 – Roanoke Logperch Assessment: This section concludes that Roanoke Logperch are not likely to occur in the project area because they were not collected during other survey efforts. We note that Roanoke Logperch are difficult to collect without using appropriate gear specifically targeted in their preferred habitats. We also indicated in our study request letter that Roanoke Logperch were collected since 2017 in the North Carolina portion of Dan River upstream of the Project. More specifically, the species was observed by NCWRC biologists using snorkeling gear in October 2017 approximately 2 miles upstream of the North Carolina-Virginia border near the town of Berry Hill, VA.

Section 3.2 – Operations and Inflow Assessment Study

We recommend that the study title be adjusted to “Operations and Flow Assessment Study” because the intent is not to just assess inflow, but inflow to and outflow from the Project. We also point out that the location of the downstream river stage monitor be located upstream of any backwater effect from the Union Street Dam impoundment. Finally, we recommend that the study not be limited to the four-month period of June through September, but be expanded up to 12 months. If sufficient examples of flow fluctuations can be obtained in less time, we are agreeable to reducing the term of the study. We recommend that the data be downloaded and reviewed every few months and shared with the agencies to determine, with the Licensees, when the study can be ended.

We appreciate the opportunity to comment on the DSP. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

Sincerely,



Christopher Goudreau
Hydropower Licensing Coordinator



North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

November 15, 2019

Mr. Michael Scarzello
Eagle Creek Renewable Energy, LLC
116 State Street
Neshkoro, WI 54960
michael.scarzello@eaglecreekre.com

Via Email

Subject: First Stage Consultation Comments and Study Requests
Schoolfield Hydroelectric Project (P-2411-028)

Dear Mr. Scarzello:

This letter contains First Stage Consultation comments and study requests of the North Carolina Wildlife Resources Commission (NCWRC) pursuant to the regulations governing the relicensing of a hydroelectric project by the Federal Energy Regulatory Commission (FERC) under the Traditional Licensing Process (18 CFR 16.8). The project is located on the Dan River in Danville, Virginia. However, due to the fact that the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. The NCWRC provides these comments in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

On May 31, 2019 STS and Danville (co-Licensees or applicant) submitted a Pre-Application Document (PAD) and request to use the Traditional Licensing Process (TLP). STS and Danville propose to continue operating the existing dam, reservoir and powerhouse in a run-of-river mode to generate electricity. The PAD also states that no studies are planned by the applicant. On June 21, 2019 the NCWRC provided comments on the PAD. On July 24, 2019 the FERC granted the co-Licensees authority to use the TLP. A public meeting and site visit were held on September 18, 2019 which were attended by the NCWRC.

The NCWRC does not have a fish and wildlife management plan specific to the Roanoke River basin but we have prepared a Wildlife Action Plan (<https://www.ncwildlife.org/plan>) which focuses on rare, threatened and endangered species, and addresses fish and wildlife generally. The Wildlife Action Plan has been accepted by FERC as a comprehensive plan. Our

management goals are: 1) to protect and improve the overall aquatic ecology and important fisheries of the Roanoke basin, including listed species of fish, mussels, crayfish, snails, and amphibians; and, 2) to improve populations of diadromous fish species, including American eels.

Pursuant to 18 CFR 16.8(b)(5) we submit the following study requests in order to more fully understand the natural resources of the project vicinity and the potential impacts of project operation on them.

Study Request #1 – Aquatic Fauna Surveys

1. Study or information request

Aquatic biota sampling of the Dan River in the immediate vicinity of the project and upstream and downstream of the project are necessary to adequately characterize the occurrence, distribution, and relative abundance of fish, mussel, and other aquatic taxa of the river. At a minimum, surveys should be conducted at three locations – downstream of the Schoolfield dam, in the project impoundment, and in riverine habitat upstream of the Schoolfield impoundment (above US 58). The downstream location should include areas immediately below the powerhouse, between the dam and Piedmont Drive bridge, and downstream of the bridge. Within the Schoolfield impoundment a variety of habitats should be targeted.

Additional sampling locations should be included to characterize the general faunal conditions of the Dan River in the vicinity of the project. These areas include the reaches downstream of the Union Street dam and the Dan Mills (Whites Mill) dam, respectively about 2.5 and 2.9 miles downstream of Schoolfield dam.

Different sampling methods should be used to target fish and mussels. Fish sampling should include boat, backpack or tote-barge electrofishing and seining. We are particularly interested in collecting small, benthic species that typically are not adequately sampled using just boat electrofishing methods. Fish collection should take place under normal to low flow conditions, between May and June to determine if any migratory fishes are present (i.e., spring spawning run of suckers) and in late summer or early fall.

Qualitative mussel sampling (presence/absence) should be conducted by visual (snorkel, SCUBA, or view scope) and tactile surveys. Areas immediately below the Union Street and Dan Mills dams and in the vicinity of Reedy Island also provide suitable habitats for benthic fishes and mussels.

All surveys should be conducted in a variety of habitat types at each site and be timed to provide catch-per-unit effort (CPUE). Temperature and dissolved oxygen should be measured at each site. Organisms collected should be identified to species, enumerated and measured.

2. *Basis for study request*

A thorough and comprehensive assessment of the aquatic fauna present in the vicinity of the project is lacking. The information on aquatic fauna provided in the PAD is generally not in close proximity to the Schoolfield project. The PAD indicates that the data source for most fish species in Table 4.4.1-1 is from fishmap.org which provides data at a HUC 8 scale, so it is not clear which of these species are actually found near the project. Also, previous fish sampling efforts do not appear to have targeted small or benthic species in the vicinity of the project, so it is possible that such species occur nearby.

Similarly, the mussel surveys conducted by Alderman Environmental Services in 2014 did not include the areas immediately downstream of the Schoolfield, Union Street or Dan Mills dams. The nearest mussel survey locations were 1.5 miles upstream of the upper end of the Schoolfield impoundment and 4.8 miles downstream of the Schoolfield dam. Areas downstream of dams typically provide suitable habitat for mussels because they often contain substrates that are less embedded with silt and sand. Therefore, the aquatic fauna in the reach downstream of Schoolfield dam is of particular interest.

3. *Resource issues and agency goals for these resources*

The NCWRC is charged with protecting and enhancing fish and wildlife, including rare, threatened and endangered species. Schoolfield dam and other dams in the area are likely fragmenting populations of rare fish and mussels. Our goal is to recover these species such that they are no longer listed as threatened or endangered. According to our records the following listed species have been collected since 2017 in the North Carolina portion of Dan River downstream of Duke Energy's Dan River steam station dam and may occur in the vicinity of the project:

Common Name	Scientific Name	State Status	Federal Status
Atlantic Pigtoe	Fusconaia masoni	Endangered	Proposed Threatened
Green Floater	Lasmigona subviridis	Endangered	
James Spiny mussel	Parvaspina collina	Endangered	Endangered
Notched Rainbow	Villosa constricta	Threatened	
Roanoke Logperch	Percina rex	Endangered	Endangered
Yellow Lampmussel	Lampsilis cariosa	Endangered	

Although diadromous fish species may not currently occupy the Dan River near the Project, they may obtain access to Project waters during the course of the next license period. Current efforts at the Roanoke Rapids and Gaston dams are moving American eels upstream. Should eels gain access above Kerr dam, they are very likely to pass the other low head dams downstream of Schoolfield.

4. *Why the study methodology is more appropriate than any other available methodology alternatives, including those identified by the applicant in the PAD*

According to the PAD, the applicant does not plan to conduct any studies.

5. *Documentation that the study methodology is a generally accepted practice*

These are standard fish and mussel surveys typically conducted for all hydropower relicensings.

6. *How the study/information request will be useful to the agency in furthering its resource goals and objectives practice*

Understanding how the project affects the rare aquatic fauna will assist the NCWRC and other resource agencies in developing operational and mitigation recommendations for the hydro project to minimize impacts to fish and wildlife resources.

Study Request #2 – Effects of Project Operation on Downstream Flows

1. *Study or information request*

Fine-scale data on reservoir and tailwater water surface elevations and hydropower generation should be provided to better understand project operations under a range of inflow conditions and the resulting effects on downstream flows. These data can be collected with water level loggers and should be provided at 15-minute intervals so comparisons can be made with USGS gage data. The data should be collected for at least 12 months to capture a variety of high and low flow conditions.

Also, the frequency and duration of previous instances of lowering and refilling the reservoir for maintenance or emergencies should be provided. Together, these data will be used to determine project impacts and assist in developing operating protocols to protect aquatic resources.

2. *Basis for study request*

Rapid and frequent fluctuations in flow can impact fish and mussel populations, particularly in riffles and other shallow habitats. Analysis of the USGS stream gages Dan River near Wentworth, NC (02071000), Smith River at Eden, NC (02074000), and Dan River at STP near Danville, VA (02075045) indicates that flows may be regulated by the Schoolfield project or other facilities in the intervening reaches. See attached figures for examples of apparent flow regulation of the Dan River. Because of the distances between the gages and the unknown operations of Schoolfield and the other facilities, it is unclear if, and to what extent, the flow regulation is due to Schoolfield or another facility. Providing detailed reservoir level and hydro generation data from Schoolfield will assist in determining its influence on downstream flows.

3. *Resource issues and agency goals for these resources*

The NCWRC is charged with protecting and enhancing fish and wildlife, including rare, threatened and endangered species. See the Wildlife Action Plan for more details. Furthermore, it is our goal to re-establish or expand migrations and populations of native, naturally reproducing target species, particularly American eel.

4. *Why the study methodology is more appropriate than any other available methodology alternatives, including those identified by the applicant in the PAD*

According to the PAD, the applicant does not plan to conduct any studies.

5. *Documentation that the study methodology is a generally accepted practice*

Documenting the effects of project operations on downstream flows and habitat is routinely conducted for hydropower relicensings.

6. *How the study/information request will be useful to the agency in furthering its resource goals and objectives practice*

The results will allow the NCWRC and other resource agencies to isolate the influence of Schoolfield on downstream flow fluctuations and determine necessary operational changes or mitigation options.

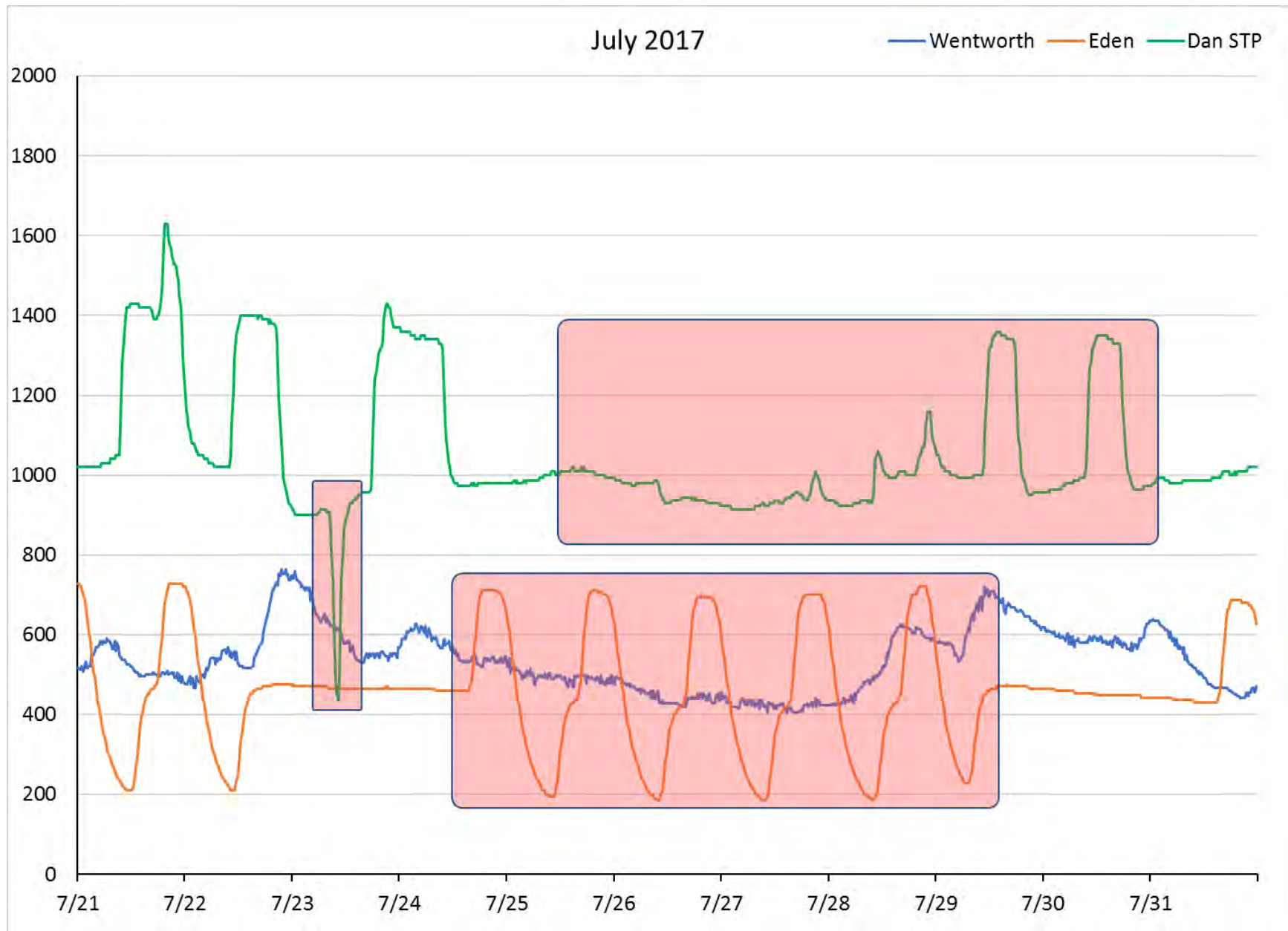
We appreciate the opportunity to provide these comments. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

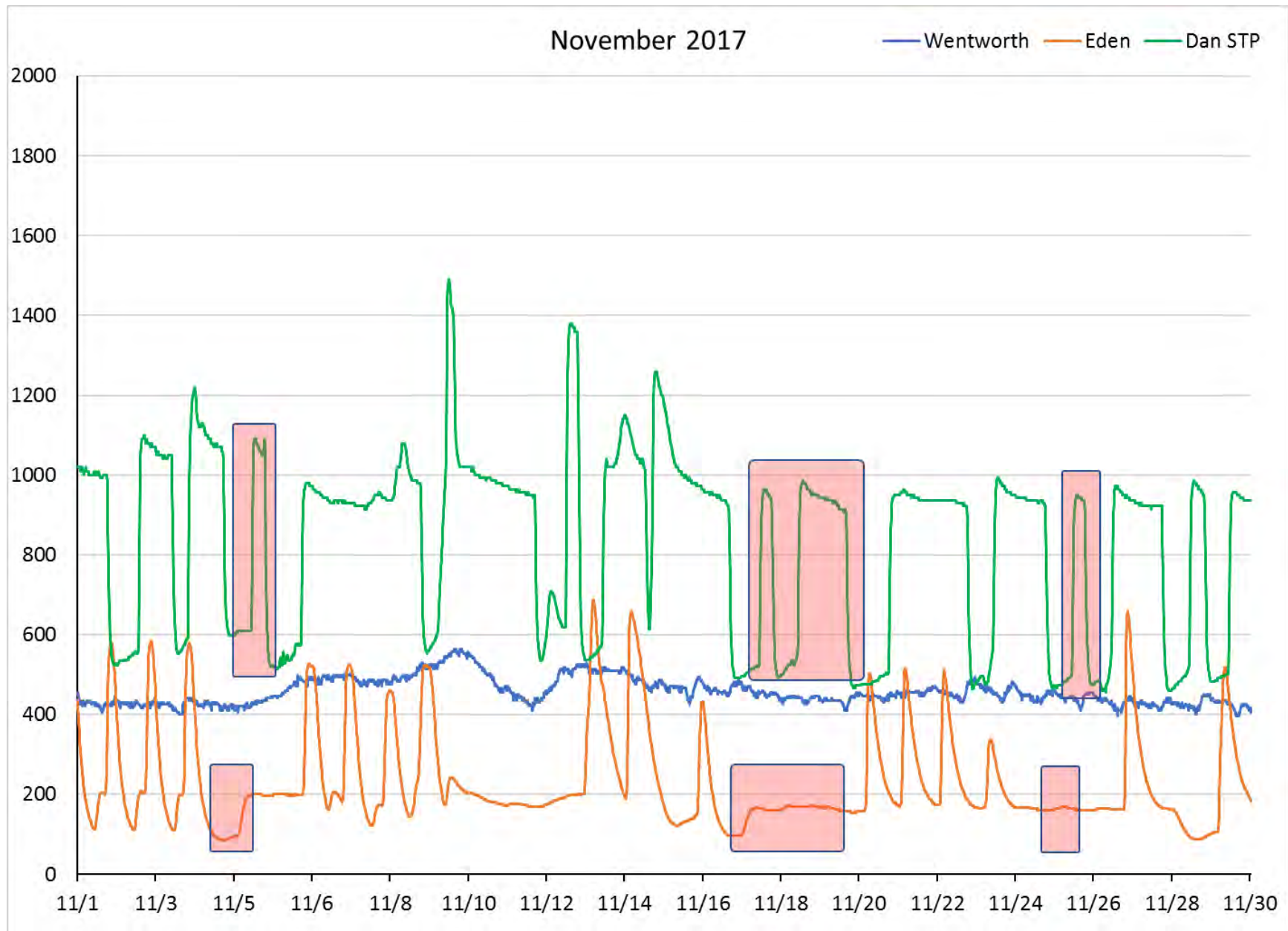
Sincerely,

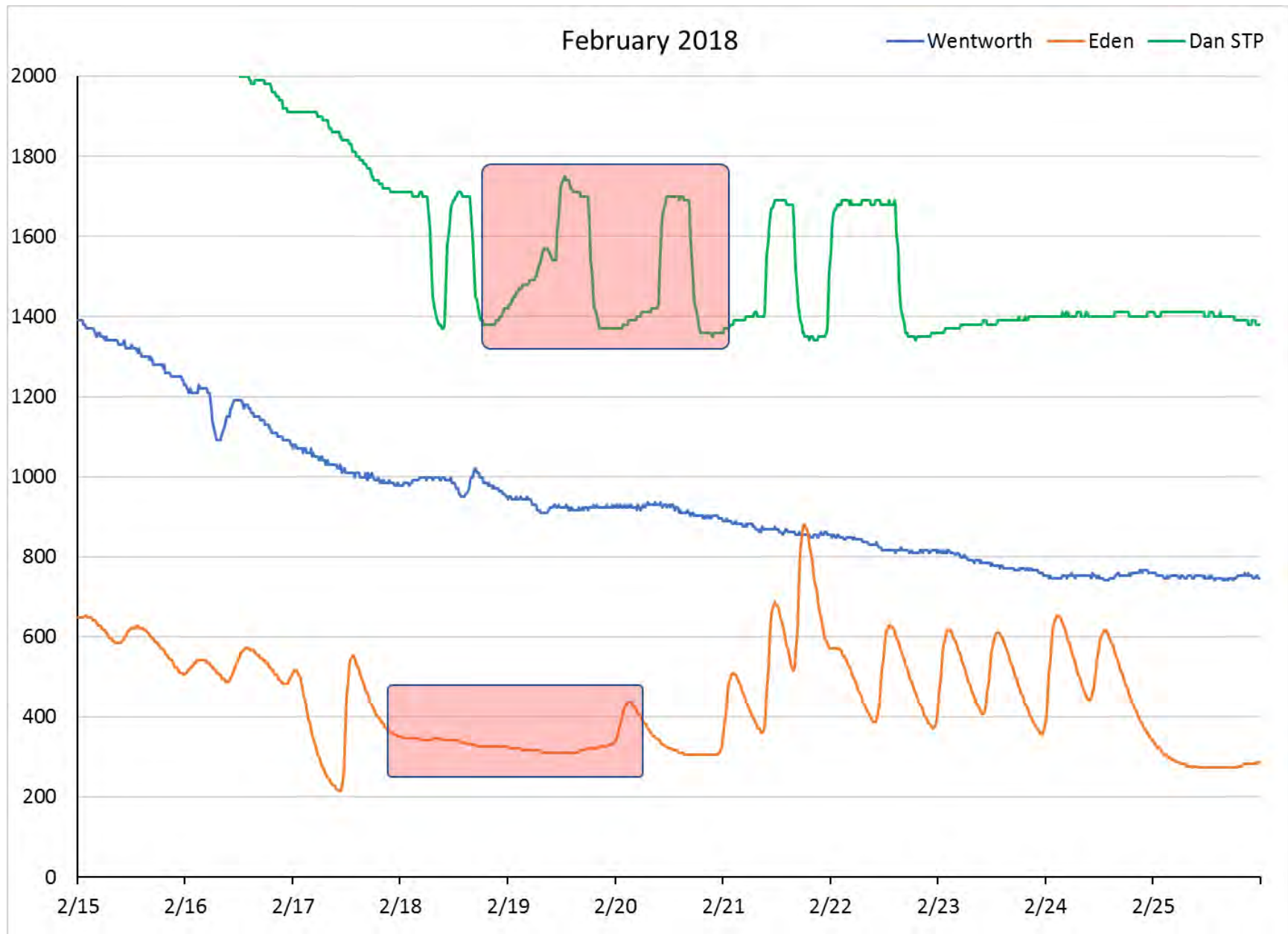


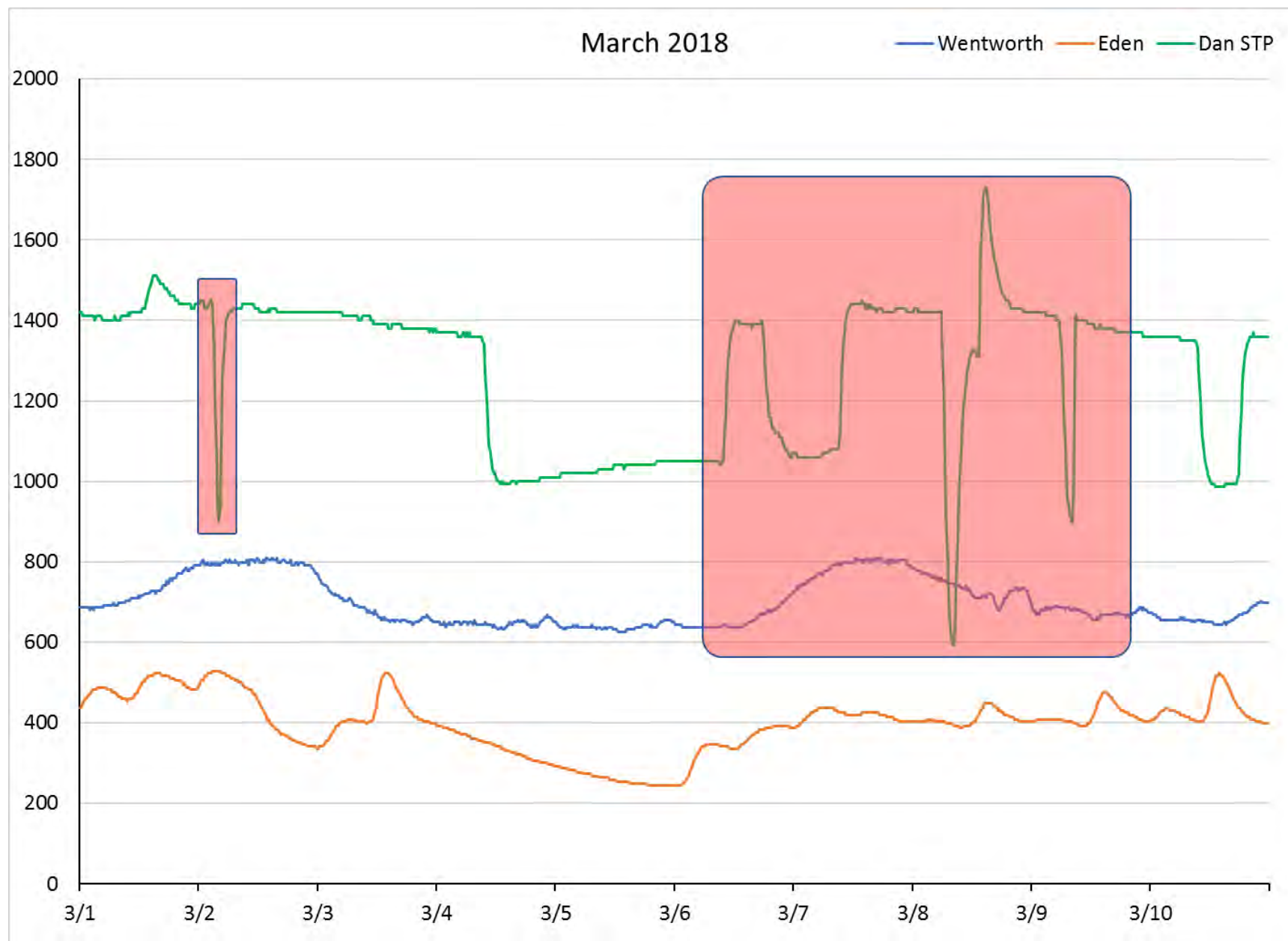
Christopher Goudreau
Hydropower Licensing Coordinator

cc: Scott Smith, VDGIF
John McCloskey, USFWS
Fred Tarver, NCDWR











Matthew J. Strickler
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

Ryan J. Brown
Executive Director

May 14, 2020

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 201426

**Re: Schoolfield Hydroelectric Project (P-2411) – Application for New License
Virginia Dept. of Game and Inland Fisheries Comments Draft Study Plans**

Dear Secretary Bose:

Thank you for the opportunity to provide input into the relicensing process for the Schoolfield Hydroelectric Project (P-2411). The mission of the Virginia Dept. of Game and Inland Fisheries (VDGIF) is to conserve and manage wildlife populations and habitat, connect people to Virginia's outdoors, and protect people and property by promoting safe outdoor experiences. Additionally, VDGIF is the state agency responsible for managing aquatic and terrestrial wildlife resources, including rare/listed species of fish and wildlife.

