Stewarts Bridge Hydroelectric Project

Certification Application to the Low Impact Hydropower Institute

FERC Project No. 2047

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INTRODUCTION

Erie Boulevard Hydropower, L.P. (Erie), a wholly owned subsidiary of Brookfield Renewable, is providing this application to the Low Impact Hydropower Institute (LIHI) for certification of the Stewarts Bridge Project. The Stewarts Bridge Hydroelectric Project on the Sacandaga River in Saratoga County, New York. This facility is licensed with the Federal Energy Regulatory Commission (FERC) as the Stewarts Bridge Hydroelectric Project (FERC No. 2047) (Stewarts Bridge Project).

PART I. FACILITY DESCRIPTION

The key features of the Stewarts Bridge Project are described in Table 1.

Table I-1. Facility Description Information for the Stewarts Bridge Project.

Item	*Information Requests*	*Response (and references to further details)*
Name of the Facility	Facility name (use FERC project name if possible)	Stewarts Project (FERC No. 2047*)*
Location	River name (USGS proper name)	Sacandaga River
	Watershed name	Upper Hudson River Basin HUC-02020002
	Nearest town(s), county(ies), and state(s) to dam	Town of Hadley, Saratoga County, NY
	River mile of dam above next major river	3.0
	Geographic latitude of dam	43.297
	Geographic longitude of dam	-73.886
Facility Owner	Application contact names	See Part V of LIHI certification application for more information
	Facility owner company and authorized owner representative name.	Erie Boulevard Hydropower, L.P. Daniel J. Maguire
	FERC licensee company name (if different from owner)	Same as above
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	FERC Project Number 2047 New license issued September 25, 2002 The Stewarts Bridge Project Settlement Offer was dated March 27, 2000 and filed with FERC on April 12, 2000. License expires on August 31, 2042.
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	License for a Major Project
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	The Section 401 Water Quality Certificate was issued by the New York State Department of Environmental (NYSDEC) on May 25, 2001 (modified on December 11, 2011) and adopted into the FERC license. The NYSDEC DEC I.D. 5-4136-0001/0000.

	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	September 25, 2002 Order Issuing New License: https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=9567435 March 27, 2000 Settlement Offer: https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13624157 May 25, 2001 Water Quality Certificate: https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14133 April 12, 2012 Order Amending License (included modified WQC): https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12943432 July 26, 2011 Environmental Assessment: https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12749359 The November 26, 2013 Environmental Inspection Report: https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=13401667
Powerhouse	Date of initial operation (past or future for pre-operational applications)	The Stewarts Bridge Project was constructed in between 1951 and 1952.
	Total installed capacity (MW)	30.0 MW
	Average annual generation (MWh) and period of record used	Actual annual generation is filed with FERC each year. The average generation from 2013 to 2018 is 126,105 MWh.
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)	Erie currently operates the project in a modified peaking mode in tandem with E.J. West to accommodate scheduled releases from the Great Sacandaga Lake, which is scheduled by the Hudson River Black River Regulating District (HRBRRD).
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	**Main Powerhouse** Type: Vertical Francis Turbine Description:

		One generating unit with a design capacity of 42,000 HP at design head of 97 feet and a speed of 105.9 rpm Maximum Capacity: 5,560 cfs Minimum Capacity: 4,000 cfs **Minimum Flow Powerhouse** Type: Axial Flow Unit Description: One generating unit a design capacity of 3,000 HP at design head of 100.8 feet and a speed of 600 rpm Maximum Capacity: 350 cfs (each) Minimum Capacity: 275 cfs (each)
	Trashrack clear spacing (inches), for each trashrack	1.0 inch clear spacing
	Dates and types of major equipment upgrades	A minimum flow powerhouse was constructed in 2013 to provide the required base flow downstream of the Project.
	Dates, purpose, and type of any recent operational changes	There have been no regulatory facility upgrades.
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	A minimum flow powerhouse was constructed in 2013 to provide the required based flow downstream of the Project.
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1951 to 1952 – original construction 1984 – filter blanket and pipe drainage system installed on the earthen dam 1990 to 1991 – plastic concrete slurry wall in dam constructed 1996 to 1997 – relief wells installed downstream of filter blanket
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	Embankment Dam Height: 112 feet Spillway Height: 34 feet Flashboards: N/A
	Spillway elevation and hydraulic capacity	Spillway elevation: 690.1 ft Top of Gate elevation: 705.75 feet Hydraulic capacity: 43,300 cfs at 714.5 feet (crest of embankment)

	Tailwater elevation (provide normal range if available)	592.0 feet - 600 feet (normal)
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	Water is conveyed through a 216-foot-long steel penstock to the main powerhouse. A 275-foot-long penstock connected to the main penstock conveys water to the minimum flow powerhouse.
	Dates and types of major infrastructure changes	The major infrastructure improvements are as follows: 2012 – 2013: Construction of minimum flow powerhouse.
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	The purpose of the project is for power generation.
	Source water	Sacandaga River
	Receiving water and location of discharge	Sacandaga River at RM 3.0
Conduit	Date of conduit construction and primary purpose of conduit	Constructed in 1951-1952 to convey water to the powerhouse.
Impoundment and Watershed	Authorized maximum and minimum water surface elevations	705.0 ft maximum; 704.0 ft minimum
	Normal operating elevations and normal fluctuation range	705.0 ft maximum; 704.0 ft minimum
	Gross storage volume and surface area at full pool	Gross volume: 18,600 acre-feet Surface area: 480 acres
	Usable storage volume and surface area	Usable Volume: 18,600 acre-feet Surface Area: 480 acres
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	The Stewarts Bridge Project operates with a 1.0-foot impoundment fluctuation limit. A base flow between 300 and 350 cfs is required year round based on the reservoir elevation.
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Great Sacandaga Lake, HRBRRD, P-12252, RM 6.3 EJ West, Erie Boulevard Hydropower, P-2318, RM 6.3