VDGIF has reviewed the Draft Study Plan (DSP) for the Schoolfield Hydroelectric Project (Project) as submitted for Eagle Creek Reusens Hydro, LLC (Applicant). In addition, we participated in a conference call held on 23 April 2020, with the applicant and interested stakeholders. During this call, VDGIF expressed several areas of concern regarding the DSP. The DSP does address multiple areas of concern to our agency, but some of the issues we raised in the initial scoping process are not addressed by the DSP. In addition, using our best professional judgement, several of the proposed studies lack the necessary scope and/or intensity to adequately address project impacts.

We have also reviewed the comments regarding the DSP as submitted by the U.S. Fish and Wildlife Service (USFWS) and the North Carolina Wildlife Resources Commission (NCWRC). We concur with and support all comments provided by those two agencies.

Studies Not Proposed by the Applicant:

2.2.1 Aquatic Fauna Survey – The Applicant states that by agreeing to conduct freshwater mussel and Roanoke Logperch surveys, that extant data on other fish species is sufficient for the relicensing process. We agree that the data cited by the applicant are a useful starting point, and may be sufficient for describing the fish community of the impoundment. However, they are completely inadequate for describing the fish community below the dam, in the reach impacted by project operations. The data being cited to assess downstream impacts came from an area many miles downstream, from a reach with very different habitat conditions. Finally, in order to

provide some frame of reference, an assessment of the fish community upstream from the project is also necessary. Without these basic data, the determination of project impacts and suitable mitigation measures will be exceedingly difficult.

2.2.3 Recreation Use and Enhancement – The Applicant states that no additional recreational access facilities are needed, thus obviating the need for additional study of this component. The Applicant points to facilities present in Abreu Grogan Park and the potential for additional access development by the City of Danville downstream. We concur that access needs in the impounded reach are being met by the Abreu Grogan Park facilities, and that a canoe portage around the dam may not be a practical option. However, we also recognize the need for access facilities downstream from Schoolfield Dam, as well as the need for access immediately above the impoundment. The Applicant notes that the City of Danville may provide some unspecified level of access below the impoundment in some unspecified timeframe. Since no access is currently available between Schoolfield and Union Street dams, a need is clearly defined. Additionally, the Applicant has not addressed the need to measure access demands in the project area. Thus, no determination can be made regarding the sufficiency of current access facilities without an examination of need and potential enhancement options. Thus, a recreation study is necessary in order to evaluate current access facilities and potential mitigation options.

Proposed Studies

3.4 Downstream Roanoke Logperch Assessment – The DSP outlines a proposed survey for Roanoke Logperch downstream from Schoolfield Dam. We are in agreement that this work is necessary, but are uncertain of the level of effort proposed by the Applicant. Since the Roanoke Logperch is a small, cryptic, and rare species; a considerable amount of sampling may be necessary in order to accurately determine the status of the species in the project area. We recommend that capture (detection) probabilities be utilized to determine the appropriate level of effort. These probabilities can be generated in consultation with Roanoke Logperch experts. In addition, the Applicant does not propose to sample for this species above the impoundment. We agree that the presence of Roanoke Logperch is unlikely in the impoundment, but suitable habitat exists immediately upstream from the impoundment. Any logperch present could potentially utilize the upper impoundment on an intermittent basis. In addition, larval or juvenile logperch could migrate into the impoundment (or be washed in during high flow events). Given the habitat conditions in the impoundment, anything other than short-term residence time for this species in the impoundment could lead to high levels of mortality. Thus, the status of this species above the impoundment needs to be assessed in order to evaluate the impacts of project operations on this listed species, as well as to determine appropriate mitigation measures, if needed. In summary, we tentatively concur with the downstream sampling plans, pending additional detail regarding level of effort, but we have also determined that additional sampling is necessary upstream from the impounded area.

3.6 Freshwater Mussel Survey – We have determined that the mussel survey proposed in the DSP is inadequate to fully describe the mussel fauna present within the project impact area. The applicant is proposing to sample 2 x 100 m transects (one in the reservoir and one below the dam) to determine the presence/abundance of mussel species. Based upon detection probability estimates performed by VDGIF and others (based upon detection probability of individual mussels and the density of rare mussel species), the level of effort needed for this work would be 15-20 x 100 m transects for each area (above and below the dam). This would provide an approximately 95+% probability of detecting rare species.

The Applicant may wish to stratify these sampling transects by area in order to reduce sampling variability. We are willing to assist the applicant with selection of sampling transect locations in

order to get adequate coverage of the project area. In order to determine the presence of rare mussel species, a significantly more robust sampling effort is needed. The level of effort proposed by VDGIF should provide an acceptable level of detail needed to determine project impacts and potential mitigation needs.

In summary, we have identified a need and a nexus to the project for both a fish community assessment and a recreation enhancement study. Furthermore, we have identified shortcomings to the proposed Roanoke Logperch assessment and the freshwater mussel survey, and have provided additional detailed recommendations for each of these studies. The fish community and recreational enhancement studies are necessary to evaluate project impacts and to determine potential mitigation measures for said impacts. The modifications to the Roanoke Logperch and freshwater mussel studies are needed for similar assessments.

Thank you for the opportunity to provide comments to the Draft Study Plans for this project. If there are any questions or if further information is needed, please contact Scott M. Smith at scott.smith@dgif.virginia.gov.

Sincerely,


Scott M. Smith
Regional Fisheries Manager

Cc: D. Michaelson (VDGIF)
H. Hatcher (VDGIF)
E. Aschenbach (VDGIF)
B. Watson (VDGIF)
M. Pinder (VDGIF)
C. Goudreau (NCWRC)
J. McCloskey (USFWS)
R. McCorkle (USFWS)
A. Cario (VDEQ)



United States Department of the Interior

FISH AND WILDLIFE SERVICE



Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

October 7, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

Re: Schoolfield Hydroelectric Project (FERC
#2411), Danville, VA, Review of the Final
Study Plan

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) has reviewed the Final Study Plan (FSP) provided by Matthew Burak of WSP via email on July 21, 2020, on behalf of STS Hydropower, LLC (a wholly-owned subsidiary of Eagle Creek Renewable Energy) and the City of Danville (Licensees) for the Schoolfield Hydroelectric Project (Federal Energy Regulatory Commission [FERC] No. 2411) (Project). The Service also participated in the Joint Meeting and site visit held on September 18, 2019 in Danville, VA and in the Draft Study Plan (DSP) Agency Conference Call on April 23, 2020. The Project is located on the Dan River at approximately river mile 60.1 in the City of Danville, Pittsylvania County, VA. The Service filed comments on the Notice of Intent and Pre-Application Document (PAD), and Request for Studies, on November 15, 2019 and on the DSP on May 12, 2020. The Service offers the following comments on the FSP.

Table 2.0-1, Licensees response to comments received on the DSP, Comment #1, page 3: The Service stated we did not agree that the area immediately below the dam between the Project dam and the Union Street Dam did not need fish surveys. This area lacks fish surveys necessary for an assessment of the Project's impacts downstream. The Licensees state that they decline to perform a dedicated fish survey downstream of the Project dam because sufficient information exists to make a reasonable inference as to what fish species comprise the fish community downstream of the Project. The Licensees also state that the fish community downstream of the Project dam would be similar to that of the Project's reservoir and the downstream reservoir. No site-specific data are presented to support the assumption that the fish community in the riverine section between the reservoirs would be the same as the fish community in the reservoirs. Because many riverine larval fish drift downriver, including darter and logperch species (Buckwalter et al. 2019), these species can colonize the riverine habitat between the reservoirs, but would not be present in the reservoirs due to unsuitable habitat. Therefore, the fish community in the riverine section between the dams is likely to differ from those found in the reservoirs. The Service continues to recommend that site-specific comprehensive fish surveys be conducted in the riverine section just downstream of the Project to enable assessment of site-specific Project impacts to

the fish community. Incidental observations of other fish species during the Roanoke Logperch (RLP) snorkeling surveys are not sufficient to comprehensively assess the fish community.

Table 2.0-1, Licensees response to comments received on the DSP, Comment #6, page 6: The Service stated there may be opportunities to enhance recreation use in the area other than portage around the dam, including evaluating the need for boat access in the upper part of the reservoir as recommended by the Virginia Department of Wildlife Resources (VDWR) (formerly Virginia Department of Game and Inland Fisheries). The Licensees' response states the upper extent of the reservoir is 5.7 river miles upstream of the existing boat ramp and is accessible by boat from the existing ramp; therefore, there is no need for boat access in the upper part of the reservoir. While the upper part of the reservoir may be accessible by motor boats, the distance (5.7 miles) does not make it accessible for non-motorized boats such as canoes and kayaks. At a minimum, non-motorized recreation could be enhanced with a boat access in the upper part of the reservoir. An additional boat access in the upper reservoir would allow paddling between the two access points in the reservoir and function as a take-out for boat access points further upstream in the river. The Virginia Department of Conservation and Recreation (VDCR) completed a Virginia Outdoor Plan (VOP) in 2018 that assessed outdoor recreation trends and identified long-term recreation and land conservation needs. Water and land trails were identified as the third most popular activity, according to 43% of respondents to the 2018 Virginia Outdoors Demand Survey (VDCR 2018). The VOP identified the development of access points throughout the Dan River Basin as a featured project for Region 12, West Piedmont, which includes the City of Danville and Pittsylvania County (VDCR 2018). The need and public interest for this additional boat access should be evaluated as stated in the original comment.

Table 2.0-1, Licensees response to comments received on the DSP, Comment #17, page 10: The Service recommended individual water quality measurements (temperature, dissolved oxygen [DO], pH, conductivity) be collected during fisheries (including RLP) and freshwater mussel surveys. The Licensees' response states separate measurements of water quality have not been incorporated into the RLP study because the water quality study will collect sufficient data on water quality using accepted scientific methods and practices. According to Section 3.5, Freshwater Mussel Survey, water quality measurements are not proposed for the mussel surveys. The water quality monitoring locations are not in the same areas as the RLP surveys or the mussel surveys. It is an accepted scientific practice to collect water quality data in areas where fish and mussel surveys are performed to assist in interpreting fish and mussel survey results and provide a possible explanation for the lack of fish and mussel species at a particular survey location. The Service continues to recommend that water quality data be collected where fish and mussel surveys are performed. The Service recommends collection of temperature, DO, pH, and specific conductance data from a representative location at each fish and mussel sampling location.

Table 2.0-1, Licensees response to comments received on the DSP, Comment #24, page 12: The Service recommended mussel surveys be conducted upstream of the reservoir to assess impacts from the Project. Mussels located upstream can be impacted by the Project as juvenile mussels from upstream areas can be washed downstream into the reservoir or glochidia can be released from host fish into the reservoir. Because the reservoir provides lower quality habitat for many mussel species, recruitment of mussels into the population could be affected by the Project. Mussel host fish infested with mussel glochidia from areas upstream of the reservoir can be injured or killed from entrainment in the Project turbines. The Licensees' response states no mussel surveys will be conducted upstream of the reservoir for the reasons stated in Section 2.1.3 of the DSP. The reason cited in this section is that the Dan River upstream of the Project reservoir is not influenced by Project operations. The Licensees' response and the section referenced in the DSP do not specifically address the direct impacts to juvenile mussels, which can be washed into the reservoir, or to glochidia, which can be released from host fish into the reservoir. The Service continues to recommend that mussel surveys be conducted in appropriate habitat

upstream of the reservoir to assess the potential for Project impacts on early life stage mussels that may be flushed or released into the reservoir or from mussel host fish infested with glochidia from upstream areas that are injured or killed from entrainment in the Project turbines.

Table 2.0-1, Licensees response to comments received on the DSP, Comments #29 and #30, page 15: The Service recommended suitable habitat upstream of the reservoir be surveyed for RLP. If RLP occur upstream of the Project reservoir, the Project may be directly impacting RLP larvae that drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment. The Licensees' response states the Licensees added additional surveys in the upstream most riffle section of the upper part of the reservoir to discern if RLP are present in Project-affected waters upstream of the Project. There will not be suitable habitat within the upper part of the reservoir for adult RLP. The Service recommends RLP surveys be conducted in suitable habitat upstream of the reservoir in a free-flowing section of the river. In the absence of data for the reach of the Dan River upstream of the reservoir, based on the October 2017 documentation of the species approximately 10 miles upstream of the head of the reservoir near the Town of Berry Hill, VA (C. Goudreau, North Carolina Wildlife Resources Commission [NCWRC], email to J. Smet, Eagle Creek Renewable Energy, May 19, 2020), the Service will assume RLP are present immediately upstream of the Project reservoir, and a larval drift study will be requested. The Service may also assume presence of RLP upstream of the reservoir if only limited surveys are conducted and prior approval for the survey extent and effort is not received from the Service.

Table 2.0-1, Licensees response to comments received on the DSP, Comment #31, page 15: The Service stated that no one from Alderman Environmental Services is currently listed on the list of approved surveyors for RLP in Virginia. The Service provided a link to the approved surveyor list and instructions on how surveyors can be added to the list. The Licensees state that their contractors have received the necessary approvals. The Service's Virginia Field Office has not received any requests to review the qualifications of representatives from Alderman Environmental Services. The Service may not accept the results of the survey if the surveys are not based on the best available science. The surveyor should submit their qualifications to the Service so we can determine if they are qualified to perform RLP surveys. Instructions on how and what surveyors should submit can be found at: <https://www.fws.gov/northeast/virginiafield/pdf/endangeredspecies/HowToGetOnSurveyorList.pdf>.

Table 2.0-1, Licensees response to comments received on the DSP, Comment #40, page 18: The NCWRC noted that RLP can be difficult to collect without using appropriate gear specifically targeted to RLP preferred habitat. The Licensees' response states the Licensees contracted biologists are familiar with the RLP preferred habitats and methods to collect them and continue to propose snorkeling as the primary survey method. Snorkeling may not be an effective method for RLP surveys at low water clarity, low visibility, high flow, and/or at increasing water depths. It is unclear that the contracted biologists are qualified to complete the RLP surveys. Information on surveyor qualifications should be provided to the Service, along with any consultation with RLP experts stating how it was determined that the proposed survey methodology and effort is sufficient to detect RLP, particularly when population densities are low.

The Licensees' Response for Comment #40 also stated the Licensees are not proposing to survey for RLP upstream of the Project reservoir. As stated previously, the Service does not agree with this approach. The Service recommends RLP surveys in suitable habitat upstream of the reservoir in the free-flowing section of the river to assess the potential for impacts to larval RLP that may drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment. If the Licensees choose to forgo these recommended surveys, the Service will assume RLP are present immediately upstream of the Project reservoir, and a larval drift study will be requested.

Section 3.4.4, Final Study Plans, RLP Assessment, Methodology, Study Area, page 32: This section states the proposed study area for the RLP surveys includes the Dan River in the upper most riffle section of the upper part of the Project reservoir. Figure 3.4.4-1 shows the “Proposed Roanoke logperch sampling reach within the upper Project reservoir.” This is different from the statement in the Upstream and Downstream RLP Habitat Assessment section (Section 3.4.4), which states the purpose of this assessment is to determine if suitable RLP habitat is present within the first riffle section upstream of the Project reservoir. This issue should be clarified. Adult RLP are unlikely to use the upper part of the reservoir. The Service recommends that surveys be conducted in suitable habitat in riffle/run areas upstream of the Project reservoir as adult RLP are more likely to be detected in this section of the river.

Section 3.4.4, Final Study Plans, RLP Assessment, Methodology, Upstream and Downstream RLP Habitat Assessment, page 33: This section states the purpose of this assessment is to determine if suitable RLP habitat is present within the first riffle section upstream of the Project reservoir. This assessment of suitable habitat should not be limited to only the first riffle section upstream of the reservoir. Larvae of almost all members of the *Percina* genus, which includes RLP, drift for long distances downstream from their spawning habitats (Buckwalter et al. 2019). Dispersal distances for RLP have been estimated to be as much as 55 kilometers (Roberts et al 2016), although that estimate also includes post-larval dispersal. Based on aerial photography, there appear to be several large riffle/run areas between the U.S. Route 58 bridge and the upper extent of the Project reservoir where suitable habitat for adult RLP may be present. Therefore, the Service recommends a habitat assessment be performed within this stretch and suitable habitat be identified. RLP surveys should be conducted where suitable habitat is present upstream of the reservoir as this is within the distance that drifting larval RLP could be impacted from the Project.

Figure 3.4.4-2. Proposed Roanoke logperch sampling reach within the upper Project reservoir, page 35: This figure shows the proposed RLP sampling location in the upper reservoir. Due to the scale of the figure, no reference points are available to determine the exact location of the sampling location. Provide either the distance from the Route 58 bridge or the global positioning system coordinates to enable identification of the exact location of the sampling location.

Thank you for the opportunity to comment on the FSP. If you have any questions, please contact John McCloskey of this office at (804) 824-2404 or via email at john_mccloskey@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

cc: Service, State College, PA (Attn: Rick McCorkle)
VDWR, Forest, VA (Attn: Scott Smith)
NCWRC, Marion, NC (Attn: Chris Goudreau)

Literature Cited

- Anderson, G.B. 2016. Assessment of apparent survival and abundance of Roanoke Logperch in response to short-term changes in river flow. Final Report to the Virginia Department of Game and Inland Fisheries, Blacksburg, VA.
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- Roberts, J.H., P.L. Angermeier, and E.M. Hallerman. 2016. Extensive dispersal of Roanoke logperch (*Percina rex*) inferred from genetic marker data. *Ecology of Freshwater Fish*: 25:1-16.
- Virginia Department of Conservation and Recreation. 2018. Virginia Outdoor Plan. Richmond, VA. 211 pp.



June 8, 2021

Ms. Cindy Shultz
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Re: Response to U.S. Fish and Wildlife Service Comments on the Final Study Plan for the Schoolfield Hydroelectric Project (FERC No. 2411)

Dear Ms. Shultz:

STS Hydropower, LLC, a subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville Virginia are co-Licensees of Schoolfield Hydroelectric Project (Project) located on the Dan River in Danville, VA. At present, the co-Licensees are in the study implementation phase of the Federal Energy Regulatory Commission (FERC) relicensing of the Project. On October 8, 2020 you filed comments by letter dated October 7, 2020 with FERC regarding the Schoolfield Hydroelectric Project Final Study Plan that was submitted to you on July 21, 2020. The co-Licensees would like to thank you for your comments and offer the enclosed responses for your consideration and the Project record.

We note the data collection phase of the baseline water quality monitoring study and operations and inflow assessment have been completed. In addition, the desktop entrainment and turbine mortality study, Roanoke logperch assessment, and freshwater mussel survey are currently being planned to occur in the 2021 study season.

If there are any questions concerning this letter or the meeting summary, please contact me at (804) 739-0654 or Jody.Smet@eaglecreekre.com.

Respectfully,

Jody J. Smet, AICP
Vice President, Regulatory Affairs

Enc: Responses to FWS Comments on the Schoolfield Hydroelectric Project Final Study Plan

cc: Paul Tran (ECRE)
Matthew Burak (WSP)
Jot Splenda (WSP)

Response to FWS Comments on the Schoolfield Hydroelectric Project Final Study Plan

- 1) The Service stated we did not agree that the area immediately below the dam between the Project dam and the Union Street Dam did not need fish surveys. This area lacks fish surveys necessary for an assessment of the Project's impacts downstream. The Licensees state that they decline to perform a dedicated fish survey downstream of the Project dam because sufficient information exists to make a reasonable inference as to what fish species comprise the fish community downstream of the Project. The Licensees also state that the fish community downstream of the Project dam would be similar to that of the Project's reservoir and the downstream reservoir. No site-specific data are presented to support the assumption that the fish community in the riverine section between the reservoirs would be the same as the fish community in the reservoirs. Because many riverine larval fish drift downriver, including darter and logperch species (Buckwalter et al. 2019), these species can colonize the riverine habitat between the reservoirs, but would not be present in the reservoirs due to unsuitable habitat. Therefore, the fish community in the riverine section between the dams is likely to differ from those found in the reservoirs. The Service continues to recommend that site-specific comprehensive fish surveys be conducted in the riverine section just downstream of the Project to enable assessment of site-specific Project impacts to the fish community. Incidental observations of other fish species during the Roanoke Logperch (RLP) snorkeling surveys are not sufficient to comprehensively assess the fish community.

Response: The co-Licensees continue to affirm that there is no need to perform a dedicated fish survey downstream of the Project for the reasons provide in the Draft Study Plan (DSP) and Final Study Plan (FSP). We also note that site-specific information collected from a dedicated survey is not needed to infer what species may comprise the existing fish community downstream of the Project to reasonably describe the affected environment to inform an effects analysis. This is because a statistical analysis of the existing fisheries data from the Dan River collected by Duke (2019) and Rhode (2001) shows a clear longitudinal succession in fish assemblage similarity along the Dan River. This statistical analysis is shown in Figure 2-3 of Duke (2019) provided at the end of this letter. Figure 2-3 is a non-metric multi-dimensional scaling ordination plot of Bray-Curtis dissimilarities between locations where the fish assemblages at a specific location along the Dan River were sampled, such that data points that are closer together ("G" is the Schoolfield reservoir) are more similar than those that are further apart. In other words, locations where the fish community of the Dan River was sampled (i.e., data points in the ordination plot) that are spatially closer together have fish assemblages that are similar. Furthermore, the stress value of 0.09 strongly indicates the data presented in Figure 2-3 is

a very good representation of the spatial distribution of fish assemblages along the Dan River. Therefore, the fish assemblage downstream of Schoolfield Dam is likely similar to the fish community of the Dan River within the Schoolfield reservoir is a reasonable inference and is supported by the robust statistical analysis above.

As discussed below, the co-Licensees have retained Dr. Tyler Black of RK&K to complete the Roanoke logperch assessment. After additional discussion with Dr. Black, electrofishing and seining would be the method by which RLP are sampled for within the study areas. As a part of that effort, all non-target fish species collected during the survey will be documented as present; however, they will not be enumerated. These data would also determine what species are present downstream of the Project dam.

- 2) The Service stated there may be opportunities to enhance recreation use in the area other than portage around the dam, including evaluating the need for boat access in the upper part of the reservoir as recommended by the Virginia Department of Wildlife Resources (VDWR) (formerly Virginia Department of Game and Inland Fisheries). The Licensees' response states the upper extent of the reservoir is 5.7 river miles upstream of the existing boat ramp and is accessible by boat from the existing ramp; therefore, there is no need for boat access in the upper part of the reservoir. While the upper part of the reservoir may be accessible by motorboats, the distance (5.7 miles) does not make it accessible for non-motorized boats such as canoes and kayaks. At a minimum, non-motorized recreation could be enhanced with a boat access in the upper part of the reservoir. An additional boat access in the upper reservoir would allow paddling between the two access points in the reservoir and function as a take-out for boat access points further upstream in the river. The Virginia Department of Conservation and Recreation (VDCR) completed a Virginia Outdoor Plan (VOP) in 2018 that assessed outdoor recreation trends and identified long-term recreation and land conservation needs. Water and land trails were identified as the third most popular activity, according to 43% of respondents to the 2018 Virginia Outdoors Demand Survey (VDCR 2018). The VOP identified the development of access points throughout the Dan River Basin as a featured project for Region 12, West Piedmont, which includes the City of Danville and Pittsylvania County (VDCR 2018). The need and public interest for this additional boat access should be evaluated as stated in the original comment.

Response: The co-Licensees continue to affirm that there is no need to assess interest in or the feasibility of providing additional boat access within the upper reservoir for the reasons discussed in the DSP and FSP. While we noted that the upper reservoir is accessible by boat in the FSP, it is also accessible by canoe or kayak. We also note that the distance a paddler must travel upstream from an access point does not render a portion of a river inaccessible.

- 3) The Service recommended individual water quality measurements (temperature, dissolved oxygen [DO], pH, conductivity) be collected during fisheries (including RLP) and freshwater mussel surveys. The Licensees' response states separate measurements of water quality have not been incorporated into the RLP study because the water quality study will collect sufficient data on water quality using accepted scientific methods and practices. According to Section 3.5, Freshwater Mussel Survey, water quality measurements are not proposed for the mussel surveys. The water quality monitoring locations are not in the same areas as the RLP surveys or the mussel surveys. It is an accepted scientific practice to collect water quality data in areas where fish and mussel surveys are performed to assist in interpreting fish and mussel survey results and provide a possible explanation for the lack of fish and mussel species at a particular survey location. The Service continues to recommend that water quality data be collected where fish and mussel surveys are performed. The Service recommends collection of temperature, DO, pH, and specific conductance data from a representative location at each fish and mussel sampling location.