		* No upstream dams provide downstream fish passage.
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	There are no downstream dams on the Sacandaga River. There are, however several dams downstream of Stewarts Bridge on the Hudson River.
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	Great Sacandaga Lake (FERC P-12252) controls 1,044square miles of the drainage area that contributes to the hydroelectric projects on the Hudson River. Discharges from the reservoir are regulated by the Hudson River Black River Regulating District (HRBRRD).
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	The FERC project boundary covers 700 acres (210 acres of land and 490 acres of water).
Hydrologic Setting	Average annual flow at the dam, and period of record used	The approximately average annual flow at the Stewarts Bridge Project based on flow data from 2013 through 2019 at the USGS Gage No. 01325000 Sacandaga River at Stewarts Bridge near Hadley, NY is 2,244cfs.
	Average annual flow at the dam, and period of record used	The approximate average monthly flows at the Stewarts Bridge Project based on flow data from 2013 through 2019 at the USGS Gage No. 01325000 Sacandaga River at Stewarts Bridge near Hadley, NY are as follows: January – 3,213 cfs February – 2,514 cfs March – 2,349 cfs April – 1,382 cfs May – 2,110 cfs June – 2,401 cfs July – 2,465 cfs August – 1,678 cfs September – 1,471 cfs October – 1,471 cfs November – 2,802 cfs December – 3,073 cfs

	Location and name of closest stream gauging stations above and below the facility	Downstream: USGS Gage No. 01325000 Sacandaga River at Stewarts Bridge near Hadley, NY (located downstream of the Stewarts Bridge Hydroelectric Project), RM 1.4 Upstream: N/A
	Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.	1,055square miles Daily mean flow data for the Stewarts Bridge Project was estimated based on discharge data recorded USGS Gage No. 01325000 Sacandaga River at Stewarts Bridge near Hadley, NY. No proration was applied.
Designated Zones of Effect	Number of zones of effect	There are two zones of effect at the Stewarts Bridge Project (See Appendix A).
	Upstream and downstream locations by river miles	Zone 1: 3.0 to 6.3 Zone 2: 0.0 to 3.0
	Type of waterbody (river, impoundment, by-passed reach, etc.)	Zone 1: Impoundment Zone 2: Downstream
	Delimiting structures or features	Zone 1: From the head of the impoundment, downstream approximately 5.5 miles to the dam. Zone 2: From the spillway, downstream approximately 2.9 miles to confluence with the Hudson River.
	Designated uses by state water quality agency	The NYSDEC has classified the portion of the Hudson River upstream and downstream of the Stewarts Bridge Project as Class C waters. Link to NYSDEC Classification Codes: https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I06849fe0b5a111dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

PART II. STANDARD MATRICES

The Stewarts Bridge Project has a total of two zones of effect that are defined as: (1) Zone one, which extends from the head of the Stewarts Bridge impoundment at EJ West Hydroelectric Project tailrace, downstream approximately 3.4 miles to the Stewarts Bridge spillway, (2) Zone two, which extends from the Stewarts Bridge spillway, downstream approximately 3.0 miles to the confluence with the Hudson River.

The standards selected to satisfy the LIHI certification criteria in each of these zones are identified in the following tables.

Table II-1. LIHI Standards Selected for Zone of Effect No. 1 for the Stewarts Bridge Project

		Alternative Standards				
	Criterion	***1***	***2***	***3***	***4***	***Plus***
A	**Ecological Flow Regimes**	X				
B	**Water Quality**		X			
C	**Upstream Fish Passage**	X				
D	**Downstream Fish Passage**		X			
E	**Watershed and Shoreline Protection**	X				X
F	**Threatened and Endangered Species Protection**			X		
G	**Cultural and Historic Resources Protection**		X			
H	**Recreational Resources**		X			

Table II-2. LIHI Standards Selected for Zone of Effect No. 2 for the Stewarts Bridge Project

		Alternative Standards				
	Criterion	***1***	***2***	***3***	***4***	***Plus***
A	**Ecological Flow Regimes**		X			
B	**Water Quality**		X			
C	**Upstream Fish Passage**		X			
D	**Downstream Fish Passage**	X				
E	**Watershed and Shoreline Protection**	X				X
F	**Threatened and Endangered Species Protection**			X		
G	**Cultural and Historic Resources Protection**		X			
H	**Recreational Resources**		X			

PART III. SUPPORTING INFORMATION

This section contains information that explains and justifies the standards selected to pass the LIHI certification criteria (see Part II for selections).

STEWARTS BRIDGE PROJECT

Information Required to Support Ecological Flows Standards.

III.A.1 Ecological Flows: Stewarts Bridge Zone 1

Criterion	*Standard*	*Instructions*
A	1	Not Applicable / De Minimis Effect: • Confirm the location of the powerhouse relative to dam/diversion structures and demonstrate that there are no bypassed reaches at the facility. • For run-of-river facilities, provide details on operations and demonstrate that flows, water levels, and operation are monitored to ensure such an operational mode is maintained. If deviations from required flows have occurred, discuss them and the measures taken to minimize reoccurrence. • In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones only, explain water management (e.g., fluctuations, ramping, refill rates) and how fish and wildlife habitat within the zone is evaluated and managed. NOTE: this is required information, but it will not be used to determine whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion.

Zone 1 of the Stewarts Bridge Project is the impoundment. As required by the Settlement Offer and License Article 403, the Stewarts Bridge Project operates with a one foot daily impoundment fluctuation limit.

According to the 2001 FERC Environmental Impact Statement (EIS), impoundment fluctuations of 1 foot or less would protect benthic organisms, vegetative growth, fish spawning, and overall productivity of the littoral zone and whole impoundment.

As stated in the EIS, impoundment fluctuation studies found that 1-foot daily drawdowns should not substantially affect aquatic resources in the Stewarts Bridge impoundment. Of the centrarchid species present in the impoundment, only the pumpkinseed are known to spawn in depths of less than 1 foot. Since these species are known to spawn over a wide range of depths (0.5 to 4.5 ft or more), and transect measurements made during the study indicated that no extensive "flats" of potential spawning habitat would be exposed, only a small proportion of the available spawning

habitat could be affected. Yellow perch prefer to spawn in areas deeper than I ft, and most potential walleye spawning habitat identified in the study was found at depths greater than 1 ft.

2001 FERC EIS:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8315170

Great Sacandaga Lake (FERC P-12252) controls 1,044 square miles of the drainage area that contributes to the Stewarts Bridge Project. Discharges from the reservoir are regulated by the HRBRRD. The HRBRRD allocated sufficient daily water volume releases from the Great Sacandaga Lake to meet minimum average daily flow requirements on the Hudson River. Typically, the reservoir is lowered in the fall and filled in the spring.

The Stewarts Bridge Project is in compliance with resource agency conditions issued regarding flow conditions. The FERC license, Settlement Offer, and Section 401 Water Quality Certificate (WQC) include the requirements for flow releases and water level control recommended by the NYSDEC and United States Fish and Wildlife Service (USFWS).