Response: Because the baseline water quality study occurred during the 2020 field season and the mussel and RLP studies are now scheduled to occur during the 2021 field season, discrete grab measures of water temperature, dissolved oxygen, and pH will be collected as a part of the mussel and RLP studies. These measurements of water quality would be taken at a representative location in the area of targeted sampling location based upon prevailing environmental conditions at the time of the survey.

- 4) The Service recommended mussel surveys be conducted upstream of the reservoir to assess impacts from the Project. Mussels located upstream can be impacted by the Project as juvenile mussels from upstream areas can be washed downstream into the reservoir or glochidia can be released from host fish into the reservoir. Because the reservoir provides lower quality habitat for many mussel species, recruitment of mussels into the population could be affected by the Project. Mussel host fish infested with mussel glochidia from areas upstream of the reservoir can be injured or killed from entrainment in the Project turbines. The Licensees' response states no mussel surveys will be conducted upstream of the reservoir for the reasons stated in Section 2.1.3 of the DSP. The reason cited in this section is that the Dan River upstream of the Project reservoir is not influenced by Project operations. The Licensees' response and the section referenced in the DSP do not specifically address the direct impacts to juvenile mussels, which can be washed into the reservoir, or to glochidia, which can be released from host fish into the reservoir. The Service continues to recommend that mussel surveys be conducted in appropriate habitat upstream of the reservoir to assess the potential for Project impacts on early life stage mussels that may be flushed or released into the reservoir or from mussel host fish infested with glochidia from upstream areas that are injured or killed from entrainment in the Project turbines.

Response: The co-Licensees reaffirm that there is no nexus to freshwater mussels upstream of the upper extent of the reservoir that is beyond the influence of Project operations. The reasons discussed in the DSP for not adopting the FWS's request is not the only reason the co-Licensees elected not to perform the requested survey. As stated in the FSP, "[...] the approach the FWS recommends is a comparison to a reference site to assess Project effects. That approach seeks to recreate pre-Project conditions in order to assess Project effects. The Commission's baseline for evaluating Project effects is the environment as it exists at the time of licensing. This does not include pre-Project conditions, which the courts have affirmed (See *American Rivers v. FERC*, 187 F.3d 1007, amended and rehearing denied, 201 F.3d 1186 (9th Cir, 1999); *Conservation Law Foundation v. FERC*, 216 F.3d 41 (D. C. Cir. 2000))." Furthermore, effects on possible host fish due to entrainment into the Project turbines would be analyzed as a part of the proposed entrainment study.

- 4) The Service recommended suitable habitat upstream of the reservoir be surveyed for RLP. If RLP occur upstream of the Project reservoir, the Project may be directly impacting RLP larvae that drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment. The Licensees' response states the Licensees added additional surveys in the upstream most riffle section of the upper part of the reservoir to discern if RLP are present in Project-affected waters upstream of the Project. There will not be suitable habitat within the upper part of the reservoir for adult RLP. The Service recommends RLP surveys be conducted in suitable habitat upstream of the reservoir in a free-flowing section of the river. In the absence of data for the reach of the Dan River upstream of the reservoir, based on the October 2017 documentation of the species approximately 10 miles upstream of the head of the reservoir near the Town of Berry Hill, VA (C. Goudreau, North Carolina Wildlife Resources Commission [NCWRC], email to J. Smet, Eagle Creek Renewable Energy, May 19, 2020), the Service will assume RLP are present immediately upstream of the Project reservoir, and a larval drift study will be requested. The Service may also assume presence of RLP upstream of the reservoir if only limited surveys are conducted and prior approval for the survey extent and effort is not received from the Service.

Response: The co-Licensees continue to affirm that there is no nexus to RLP in the Dan River upriver of the upper extent of the Project reservoir for the reasons discussed in the DSP and FSP. The co-Licensees also emphasize the FWS has not demonstrated a nexus between Project operations and aquatic habitat upriver of the Project reservoir. The co-Licensees are also unaware of any information to support the statement that, "There will not be suitable habitat within the upper part of the reservoir for adult RLP." In fact, Dr. Tyler Black, an approved FWS RLP surveyor retained by the co-Licensees to perform the RLP Assessment, performed a site visit at the proposed upper reservoir sampling location and concluded the upper reservoir appears to contain suitable RLP habitat. The approach

to assess RLP habitat, as described in the FSP, will evaluate the suitability of RLP habitat in the portion of the Dan River affected by Project operations. If the habitat surveyed is determined to be not-unsuitable, then an effects analysis would be performed to determine possible effects Project operations may have on RLP.

The co-Licensees emphasize that 10 miles upstream of the upper extent of the reservoir is not immediately upstream of the Project. Therefore, the FWS's justification for assuming RLP is immediately upriver of the upper extent of the Project reservoir is not supported by any study or other factual or scientific evidence. In fact, FWS justification for their assumption is entirely based on a single personal communication with a state biologist of one RLP, which was an incidental observation during a freshwater mussel survey far upstream of the Project.

As noted above, the co-Licensees retained Dr. Tyler Black, an approved FWS RLP surveyor, to perform the RLP assessment. Since the distribution of the FSP, the co-Licensee's chose to refine the RLP sampling method. The co-Licensees currently plan to sample for RLP at the two locations described in the FSP by using two backpack electrofishing units, dip nets, and seines. Sampling efforts will target riffle and run meso-habitats to maximize the likelihood of detecting Roanoke Logperch. Two backpack electrofishing units will be used to corral fish downstream into a stationary seine. An effort will be defined as a 6 m section of stream length multiplied by the width of a 6 m seine (approximately 36 m² area). The target number of efforts within each survey reach will be set at 30; however, extra efforts may be conducted if additional wadeable habitat is present within the survey reach. The survey effort will begin at the downstream margin of the survey reach and progress in an upstream direction.

- 5) Table 2.0-1, Licensee's response to comments received on the DSP, Comment #31, page 15: The Service stated that no one from Alderman Environmental Services is currently listed on the list of approved surveyors for RLP in Virginia. The Service provided a link to the approved surveyor list and instructions on how surveyors can be added to the list. The Licensees state that their contractors have received the necessary approvals. The Service's Virginia Field Office has not received any requests to review the qualifications of representatives from Alderman Environmental Services. The Service may not accept the results of the survey if the surveys are not based on the best available science. The surveyor should submit their qualifications to the Service so we can determine if they are qualified to perform RLP surveys. Instructions on how and what surveyors should submit can be found at: <https://www.fws.gov/northeast/virginiafield/pdf/endangeredspecies/HowToGetOnSurveyorList.pdf>.

Response: As noted above, the co-Licensee's retained Dr. Tyler Black, an approved-FWS RLP surveyor, to perform the RLP Assessment.

- 6) Table 2.0-1, Licensee's response to comments received on the DSP, Comment #40, page 18: The NCWRC noted that RLP can be difficult to collect without using appropriate gear specifically targeted to RLP preferred habitat. The Licensees' response states the Licensees contracted biologists are familiar with the RLP preferred habitats and methods to collect them and continue to propose snorkeling as the primary survey method. Snorkeling may not be an effective method for RLP surveys at low water clarity, low visibility, high flow, and/or at increasing water depths. It is unclear that the contracted biologists are qualified to complete the RLP surveys. Information on surveyor qualifications should be provided to the Service, along with any consultation with RLP experts stating how it was determined that the proposed survey methodology and effort is sufficient to detect RLP, particularly when population densities are low.

Response: Please see the co-Licensees' responses provided to Comments 4 and 5 above.

- 7) The Licensees' Response for Comment #40 [see Table 2.0-1 in section 2.0, *Response to Comments on the Draft Study Plan* of the FSP] also stated the Licensees are not proposing to survey for RLP upstream of the Project reservoir. As stated previously, the Service does not agree with this approach. The Service recommends RLP surveys in suitable habitat upstream of the reservoir in the free-flowing section of the river to assess the potential for impacts to larval RLP that may drift into the reservoir and die because habitat is not suitable, or that may pass through the Project powerhouse and be injured or die from entrainment. If the Licensees choose to forgo these recommended surveys, the Service will assume RLP are present immediately upstream of the Project reservoir, and a larval drift study will be requested.

Response: Please see the co-Licensees' response provided to Comment 4 above.

- 8) [Section 3.4.4 of the FSP] states the proposed study area for the RLP surveys includes the Dan River in the upper most riffle section of the upper part of the Project reservoir. Figure 3.4.4-1 shows the "Proposed Roanoke logperch sampling reach within the upper Project reservoir." This is different from the statement in the Upstream and Downstream RLP Habitat Assessment section (Section 3.4.4), which states the purpose of this assessment is to determine if suitable RLP habitat is present within the first riffle section upstream of the Project reservoir. This issue should be clarified. Adult RLP are unlikely to use the upper part of the reservoir. The Service recommends that surveys be conducted in suitable habitat in riffle/run areas upstream of the Project reservoir as adult RLP are more likely to be detected in this section of the river.

Response: The co-Licensees propose to survey for RLP in a section of the upper part of the Project reservoir, and not upriver of the upper extent of the Project reservoir. The survey area of the upper reservoir would target riffle and run meso-habitats to maximize

the likelihood of detecting RLP. A revised Figure 3.4.4-1 is provided at the end of this letter.

- 9) This section states the purpose of this assessment is to determine if suitable RLP habitat is present within the first riffle section upstream of the Project reservoir. This assessment of suitable habitat should not be limited to only the first riffle section upstream of the reservoir. Larvae of almost all members of the *Percina* genus, which includes RLP, drift for long distances downstream from their spawning habitats (Buckwalter et al. 2019). Dispersal distances for RLP have been estimated to be as much as 55 kilometers (Roberts et al 2016), although that estimate also includes post-larval dispersal. Based on aerial photography, there appear to be several large riffle/run areas between the U.S. Route 58 bridge and the upper extent of the Project reservoir where suitable habitat for adult RLP may be present. Therefore, the Service recommends a habitat assessment be performed within this stretch and suitable habitat be identified. RLP surveys should be conducted where suitable habitat is present upstream of the reservoir as this is within the distance that drifting larval RLP could be impacted from the Project.

Response: In regard to the location of the RLP sampling area in the Project reservoir, please see the response to comment 8 above. This area was targeted because, based on examination of aerial imagery, the area appears consistent with what would be considered to be suitable RLP habitat. This desktop determination has since been supported by a site visit by Dr. Tyler Black, an approved FWS RLP surveyor, who confirmed the targeted area is riverine and riffle-run mesohabitat. In addition, to the justification provided in the DSP and FSP, the observations made by the FWS approved RLP surveyor supports there no need to survey for RLP upriver from the upper extent of the Project reservoir because suitable RLP habitat appears to occur within the Project boundary.

- 10) Figure 3.4.4-2 [of the FSP] shows the proposed RLP sampling location in the upper reservoir. Due to the scale of the figure, no reference points are available to determine the exact location of the sampling location. Provide either the distance from the Route 58 bridge or the global positioning system coordinates to enable identification of the exact location of the sampling location.

Response: A revised Figure 3.4.4-1 is provided at the end of this letter. The proposed survey location is approximately 0.3 river miles downstream of the U.S. Route 58 bridge.

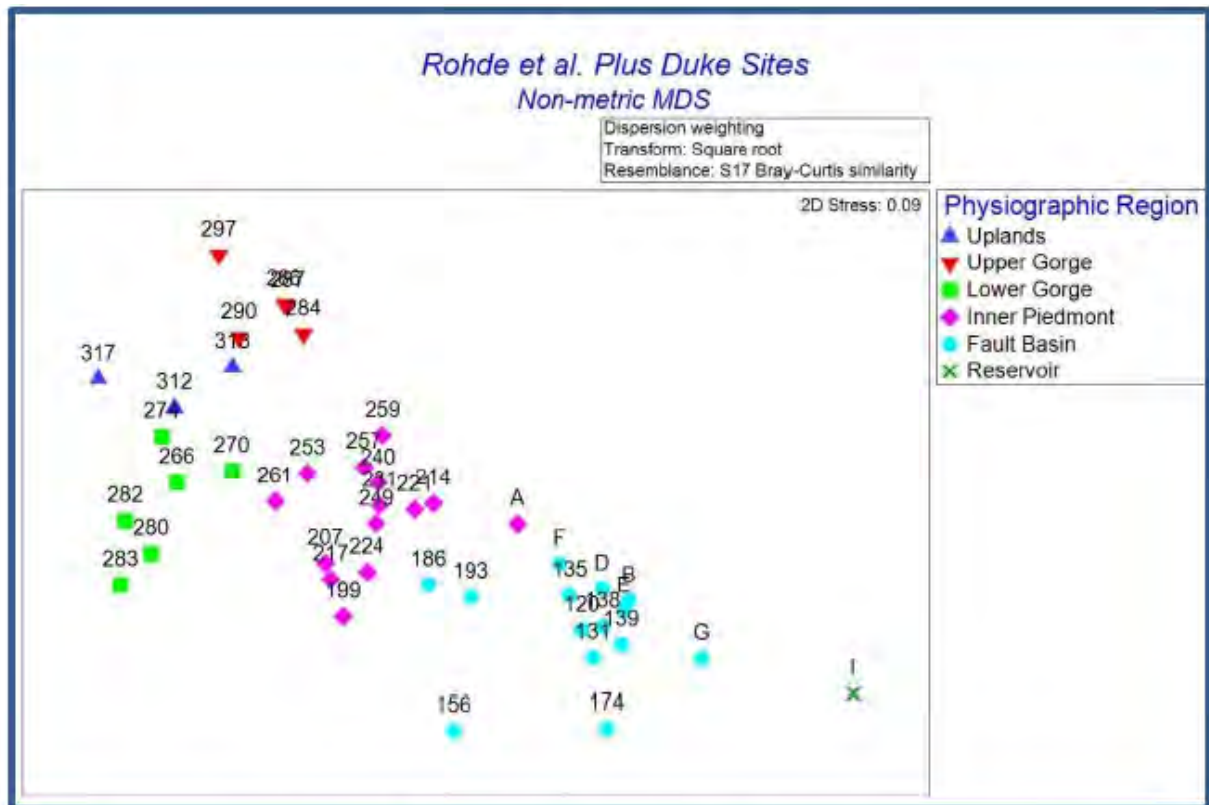
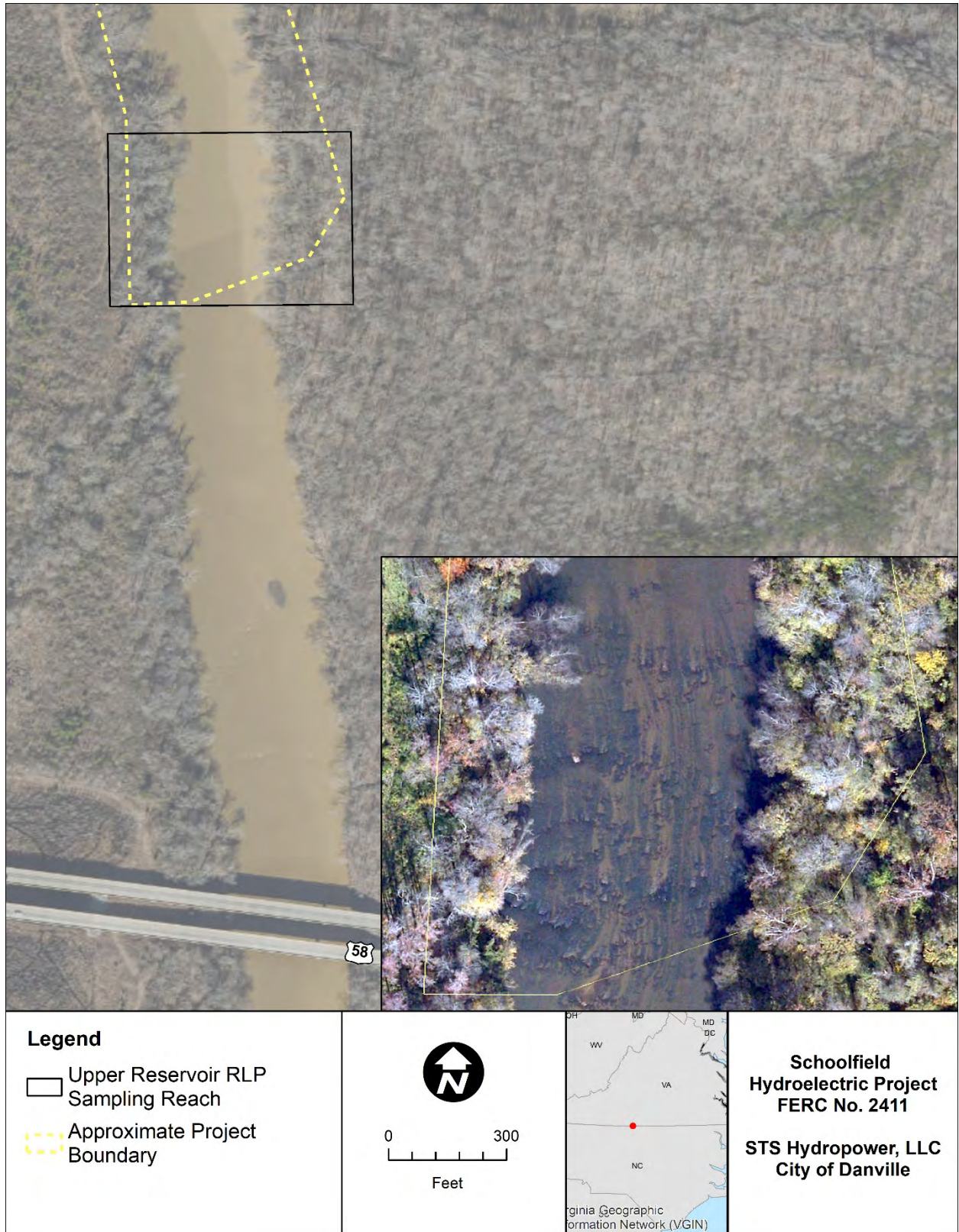


Figure 2-3. Non-metric multi-dimensional scaling plot of Rohde et al. (2001) fish assemblage data (numeric locations) and Duke Energy 2015-2017 (alphabetic locations) fish assemblage data showing longitudinal successional changes from upstream to downstream. The Duke Energy fish assemblages fell closely within the expected spatial position representative of the longitudinal succession across physiographic provinces.



Revised Figure 3.4.4-1. Proposed Roanoke logperch sampling reach within the upper Project reservoir.



Eagle Creek Schoolfield, LLC
c/o Eagle Creek Renewable Energy, LLC
7315 Wisconsin Avenue, Suite 1100W
Bethesda, Maryland 20814
240.482.2700

March 11, 2022

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street N.E.
Washington, DC 20426

via Electronic Filing

**Re: Joint Meeting and Site Visit Summary and Proof of Public Notice
Schoolfield Hydroelectric Project (FERC No. 2411)**

Dear Secretary Bose:

Eagle Creek Schoolfield, LLC, a subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville, Virginia, are co-licensees of the Schoolfield Hydroelectric Project (FERC No. 2411) (Project). The Project is currently undergoing relicensing following the Federal Energy Regulatory Commission's (Commission) Traditional Licensing Process. During the on-going development of the Draft License Application for the Project, it came to the attention of the co-licensees that the following materials related to the Joint Meeting and Site Visit had not been previously filed with the Commission.

Pursuant to 18 CFR 16.8(b)(3)(i)(B) the co-licensees provided notice to the Commission and stakeholders of the Joint Meeting and Site Visit for the Project via e-mail and by letter filed with the Commission on September 3, 2019. In addition, the co-licensees provided public notice of the Joint Meeting and Site Visit in the *Danville Register and Bee*, a daily published newspaper that serves Pittsylvania County and the City of Danville, Virginia pursuant to 16 CFR 16.8(i)(1). Enclosed with this filing is proof of publication of the newspaper notice. The co-licensees held the Joint Meeting and Site Visit on September 18, 2019 in accordance with 18 CFR 16.8(b)(3)(i)(A) and 18 CFR 16.8(b)(3)(ii). Enclosed with this filing, pursuant to 18 CFR 16.8(b)(4), is a summary of the Joint Meeting and Site Visit, which includes an audio recording of the Joint Meeting. The audio recording will be filed separately to comply with the Commission's e-filing file size requirements.

If there are any questions concerning this filing, please contact me at (804) 338-5110 or joyce.foster@eaglecreekre.com.

Sincerely,

Joyce Foster
Director, Licensing and Compliance

Enc: Joint Meeting Summary
Site Visit Summary
Proof of Newspaper Publication of the Joint Meeting and Site Visit Public Notice

Schoolfield Hydroelectric Project
FERC No. 2411

Joint Meeting Summary

Joint Meeting Participants:

Name/Affiliation	E-mail Address	Phone
Matt Nini/ Eagle Creek	matthew.nini@eaglecreekre.com	973-998-8171
Jody Smet/ Cube Hydro	jsmet@cubehydro.com	804-739-0654
Chris Goudreau/ NCWRC	chris.goudreau@ncwildlife.org	828-803-6045
John McCloskey/ USFWS	John_mccloskey@fws.gov	804-824-2404
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Tony Cario/ VDEQ	anthony.cario@deq.virginia.gov	804-698-4080
Russ LaPratt/ Eagle Creek	russ.lapratt@eaglecreekre.com	920-293-1149
Jason Grey/ City of Danville	greyjc@danvilleva.gov	434-799-5270
Matthew Burak/ Louis Berger-WSP	matthew.burak@wsp.com	518-727-5453

Joint Meeting Summary

The Joint Meeting was held on September 18, 2019 at the Danville Public Library Auditorium, located at 511 Patton St. Danville, VA. The meeting began at approximately 10:00 AM. Matt Nini of Eagle Creek Renewable Energy opened the meeting by introducing himself, stated the meeting is being recorded, then called for a round of introduction of those present at the meeting. Mr. Nini then gave a brief overview of Eagle Creek Renewable Energy as a renewable energy company and their current facilities throughout the United States and Virginia. He then provided a brief background of the Schoolfield Hydroelectric Project, including location, generating capacity, and history. Mr. Nini then stated that STS Hydropower, a subsidiary of Eagle Creek Renewable Energy, and the City of Danville are co-licensees of the Project. Mr. Nini then stated there are two copies of the Pre-Application Document available for review and pointed out where exits are located in the room. Mr. Nini then handed over the presentation to Mr. Burak, Eagle Creeks licensing consultant.

Mr. Burak presented the meeting agenda, and commenced with providing specifics of the Project location, covering the Project location in the basin and relation to other dams and hydroelectric facilities as well as its climatic setting. Then, Mr. Burak listed the Project facilities and the Project's maximum and minimum generation and hydraulic capacities.

The presentation transitioned to explanations of the Traditional Licensing Process, and the Process Plan and Schedule for the licensing. Mr. Burak then explained the next step in the process is for stakeholders to provide comments and study requests no later than 60 days following the Joint Meeting, which is November 18, 2019.

Mr. Burak then presented specific information and pictures of the Project facilities. Mr. Burak then discussed and presented the current Project Boundary, its significance, and how it's defined. Mr. Burak then proceeded to discuss the current license articles and explained how operations are dictated and how the current minimum flow is gaged and managed.

Mr. Burak moved into a discussion of the existing environment, summarizing the natural resources by topic, in order of appearance in the PAD. This portion of the presentation covered geology and soils, water quantity and quality, aquatic habitat and fisheries, wildlife, botanical resources, wetlands and riparian habitat, rare, threatened and endangered species, recreation, land use, aesthetics and cultural and tribal resources. In the discussion of water quantity, Mr. Burak explained the relation of the City of Danville's water supply intake upstream of the Project dam, its operation and maintenance, and license article the governing the intake inspection and reservoir filling. For geology and soils, water quality, and fisheries studies that assessed the effects of the coal ash spill at Duke Energy's Dan River Coal Plant were also summarized. During the presentation of the fisheries resources, there was some discussion of whether stripped bass from the Kerr Reservoir can make it up to the Schoolfield Dam, and it was determined that the two downstream dams preclude stripped based from ascending the Dan River upstream the Schoolfield Dam.

The presentation concluded with a summary for how the project will be operated during the next license term, noting that the co-licensees are not proposing any changes to current operations and are not proposing any resource studies. Mr. Burak pointed out that the co-licensees are proposing to remove the 13-mile long transmission line from the existing license because that transmission is no longer a project facility, as the grid interconnect point is now at a substation adjacent to the powerhouse. Mr. Burak mentioned the Public Utility Regulatory Policies Act (PURPA) and that the co-licensees will seek

benefits under PURPA. Mr. Burak reminded the meeting participants that they have 60 days (November 18, 2019) to file comments on the PAD and/or study requests. Mr. Burak asked that any studies requests follow FERC's ILP Study Request Criteria. This concluded the presentation portion of the meeting, and the meeting was opened up for comments and questions. Mr. Burak's and Mr. Nini's contact information was presented if participants had further questions after the meeting.

During the comment period it was clarified that the co-licensees are not proposing and studies. USFWS then stated fish and mussel surveys may be needed, and that targeted Roanoke logperch surveys may be needed. Mr. Burak then mention the nearest survey for Roanoke logperch were performed in mainstem of the Dan River in the upper basin. USFWS then commented that the mussel survey on the river performed by Alderman Environmental Services in response to the coal ash spill upstream spaced the survey sites out to cover the whole river and didn't target any specific area. USFWS also asked if there was a desktop entrainment study and asked the size of the existing trashrack. The operator of the Project stated that the racks have six inch spacing (later at the site visit it was clarified the spacing was 2.5 inches). Mr. Burak then provided directions to the Project Site Visit.

The meeting concluded at approximately 10:55 AM.

Schoolfield Hydroelectric Project
FERC No. 2411

Site Visit Summary

Site Visit Participants:

Name/Affiliation	E-mail Address	Phone
Matthew Burak/ Louis Berger-WSP	matthew.burak@wsp.com	518-727-5453
John McCloskey/ USFWS	John_mccloskey@fws.gov	804-824-2404
Scott Smith/ VDGIF	Scott.smith@dgif.virginia.gov	434-524-7522
Tony Cario/ VDEQ	anthony.cario@deq.virginia.gov	804-698-4080
Chris Goudreau/ NCWRC	chris.goudreau@ncwildlife.org	828-803-6045
Dan Michaelson/ VDGIF	dan.michaelson@dgif.virginia.gov	434-392-4369
Jody Smet/ Cube Hydro	jsmet@cubehydro.com	804-739-0654
Matt Nini/ Eagle Creek	matthew.nini@eaglecreekre.com	973-998-8171
Russ LaPratt/ Eagle Creek	russ.lapratt@eaglecreekre.com	920-293-1149

Site Visit Summary

The stakeholders participating in the Site Visit gathered near the Powerhouse at approximately 11:15 AM for a safety briefing lead by Eagle Creek's Regional Manager (Regional Manager) (Photo 1). The Group then moved through the Powerhouse to the tailrace area where the Regional Manager answered questions regarding current turbine discharge (720 cfs), typical animals that are present (otter, herons, eagles, mallard ducks, and Canadian geese), flashboard tripping (at approximately 40,000 cfs) and resetting (Photo 2). Questions also were answered regarding the transmission line towers of the old 15-mile long line towers coming down; they are not they are still used by the utility but not the Project. The operator also mentioned they have not seen any bats, only pigeons.

The group then moved back into the Powerhouse to view the Project turbines and generators (Photo 3). The group then moved to the headwall section of the dam, where a good view of the dam reservoir, headwall section, and intake forebay were viewed (Photos 4 and 5). There, it was clarified that the trashrack clear spacing is 2.5 inches. Discussion regarding the non-function fishway could be used for the upstream passage of American eel, and the only downstream passage is through the Project turbines.

The Site Visit concluded at approximately 12:20 PM.



Photo 1: **Group gathering outside the Project powerhouse for safety briefing.**



Photo 2. Group gathered at the tailrace.



Photo 3: **Group viewing one of the turbine and generator units.**



Photo 4: **Group discussing the non-functional fish ladder.**



Photo 5: **Group discussing the intake area and trashracks.**

Schoolfield Hydroelectric Project
(FERC No. 2411)

Joint Meeting and Site Visit Sign-In Sheets



Joint Meeting Sign-In Sheet

STS Hydropower, LLC and the City of Danville
Schoolfield Hydroelectric Project
- (FERC No. 2411)

September 18, 2019

Danville Public Library Meeting Room
511 Patton Street, Danville, VA 24541

Name/Affiliation	E-mail Address	Phone
Matt Nini / Eagle Creek	matthew.nini@eaglecreekre.com	973-998-8171
Jody Smet / Cube Hydro	jsmet@cubehydro.com	804-739-0654
CHRIS GOUDREAU / NCWLC	chris.goudreau@ncwildlife.org	828-863-6045
John McCloskey USFWS	john-mccloskey@fws.gov	804-824-2404
Dan Michaelson / VDGIF	dan.michaelson@dgif.virginia.gov	434-392-4369
Scott Smith / VDGIF	scott.smith@dgif.virginia.gov	434/525-7522
Tony Cario / DEQ	anthony.cario@deq.virginia.gov	604-688-4089
Russ LaPratt / ECRE	ruslapratt@eaglecreekre.com	920-293-1149
Jason Grey / City of Danville	jgreyj@danvilleva.gov	434-799-5270
Matthew Burke	mburke@louisburr.com	518-727-5453



Site Visit Sign-In Sheet

STS Hydropower, LLC and the City of Danville
Schoolfield Hydroelectric Project
(FERC No. 2411)

December 19, 2018

Name/Affiliation	E-mail Address	Phone
Matthew Burke	mikeburke@danville.com	518-727-8257
John McCloskey USFWS	john-mccloskey@fws.gov	804-824-2404
Scott Smith VDGIF	scott.smith@dgif.virginia.gov	434/525-7522
Tony Cario VA DEQ	anthony.cario@dep.virginia.gov	804-698-4089
CHRIS GOUDREAU NCWRC	chris.goudreau@ncwildlife.org	828-803-6045
Dan Michaelson VDGIF	dan.michaelson@dgif.virginia.gov	434-392-4369
Jody Smet, Cube Hydro	jsmet@cubehydro.com	804-739-6624
Matt Nini/Eagle Creek RE	matthew.nini@eaglecreekre.com	973-998-5171
Russ LaPratt/ECRE	russ.lapratt@eaglecreekre.com	920-293-1149

Schoolfield Hydroelectric Project
(FERC No. 2411)

Joint Meeting and Site Visit Public Notice

The Danville Register & Bee

VaJobMatch.com

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Legals

LEGAL NOTICES

ORDER OF PUBLICATION Va. Code Ann. §§ 8.01-316, -317
Commonwealth of Virginia Case No. CL19000429-00

Eduardo Ramirez Jimenez v. Maria Ana Lozano Zarate Jimenez

The object of this suit is to:
Obtain a Divorce a vinculo matrimony

It is ORDERED that Maria Ana Lozano Zarate Jimenez appear at the above-
named court and protect his/her interests on or before 10/09/2019.

8-16-19 James J. Reynolds, Judge

LEGAL NOTICES

ORDER OF PUBLICATION Case No. JJ027089-01-00
Commonwealth of Virginia VA. CODE § 8.01-216

CITY OF DANVILLE Juvenile and Domestic Relations District Court

Commonwealth of Virginia, in re DAVIS, CHRISTIANA MONET

GEARY HORACE DAVIS /v. CHRISTOPHER NEVIN-GEARY DAVIS

The object of this suit is to:
TO DETERMINE CUSTODY OF CHRISTIANA MONET DAVIS DOB 1-15-2003

It is ORDERED that CHRISTOPHER NEVIN-GEARY DAVIS appear at the above-
named Court and protect his or her interests on or before 12/19/2019 at 10:00
AM.

08/21/2019 T. W. Allen
DATE JUDGE

TRUSTEE SALES

TRUSTEE SALES

TRUSTEE'S SALE OF 101 Bailey Street Gretna, VA 24557

In execution of a Deed of Trust in the original principal amount of \$74,160.00,
dated September 26, 2003, recorded among the land records of the Circuit
Court for Pittsylvania County on September 30, 2003, as Instrument Number
03-10269, in Deed Book 1399, at Page 724, the undersigned appointed Substitute
Trustee will offer for sale at public auction, at the **main entrance of the
courthouse for the Circuit Court of Pittsylvania County, 1 N Main St, Chatham,
VA on September 30, 2019 at 2:30 PM**, the property described in said deed of
trust, located at the above address and briefly described as: LOTS NO. 52 & 53
& PART OF LOTS NO. 9 - 16, INCLUSIVE, fronting a total of 75 feet on the west-
ern margin of Bailey Street (State Road No. 1306), as shown on Plat of Survey
for Paul S. Shelton and Rebecca a. Shelton being Lots 52, 53 and Part of Lots 9
- 16 Bailey Street, dated 2-26-92, made by Shanks Associates, P. C., Engineers
- Surveyors - Planners, recorded in the Clerk's Office of the Circuit Court of
Pittsylvania County, Virginia (the Clerk's Office), in Deed Book 0916, at page
445, to which reference is hereby made for a more specific description. Tax
ID: 2520-97-1951.

TERMS OF SALE: A bidder's deposit of \$7,400.00 or 10% of the sale price,
whichever is lower, will be required in the form of a certified or cashier's
check. Cash will not be accepted as a deposit. Settlement within fifteen (15)
days of sale, otherwise Trustee may forfeit deposit. Additional terms to be an-
nounced at sale. This is a communication from a debt collector. This notice is
an attempt to collect on a debt and any information obtained will be used for
that purpose.

(Trustee # 589490)
Substitute Trustee: ALG Trustee, LLC, C/O Orlans PC PO Box 2548, Leesburg,
VA 20177, (703) 777-7101, website: <http://www.oralns.com>
The Vendor Auction.com will be used in conjunction with this sale
Potential Bidders: For sale information, please visit www.Auction.com or call
(800) 280-2832.
Towne #: 5000.2530

LEGAL NOTICES

LEGAL NOTICES

PUBLIC NOTICE OF JOINT MEETING FOR THE RELICENSING OF THE SCHOOLFIELD HYDROELECTRIC PROJECT, FERC PROJECT NO. 2411-028

STS Hydropower, LLC and the City of Danville (Co-licensees) hereby notifies
resource agencies, Indian tribes, and stakeholders, including interested mem-
bers of the public, that it has scheduled a Joint Meeting (Meeting) and Site
Visit regarding the Federal Energy Regulatory Commission (FERC) relicensing
of the Schoolfield Hydroelectric Project, FERC Project No. 2411-028 (Project).
The Project is located on the Dan River, in the City of Danville in Pittsylvania
County, VA. The Meeting will be held on Wednesday, September 18, 2019 at
10:30 a.m. at the Danville Public Library Meeting Room, located at 511 Patton
Street, Danville, VA 24541. The Site Visit for the Project located at 1932 Memo-
rial Drive, Danville, VA 24541 will be conducted on the same day following the
Meeting. The Co-licensees kindly request that interested parties, including
members of the public planning to attend the Meeting and/or Site Visit RSVP
to Jane Manibusan at jane.manibusan@eaglecreekre.com or (920) 293-4628
ext. 318 by September 11, 2019.

On May 31, 2019, the Co-licensees commenced the relicensing process for the
Project with the filing of its Notice of Intent and Pre-Application Document
(PAD). The Co-licensees intend to file an Application for New License for the
Project utilizing FERC's Traditional Licensing Process (TLP). FERC, by letter or-
der dated July 24, 2019, granted the Co-licensees request to use the TLP. In ac-
cordance with the first stage consultation requirements of the TLP, the Co-li-
censees have scheduled a Meeting and Site Visit regarding relicensing of the
Project that is open to all interested resource agencies, Indian tribes, mem-
bers of the public, and other interested parties. The purpose of, and agenda
for, the Meeting is to provide an overview of the Project and the information
provided in the PAD, discuss the licensing process and timeline, and receive
input and feedback regarding potential studies and additional information
that may be needed. All interested persons are invited to attend the Meeting
to assist in identifying and clarifying the scope of issues to be addressed dur-
ing this phase of the licensing process for the Project. All interested parties
are also invited to attend the Site Visit, the purpose of which is to provide a
tour of the Project. If attending the Site Visit, please wear flat, hard-soled,
closed-toe shoes, such as work boots or hiking shoes, and long pants. Please
note that persons under the age of 16 years of age will not be permitted in non-
public areas of the Project.

A copy of the PAD is available for public inspection and reproduction electroni-
cally on Eagle Creek Renewable Energy's website at <http://www.eaglecreekre.com/schoolfield-relicensing>, via the FERC e-library, and by hardcopy availa-
ble at the Danville Public Library (511 Patton Street, Danville, VA 24541) dur-
ing normal business hours. As noted in the PAD, comments on the PAD and re-
quest for studies are due within 60 days of the September 18, 2019 meeting.

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Legals

LEGAL NOTICES

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Schoolfield Hydroelectric Project
(FERC No. 2411)

Joint Meeting Presentation



Schoolfield Hydroelectric Project (FERC No. 2411)



Relicensing Joint Agency Meeting



Agenda

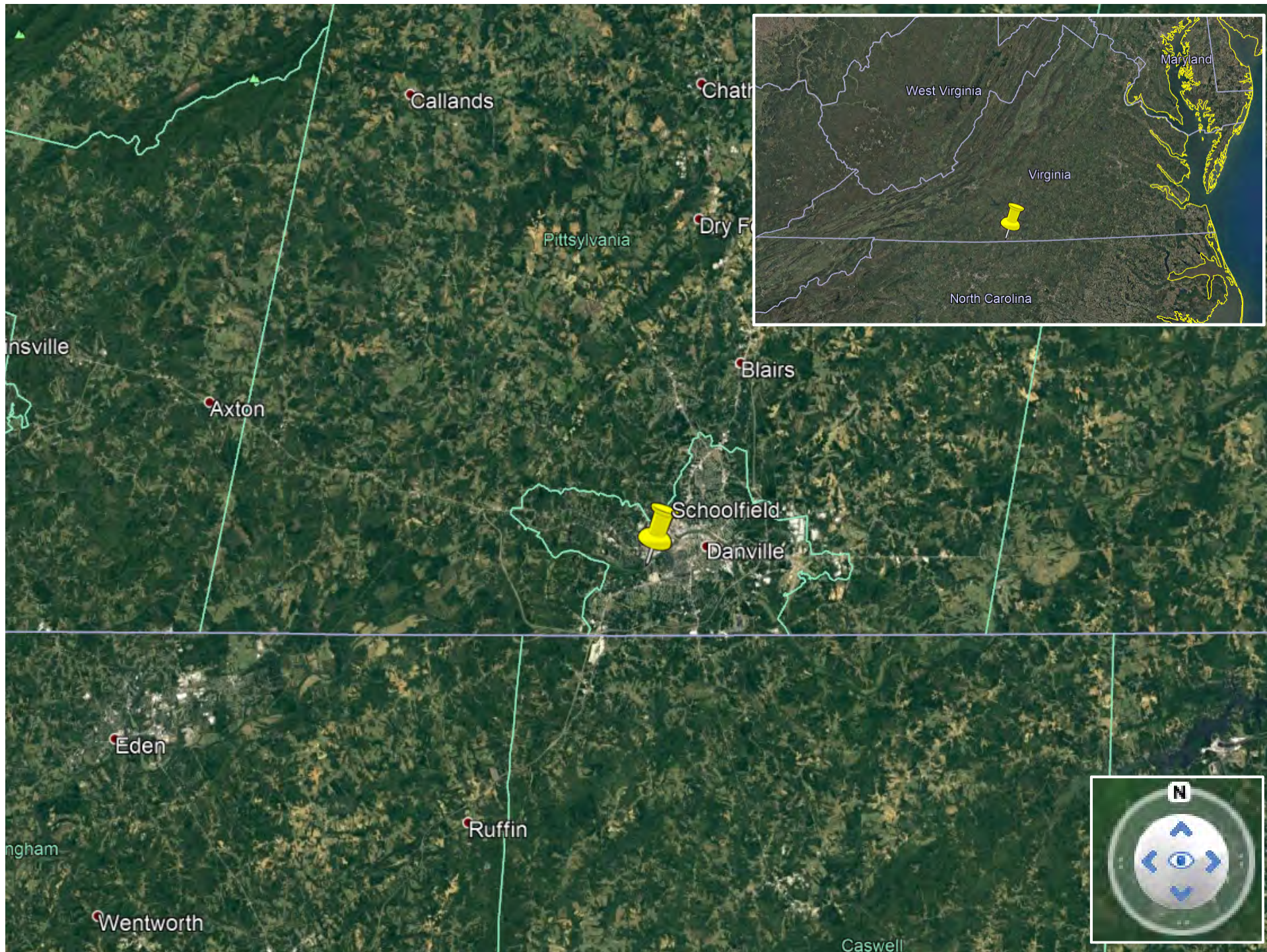
- 1. Welcome and Introductions***
- 2. Overview of the Project***
- 3. Review of FERC Traditional Licensing Process and Schedule***
- 4. Overview of the Project Facilities and Operations***
- 5. Overview of Information Provided in the Pre-Application Document (PAD)***
- 6. Public Utility Regulatory Policies Act (PURPA) Benefits***
- 7. Proposed Resource Studies***
- 8. Next Steps***
- 9. Comments***
- 10. Site Visit***

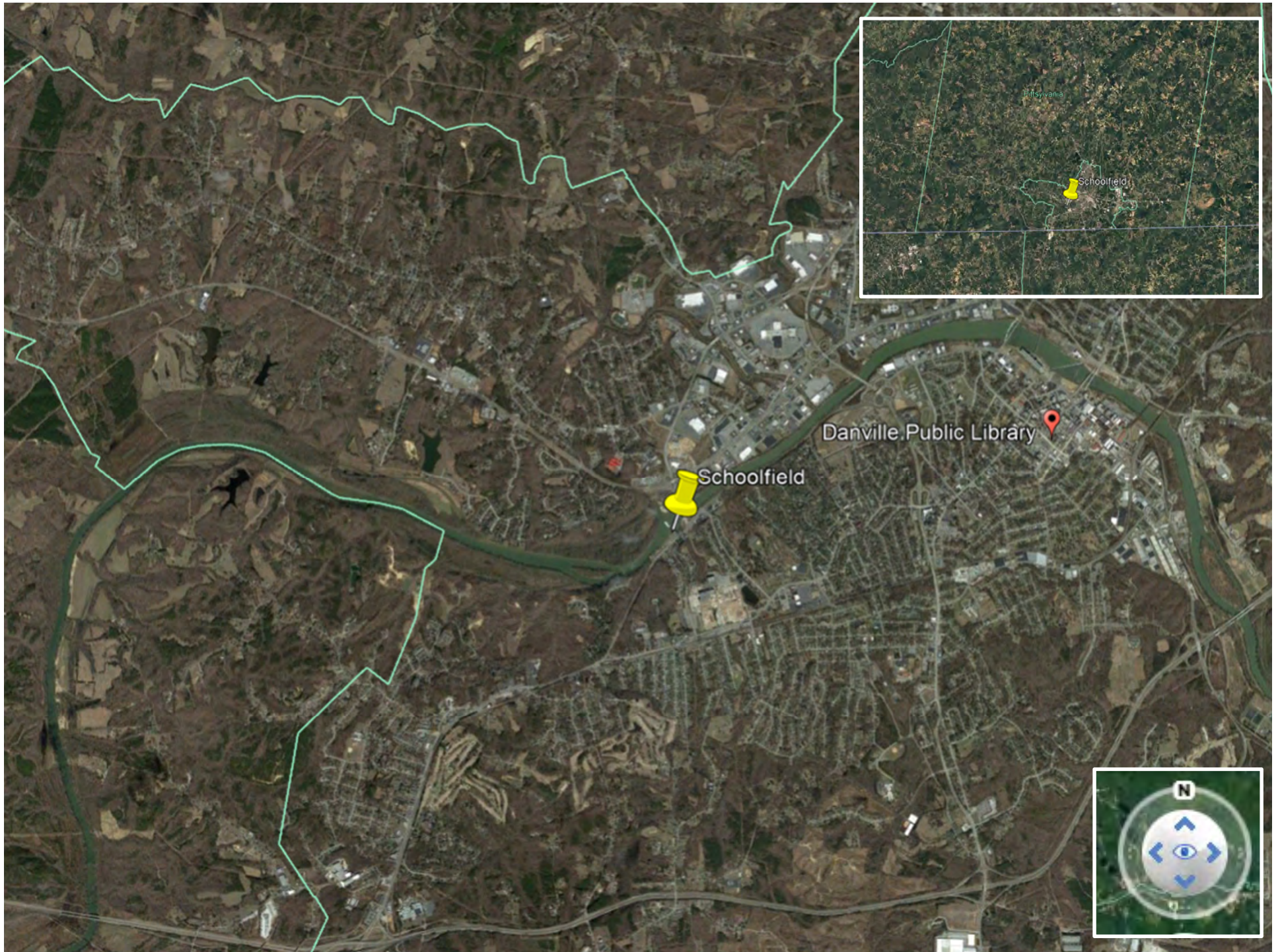


Project Overview - Location

➤ ***Dan River***

- Pittsylvania County, City of Danville, VA





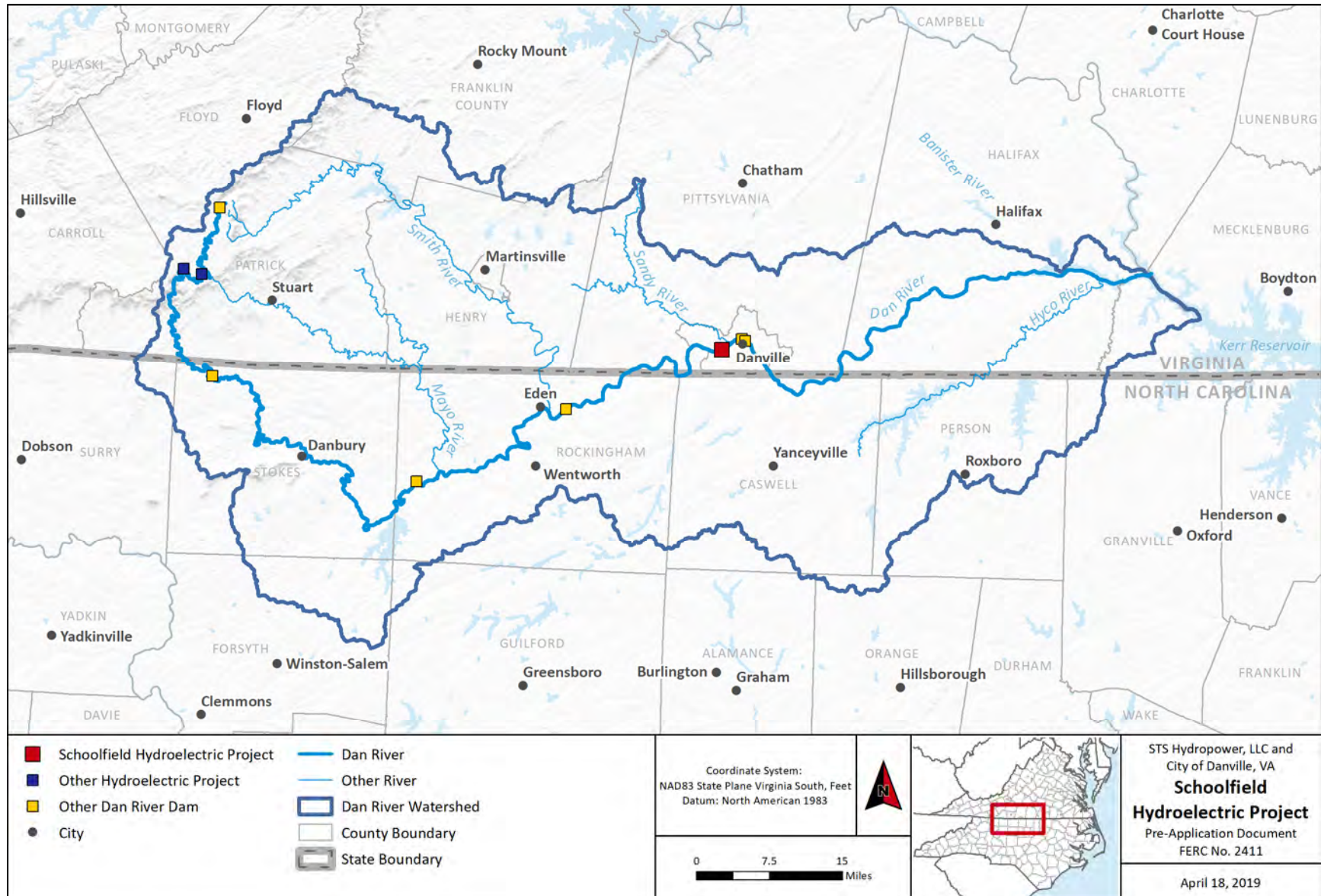


Project Overview - Location

➤ ***Dan River***

- Pittsylvania County, City of Danville, VA
- Schoolfield Dam, third dam (downstream to upstream)
- 60 river miles upstream from the confluence with the Roanoke River at the John H. Kerr Reservoir
- First of two hydroelectric projects on the river (downstream to upstream)

Project Overview - Location



September 18, 2019

Page 7



Project Overview - Location

➤ *Dan River*

- Pittsylvania County, City of Danville, VA
- Schoolfield Dam, third dam (upstream to downstream)
- 60 river miles upstream from the confluence with the Roanoke River at the John H. Kerr Reservoir
- First of two hydroelectric projects on the river (upstream to downstream)

➤ *Climate of the Project*

- Northern Inner Piedmont ecoregion
- Variable temperatures with mild winters, and warm humid summers
- Average air temperatures range from 12.6 to 98.3°F
- Average liquid precipitation 43.6 inches, average snowfall 4.3 inches.

Project Overview – Capacity, Features, and FERC

➤ **4.5 MW Run-of-River Project**

- Dam
- Reservoir
- Powerhouse
- Electrical transmission facilities
- Minimum Hydraulic Capacity = 360 cfs
- Maximum Hydraulic Capacity = 2,160 cfs

➤ **Licensed by FERC to STS Hydropower, LLC and the City of Danville, VA**

- Co-licensees
- STS leadings licensing per lease agreement with the City

➤ ***FERC issued a 30-year license on August 26, 1994***

- Expires July 31, 2024
- NOI to relicense filed no later than 5 years before the current license expires

FERC Relicensing Process

➤ ***TLP – Traditional Licensing Process***

- Most appropriate for less controversial/complex projects with few expected studies
- Requires FERC approval
- Coordination between the applicant/licensee and stakeholders
- FERC staff is involved when needed/requested
- Three stage process with a flexible schedule



FERC's Traditional Licensing Process – a “Three Stage Process”

First Stage

- Applicant issues NOI, PAD, request to use TLP, and newspaper notice;
 - Commission approves use of TLP (within 60 days of filing NOI);
 - *Applicant conducts joint agency/public meeting and site visit* (within 30 to 60 days of TLP Approval/Notice of Commencement);
 - Resource agencies and tribes provide written comments and study requests (no later than 60 days following the meeting);

Second Stage

- Applicant completes reasonable and necessary studies (usually one to two field seasons – spring through fall);
- Applicant provides draft application and study results to resource agencies and tribes (usually a few months after the last study season);
- Resource agencies and tribes comment on draft application (no later than 90 days after receipt of the Draft License Application);

Third Stage

- Applicant files final application with Commission and sends copies to agencies and tribes (no later than two years prior to license expiration).