Article 401 of the license requires a Stream Flow and Water Level Monitoring Plan (SFWLMP), be developed to ensure compliance with impoundment fluctuations and base flows. The licensee filed a SFWLMP on July 14, 2003, which was approved by the Commission on July 13, 2004. The licensee modified the Plan to include new information on staff gages, stream flow monitoring, and the feasibility of Internet-type posting of elevation and flow records. The Final SFWLMP was filed with FERC on May 2, 2005. On July 12, 2005 FERC issued an Order Modifying and Approving SFWLMP pursuant to Article 401 of the FERC license. As part of the SFWLMP, the licensee is required to monitor headpond elevations. The licensee installed and maintains hydro-acoustic sensors to monitor the impoundment.

License Article 401 Compliance Stream Flow and Water Level Monitoring Plan:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10629173

July 12, 2005 Order Approving Stream Flow and Water Level Monitoring Plan
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10661561

Erie remains in compliance with the established flow conditions and impoundment levels and maintains records of these conditions at the Project. In the event of a deviation from established minimum flows or impoundment levels, Erie files documentation with FERC detailing the reasons for the deviation.

III.A.2 Ecological Flows: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
A	2	Agency Recommendation (see Appendix A for definitions): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

Zone 2 of the Stewarts Bridge Project is the area downstream of the Stewarts Bridge Dam. The Stewarts Bridge Project is in compliance with resource agency conditions issued regarding base flow conditions. The FERC license, Settlement Offer, and Section 401 WQC include the requirements for flow releases and water level control recommended by the NYSDEC and USFWS.

License Article 405 and the Settlement Offer require Erie to maintain an instantaneous base flow immediately downstream of the Stewarts Bridge dam. The table below summarizes the base flow requirements.

Great Sacandaga Lake Elevation (NGVD)	**Base Flow (cfs)**
01/01/13 to 06/01/20	
Greater than or equal to elevation 752	350 (349 – 351)
Between Elevation 749 and 752	300 (299-301)
Less than or equal to elevation 749	300 (299-301) cfs or inflow, * whichever is less
06/02/20 to License Expiration	
Greater than or equal to elevation 752	350 (349 – 351)
Between Elevation 750 and 752	300 (299-301)
Less than or equal to elevation 750	300 (299-301) cfs or inflow, * whichever is less
* Inflow is measured at the Hope USGS gage and adjusted for drainage area only. The drainage area factor is equivalent to the drainage area at Conklingville Dam outlet (1,044 miles squared) divided by the drainage area at the Hope gage (491 miles squared) or 2.13. Inflow shall not be adjusted for lake evaporation. **Other Conditions:** If the Hudson River flow below the Sacandaga River confluence is greater than 25,000 cfs, then the base flow that must be achieved by release is 200 cfs.	

According to the EIS, an instream flow incremental methodology (IFIM) study was perform to address flow recommendations downstream of Stewarts Bridge dam. The IFIM study and flow demonstration studies supported the conclusion that implementing a base flow below the Stewarts Bridge dam would improve aquatic habitat in the lower Sacandaga River. The steady-flow IFIM model results showed that the amount of habitat available to most lifestages of numerous fish and invertebrates evaluated at 350 cfs is substantially greater than that available at leakage flows of 35 to 50 cfs.

On January 6, and supplemented April 25, and June 30, 2011, the licensee filed an application for an amendment to a 2,550 kilowatt turbine-generator unit designed to release required base flows. On April 12, 2012 FERC issued the Order Amending License and Revising Annual Charges.

April 12, 2012 Order Amending License and Revising Annual Charges:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12943432

Article 401 of the license requires a SFWLMP be developed to ensure compliance with impoundment fluctuations, base flows, and whitewater flow releases. The licensee filed a SFWLMP on July 14, 2003, which was approved by the Commission on July 13, 2004. The licensee modified the Plan, and the Final SFWLMP was filed with FERC on May 2, 2005. On July 12, 2005 FERC issued an Order Modifying and Approving the SFWLMP.

The licensee is required to monitor and maintain tailwater elevations, with base flow releases from the project. The licensee installed hydro-acoustic sensors to monitor the tailwater elevations.

License Article 401 Compliance Stream Flow and Water Level Monitoring Plan:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10629173

July 12, 2005 Order Approving Stream Flow and Water Level Monitoring Plan
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10661561

Erie remains in compliance with the established flow conditions and impoundment levels and maintains records of these conditions at the Project. In the event of a deviation from established minimum flows or impoundment levels, Erie files documentation with FERC detailing the reasons for the deviation.

Information Required to Support Water Quality Standards.

III.B.1 Water Quality: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
B	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

The portion of the Sacandaga River from Conklingville Dam to the Hudson River is not listed as an impaired in the November 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy. Listing is here: http://www.dec.ny.gov/chemical/31290.html.

The Sacandaga River in the vicinity of the Stewarts Bridge Project is classified by NYSDEC as Class C. The best usage of Class C waters is supporting fisheries and suitable for non - contact activities.

The Stewarts Bridge Project is in compliance with all conditions issued pursuant to a Clean Water Act – Section 401 WQC. The Section 401 WQC is conditioned on compliance with the terms of the Settlement Offer. The WQC for the Project was issued May 25, 2001 (https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14133). On-going water quality monitoring at the Project is not required as part of the WQC or FERC license.

Generally, any changes to the original WQC are necessitated by significant changes in or to the Project environment affecting the Conditions of the original WQC, which culminates in an amendment of the original WQC. The WQC for Stewarts Bridge was modified on December 14, 2011 (https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12943432) as part of the April 12, 2012 License Amendment.

Additionally, the Applicant contacted the NYSDEC on February 12, 2020, regarding the current WQC status for the Project. The NYSDEC indicated that the existing WQC is valid for the duration of the FERC license. The consultation documentation regarding the 401 WQC is included in Appendix D.

III.B.2 Water Quality: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
B	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

See above response for Zone 1.

Information Required to Support Upstream Fish Passage Standards.

III.C.1 Upstream Fish Passage: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
C	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There are no upstream fish passage barriers or migratory fish management issues in Zone 1 because it is an impoundment. There are no mandatory prescriptions (section 18 or similar) for the passage of riverine fish at the Project. In the Settlement Offer, the Department of the Interior (Interior) did request reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which is provided in Article 409 of the 2002 FERC license.

According to 2001 EIS, the fish community in the lower Sacandaga River is primarily an assemblage of warmwater and coolwater species. The Stewarts Bridge impoundment provides diverse littoral habitats including sand, gravel, and cobble shoals; stump and snag areas; rocky,

boulder areas; and several small tributary inlets. Spawning habitat is abundant for centrarchid species and for yellow perch, but spawning habitat for walleye is limited. The tailrace of the E.J. West powerhouse and several tributaries provide the best spawning habitat for walleye spawning.