FERC's Traditional Licensing Process – a “Three Stage Process”

First Stage

- Applicant issues NOI, PAD, request to use TLP, and newspaper notice;
 - Commission approves use of TLP (within 60 days of filing NOI);

• 20190724-3021 FERC PDF (Unofficial) 07/24/2019

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

STS Hydropower, LLC and City of Danville

Project No. 2411-028

NOTICE OF INTENT TO FILE LICENSE APPLICATION, FILING OF PRE-
APPLICATION DOCUMENT, AND APPROVING USE OF THE TRADITIONAL
LICENSING PROCESS

(July 24, 2019)

a. Type of Application: Notice of Intent to File License Application and Request to Use
the Traditional Licensing Process

b. Project No.: 2411-028

c. Date filed: May 31, 2019

d. Submitted by: STS Hydropower, LLC (STS Hydropower) and City of Danville
(Danville)

FERC's Traditional Licensing Process – a “Three Stage Process”

First Stage

- Applicant issues NOI, PAD, request to use TLP, and newspaper notice;
 - Commission approves use of TLP (within 60 days of filing NOI);
 - **Applicant conducts joint agency/public meeting and site visit** (within 30 to 60 days of TLP Approval/Notice of Commencement);
 - Resource agencies and tribes provide written comments and study requests (no later than 60 days following the meeting);

Second Stage

- Applicant completes reasonable and necessary studies (usually one to two field seasons – spring through fall);
- Applicant provides Draft License Application and study results to resource agencies and tribes (usually a few months after the last study season);
- Resource agencies and tribes comment on draft application (no later than 90 days after receipt of the Draft License Application);

Third Stage

- Applicant files Final License Application with Commission and sends copies to agencies and tribes (no later than two years prior to license expiration).

TLP Process Plan and Schedule

Party	Activity	Time Frame	Deadline
TLP Stage 1			
Licensee	Deadline to File NOI and PAD	5 to 5 ½ years before license expiration	May 31, 2019
FERC	FERC issues Public Notice of NOI, PAD and TLP Request to agencies, tribes and interested public	Concurrent with NOI	June 2019
FERC, Stakeholders	Comments on TLP Request	Within 30 days of Public Notice	July 1, 2019
FERC	FERC issues Notice of Commencement	Within 60 days of Public Notice	July 30, 2019
Licensee	Notify FERC of Joint Meeting and Publish Notice in Newspaper	At least 14 days in advance of meeting	September 3 & 4, 2019
Licensee	Joint Public Meeting and Site Visit	30-60 days following Notice of Commencement	September 18, 2019
Stakeholders	Comments and Study Requests	Due 60 days after Joint Meeting	November 18, 2019
Licensee	Study Plan Development	Following receipt of PAD comments and study requests	Nov. 2019 – Feb. 2020
TLP Stage 2			
Licensee	Conduct Field Studies	One season of field studies	Spring – Fall 2020 (If needed, 2021)
Licensee	Draft License Application and Study Reports	Produced following conclusion of studies	February 2022
Stakeholders	Comments on Draft Application	90-day comment period	May 2022
TLP Stage 3			
Licensee	Final Application	No later than 2 years before current license expires	August 1, 2022
FERC	FERC issues Public Notice of Application	Within 14 days of final license application submittal	August 15, 2022
FERC	FERC License Expires		July 31, 2024



Project Facilities

➤ **Dam**

- 910-foot long concrete structure with an ogee-type spillway
- Crest elevation of 434.67 feet above msl topped with three feet of wooden flashboards

➤ **Reservoir**

- Approximately 5.5 miles in length, has a surface area of approximately 260 acres, and a gross storage capacity of approximately 230 acre-ft
- Normal maximum water surface elevation is approximately 438.0 ft msl.
- Shoreline is approximately 14-miles in length.

➤ **Headwall Section**

- Between the powerhouse and the right abutment of the dam, 70-ft in length
- Six low level sluice gates
- Non-operating fish ladder

➤ **Powerhouse**

- Concrete and brick structure
- Three identical 1.5 MW generators, total capacity of 4.5 MW
- Each generator is connected to two identical propeller-type turbines

➤ **Tailrace**

- 1.2 acres in area
- Separated from the main river by a concrete wall 160-ft in length

➤ **Transmission Line**

- Used to be 15-miles in length
- Connection point to the power grid is now at a substation in the Project boundary

Project Facilities



Project Facilities – Reservoir



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Project Facilities – Dam



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Project Facilities – Headwall Section



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Project Facilities – Trashrack



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Project Facilities - Powerhouse



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Project Facilities - Tailrace



Project Facilities - Transformers

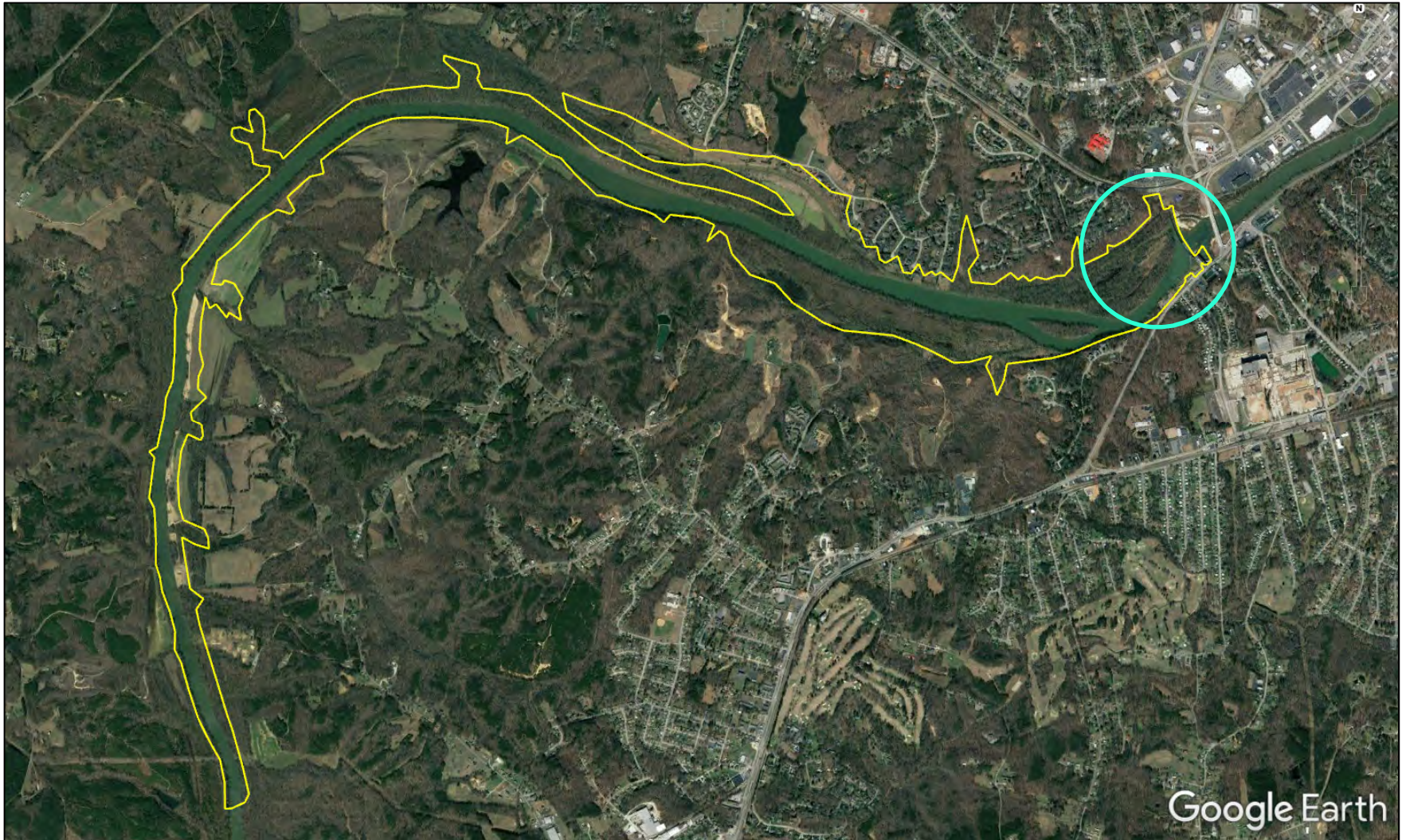


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Project Facilities

Approximate Project Boundary



Project Operation

➤ **Article 401, Run-of-River**

- Can be suspended for the drawdown and refill of the reservoir for the purpose of inspection and maintenance the City's water supply intake

➤ **Article 403, Minimum Flow**

- Instantaneous flow of 300 cfs through the Project;
- During reservoir refilling a 24-hr average of 440 cfs

➤ **Operation**

- Minimum flow typically provided by the turbines; if inflow is less than the minimum hydraulic capacity of 360 cfs, the minimum flow is provided by the gate near turbine 6.
- Head pond and tailwater transducers, and upstream and downstream USGS gages and precipitation forecast are used to evaluate inflow and outflow to plan operations
- Six fixed-output units 360 cfs each
 - Units go online/offline as inflow increases/decreases

➤ **Annual Average Generation from 2014 to 2018 ranged from approximately 13,300 (2018) to 16,500 MWh (2016)**

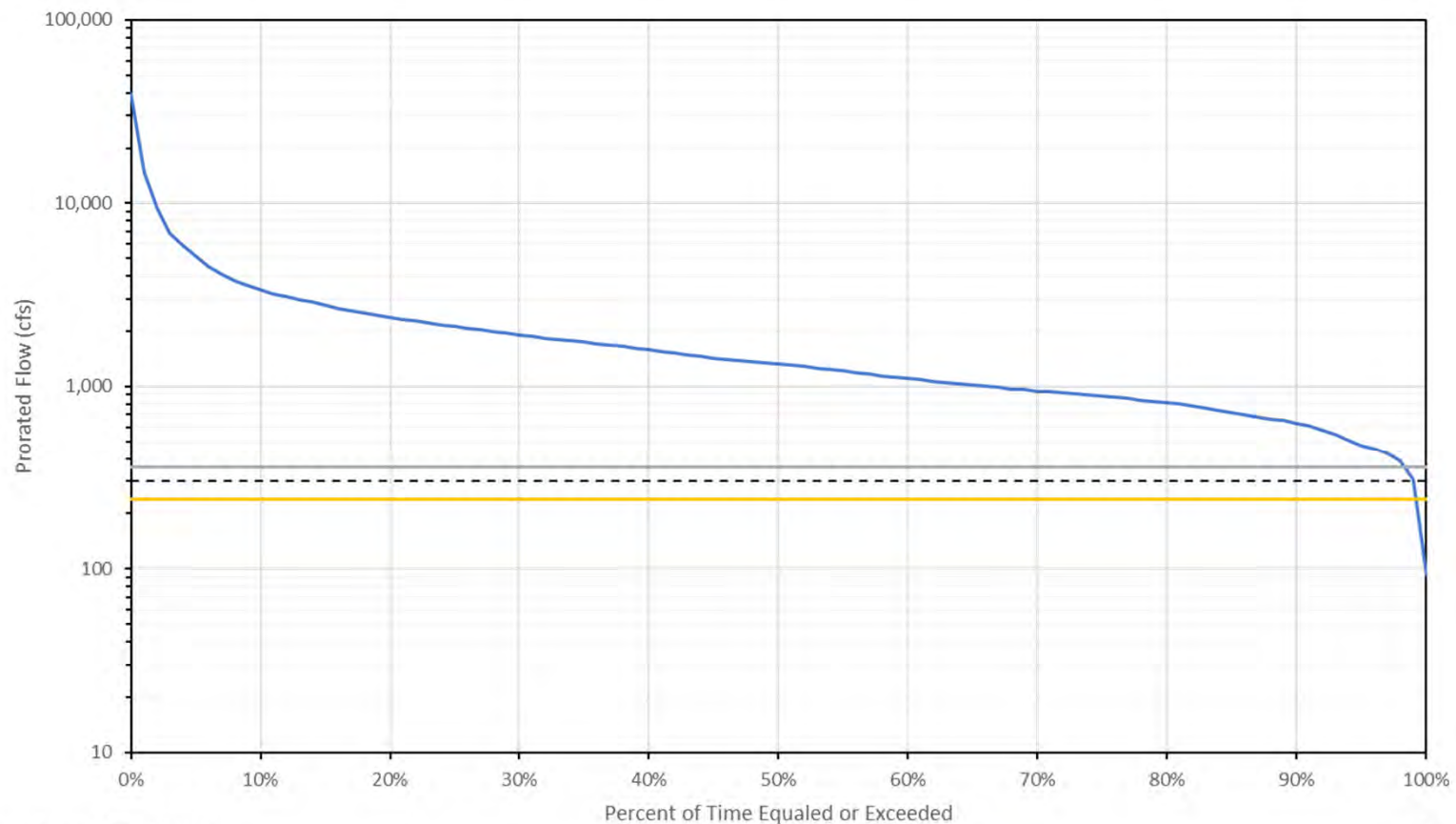
Existing Environment – Geology and Soils

- ***Bedrock is entirely metamorphic and igneous volcanic rock***
- ***Low seismic activity***
- ***Soils***
 - 12 soil types – most abundant are sandy and sandy-loam mixtures
 - Low to moderate susceptibility to erosion by water (surface water runoff)
- ***Duke Energy's Dan River Coal Plant Ash Spill***
 - Agricultural soil sampling and metal trace element testing (Hesterberg et al. 2016)
 - Three sites in the Project area were tested
 - The release had no impact on agricultural soils
 - Not expected to affect soils of the Project area

Existing Environment – Water Quantity, Hydrology

➤ *Dan River Flows at the Project*

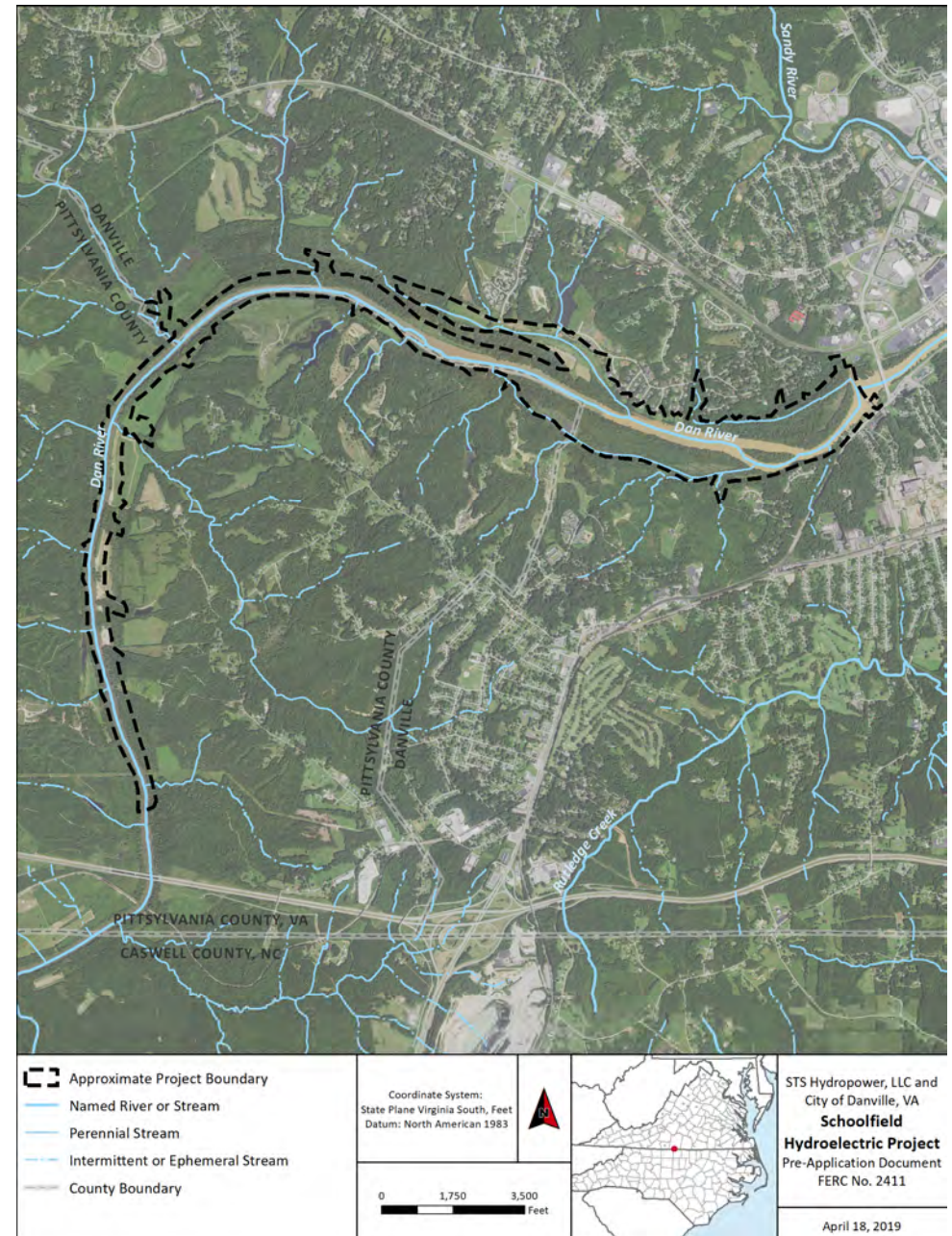
- Mean monthly flows ranges from 1,249 to 2,632 cfs
- Instantaneous flows range from 93 to 39,598 cfs
- High flows occur typically in winter/spring and low flows occur in late-summer/early-fall
- 7Q10 flow is 238 cfs



Existing Environment – Water Quantity, Reservoir

➤ *Project Reservoir*

- 5.5 miles in length has a surface
- Area of approximately 260 acres
- Gross storage capacity of approximately 230 acre-ft
- Normal maximum water surface elevation is approximately 438.0 ft msl.
- Shoreline is approximately 14-miles in length.
- Receives inflow from the Dan River upstream and tributaries



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Existing Environment – Water Quantity, Uses

➤ ***Withdrawals***

- City of Danville Intake within the Project Reservoir
- Average daily withdrawal eight million gallons; authorized 15-million gallons per day
- Reservoir water levels are usually within 1.5 inches of the spillway crest
- License Article 403 refers to inspection of the intake and minimum flows during reservoir filling
- Inspection approximately every 5-years



Existing Environment – Water Quality

- ***Dan River upstream and downstream of the Project is classified as Section 3a, Class III (Nontidal Waters Coastal and Piedmont Zones), under the Virginia Water Quality Standards 9 VAC 25-260-450***
- ***Draft 2018 Water Quality Assessment Integrated Report***
 - 3 assessment units in the Project area
 - Fully support aquatic life, recreation, and wildlife designated uses
 - Impaired for fish consumption due to elevated mercury and PCB levels in fish tissue
 - Sources of the impairment is unknown according to VA DEQ but likely from historic industrial uses of the river
 - Total Maximum Daily Load (TMDL) Priority level is “low” according to VA DEQ
- ***Existing Water Quality Data***
 - General consistent with state surface water quality standards (water temperature 2.2 to 27.8°C, dissolved oxygen 7.3 to 15.1 mg/L , and pH 5.9 to 8.5)
 - Duke Energy Coal Ash Spill and River Sediment Dredging and Monitoring
 - Recent samples below EPA and VDEQ screening levels
 - To the Co-licensee’s knowledge there no further action by the Commonwealth

Existing Environment – Fish and Aquatic Resources

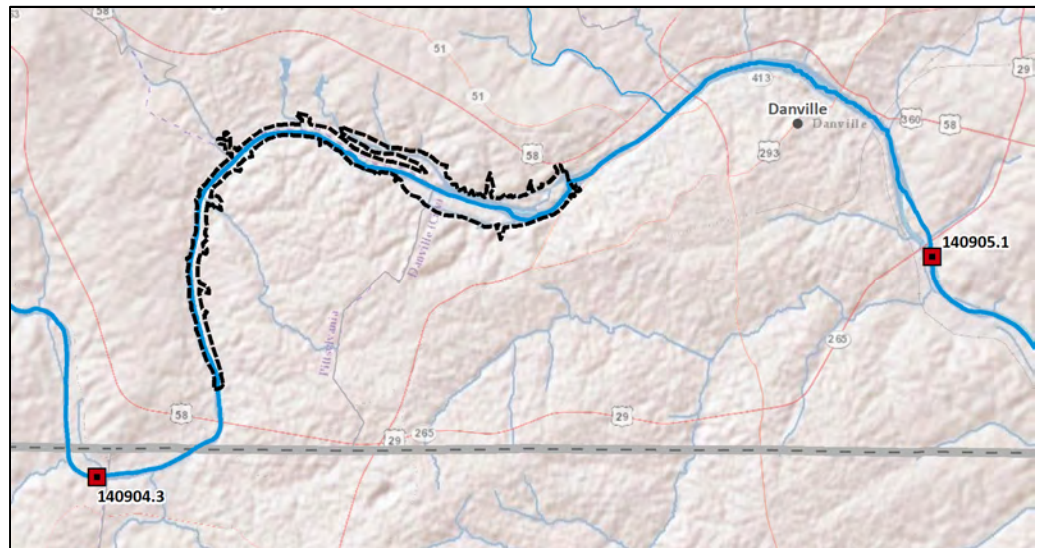
➤ *Mixture of warm water species*

- Smallmouth and Largemouth bass, sunfish, suckers, catfish, walleye and various minnows
- Popular game species frequently sought include blue and flathead catfish and walleye

➤ *Diadromous species currently do not occupy the Project area*

➤ *Freshwater Mussels*

- Comprehensive Dan River Survey was Performed by Alderman Environmental Services as a result of the Dan River Coal Ash Spill (AES, 2014)
- Two sites encompassed the Project Area, 7.5 miles upstream and 4.8 miles downstream
 - Common eliptio
 - Triangle floater



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Existing Environment – Fish and Aquatic Resources

➤ ***Aquatic Habitat***

- Limited to the reservoir and tailwater area
- Reservoir
 - 260 acres and 230 acre-ft of storage
 - ~18-ft depth behind the dam, gradually becoming shallower near 4-ft at the upper end
 - Substrate primarily sand intermixed with cobble, boulder, gravel, pebble and some scoured bedrock.
 - Stable banks and well-established riparian vegetation, some backwater areas.
- Tailwater
 - 9.0 acres in area
 - Intermixed sand, gravel, pebble and boulders

➤ ***No designated Essential Fish Habitat present***

➤ ***Sediment Flushing Plan***

- Per Article 401 – sediment flushing can occur via the low-level gates when river flows are >3,000 cfs

Existing Environment – Wildlife and Botanical Resources

- ***Wildlife resources in the general vicinity of the Project consist of various species of mammals, birds, amphibians, and reptiles characteristic of oak-hickory-pine forests and developed habitat of VA***
 - License Article 405
 - Wildlife Habitat Plan – requires 30 wood duck nesting boxes be installed and maintained within islands and backwater areas in the Project boundary.
 - No longer implemented because no use by the ducks
- ***Botanical resources are limited to the shoreline area and islands***
 - Dominant tree species include: hickory spp., shortleaf pine, loblolly pine, white oak, and post oak.
 - Common understory species include: dogwoods, holly, honeysuckle, elderberry, huckleberry, various vines and flowering plants
- ***No invasive species have been reported to occur in the Project area***

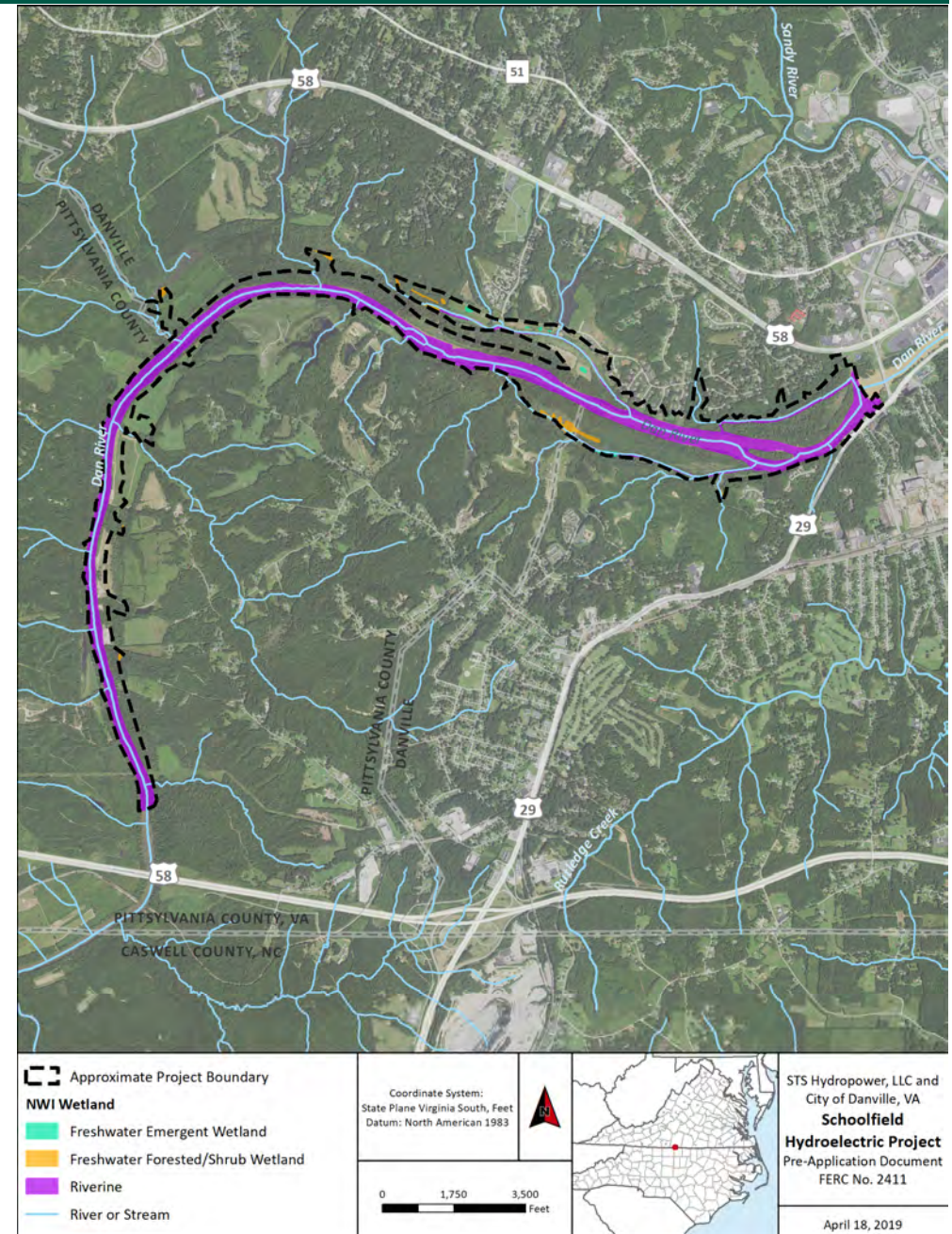
Existing Environment – Wetlands and Riparian Habitat

➤ **Wetlands**

- 3 Types in the Project area:
 - riverine
 - freshwater forested/shrub
 - freshwater emergent

➤ **Riparian and Littoral Habitat**

- Exists along shoreline areas of the tailrace and areas of the reservoir



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Existing Environment – Rare, Threatened, and Endangered Species

Federally Species

- 3 listed species that could occur in the area:
 - Northern long-eared bat (threatened)
 - Roanoke logperch (endangered)
 - Atlantic pigtoe (proposed threatened)
- ***No federally designated critical habitat in the project area; however, critical habitat is proposed for the Atlantic pigtoe upstream of the Project***

State Species

- 11 listed species including the three federal species:
 - Little brown bat (endangered)
 - Tri-colored bat (endangered)
 - Loggerhead shrike (threatened)
 - Orange-fin madtom (threatened)
 - James spiny mussel (endangered)
 - Green floater (threatened)
 - Spirit shiner (endangered)
 - Timber rattlesnake (conservation concern)

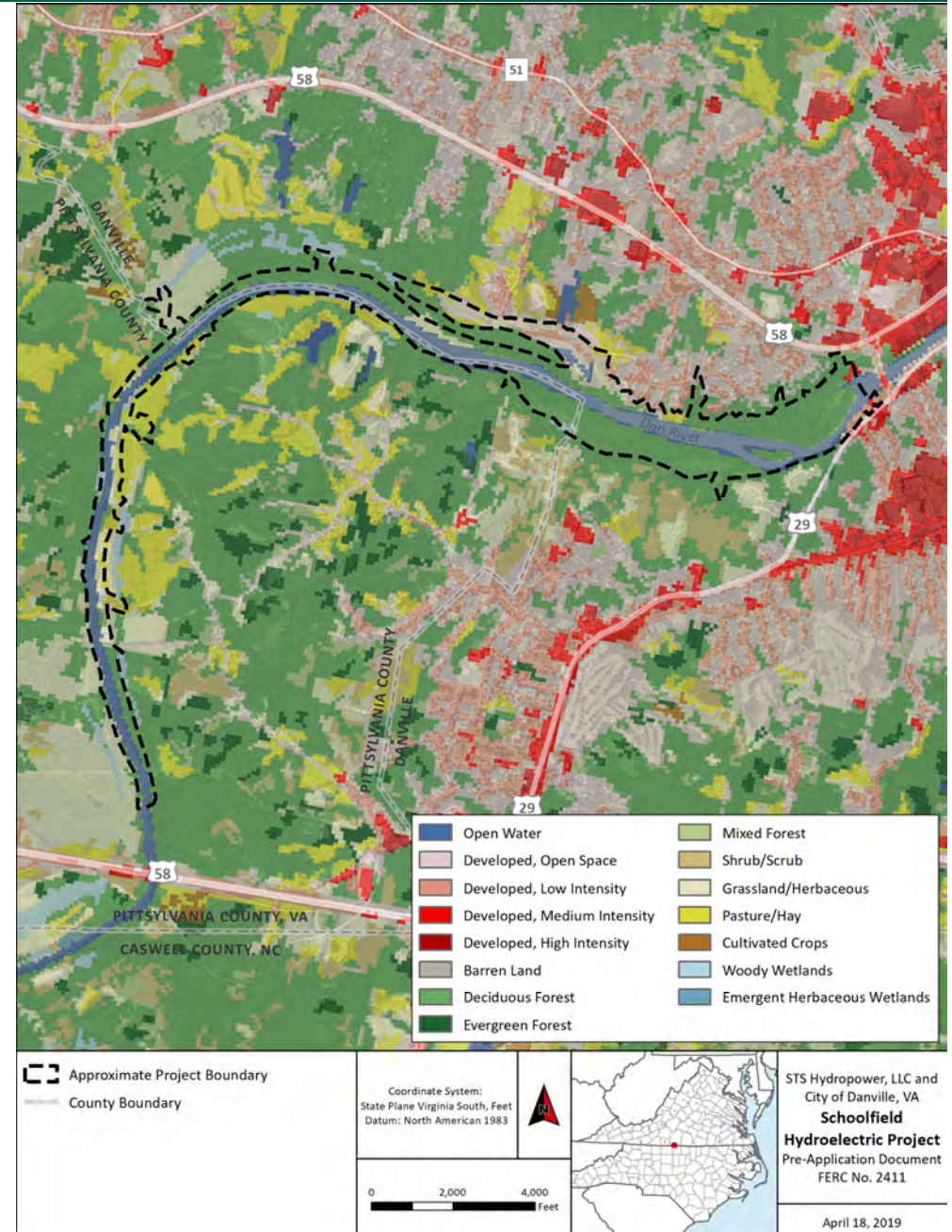


Existing Environment – Recreation

- ***Numerous outdoor recreation opportunities exist in the Dan River basin and in the Project area***
 - Example of recreation opportunities at the project include: boating, fishing, paddling, and wildlife viewing
 - Access to project waters is primarily at the Abreu-Grogan Park
 - Boat rental operation for canoes, kayaks, and paddle boards
 - Boat ramp and trailer parking
 - Picnic area
 - Shoreline fishing
- ***The City has plans to develop a River front area downstream of the Project between the Riverside and Long Mill Dams, which may include a whitewater park***
- ***Dan River in the Project area is designated as a scenic river by the Commonwealth, but is not included in or under study for inclusion in the National Wild and Scenic River System***

Existing Environment – Land Use

- *Predominantly deciduous forest, open water, grassland, and developed areas*



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Existing Environment – Aesthetics Resources

➤ ***Wild and Scenic River***

- Dan River in the Project area is not designated as a National Wild and Scenic River System nor is it being considered for inclusion.
- 15-mile reach of the Dan River that encompasses the Project is considered by the Commonwealth as a Scenic River

➤ ***Byways and Blueways***

- No National Scenic Byway in the Project area
- Designated by the Commonwealth as the Dan River Blueway, which is a part of the Southern VA Wild Blueway

➤ ***View of the Project from other surrounding areas near the Powerhouse, along a small section of the reservoir, and the Piedmont Drive Bridge***

Existing Environment – Aesthetics Resources

VA-DCR: Virginia Outdoors Plan Mapper



August 21, 2019

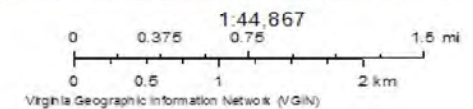
Blueways

- Existing
- Proposed

Scenic River

- Designated
- Potential

Qualified



Map Layout: VA-DCR
Disclaimer: This site provides a non-comprehensive overview of basic information pertaining to certain resources, and should not be used as a substitute for project review or on-site surveys required for environmental assessment of specific project areas.

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Existing Environment – Cultural Resources

➤ ***Project Historical Context***

- Dam, powerhouse, and fish passage facility were constructed between 1902 and 1904 to support the area textile industry
- Between 1990 and 1991 the generation equipment was replaced

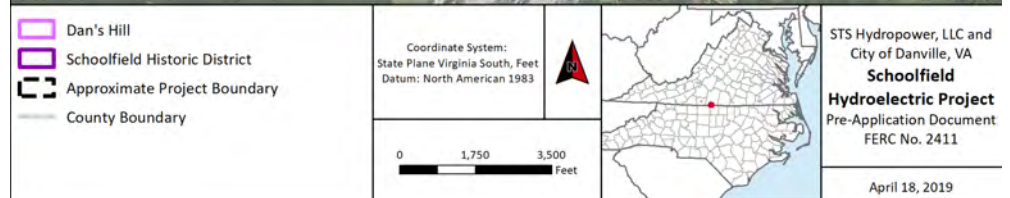
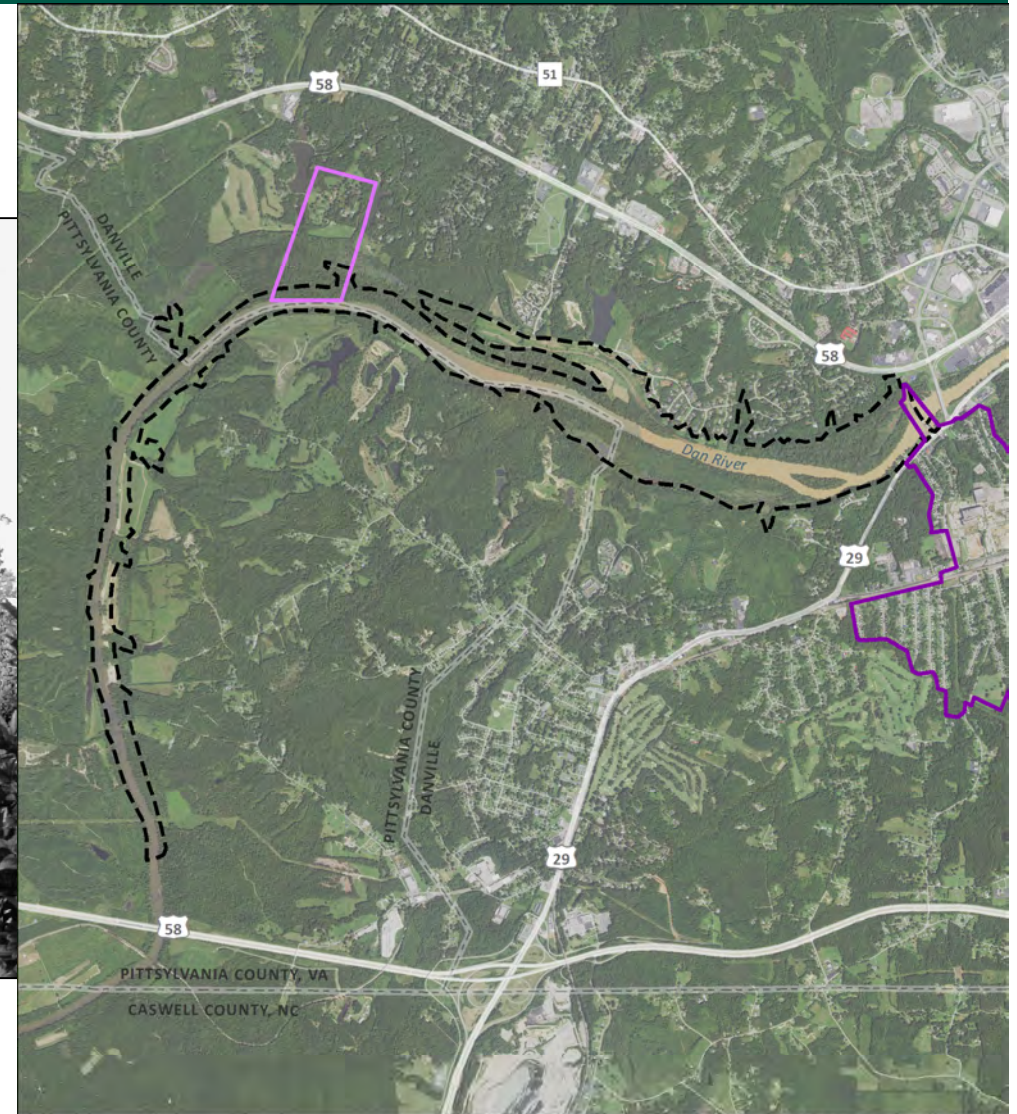
➤ ***Historical Sites***

- There is one known historical site whose land parcel is in the Project boundary
- National Register of Historic Places
 - One property, Dan's Hill
 - Historic home that exemplifies the Federal Style

➤ ***Historic District***

- Within the Schoolfield Historic District, designated by the Virginia Department of Historic Resources

Existing Environment – Cultural Resources



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Existing Environment – Tribal Resources

- *At this time, the Licensees are unaware of any tribal resources in the Project boundary*
- *Licensees are aware of a known Monacan burial mound located approximately 2.8 miles east-southeast of the Project.*

Proposed Operations

- *The Licensees proposes to continue to operate the Project in accordance with the existing license with no proposed changes in operations*
- *The Licensees propose to remove the 13-mile long transmission line as a Project facility from the license because the transmission line is no longer used by the Project. The interconnection point to the power grid is now located at the substation at the Project.*

Public Utility Regulatory Policies Act (PURPA)

➤ ***What are PURPA benefits?***

- Section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA) requires electric utilities to purchase electricity from, and to sell electricity to, qualifying facilities, which may include hydroelectric projects, and provides relief from various regulatory and reporting obligations for such facilities.

➤ ***The licensees currently benefit from regulatory and reporting relief under PURPA***

➤ ***The City of Danville currently uses the electricity produced at the Project under the terms of a power purchase agreement between the licensees***

Proposed Resource Studies and Next Steps

- *The Licensees are not proposing any resource studies at this time.*

NEXT STEPS

- *File comments and/or study requests w/in 60 days **by Monday, November 18, 2019** with the Licensees, and as a courtesy, with WSP*
- *FERC study request criteria create better study requests (see 18 CFR §5.9(b)):*
 1. Describe goals and objectives of each study proposal and information to be obtained;
 2. Explain the relevant resource mgmt. goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
 3. If the requester is not a resource agency, explain any relevant public interest considerations;
 4. Describe existing information concerning the subject of the study proposal and the need for additional information;
 5. Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements;
 6. Explain how any study methodology is consistent with generally accepted practice in the scientific community;
 7. Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

<https://www.ferc.gov/industries/hydropower/gen-info/guidelines/guide-study-criteria.pdf>

Comments or Questions?

PLEASE SEND ANY COMMENTS OR QUESTIONS TO:

MATTHEW NINI
Eagle Creek Renewable Energy
Matthew.Nini@eaglecreekre.com
(973) 998-8171

MATTHEW BURAK
Louis Berger, U.S. Inc., a WSP Company
matthew.burak@wsp.com
(518) 727-5453

Site Visit

- *There is Site Visit after today's meeting*
- *Site Visit will consist of walking around the Project, but not on the dam*
- *A tour of the Project Powerhouse will be limited to those 16 years of age and older – attendees to be escorted by Eagle Creek personnel at all times*



Site Visit - Parking



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Eagle Creek Schoolfield, LLC
c/o Eagle Creek Renewable Energy, LLC
7315 Wisconsin Avenue, Suite 1100W
Bethesda, Maryland 20814
240.482.2700

March 31, 2022

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street N.E.
Washington, DC 20426

Via Electronic Filing

Re: Schoolfield Hydroelectric Project (FERC No. 2411) Draft License Application and Draft Study Reports; Distribution and Request for Review and Comments

Dear Secretary Bose:

Eagle Creek Schoolfield, LLC (Eagle Creek Schoolfield), a subsidiary of Eagle Creek Renewable Energy, and the City of Danville, Virginia, (collectively, “co-Licensees”) are the current co-Licensees for the Schoolfield Hydroelectric Project (FERC Project No. 2411, Project) located on the Dan River in the City of Danville, Virginia. The existing Federal Energy Regulatory Commission (FERC or Commission) license for the Project expires on July 31, 2024, and the co-Licensees intend to file a Final License Application with FERC on or before July 31, 2022. The co-Licensees filed a Notice of Intent to File a License Application (NOI), the Pre-Application Document (PAD), and the request to use the Traditional Licensing Process (TLP) for the Project on May 31, 2019. FERC approved the co-Licensees’ request to use the TLP on July 24, 2019.

In accordance with 18 CFR 16.8(c)(4), the co-Licensees are filing the *Draft Application for New License – Major Water Power Project 10 Megawatts or Less for the Schoolfield Hydroelectric Project* (DLA) as part of the second stage of the FERC traditional licensing process consultation requirements. The co-Licensees hereby request resource agencies, tribes, and other interested parties review and provide written comments on the DLA. In addition, and in accordance with 18 CFR 4.32(h), the co-Licensees also request Commission staff advise on the sufficiency of the DLA as submitted below: The DLA consists of the following:

- Initial Statement
- Exhibit A – Project Description
- Exhibit E – Environmental Report
- Exhibit G – Project Boundary Map
- Exhibit H – Plans and Ability to Operate the Project
- Attachment 1: Draft Study Plan
- Attachment 2: Final Study Plan
- Attachment 3: Draft Study Reports

An electronic copy of the DLA can be downloaded from FERC's eLibrary system (<https://elibrary.ferc.gov/eLibrary/search>) by searching under docket number P-2411. A copy of the DLA is also being made available on the Schoolfield Hydroelectric Project Relicensing Website at <https://www.eaglecreekre.com/facilities/operating-facilities/schoolfield/schoolfield-relicensing-information>.

In accordance with 18 CFR 16.8(c)(4)(5), stakeholders and Commission staff may submit comments on the DLA to the co-Licensees within 90 days following this filing, i.e., by **June 29, 2022**. Comments on the DLA may be sent to joyce.foster@eaglecreekre.com.

If you have any questions or require additional information, please do not hesitate to contact me at (804) 338-5110 or joyce.foster@eaglecreekre.com.

Sincerely,

A handwritten signature in black ink that reads "Joyce Foster". The signature is written in a cursive, flowing style.

Joyce Foster
Director, Licensing and Compliance

Attachment: Draft License Application for the Schoolfield Hydroelectric Project

**Schoolfield Hydroelectric Project (FERC No. 2411)
Stakeholder Distribution List**

Federal	
<p>John T. Eddins Advisory Council on Historic Preservation 401 F Street N.W. Suite 308 Washington, DC 20001-2637 jeddins@achp.gov</p>	<p>Bruce Maytubby Regional Director Bureau of Indian Affairs 545 Marriott Drive, Suite 700 Nashville, TN 37214-2751 eastern.inquiries@bia.gov</p>
<p>Bob Swithers Bureau of Land Management South Eastern States Districts 273 Market Street Flowood, MS BLM_ES_SSDO_Comments@blm.gov</p>	<p>Andrew Tittler Attorney-Advisor U.S. Department of Interior 15 State St. 8th Floor Boston, MA 02109 DOISOLNE-FERC@sol.doi.gov</p>
<p>Stepan Nevshahirlian NEPA Program Manager US EPA Region III 1650 Arch St. Philadelphia, PA 19103-2029 nevshahirlian.stepan@epa.gov</p>	<p>Harold Peterson Bureau of Indian Affairs, Eastern Region 545 Marriot Dr. Suite 700 Nashville, TN 37214 Harold.peterson@bia.gov</p>
<p>Lou Chiarella Asst. Admin. for Habitat Conservation National Marine Fisheries Service Mid-Atlantic Regional Office 55 Great Republic Drive Gloucester, MA 01930 Lou.Chiarella@noaa.gov</p>	<p>William McDavitt NOAA Fisheries Service Greater Atlantic Regional Fisheries Office 55 Great Republic Drive Gloucester, MA, 01930 william.mcdavitt@noaa.gov</p>
<p>Jeffrey R. Duncan Southeastern Rivers Program Manager National Park Service 175 Hamm Rd, Suite C Chattanooga, TN 37405 Jeff_Duncan@nps.gov</p>	<p>Kevin Mendik, Esq. NPS Hydro Program Coordinator U.S. National Park Service 15 State Street, 10th floor Boston, MA 02109 kevin_mendik@nps.gov</p>
<p>John McCloskey USFWS Virginia Field Office 6669 Short Lane Gloucester, VA 23061 john_mccloskey@fws.gov</p>	<p>Rick McCorkle USFWS Pennsylvania Field Office 110 Radnor Rd, Suite 101 State College, PA 16801 Richard_Mccorkle@fws.gov</p>
<p>Cindy Schulz USFWS Virginia Field Office 6669 Short Lane Gloucester, VA 23061 cindy_schulz@fws.gov</p>	<p>Philpott Lake U.S. Army Corps of Engineers 1058 Philpott Dam Road Bassett, VA 24055 philpott@usace.army.mil</p>

Jennifer Frye U.S. Army Corps of Engineers Norfolk Regulatory District 803 Front St. Norfolk, VA 23508 jennifer.s.frye@usace.army.mil	Alfred Boykin Federal Emergency Management Agency Mitigation Division, Dam Safety 3003 Chamblee Tucker Road Atlanta, GA 30341 alfred.boykin@fema.dhs.gov
David Palumbo** Deputy Commissioner U.S. Bureau of Reclamation 1849 C Street NW Washington, D.C. 20240	Honorable Bob Good** U.S. House of Representatives 1213 Longworth House Office Building Washington, D.C. 20515
Senator Mark Warner** U.S. Senate 703 Hart Senate Office Building Washington, D.C. 20510	Senator Tim Kaine** U.S. Senate 231 Russell Senate Office Building Washington, D.C. 20510
State	
Tony Cario Environmental Specialist Office of Water Supply Department of Environmental Quality P.O. Box 1105 Richmond, VA 23218 Anthony.cario@deq.virginia.gov	Scott Smith Region 2 Fisheries Manager VA Dept. Game and Inland Fisheries 1132 Thomas Jefferson Rd. Forest, VA 24551 scott.smith@dgif.virginia.gov
Timothy Hatton Natural Heritage Director VA Dept. Conservation and Recreation 600 E. Main St., 24th Floor Richmond, VA 23219 timothy.hatton@dcr.virginia.gov	Alan Weaver Fish Passage Coordinator VA Dept. of Game and Inland Fisheries P.O. Box 11104 Richmond, VA 23230 alan.weaver@dgif.virginia.gov
Mike Johnson Virginia Marine Resources Commission 2600 Washington Ave. Fl. 3 Newport News, VA 23607 mike.johnson@mrc.virginia.gov	Jackie Miller Soil and Water Conservation Director VA DCR 600 E. Main St., 24th Floor Richmond, VA 23219 jackie.miller@dcr.virginia.gov
Brian Watson VA Dept. Game and Inland Fisheries 1132 Thomas Jefferson Rd. Forest, VA 24551 brian.watson@dgif.virginia.gov	George Palmer Fisheries Biologist VA Dept. Game and Inland Fisheries 1796 Highway Sixteen Marion, VA 24354 george.palmer@dgif.virginia.gov

Robbie Rhur Environ. Program Planner Virginia Department of Conservation and Recreation 600 East Main Street, Floor 17 Richmond, VA 23219-2094 Robbie.rhur@dcr.virginia.gov	Roger Kirchen Director Division of Review and Compliance VA Dept. Historic Resources 2801 Kensington Avenue Richmond, VA 23221 ROGER.KIRCHEN@DHR.VIRGINIA.GOV
Chris Goudreau Hydropower Coordinator NC Wildlife Resource Commission 645 Fish hatchery Road Marion, NC 28752 chris.goudreau@ncwildlife.org	Mark Herring** Attorney General Office of the Attorney General 202 North Ninth Street Richmond, Virginia 23219
Tribes	
Chief Robert Gray Pamunkey Indian Tribe 1054 Pocahontas Trail King William, VA 23086 robert.gray@pamunkey.org	Stephen Adkins, Chief Chickahominy Indian Tribe 8200 Lott Cary Road Providence Forge, VA 23140 info@chickahominytribe.org
Gerald Stewart, Chief** Chickahominy Indian Tribe-Eastern Division 2895 Mount Pleasant Road Providence Forge, VA 23140	W. Frank Adams, Chief Upper Mattaponi Tribe P.O. Box 184 King William, VA 23086 info@umitribe.org
G. Richardson, Chief Rappahannock Tribe, Inc. The Powhatan Confederation Tribal Office 5036 Indian Neck Road Indian Neck, VA 23148 info@rappahannocktribe.org	Kenneth Branham, Tribal Chief Monacan Indian Nation 111 Highview Drive Madison Heights, VA 24572 tribaloffice@monacannation.com
Earl Bass Nansemond Indian Tribe 1001 Pembroke Lane Suffolk, VA 23434 contact@nansemond.org	Mattaponi Indian Tribe 1314 Mattaponi Reservation Circle West Point, VA 23181 mattaponi@mattaponination.com
Chuck Hoskin, Principal Chief Cherokee Nation P.O. Box 948 Tahlequah, OK 74465 chuck-hoskin@cherokee.org	Richard Sneed, Principal Chief Eastern Band of Cherokee Indians 88 Council House Loop Road Cherokee, NC 28719 ashlstep@nc-cherokee.com
Joe Bunch United Keetoowah Band of Cherokee Indians in Oklahoma 18263 W. Keetoowah Circle Tahlequah, OK, 74464 jbunch@ukb-nsn.gov	Deborah Dotson Delaware Nation P.O. Box 825 Anadarko, OK, 73005 ddotson@delawarenation-nsn.gov

Brad KillsCrow, Chief Delaware Tribe of Indians 5100 Tuxedo Blvd. Bartlesville, OK 74006-2838 bkillscrow@delawaretribe.org	William Harris, Chief Catawba Indian Nation 996 Avenue of the Nations Rock Hill, SC 29730 bill.harris@catawbaindian.net
Local	
Ken Larkin City Manager, City of Danville P.O. Box 3300 427 Patton St. Danville, VA 24543 klarking@danvilleva.gov	W. Clarke Whitfield, Jr City Attorney, City of Danville P.O. Box 3300 Danville, VA 24543 cityattystaff@danvilleva.gov
Alonzo Jones Mayor, City of Danville 427 Patton Street, Fourth Floor Danville, VA 24541 alonzo.jones@danvilleva.gov	Richard Drazenovich, P.E. Director, Public Works City of Danville P.O. Box 3300 Danville, VA 24543 pubworks@danvilleva.gov
Jason Grey Director, Danville Utilities Charles H. Harris Financial Service Center 311 Memorial Drive Danville, VA 24541 greyjc@danvilleva.gov	Bill Sgrinia Director, Parks and Recreation City of Danville P.O. Box 3300 Danville, VA 24543 playdanvilleva@danvilleva.gov
David Smitherman Pittsylvania County Administrator P.O. Box 426 Chatham, VA 24531 david.smitherman@pittgov.org	
Non-governmental Organizations	
Conservation Officer Coastal Canoeists PO Box 566 Richmond, VA 23218 c.conservation@coastals.org	Brian Williams Virginia Program Coordinator Dan River Basin Association 413 Church Street, Suite 401 Eden, NC 27288 bwilliams@danriver.org
Tiffany Haworth Executive Director Dan River Basin Association 413 Church Street, Suite 401 Eden, NC 27288 thaworth@danriver.org	

Note: "***" indicates the stakeholder was served a copy of the above transmittal let by U.S. Mail.