Walleye spawning surveys conducted in the Stewarts Bridge impoundment, during the licensing effort found only 19 Walleye, with the largest concentrations of fish in the mouths of tributary streams. Common game species collected in the impoundment during surveys conducted between 1953 and 1996 include smallmouth bass, rock bass, and yellow perch. The project waters also support a number of forage fish and rough fish including common carp and various minnow species. No anadromous or catadromous fish species are known to occur at the project.

III.C.2 Upstream Fish Passage: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
C	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

There are no mandatory prescriptions (section 18 or similar) for the passage of riverine fish at the Project. In the Settlement Offer, the Department of the Interior (Interior) did request reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which is provided in Article 409 of the 2002 FERC license. There are no agency provisions for upstream fish passage monitoring.

According to 2001 EIS, collections of fish taken from the tailwaters of the Stewarts Bridge Project included 27 specimens from nine species, with smallmouth bass and longnose dace being the most abundant. In addition, fall fish, white sucker, bluegill sunfish, rock bass, log perch, and yellow perch. Some brown trout are reported to occur in the project tailwaters even though this reach is not classified as “trout waters” by the NYDEC. It is suspected that these trout entered this reach from tributaries or from stockings upstream of the E.J. West Project.

Section 8 of the Settlement Offer requires Erie to contribute to the Fisheries Enhancement Fund. Erie contributes $5,000 annually (or escalated at the rate of inflation) to the Fisheries Enhancement Fund, which may be used for any fishery related projects throughout New York State.

Annual Report of Fisheries Enhancement Fund:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=15192462

Information Required to Support Downstream Fish Passage Standards.

III.D.1 Downstream Fish Passage: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
D	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

The Interior requested reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which was granted in Article 409 of the license. There are no agency requirements for fish passage monitoring in the license.

According to 2001 EIS, the fish community in the lower Sacandaga River is primarily an assemblage of warmwater and coolwater species. The Stewarts Bridge impoundment provides diverse littoral habitats including sand, gravel, and cobble shoals; stump and snag areas; rocky, boulder areas; and several small tributary inlets. Spawning habitat is abundant for centrarchid species and for yellow perch, but spawning habitat for walleye is limited. The tailrace of the E.J. West powerhouse and several tributaries provide the best spawning habitat for walleye spawning.

Walleye spawning surveys conducted in the Stewarts Bridge impoundment, during the licensing effort found only 19 Walleye, with the largest concentrations of fish in the mouths of tributary streams. Common game species collected in the impoundment during surveys conducted between 1953 and 1996 include smallmouth bass, rock bass, and yellow perch. The project waters also support a number of forage fish and rough fish including common carp and various minnow species. No anadromous or catadromous fish species are known to occur at the project.

As discussed in the 2001 EIS, an entrainment study was not conducted at Stewarts Bridge but entrainment studies conducted at EJ West and Sherman Island were used to estimate entrainment rates. Data from the E.J. West powerhouse were used to develop the entrainment estimate of 0.13 to 1.69 fish per million cubic feet of water passing through the powerhouse. Estimated mortality rates, based on data from sites with similar turbine characteristics, ranged from 9 to 40 percent depending on fish species and size. Annual entrainment was estimated at 9,000 to 111,000 fish

depending on whether densities from E.J. West or Sherman Island are used. Based on the E.J. West data, a total of 21 taxa would be entrained, including yellow perch, smallmouth bass, walleye, and various minnows. Using the Sherman Island data as a basis for projections, 30 taxa would be entrained including various minnows, rock bass, pumpkinseed, smelt, yellow perch and smallmouth bass.

EJ West Fish Entrainment Study:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10715819

Feeder Dam Fish Entrainment Study:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14242658

To facilitate the downstream passage of fish, Article 404 of the 2002 License required the licensee to install full trash racks overlays with maximum clear spacing of one inch by December 31, 2008. To afford a route of downstream movement for fish, the licensee discharges a continuous flow of 25 cfs through modifications to one of the existing Tainter gates, beginning at the time the trash rack overlays were installed in 2008. In addition, the licensee implemented fish protection measures such as reduce the roughness of sluice spillway faces; reduce dispersion of conveyance flow releases across the spillway face; and construct plunge pools at the toe of the spillways with a depth of approximately 25 percent of the vertical distance of any free fall.

On February 19, 2008 FERC issued an Order Modify and Approving Trashrack Installation Plan to approve the completed installation of the trashrack overlay. On June 10, 2008 FERC issued and Order Approving Downstream Fish Route for modifying a project tainter gate to provide a route for downstream fish passage. There are no agency provisions for downstream fish passage monitoring.

Order Modify and Approving Trashrack Installation Plan
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=11589460

Order Approving Downstream Fish Route:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=11710919

Section 8 of the Settlement Offer requires Erie to contribute to the Fisheries Enhancement Fund. Erie contributes $5,000 annually (or escalated at the rate of inflation) to the Fisheries Enhancement Fund, which may be used for any fishery related projects throughout New York State.

Annual Report of Fisheries Enhancement Fund:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=15192462

III.D.2 Downstream Fish Passage: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
D	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There are no downstream fish passage barriers or migratory fish management issues in Zone 2. There are no mandatory prescriptions (section 18 or similar) for the passage of riverine fish at the Project. In the Settlement Offer, the Interior did request reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which is provided in Article 409 of the license.

According to 2001 EIS, collections of fish taken from the tailwaters of the Stewarts Bridge Project included 27 specimens from nine species, with smallmouth bass and longnose dace being the most abundant. In addition, fall fish, white sucker, bluegill sunfish, rock bass, log perch, and yellow perch. Some brown trout are reported to occur in the project tailwaters even though this reach is not classified as “trout waters” by the NYDEC. It is suspected that these trout entered this reach from tributaries or from stockings upstream of the E.J. West Project.

Information Required to Support Shoreline and Watershed Protection Standards.

III.E.1 Shoreline and Watershed Protection: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
E	1	Not Applicable / De Minimis Effect: • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.
E	PLUS	Bonus Activities: • Provide documentation that the facility has a formal conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline that the facility owns around its reservoirs and river corridors. • In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around undeveloped shoreline.