North Carolina Wildlife Resources Commission

Cameron Ingram, Executive Director

June 20, 2022

Via E-mail

Ms. Joyce Foster
Director, Licensing and Compliance
Eagle Creek Schoolfield, LLC
7315 Wisconsin Avenue, Suite 1100W
Bethesda, MD 20814

Subject: Draft License Application and Draft Study Reports
Schoolfield Hydroelectric Project, FERC Project No. 2411

Dear Ms. Foster:

The North Carolina Wildlife Resources Commission (NCWRC) has reviewed the Draft License Application (DLA) and Draft Study Reports submitted to interested parties on March 31, 2022. Although the project is in Virginia, because the Dan River crosses the Virginia–North Carolina border multiple times, the NCWRC believes the presence and operation of the Schoolfield Project affects fish and wildlife resources of North Carolina. These comments and recommendations are provided in accordance with provisions of the Federal Power Act (16 U.S.C. 791a et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

Exhibit A – Project Description

Section 1.3.2 – Proposed Operations: The co-Licensees propose to continue operating the project in run-of-river mode in accordance with the existing license and with several other provisions. Item 5 states that the existing Sediment Flushing Plan (Article 401) would continue to be implemented, with the added provision of avoiding sediment flushing during the sunfish spawning season. The added provision is designed to minimize impacts to aquatic resources in the impoundment from a rapid lowering of lake levels. It is also important to avoid the impacts of increased sediment and turbidity to downstream aquatic biota during critical life cycles, particularly for mussels. Therefore, we recommend that sediment flushing only occur between November 1 through the end of February.

Exhibit E – Environmental Report

Section 1 – General Description of Project Locale: The third paragraph mentions the existence of several other hydroelectric projects in the Dan River basin upstream of the Schoolfield project, but Figure 1-1 does not show them. We suggest adding a brief description of the following projects in the text and adding their locations on Figure 1-1: Avalon (P-11169) and Mayo (P-11219) projects on the Mayo River; and Philpott (US Army Corps of Engineers), Martinsville (non-FERC), and Eden (non-FERC) projects on the Smith River. The Philpott and Martinsville projects have historically operated in peaking fashion and may affect flows at Schoolfield.

Section 3.4.1 – Operations and Inflow Assessment Study: In our May 13, 2020 comments on the Draft Study Plan, we advised that the study be of sufficient duration to include flows <2,000 cfs and varying upstream hydropower project operations to adequately understand the effects of the Schoolfield project on downstream conditions. Flow duration curves provided in Exhibit A indicate that the median flow for at the project is approximately 1,000 cfs for the months of July–November, indicating that these lower flows are common and should be captured in the assessment.

This study was performed over five months, from June–October 2020. Since 2020 was a relatively wet year, flows during the study were <2,000 cfs for only short periods. As a result, there did not appear to be much cycling of the Schoolfield turbines on and off, so the study didn't provide much information on how the reservoir and operations act to dampen or amplify peaking events from upstream. Appendix B of the Operations and Inflow Assessment Study draft study report does provide some idea how the project affects downstream levels when stream flow is between 1,500-2,000 cfs. Figures B-9, B-14, B-15, B-17, B-18, and B-21 show rapid drops and rises of the river stage downstream of the Schoolfield dam of up to 1.0 feet in less than 1 hour. This can be particularly injurious to biota that are sessile or have limited swimming ability. We surmise that the magnitude and frequency of rapid fluctuations downstream would increase as flows decline below 1,500 cfs due to peaking of upstream projects and operation of the Schoolfield project.

For these reasons, we believe the study should be extended to understand how the project affects downstream conditions when river flows are <1,500 cfs, especially when flows are <1,000 cfs. This information would indicate how the Schoolfield project should be operated to limit impacts of rapid stage drops downstream of the project.

Section 3.4.2 – Baseline Water Quality Monitoring Study: This study was conducted concurrently with the Operations and Inflow Assessment Study, from June–October. Again, since study period didn't include flows less than 1,500 cfs, it is unknown how temperature and dissolved oxygen behave during frequent moderate to low flow periods.

Section 3.5 – Proposed Protection, Mitigation and Enhancement Measures for Water Resources: The co-Licensees propose to continue to provide an instantaneous minimum flow of 300 cfs or inflow, whichever is less downstream of the Project. During occurrences of reservoir lowering to facilitate the City of Danville's water supply intake inspection and subsequent refilling, the co-Licensees propose to continue to provide an average 24-hr minimum flow of 440 cfs and

notify the resource agencies as required by existing License Article 403. It is not clear from these two statements whether the 300 cfs absolute minimum flow will be maintained during the average 24-hour minimum flow of 440 cfs, or if the 24-hour average would allow for instantaneous flows to drop below 300 cfs. We recommend that the language clarify that the instantaneous minimum flow of 300 cfs be maintained at all times during reservoir refill.

The co-Licensees propose to continue operations related to reservoir dewatering and refilling to perform inspection and maintenance of the City of Danville's water supply intakes (License Article 403). These operations would occur less frequently (on an as-needed basis rather than annually), and outside the sunfish spawning season. Also, the co-Licensees propose to continue to implement the Sediment Flushing Plan as approved by the Commission by Order Amending and Approving Sediment Flushing Plan dated September 14, 1995 but modifying the timing of the sediment flushing to be outside the sunfish spawning season. As mentioned above, we recommend that the dewatering/refilling and sediment flushing events also avoid impacts to downstream biota during mussel and fish spawning periods. Therefore, sediment flushing and refilling should only occur between November 1 and the end of February.

Section 3.6.3 – Sediment Flushing: To more closely mimic natural conditions, we recommend flushing sediment at least annually when flow is >3,000 cfs.

Section 3.6.4 – Reservoir Dewatering: Again, there is a potential discrepancy between the minimum downstream flows described as being maintained above 300 cfs and a 24-hour average flow of 440 cfs. The latter could be interpreted as allowing periods of flow <300 cfs provided the 24-hour average is >440 cfs. We recommend that the language clarify that the instantaneous minimum flow of 300 cfs be maintained at all times during reservoir refill.

Section 4.6.2 – Freshwater Mussel Survey: The mussel study consisted of several stages, including a reconnaissance survey to assess habitat within the project boundary, and targeted mussel surveys in suitable habitats. Five targeted mussel surveys were conducted – four in the reservoir and one in the tailwater (Figure 4.6.2-1). All of the reservoir surveys were located in the lower half of the reservoir. Three of the reservoir survey sites were rated as having “poor” mussel habitat, one reservoir site (the uppermost location) was rated as “marginal”, and the tailwater site was rated as “good”. Mussels were only found in habitats rated as “marginal” or “good”.

It is unclear why no targeted surveys were done in the upper half of the reservoir. Assuming the upper portion of the reservoir is more riverine in nature than the lower portion, we would expect the habitat in the upper portion to be more suitable for mussels. Mussel surveys in the upper portion of the reservoir may be needed to understand if other mussels are found within the project boundary, particularly those that may be settling out from upstream sources.

We appreciate the opportunity to comment on the DSP. If you have any questions concerning these comments, please contact me at 828-803-6045 or chris.goudreau@ncwildlife.org.

Sincerely,

A handwritten signature in cursive script that reads "Christopher Goudreau". The ink is dark and the signature is fluid.

Christopher Goudreau
Hydropower Licensing Coordinator

cc: Vann Stancil, TR Russ, NCWRC
John McCloskey, Rick McCorkle, USFWS
Scott Smith, Amy Martin, VDWR



United States Department of the Interior

FISH AND WILDLIFE SERVICE



Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

June 24, 2022

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

Re: Draft License Application and Study Reports,
Schoolfield Hydroelectric Project (FERC #
2411), Danville, VA

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft License Application (Application), dated March 2022 and Study Reports for the Schoolfield Hydroelectric Project (Federal Energy Regulatory Commission [FERC, Commission] No. 2411) (Project). The Project is owned and operated by Eagle Creek Schoolfield, LLC, an indirect wholly owned subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville (Licensees). The Project is located on the Dan River at approximately river mile 60.1 in the City of Danville, Pittsylvania County, VA. The Service provides the following comments pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended; Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755); Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); and Federal Power Act, (16 U.S.C. §823a(c)(1)), as amended.

PROJECT DESCRIPTION

The Project consists of: (1) a 25-foot (ft)-high, 910-ft-long concrete ogee spillway dam equipped with 3-ft-high flashboards creating a 230-acre reservoir; (2) a 70-ft-long headwall section containing a fish ladder and 6 low-level sluicing gates; (3) a 224-ft-long by 35-ft-wide concrete and brick powerhouse on the south end of the dam containing 3 generating units with a total installed capacity of 4.5 megawatts; (4) transmission facilities consisting of the 4.16-kilovolt (kV) generator leads, a 5-kV service-connection cable, a 3-phase, 4.16/34.5-kV step-up transformer, a 34.5-kV, 13-mile-long transmission line (owned by the city of Danville); and (5) appurtenant facilities. The Service participated in the September 18, 2019 joint meeting and site visit in Danville, VA; provided comments on the Pre-Application Document on November 15, 2019; provided comments on the Draft Study Plan on May 12, 2020; and provided comments on the Final Study Plan on October 7, 2020.

COMMENTS ON THE APPLICATION

Exhibit E – Environmental Report

Section 3.4.1, Water Resources, Water Resources Study Requests, Operations and Inflow

Assessment Study: This section states that one of the goals of the study was to document the effect

inflows have on Project operations. This would be accomplished by comparing water levels of the Dan River upstream of the Project reservoir with operations and water levels downstream. In their May 13, 2020 letter to FERC on the Draft Study Plan, the North Carolina Wildlife Resources Commission (NCWRC) recommended that the study be of sufficient duration to include flows less than 2,000 cubic feet per second (cfs) and under varying upstream hydropower project operations to adequately understand the effects of the Project on downstream flow conditions. Flow duration curves provided in Exhibit A of the Application indicate that the median flow at the Project is approximately 1,000 cfs for the months of July–November, indicating that these lower flows are common and should be captured in the assessment.

This study was performed over a period of 5 months, from June–October 2020. Since 2020 was a relatively wet year, flows during the study were less than 2,000 cfs for only short periods. As a result, minimal on and off cycling of the Project turbines occurred, so the study provided little information on how the reservoir and operations act to dampen or amplify peaking events from upstream. Appendix B of the Draft Operations and Inflow Assessment Study Report provides some idea how the Project affects downstream levels when stream flow is between 1,500-2,000 cfs. Figures B-9, B-14, B-15, B-17, B-18, and B-21 show rapid changes in river stage of up to 1.0 ft in less than 1 hour downstream of the Project dam. This rapid change in river stage can be particularly injurious to biota that are sessile or have limited swimming ability. It is likely that the magnitude and frequency of rapid fluctuations downstream would increase as flows decline below 1,500 cfs due to peaking of upstream projects and operation of the Project.

These lower flows were not captured during the study, representing a data gap in knowledge of impacts from Project operations. Therefore, the Service recommends the study be extended to include low flow periods to understand how the Project affects downstream conditions when river flows are less than 1,500 cfs, especially when flows are less than 1,000 cfs. This information will inform Project operations to limit impacts of rapid stage drops downstream of the Project.

Section 3.5, Water Resources, Proposed Protection, Mitigation, and Enhancement Measures for Water Resources: The Licensees propose to continue operations related to reservoir dewatering and refilling to perform inspection and maintenance of the City of Danville’s water supply intakes, and to continue to implement the Sediment Flushing Plan. This section states that these activities will occur outside the sunfish spawning season. The specific dates when these activities would not be conducted are not provided. It is unclear why sunfish were the only species group for which protection, mitigation, or enhancement (PM&E) measures were developed. These activities should also be protective of other fish and mussel species. The Virginia Department of Wildlife Resources (VDWR) has developed time-of-year restrictions (TOYRs) for the protection of fish and wildlife (<https://dwr.virginia.gov/wp-content/uploads/media/Time-of-Year-Restrictions.pdf>). Many of these TOYRs are applicable at this Project including: warm water fish spawning (April 15 through July 15); federally listed endangered Roanoke logperch (*Percina rex*) spawning (March 15 through June 30); freshwater mussels – long-term brooders (April 15 through June 15 [glochidia release], and August 15 through September 30 [spawning]); and freshwater mussels – short-term brooders (May 15 through July 31). The Service would like to work with the Licensees to identify a time when these activities (i.e., operations related to reservoir dewatering and refilling to perform inspection and maintenance of the City of Danville’s water supply intakes and to continue to implement the Sediment Flushing Plan) will not affect spawning and sensitive life stages of all aquatic life in the river. This updated TOYR should be included as a PM&E measure for the new license.

Section 3.6.1, Water Resources, Description of Continuing Impacts on Water Resources by Continued Project Operation, Water Quantity and Project Operations: This section states that the data collected from the Operations and Inflow Assessment Study indicate that as the Project’s fixed-output turbine units were turned on or off, water level changes downstream typically ranging between

0.2 and 0.8 ft. This section further states that these water level fluctuations likely correspond to relatively minor changes in wetted width, average channel velocity, and wetted perimeter. However, no site-specific data is provided to support this conclusion. The Service recommends that this issue be further studied to assess how much and how fast these fluctuations in flow occur to assess how aquatic resources may be affected to support the conclusion that these changes are “relatively minor.” Figure 2.3.3-1 of the Draft Operations and Inflow Assessment Study Report in Attachment 3 of the Application shows some rapid fluctuations in water levels downstream of the Project compared to upstream flows. Many young-of-year fish species occupy the shallow margins of the river including the Roanoke logperch; thus rapid drops in water level of 0.2 to 0.8 ft have the potential to strand and kill these young-of-year fish. These changes in downstream flow are likely more dramatic under lower river flow conditions than were present during the study. If these water level fluctuations from Project operations have the potential to impact aquatic resources, a PM&E measure may be needed as part of the license to modify operations to reduce these fluctuations in downstream flow.

Section 3.6.2, Water Resources, Description of Continuing Impacts on Water Resources by Continued Project Operation, Water Quality and Project Operations: This section states that under the current condition, reservoir and downstream water quality are consistent with Virginia Department of Environmental Quality (VDEQ) water quality standards and the Project-affected reaches of the Dan River would continue to support freshwater fish growth, reproduction, and survival. The water quality study was conducted in 2020. Table 1.4.1-1 in the Draft Baseline Water Quality Monitoring Study Report in Attachment 3 of the Application showed below normal precipitation in June, September, and October, and above normal precipitation in July and August. Over the study period, the overall precipitation was above normal. Because of the above normal rainfall, the river did not experience any extended periods of low flow. Therefore, it is unclear if the Project would meet water quality standards during a below normal precipitation and flow season. This issue should be addressed.

Section 4.6.1, Aquatic and Fisheries Resources, Aquatic and Fisheries Resources Study Requests and Results, Desktop Entrainment and Turbine Survival Study: This section lists the fish species evaluated as part of the study. The section states that these species were selected based on the fish species documented in the Project area and in consultation with the resource agencies. The consultation email, sent to the resource agencies on February 26, 2021 and provided in Appendix A (Target Species Selection and Consultation) of the Desktop Entrainment and Turbine Survival Study Report in Attachment 3 of the Application, was not sent to the correct Service office and as a result we did not provide input on the species list. We would have recommended that Roanoke logperch be evaluated as part of the study. Roanoke logperch have been documented upstream of the Project reservoir. The NCWRC stated in their letter dated May 13, 2020 on the Draft Study Plan that Roanoke logperch were observed in the mainstem of the Dan River in 2017 upstream of the Project near Berry Hill, VA. Larval Roanoke logperch spawned upstream of the Project can drift into and through the Project making them susceptible to entrainment. Because the Roanoke logperch is a federally listed species, impacts to this species from entrainment should be evaluated. This approach is similar to the evaluation conducted as part of the relicensing studies at the Niagara Hydroelectric Project (#2466).

Section 4.6.2, Aquatic and Fisheries Resources, Aquatic and Fisheries Resources Study Requests and Results, Freshwater Mussel Survey: This section states that the second goal and objective of the freshwater mussel survey was to perform a reconnaissance survey of the Project reservoir periphery and tailwater for potential suitable mussel habitat. Surveys were to be conducted in areas of suitable habitat; however, 3 of the 4 survey locations in the reservoir were determined to be poor habitat quality by the mussel surveyor (05-US-1, 05-US-3, and 05-US-4). The most upstream survey location was in run/pool habitat and was considered marginal habitat quality (05-US-2). This was the only upstream location where mussels were found. An explanation for this approach should be provided as most survey locations did not contain suitable habitat. This is a data gap that should be addressed.

The freshwater mussel survey area is shown in Figure 4.6.2-1. It is unclear why the upper half of the survey area was not surveyed. The upper portion of the survey area is more riverine and provides more suitable habitat than the 3 pool locations that were surveyed. The upper part of the reservoir is also more likely to have mussels as a result of mussels spawning upstream and settling in this area. This issue should be clarified as this appears to be a data gap in the mussel surveys. Mussel surveys in the upper riverine part of the reservoir are recommended to fill this data gap.

Section 4.7, Aquatic and Fisheries Resources, Proposed Protection, Mitigation, and Enhancement Measures for Aquatic and Fisheries Resources: This section states that the reservoir dewatering and refilling to perform inspection and maintenance and the sediment flushing will be done outside of the sunfish spawning season. As stated previously, these activities should also be protective of other fish and mussel species. Based on TOYRs provided by VDWR, the reservoir dewatering and refilling and sediment flushing should not be conducted between March 15 and September 30. This TOYR should be incorporated into a PM&E measure to protect aquatic and fisheries resources.

Section 5.4, Wildlife Resources, Proposed Protection, Mitigation, and Enhancement Measures for Wildlife Resources: This section states that the co-Licensees do not propose any PM&E measures relative to wildlife resources. However, Section 5.5.2 (Bald Eagles) states that if a bald eagle (*Haliaeetus leucocephalus*) nest is confirmed to be within 660 ft of the Project boundary, the Licensees will, in consultation with the resource agencies, discuss the need to prepare a bald eagle protection plan. The Service does not agree with this approach. The Service recommends that a bald eagle management plan be developed as part of a PM&E measure so that the Licensees will have a plan in place if/when a bald eagle is encountered within or near the Project boundary. This has become standard practice for hydropower relicensing projects.

Section 6.1, Botanical Resources, Invasive Species: This section states that to determine if any invasive species have been observed in the Project area, the Early Detection and Distribution Mapping System (EDDMaps.org) which is a tool for citizen scientists, students, and volunteer projects for basic mapping of invasive species locations, was queried. This tool does not appear to be a comprehensive method for determining if any invasive plant species are located within the Project boundary. Section 6.3 (Proposed Protection, Mitigation, and Enhancement Measures for Botanical Resources) states that the Licensees do not propose any PM&E measures relative to botanical resources. The Service does not agree with this proposal. The Service recommends that a PM&E measure be included in the license that includes the development of an Invasive Species Management Plan. This plan would describe the monitoring for and control of invasive plant species identified within the Project boundary. This has become standard practice for hydropower relicensing projects. The early detection and removal of invasive species will prevent the establishment of larger infestations that can harm native plant and wildlife species.

Section 8.1, Rare, Threatened and Endangered Species, Federal Species: This section states that the Roanoke logperch was not included in the official species list since the Service determined the Roanoke logperch is not present in the area of the Project boundary. This section further states that the Project boundary (same as above) was used to delineate the spatial area for which the official species list was generated. The official species list should be developed from the action area. The action area is defined (50 CFR 402.02) as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action” and should include downstream areas. While the Roanoke logperch is unlikely to occur in the Project reservoir, it has the potential to occur both upstream and downstream of the Project in the free-flowing sections of the river. The Service recommends that the official species list be updated using the correctly defined action area.

Section 8.1.1, Rare, Threatened and Endangered Species, Federal Species, Northern Long-Eared Bat: This section states that both Figures 8.1.1-1 (Location of known northern long-eared bat [*Myotis*

septentrionalis] hibernacula and maternity roost trees relative to the Project in Virginia) and 8.1.1-2 (North Carolina counties with current records of northern long-eared bat occurrences) indicate there are no known northern long-eared bat hibernacula, maternity roost trees, or known occurrences in the Project vicinity. This data set does not include all capture locations or roost trees that are not maternity roost trees. There are significantly more areas where northern long-eared bats roost than shown in these figures. Unless site-specific bat surveys are conducted, it would be incorrect to state that they do not occur at the Project.

Section 8.1.4, Rare, Threatened and Endangered Species, Federal Species, Roanoke logperch: This section states that according to the Service's most recent official rare, threatened, and endangered (RTE) species list for the Project area, the Roanoke logperch is not present in the Project boundary and there is no designated critical habitat for the Roanoke logperch in the Project vicinity. As stated earlier, the action area was drawn incorrectly, and should have included upstream areas and the tailwater area downstream of the Project. When these areas are included, Roanoke logperch is present on the official species list.

Section 8.4, Rare, Threatened and Endangered Species, Proposed Protection, Mitigation, and Enhancement Measures for Rare, Threatened, and Endangered Species: This section states that no resource agency or other entity has proposed any PM&E measures for RTE resources. Other than the release of a minimum flow downstream of the Project, the Licensees are not proposing any PM&E measures for RTE species. As stated previously, the Service recommends a TOYR for reservoir lowering and refilling and sediment flushing to protect listed species that occur within and downstream of the Project. This TOYR should be included as a PM&E measure for listed species. In addition, any tree removal that occurs during the term of the license as part of any maintenance activities has the potential to impact northern long-eared bats. Therefore, the Service recommends that a northern long-eared bat management plan be developed as part of a PM&E measure to protect this species from Project operations.

Section 8.5.1, Rare, Threatened and Endangered Species, Federal Species, Description of Continuing Impacts on Rare, Threatened, and Endangered Species by Continued Project Operation, Northern Long-Eared Bat: This section states that continued operation of the Project as currently licensed is not expected to affect the northern long-eared bat. The section further states that the Licensees will consult with the Service regarding consistency with the 4(d) rule for the northern long-eared bat (50 CFR Part 17 2016-00617). On March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat as endangered (87 FR 16446-16452). The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the northern long-eared bat by November 2022 (Case 1:15-cv-00477, March 1, 2021). The proposed reclassification, if finalized, would remove the current 4(d) rule for the northern long-eared bat, as these rules may be applied only to threatened species. Depending on the type of effects a project has on northern long-eared bats, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). For more information about the northern long-eared bat, visit our website (<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>).