The Project is located in the town of Hadley, Saratoga County, approximately 3 miles upstream of the confluence with Hudson River. The Sacandaga River basin is about 64 miles long and is located in the northern part of New York. The drainage basin above the Stewarts Bridge Project is 1,044 square miles of which 1,034 square miles contributes to the Great Sacandaga Lake of the upstream E.J. West Project.

The Sacandaga River watershed lies partly within the Adirondack State Park boundary and the Adirondack Mountains which is characterized as being mostly undeveloped with large forested areas occupying most of the drainage basin with a small number of areas in agricultural production. The Stewarts Bridge Project is located within the southeastern section of the Adirondack State Park boundary. This area is characterized by low mountain ranges with numerous small lakes and tributaries providing a diversity of habitat types (FERC, 2001).

Most of the impoundment shoreline is undeveloped forestland. The presence of forest overstory on the hillsides general1y blocks views of the impoundment from secondary roads that parallel the impoundment shoreline. Views of small sections of the impoundment with mountains in the background are available at the Stewarts Bridge impoundment recreation area and at the commercial Stewarts Pond-campsites. According to the EIS, elimination of maintenance drawdowns visual quality of the shoreline for shoreline residents by reducing the amount of exposed substrate during the late winter and spring (between mid-March and early May) and the increase base flow would also enhance the visual quality during the tourist and recreation seasons.

Section 8 of the Settlement Offer requires Erie to contribute $10,000 annually (escalated at the rate of inflation) to the Hudson/Sacandaga River Enhancement Fund. The Sacandaga/Hudson River Enhancement Fund may be used within the Sacandaga River as defined from Conklingville Dam to the confluence of the Hudson River for ecosystem restoration, fish stocking, stewardship, or recreational resources.

Article 411 of the Stewarts Bridge Project license requires the licensee to file an annual report with FERC of contributions to the Sacandaga/Hudson River Enhancement Fund.

Annual Report of the Sacandaga/Hudson River Enhancement Fund:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=15192462

III.E.2 Shoreline and Watershed Protection: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
E	1	Not Applicable / De Minimis Effect: • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.
E	PLUS	Bonus Activities: • Provide documentation that the facility has a formal conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline that the facility owns around its reservoirs and river corridors. • In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around undeveloped shoreline.

See response above for Zone 1.

Information Required to Support Threatened and Endangered Species Standards.

III.F.1 Threatened and Endangered Species: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
F	3	Recovery Planning and Action: • If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents. • Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the area.

According to the 2011 Environmental Assessment, Karner blue butterfly (Lycaeides melissa samuelis) may potentially occur within the Project area. By letter to the Erie dated December 1, 2010, the USFWS concluded that Indiana bats and Karner blue butterflies are unlikely to occur at the site and that no further consultation pursuant to the Endanger Species Act was required.

2011 Environmental Assessment
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12748821

Based on information received from the USFWS's New York Field Office on February 12, 2020, regarding a request for information on rare, threatened or endangered (RTE) species it appears that the Indiana Bat (*Myotis sodalist*) may potentially occur within the Project area. There are no critical habitats located within the Stewarts Bridge Project area.

The USFWS has adopted the following recovery plan for the Indiana bat that may be present in the vicinity of the Stewarts Bridge Project:

> U.S. Fish and Wildlife Service. 2007. Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

Recovery actions identified in USFWS's Indiana Bat Draft Recovery Plan include hibernacula related recovery actions and summer habitat management. No Indiana bat hibernacula, which typically include caves and mines, are known to exist in the immediate vicinity of Stewarts Bridge Project. Transient individuals, presumably in association with summer habitat, may however exist in the Project area. Operations of the Stewarts Bridge Project are consistent with this draft recovery plan.

The USFWS has adopted the following recovery plan for the Karner blue butterfly that may be present in the vicinity of the Stewarts Bridge Project:

U.S. Fish and Wildlife Service. 2003. Final Recovery Plan for the Karner Blue Butterfly (Lycaeides melissa samuelis). U.S. Fish and Wildlife Service, Fort Snelling, Minnesota. 273 pp.

Recovery actions identified in USFWS's Karner blue butterfly Recovery Plan include identification and monitoring of viable metapopulation. The Karner blue butterfly is known to be dependent on blue lupine (Lupinus perennis), its only known larval food plant. Blue lupine and Karner blue butterfly have not been observed in the Project area.

During preparation of this application, Erie also consulted with NYSDEC's Natural Heritage Program for an updated list of threatened and endangered species that may occur in the vicinity of the Stewarts Bridge Project. By letter dated February 27, 2020 the NYSDEC indicated that the Bald Eagle (Haliaeetus leucocephalus), which is state-listed as threatened, and Pygmy Snaketail (Ophiogomphus howei), which is state-listed as special concern may occurring the vicinity of the Stewarts Bridge Project. Bald Eagles have be observed in the general reservoir area and Pygmy Snaketail have been documented in the upper Hudson River. There are no critical habitats documented within the Stewarts Bridge Project area.

The NYSDEC has developed a Conservation Plan for Bald Eagles in New York State:

NYSDEC. 2016. Conservation Plan for Bald Eagles in New York State.

Conservation strategies include limiting construction, foresting, and recreation activities in the vicinity of nest trees and deep winter roost sites. The Stewarts Bridge impoundment recreation area is closed during the winter to prevent persons from accessing the upper impoundment, thereby protecting bald eagle wintering habitat. The NYSDEC has not adopted a formal recovery plan for the Pygmy Snaketail.

There are no specific additional requirements for threatened or endangered species protection in the FERC license or WQC for the Stewarts Bridge Project. The record of RTE consultation is included in Appendix E.

III.F.2 Threatened and Endangered Species: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
F	3	Recovery Planning and Action: • If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents. • Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the area.

See response above for Zone 1.

Information Required to Support Cultural and Historic Resources Standards.

III.G.1 Cultural and Historic Resources: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
G	2	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

In 1996, the Licensee entered into a Programmatic Agreement (executed July 19, 1996), including but not limited to the Cultural Resources Management Plan for the project. According to the EIS, no archeological sites or historical resources have been identified within the project boundary. The Stewart Bridge Project, constructed in 1951-1952, has not been evaluated for eligibility for listing in the National Register of Historic Places (NRHP). According to the 2011 Environmental Assessment, there are no archaeological sites listed in or eligible for the NRHP.

FERC Approved the Cultural Resources Management Plan (CRMP) on June 3, 2005. The licensee implements its Programmatic Agreement and CRMP to mitigate the effects of operations within the project's area of potential effect (APE), pursuant to license Article 410.