As stated previously, a PM&E measure is needed to protect northern long-eared bats from any tree cutting performed as part of any maintenance activities conducted during the license term. Prior to any tree clearing within the Project boundary or areas immediately adjacent to the Project boundary, the Licensee should conduct a species search in the Information for Planning and Consultation tool (<https://ipac.ecosphere.fws.gov/>) to determine if the proposed activity is within northern long-eared bat potential habitat. If the proposed activity is within northern long-eared bat potential habitat, a habitat assessment should be conducted using Service guidelines

(https://www.fws.gov/sites/default/files/documents/USFWS_Range-wide_IBat_%26_NLEB_Survey_Guidelines_2022.03.29.pdf). If the area contains suitable habitat, the Licensees should consult with the Service and VDWR regarding any proposed tree cutting activities.

Thank you for the opportunity to comment on the Application. If you have any questions, please contact John McCloskey of this office at (804) 824-2404, or at john_mccloskey@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

cc: Service, State College, PA (Attn: Rick McCorkle)
NCWRC, Marion, NC (Attn: Chris Goudreau)
VDEQ, Richmond, VA (Attn: Joe Grist)
VDWR, Forest, VA (Attn: Scott Smith)
VDWR, Richmond, VA (Attn: Amy Martin)



COMMONWEALTH of VIRGINIA
Department of Wildlife Resources

Travis Voyles
*Acting Secretary of Natural
and Historic Resources*

Ryan J. Brown
Executive Director

June 29, 2022

Ms. Kimberly D. Bose
Secretary Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Schoolfield Hydroelectric Project
(FERC P-2411), Review Draft License
Application and Study Reports
ESSLog# 40617

Dear Secretary Bose,

We, the Virginia Department of Wildlife Resources (DWR), are writing regarding the Draft License Application (DLA) and Study reports for the Schoolfield Hydroelectric Project (FERC P-2411) located on the Dan River in the City of Danville, VA. The Project is owned and operated by Eagle Creek Schoolfield, LLC, an indirect wholly owned subsidiary of Eagle Creek Renewable Energy, LLC, and the City of Danville (Licensees).

DWR, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally endangered or threatened species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission (MRC), the Virginia Department of Transportation (DOT), the Army Corps of Engineers (ACOE), the Federal Energy Regulatory Commission (FERC), and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitat, and to recommend appropriate measures to avoid, reduce or compensate for those impacts.

We worked closely with the North Carolina Wildlife Resources Commission (NCWRC) and the US Fish and Wildlife Service (USFWS) on review of the DLA and Study Reports and discussed with them development of the June 24, 2022 letter the USFWS submitted to you. As such, we concur with the contents of that letter and recommend adherence to the guidance and recommendations contained within. Specifically, we support the additional study requests outlined in the letter as the data provided by the applicant so far are insufficient to support impact assessments. Until the additional studies have been performed and we and our conservation

Kimberly Bose
May 25, 2022
pg. 2

partners have had the opportunity to review the results, we cannot make any determinations regarding what, if any, adverse impacts upon wildlife and resources under our jurisdiction may result from operation of the project as it is currently proposed.

We look forward to continuing to work with you and other federal partners on the licensing of the Schoolfield Hydroelectric Project. Please do not hesitate to contact me at Amy.Martin@dwr.virginia.gov or 804-367-2211 if you have questions or need anything additional.

Sincerely,

A handwritten signature in black ink that reads "Amy Martin". The signature is written in a cursive, flowing style.

Amy Martin
Virginia Department of Wildlife
Resources

CC:

Mike Bednarski, VDWR
Scott Smith, VDWR
John McCloskey, USFWS
Chris Goudreau, NCWRC



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

June 29, 2022

Kimberly Bose
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Re: FERC No. 2411, Schoolfield Hydroelectric Project

Dear Ms. Bose:

The Department of Conservation and Recreation's Division of Natural Heritage's (DCR) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

DCR has reviewed the mussel survey and the Roanoke logperch habitat assessment for the Schoolfield Hydroelectric Project. According to the survey results, there were no rare mussels or fish documented within the project area. Therefore, DCR does not have any additional comments and defers to our colleagues at the Virginia Department of Wildlife Resources and the United States Fish and Wildlife Service for any additional/final recommendations regarding potential aquatic resource impacts from the proposed license reissuance.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

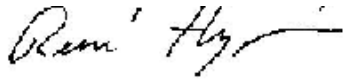
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The VDWR maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Amy Martin at 804-367-2211 or amy.martin@dwr.virginia.gov.

Should you have any questions or concerns, feel free to contact René Hypes at 804-371-2708. Thank you for the opportunity to comment on this reissuance.

Sincerely,

A handwritten signature in black ink, appearing to read "René Hypes", with a long horizontal flourish extending to the right.

S. René Hypes
Natural Heritage Project Review Coordinator

Cc: Amy Martin, VDWR
Troy Andersen, USFWS

From: [ePIX System](#)
To: [Kirk Smith](#)
Subject: EXTERNAL EMAIL -Schoolfield Hydroelectric Project (DHR File No. 2022-4384) | e-Mail #01217
Date: Thursday, July 14, 2022 3:20:53 PM

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

Dear Kirk Smith:

Thank you for submitting your application through the ePIX system and requesting the comments of the Department of Historic Resources on the referenced project. Your application is being processed and our 30-day review period will start on the next business day after submission. You will be notified if your application is insufficient or if additional materials are required for our review.

You may view the submitted application and track our review of this project through your ePIX account under "My Projects" (<https://epix.dhr.virginia.gov>). When our review is complete, comments will be emailed to you and attached to the application in your ePIX account. No project activities that have the potential to impact historic properties should take place until the lead agency has provided a notice to proceed.

If you wish or are asked to submit additional materials in support of your application, documents must be submitted electronically to the appropriate reviewer. Submissions with a total size of less than 10mb may be submitted via email. Submissions larger than 10mb must be made through VITA's Large File Transfer Application (<https://lft.virginia.gov/>). Contact your reviewer for instructions.

Please reference the assigned DHR File Number on all future correspondence.

If you have any questions concerning the review process or if we may provide any further assistance, please do not hesitate to contact me. We look forward to working with you on this project.

Sincerely,

Roger Kirchen
Review and Compliance Division

Create New Application

This electronic form is to be used for the submission of new projects only. If you wish to submit additional information in support of an existing project, please contact the reviewer assigned to that project.

Before using this form, please understand that the information being requested is important to our review. Incomplete information may lead to delays in the review of your project. Please read all questions carefully and respond as completely as possible. For security purposes, *your ePIX session will timeout after 20 minutes of inactivity* and any unsaved changes will be discarded. To ensure that no information is lost, we recommend saving your application after the completion of each section. If you have questions concerning the completion of this application, please contact DHR staff at ePIX@dhr.virginia.gov.

SECTION I. CONTACT INFORMATION

Mr. Kirk Smith
41 Liberty Hill Road - Building 1
Henniker, NH 13502
6033407667
ksmith@gomezandsullivan.com

Submitted By

Please indicate what your role in this project is:

Applicant Role Consultant tasked with initiating consultation

If Other, please specify

SECTION II. GENERAL PROJECT INFORMATION

Project Name Schoolfield Hydroelectric Project

Agency Project Number p-2411

Associated DHR File Number

Project Street Address Memorial Drive, Danville, Virginia 24541

Independent Cities and/or Counties (multiple cities/counties are allowed):

City/County Name
Danville (Ind. City)
Pittsylvania

Town/Locality, if applicable Danville

Agency Involvement

Please select one of the following options as they relate to the project you are submitting:

☒ My project involves a federal or state agency and requires review by DHR under the National Historic Preservation Act (Sections 106 or 110), Virginia Environmental Impact Reports Act or other provision of state or federal law.

☐ I am seeking Technical Assistance from DHR in the assessment of potential impacts of my project on historic resources (e.g. federal or state involvement anticipated, initial project scoping, local government proffer or ordinance).

It is important that you know the nature of the federal or state involvement in your project. Please note that there are a number of state-managed programs that are federally funded (e.g. Transportation Enhancement Grants, some recreational trail grant programs, and many DHCD programs). Understanding the involvement of the agency and the program is helpful for our review.

In some cases there are multiple agencies involved in a project. In these cases, there is generally a "lead" agency. In order to help clarify this, please list the agencies in the order of their involvement in the project. If, for example, there are two agencies providing funding, please provide the contact information for the primary source of federal funding first.

Please select the agency, relationship, contact and click the **Select** button:

Agency	Relationship
Federal Energy Regulatory Commission	Federally Licensed

SECTION III. PROJECT DESCRIPTION and CURRENT AND PAST LAND USE

We need to know as much as possible about the project that is being proposed as well as the current condition of the property. In the fields below, you will be required to provide descriptions that are no longer than 2000 characters. Additional and more detailed information can be uploaded and attached at the end of the application.

Overview and existing conditions

Please provide a general description of the project.

Project Description Please see the attached Exhibit A for a project description.

How many acres does the project encompass?

Number of Acres 288

Please describe the current condition and/or land use of the project area (e.g. paved parking lot, plowed field).

Please see the attached Exhibit E and section 11 of the attached Exhibit E for a description of the current condition and land use at and around the Current Condition project, respectively.

Please describe any previous modifications to the property, including ground disturbance.

There has been no modifications to the Project including ground disturbing activity at the project since 1931. Please see the attached Exhibit A for a description of construction history. There is no propose ground disturbing Previous Modifications activity at this time.

Work involving buildings or structures

Does the project involve the rehabilitation, addition to, alteration, or demolition of any building structure over 50 years of age?

Buildings Over 50 YearsNo

If yes, please describe the work that is proposed in detail. Current photographs of affected building or structure, architectural or engineering drawings, project specifications and maps may be uploaded at the end of the application.

Details

Work involving ground disturbance

Is there any ground-disturbance that is part of this project?

Ground DisturbanceNo

If yes, describe the nature and horizontal extent of ground-disturbing activities, including construction, demolition, and other proposed disturbance. Plans, engineering drawings, and maps may be uploaded on the next page at the end of the application.

Extent of Activities

What is the depth of the ground disturbance? If there are several components to the project, such as new building, utility trenches, and parking facilities, provide the approximate depth of each component.

Depth

How large is the area where ground-disturbing activities will take place? (in acres)

Area Size 0

SECTION IV. AREA OF POTENTIAL EFFECT (APE)

The Area of Potential Effects (APE) is defined as the geographic area or areas within which a project may directly or indirectly cause changes in the character or use of historic properties, if they exist. It is not necessary for an historic property to be present in order to define an APE.

An example of a direct effect is the demolition of an historic building while an indirect effect would be the alteration of an historic setting resulting from the construction of a communications tower or the introduction of noise as the result of the construction of factory. An area such as the footprint of a proposed building is obviously within the APE, but you must also consider visual effects on the property and the

limits of all ground-disturbing activity. So, any project may have two APEs - one for direct effects and one for indirect effects.

Please see our guidance on [Defining Your APE](#) for more detailed information on defining direct and indirect APEs. If you are using [DHR's Data Sharing System](#), you should indicate the APE on the DSS map. For instructions on how to do this, consult the [DSS general use guidelines](#).

Please provide a brief summary of and justification for the APE and upload your APE map at the end of the application. The written boundary description must match the submitted APE map.

The Project APE is proposed to be the same as the Project boundary, as depicted in the attached Exhibit G. The Project boundary is an appropriate APE because it encompasses the full nature and extent of the Project as APE described in Exhibit A.

SECTION V. CONSULTING PARTIES AND PUBLIC INVOLVEMENT

The views of the public, Indian tribes and other consulting parties (e.g. local governments, local historical societies, affected property owners, etc.) that may have an interest in historic properties that may be affected by the project are essential to informed decision-making. In some cases, the public involvement necessary for other environmental reviews such as that under the National Environmental Policy Act (NEPA) may be sufficient for the Section 106 process, but the manner in which the public is involved must reflect the nature and complexity of the proposed project and its effects on historic resources.

What consulting parties have you identified that have an interest in this project? Please describe your previous and future efforts to involve consulting parties.

Appendix A to the attached Exhibit E provides a summary of consultation with resource agencies, tribes, and other stakeholders that has been performed.
Consulting Parties to-date.

Please provide information on any previous or future efforts to involve the public, including public hearings, public notices, and other efforts.

Appendix A to the attached Exhibit E provides a summary of consultation.
Public Involvement with the public to-date.

SECTION VI. PREVIOUSLY IDENTIFIED HISTORIC RESOURCES

In order for this application to be considered complete, you must determine if there are any known historic resources in the APE and provide this information to us. This step is generally referred to as a DHR Archives Search. More information on how to acquire this information can be found in our guidance document [Obtaining an Archives Search](#).

Has any portion of the APE been previously surveyed for archaeological and/or architectural resources?

Surveys Unknown

If yes, describe and provide the names of any reports that you are aware of.

Survey Reports

Are there any previously recorded archaeological sites or architectural resources, including historic districts or battlefields within the APE?

Recorded Resources Yes

You must upload in Section VIII of this application the Archives Search Map showing previously recorded resources in the APE and the DSS reports for all previously recorded resources.

SECTION VII. ADDITIONAL CONTACTS TO THE APPLICATION

Last Name	First Name	Organization
Smith	Kirk	Federal Energy Regulatory Commission
Foster	Joyce	

SECTION VIII. UPLOAD FILES FOR THE APPLICATION

Document Name	File Name	Note
Environmental Assessment/Impact Statement	04_Schoolfield_DLA_Exhibit E_Part4.pdf	
Environmental Assessment/Impact Statement	04_Schoolfield_DLA_Exhibit E_Part3.pdf	
Environmental Assessment/Impact Statement	04_Schoolfield_DLA_Exhibit E_Part2.pdf	
Environmental Assessment/Impact Statement	04_Schoolfield_DLA_Exhibit E_Part1.pdf	
Detailed project description	03_Schoolfield_DLA_Exhibit A.docx	
Map of APE	Schoolfield_DLA_Exhibit G Map.pdf	

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Danville and Pittsylvania counties, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5164	Threatened

Insects

NAME	STATUS
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Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

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

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

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

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Sep 1 to Jul 31

Eastern Whip-poor-will *Antrostomus vociferus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Aug 20

Prairie Warbler *Dendroica discolor*

Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler *Protonotaria citrea*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rusty Blackbird *Euphagus carolinus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Wood Thrush *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

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

Survey Effort (|)

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

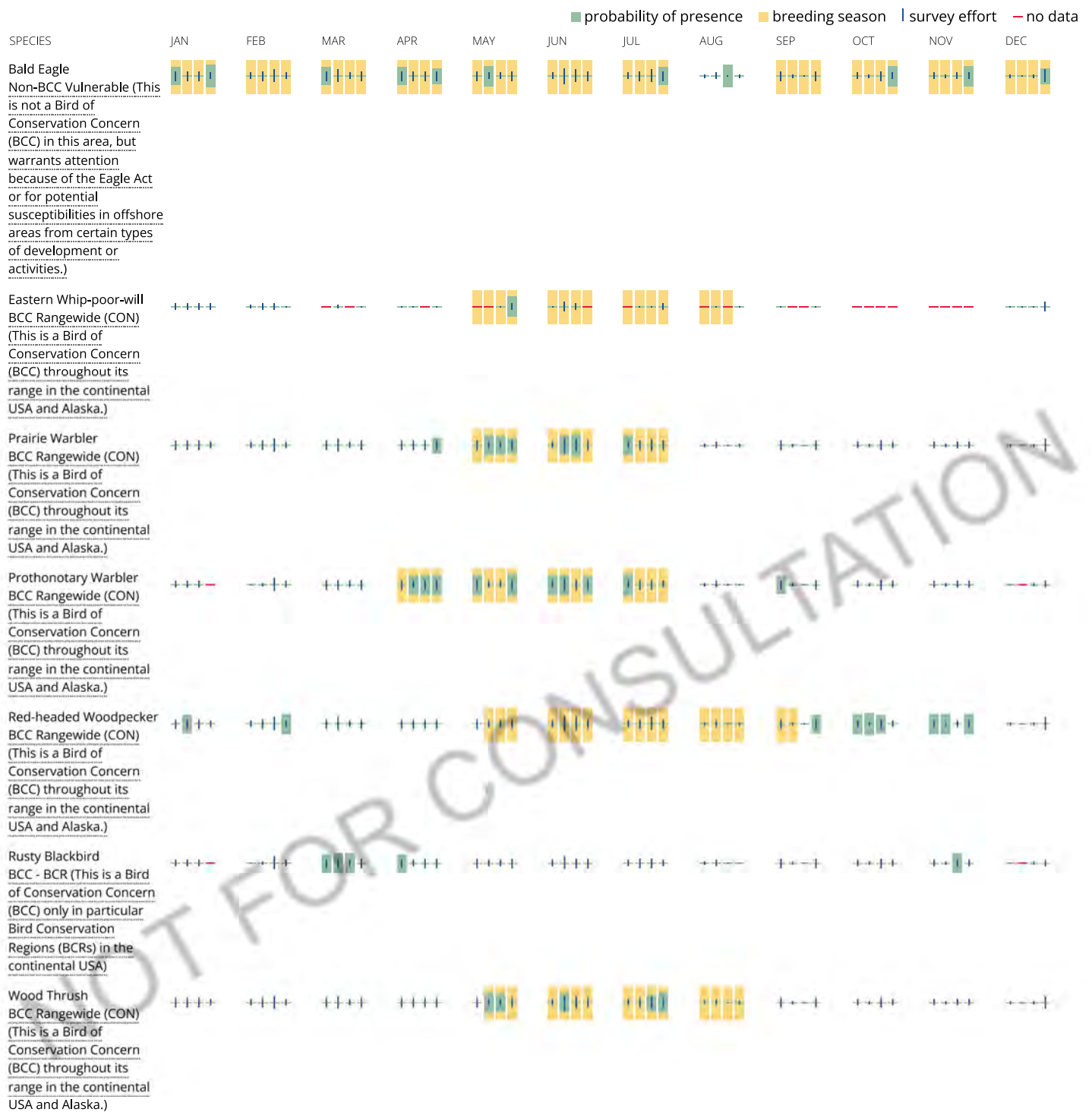
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

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



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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

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

Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA Consultations website](#). The CBRA website

provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

From: [Rayfield, Bettina](#)
To: [Kirk Smith](#)
Subject: EXTERNAL EMAIL -Re: Schoolfield Hydroelectric Project (FERC No. 2411) Request for Non-Applicability Determination with the Virginia Coastal Zone Management Program
Date: Friday, July 22, 2022 8:20:59 AM

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

Mr Smith,

Since the project is located well outside of Virginia's Coastal Zone Management Area (CZMA) within an area that does not drain to the CZMA, it is unlikely to have reasonably foreseeable effects on Virginia's coastal resources or uses. Therefore, federal consistency coordination is not required.

Ms. Bettina Rayfield

Manager

Environmental Impact Review and Long Range Priorities Program

NOTE: New Phone Number as of 12/9/21: (804) 659-1915

Bettina.rayfield@DEQ.Virginia.gov

Department of Environmental Quality

1111 East Main Street, Suite 1400

Richmond, Virginia 23219

Mailing address

Post Office Box 1105

Richmond, Virginia 23218

www.DEQ.Virginia.gov

For program updates and public notices please subscribe to Constant

Contact: <https://lp.constantcontact.com/su/MVcCump/EIR>

On Fri, Jul 22, 2022 at 8:14 AM Kirk Smith <ksmith@gomezandsullivan.com> wrote:

| Dear Bettina:

Eagle Creek Schoolfield, LLC (Eagle Creek Schoolfield), a subsidiary of Eagle Creek Renewable Energy, and the City of Danville, Virginia, co-Licensees for the Schoolfield Hydroelectric Project (FERC Project No. 2411) (Project), are currently preparing a Final License Application (FLA) for relicensing to be filed with the Federal Energy Regulatory Commission. To complete the FLA, the co-Licensees are requesting your determination review for applicability with the Virginia Coastal Zone Management Program.

The Project is an existing licensed hydroelectric facility and is located on the Dan River in the City of Danville, Pittsylvania County, Virginia, as shown in the attached figure. The Project is licensed as a conventional facility to generate 4,500 kilowatts of electricity with a maximum hydraulic capacity of 2,160 cubic feet per second and the co-Licensees are not proposing changes in operations at this time. The Draft License Application proposal, including maps, drawings, and environmental resource analyses, is available on the Project's relicensing website: <https://www.eaglecreekre.com/facilities/operating-facilities/schoolfield/schoolfield-relicensing-information>

Due to the Project being located more than 100 miles from Virginia's coastal zone (see Figure 1), the co-Licensees anticipate that continued operation of the Project will not affect the Virginia coastal zone and is not applicable for consistency review.

Please provide your applicability determination via e-mail to me. If there are any questions concerning this request, please do not hesitate to contact me at the above e-mail address or by phone at 603-340-7667.

Kirk Smith

Gomez and Sullivan Engineers, DPC

41 Liberty Hill Road - Building 1

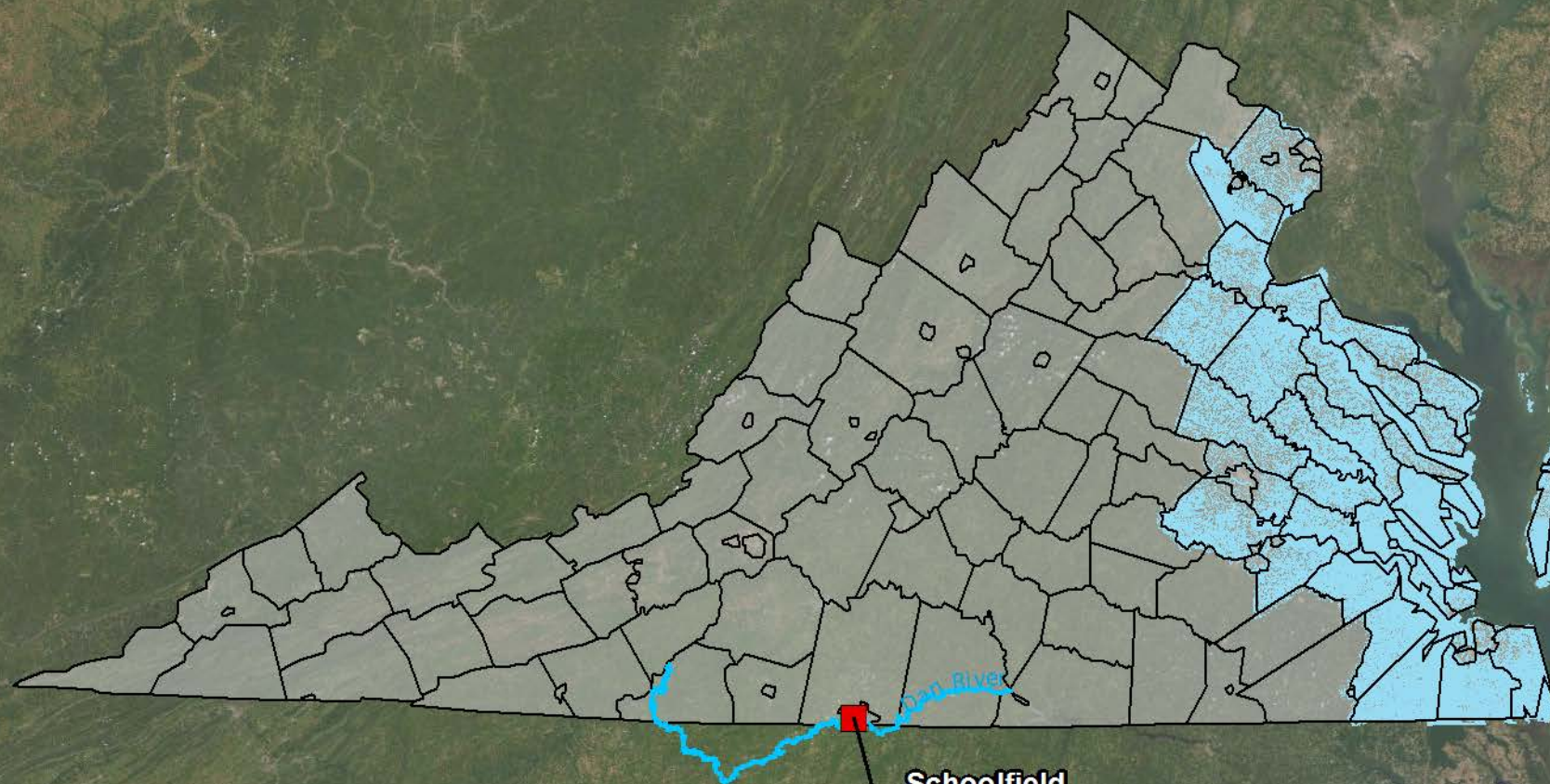
P.O. Box 2179

Henniker, NH 03242

Office Direct – 716-402-6792

Mobile - 603-340-7667




ksmith@gomezandsullivan.com



**Schoolfield
Hydroelectric Project
(36.5775, -79.4336)**

Source: Esri, Maxar, Earthstar Geographics, and the ©LS User Community

Legend

-  Schoolfield Hydroelectric Project
-  Priority Conservation Area (Coastal Zone)
-  Dan River
-  County Boundary

Coordinate System:
NAD83 State Plane Virginia South, Feet
Datum: North American 1983



0 50 100
Miles



Eagle Creek
Schoolfield, LLC and
City of Danville, VA
**Schoolfield
Hydroelectric Project**
FERC No. 2411