The licensee files an annual monitoring report on activities undertaken that may be subject to the CRMP. The annual historic properties monitoring report for 2019 was filed on September 20, 2019. The licensee appears to be in compliance with its requirements with regard to cultural resources.

Programmatic Agreement:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8231177

2011 Environmental Assessment
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12749359

Order Approving CRMP:
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10595712

2019 Annual HPMP Report
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=15359889

III.G.2 Cultural and Historic Resources: Stewarts Bridge Development Zone 2

Criterion	*Standard*	*Instructions*
G	2	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

See above response for Zone 1.

Information Required to Support Recreational Resources Standards.

III.H.1 Recreational Resources: Stewarts Bridge Development Zone 1

Criterion	*Standard*	*Instructions*
H	2	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

Recreational facilities at the project include a canoe take-out and put-in portage trail, a raft launch area and a raft take-out area, two day-use areas, and campsites. Downstream from the Project, a popular and regionally significant reach of Class II-III whitewater exists on the Sacandaga River. The reach consists of 3 miles of free-flowing river from the Stewarts Bridge dam to the confluence with the Hudson River. Numerous commercial rafting outfitters provide access to whitewater rafting activities on this segment of the Sacandaga River. The typical project discharge during periods of generation, 4,000 cfs, makes this downstream reach of the Sacandaga River suitable for more experienced paddlers. As such, the generation schedule for Stewarts Bridge is dictated in part by the schedule for the provision of whitewater releases outlined in license Article 408 and Section 5.5 of the Settlement.

Article 406 required the licensee to a plan and schedule for constructing the recreational improvements and facilities at the Stewarts Bridge Recreation Area, canoe portage trail, and north side put-in within six months from date of issuance of the license. On November 18, 2003 FERC issued an Order Approving the Recreation Plan, which was submitted to FERC on April 29, 2003.

Stewarts Bridge Recreation Plan:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=10468136

Order Approving the Recreation Plan:
https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=9992439

Article 407 required the licensee to develop a south side take-out area at the former Hadley Town Beach on the right bank of the Hudson River just downstream of the mouth of the Sacandaga River. Article 408 requires the licensee to schedule whitewater recreation flows of approximately 4,000 cfs from the powerhouse.

Erie permits free public access to the shoreline of the Stewarts Bridge development across Erie's lands where Project facilities, hazardous areas and existing leases, easements, and private ownership do not preclude access.

III.H.2 Recreational Resources: Stewarts Bridge Development Zone 2

Criterion	***Standard***	***Instructions***
H	2	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

See response above for Zone 1.

PART IV. SWORN STATEMENT AND WAIVER

As an Authorized Representative of Erie Boulevard Hydropower, L.P., the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: Erie Boulevard Hydropower, L.P.

Authorized Representative

Name: Daniel J. Maguire

Title: Compliance Manager

Authorized Signature: 

Date: 3/19/2020

PART V. CONTACTS

Table V-1. Complete contact information for Erie Boulevard Hydropower, L.P.

Project Owner:	
Name and Title	
Company	Erie Boulevard Hydropower, L.P., a subsidiary of Brookfield Renewable
Phone	
Email Address	
Mailing Address	399 Big Bay Road, Queensbury, NY 12804
Project Operator (if different from Owner):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Daniel J. Maguire, P.E., Compliance Manager
Company	Brookfield Renewable
Phone	315-267-1036
Email Address	Danny.Maguire@brookfieldrenewable.com
Mailing Address	184 Elm Street, Potsdam, NY 13676
Party responsible for accounts payable:	
Name and Title	
Company	Brookfield Renewable
Phone	
Email Address	AP@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC J8X 2A1
Name and Title	Sandeep Mascarenhas, Senior Analyst, Capacity & Ancillary Services Management
Company	Brookfield Renewable
Phone	819-561-2722 ext. 6743
Email Address	Sandeep.Mascarenhas@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC J8X 2A1

Table V-2. Complete contact information for current and relevant state, federal, provincial, and tribal resource agency contacts.

Agency Contact (Check area of responsibility: Flows_X_, Water Quality _X_, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation _X_):	
Agency Name	New York State Department of Environmental Conservation
Name and Title	Beth Magee, Environmental Analyst
Phone	518-623-1281
Email address	dep.r5@dec.ny.gov
Mailing Address	232 Golf Course Road, Warrensburg, NY 12885

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. _X_, Cultural/Historic Resources __, Recreation __):	
Agency Name	New York State Department of Environmental Conservation
Name and Title	Nicholas Conrad, Information Resources Coordinator
Phone	518-402-8935
Email address	Nick.Conrad@dec.ny.gov
Mailing Address	625 Broadway, Albany, NY 12233-4757

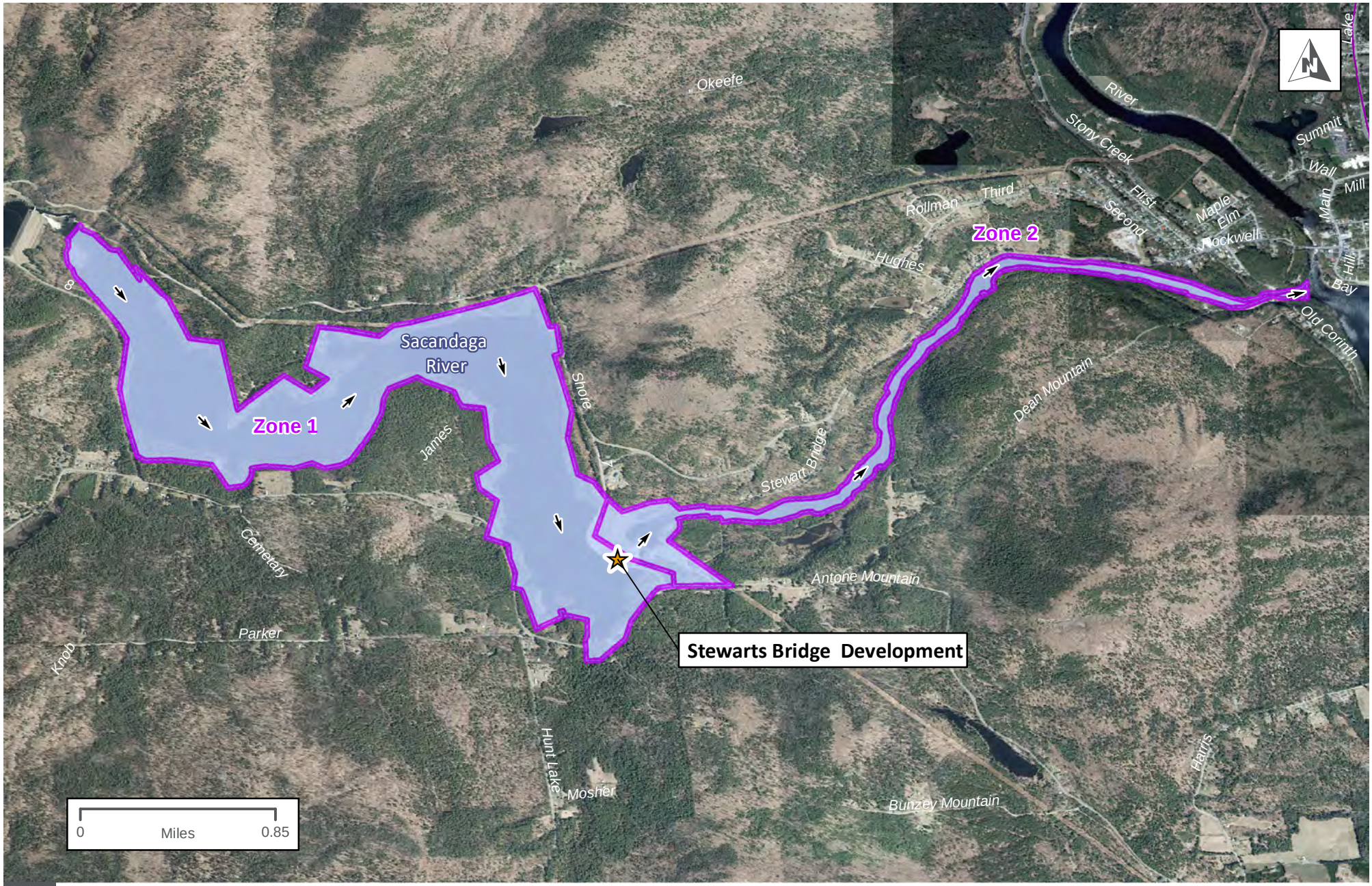
Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. _X_, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. Fish and Wildlife Service
Name and Title	Robyn Niver, Endangered Species Biologist
Phone	607-753-9334
Email address	Robyn_Niver@fws.gov
Mailing Address	3817 Luker Road, Cortland, NY 13045

Agency Contact (Check area of responsibility: Flows_X_, Water Quality _X_, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. _X_, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. Fish and Wildlife Service
Name and Title	Steve Patch
Phone	607-753-9334
Email address	Stephen_Patch@fws.gov
Mailing Address	3817 Luker Road, Cortland, NY 13045

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _X_, Recreation __):	
Agency Name	New York State Division for Historic Preservation
Name and Title	Michael Lynch, Division Director
Phone	518-237-8643
Email address	Michael.Lynch@parks.ny.gov
Mailing Address	Peebles Island State Park, P.O. Box 189, Waterford, NY 12188-0189

APPENDIX A

STEWARTS BRIDGE PROJECT ZONES OF EFFECT



Flow Direction Zones of Effect

HUDSON RIVER ZONES OF EFFECT

STEWARTS BRIDGE DEVELEOPMENT

PATH: C:\USERS\KAUSTIN\DESKTOP\STEWARTS\MAP_DOCS\DRAFT\MAP_LIHIAPP_STEWARTSDAM.MXD - USER: KAUSTIN - DATE: 2/13/2020

APPENDIX B

PHOTOS OF KEY PROJECT FEATURES

APPENDIX B – PHOTOGRAPHS OF KEY PROJECT FEATURES

Spillway

Powerhouses and Tailrace

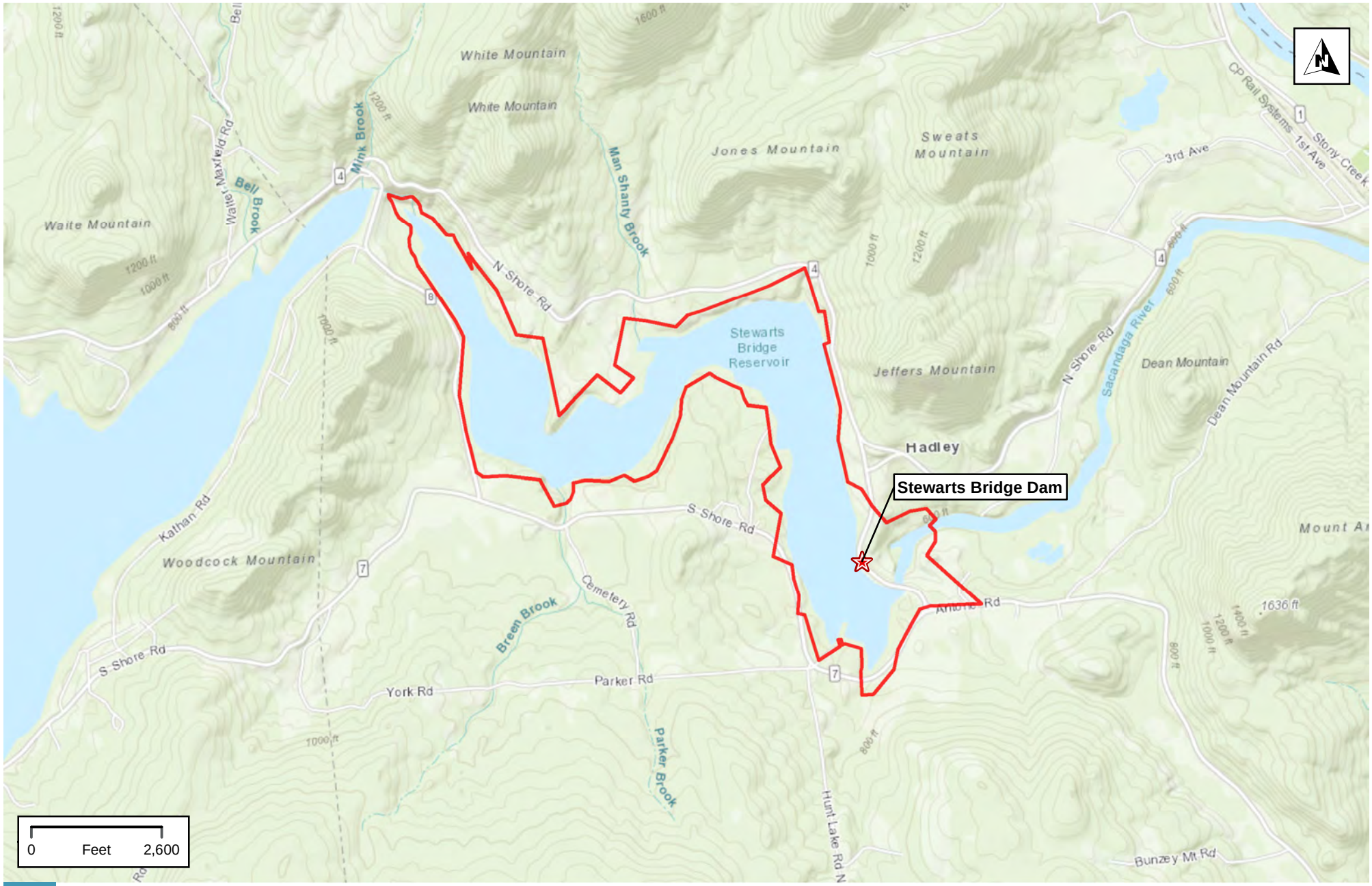
North Side Put-In

South Side Put-In

APPENDIX C

PROJECT MAPS AND AERIALS

Location of the Stewarts Bridge Project in Saratoga County, New York. (Source: 2011 Environmental Assessment)



Brookfield

Project Location Project Boundary

PROJECT BOUNDARY

STEWARTS BRIDGE DEVELOPMENT

FIGURE 1

PATH: C:\USERS\KAUSTIN\DESKTOP\STEWARTS\MAP_DOCS\DRAFT\MAP_LIHI_TOPO_PROJECTBOUNDARY.MXD - USER: KAUSTIN - DATE: 2/27/2020

APPENDIX C – MAPS AND AERIAL PHOTOS OF FACILITY AREA AND RIVER BASIN

STEWARTS BRIDGE HYDROELECTRIC PROJECT

APPENDIX D

401 WATER QUALITY CERTIFICATION CONSULTATION

Brookfield

Brookfield Renewable
184 Elm Street
Potsdam, NY 13676

Tel 315.267.1020
www.brookfieldrenewable.com

February 12, 2020

Ms. Beth Magee
New York State Department of Environmental Conservation
232 Gold Course Road
Warrensburg, NY 12885-1172

Subject: **Stewarts Bridge Hydroelectric Project (FERC No. 2047)**
Low Impact Hydropower Institute Certification
Water Quality Certificate Verification

Dear Ms. Magee:

Erie Boulevard Hydropower, L.P. (Erie) is applying for Low Impact Hydropower Institute (LIHI) certification for the Stewarts Bridge Hydroelectric Project (FERC No. 2047). This Project is located on the Sacandaga River in the Town of Hadley, Saratoga County, New York.

Erie is requesting confirmation from the New York State Department of Environmental Conservation stating that the 401 Water Quality Certificate issued for the operation of Stewarts Bridge Hydroelectric Project on March 25, 2001 (modified on December 14, 2011) is still valid. Please provide this confirmation by reply to this letter via letter or email.

Erie would appreciate a response within 30 days of the date of this letter. Thank you in advance for your assistance, and if you have any questions, please do not hesitate to contact me at (315) 267-1036 or by email at Danny.Maguire@brookfieldrenewable.com.

Sincerely,

Daniel Maguire, P.E.
Compliance Manager
North Atlantic Operations

Caley, Katherine

From: Magee, Beth A (DEC) <beth.magee@dec.ny.gov>
Sent: Friday, March 13, 2020 2:11 PM
To: Caley, Katherine
Subject: Stewart's Bridge and Sherman Island Water Quality Certifications

Hi Katherine.

Thank you for contacting our office regarding the Water Quality Certifications for the referenced FERC licensed facilities. I reviewed our records and found the following information for each facility.

Stewart's Bridge
DEC Permit # 5-4136-00014/00007
WQC Issued: 5/25/01
Effective Date: 5/25/01
Expiration Date: N/A

Sherman Island
DEC Permit # 5-9905-00048/00001
WQC Issued: 2/5/02
Effective Date: 2/5/02
Expiration Date: N/A

As you will notice, neither of these WQCs has an expiration date which means that the WQC is valid for the term of the FERC license.

Please feel free to contact me with any further questions.

Beth A. Magee
Deputy Regional Permit Administrator, Division of Environmental Permits

New York State Department of Environmental Conservation
232 Golf Course Road, Warrensburg, NY 12885
P: (518) 623-1283 | F: (518) 623-3603 | beth.magee@dec.ny.gov
www.dec.ny.gov | | | |

NEW YORK STATE | Department of Environmental Conservation

APPENDIX E

RARE, THREATENED AND ENDANGERS SPECIES CONSULTATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: February 12, 2020
Consultation Code: 05E1NY00-2020-SLI-1646
Event Code: 05E1NY00-2020-E-05002
Project Name: Stewart Bridge

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/

eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2020-SLI-1646

Event Code: 05E1NY00-2020-E-05002

Project Name: Stewart Bridge

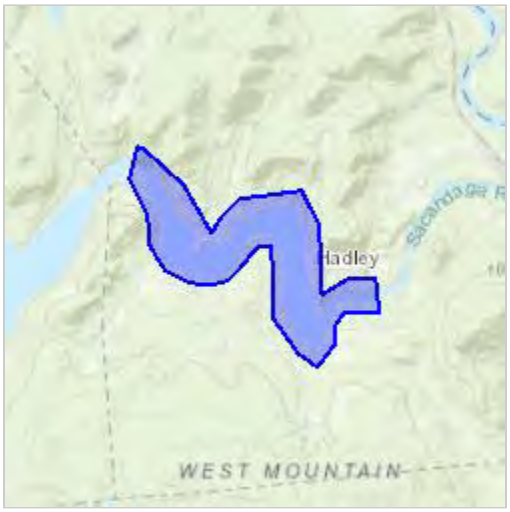
Project Type: DAM

Project Description: Brookfield Renewable is presently working with the Low Impact Hydropower Institute (LIHI) to certify the Stewart's Bridge (FERC No. 2047) as a low impact project. In preparing the application for LIHI certification, Brookfield must update or confirm consultation with resource agencies with respect to the presence of threatened or endangered species within the vicinity of the hydroelectric development. Per the request from LIHI, Brookfield respectfully requests information on the presence of threatened or endangered species within the vicinity of the above-listed projects.

As a matter of background, the license from the Federal Energy Regulatory Commission (FERC) was issued for this Project on January 25, 2005. Project operations and environmental protection measures at this Project have been largely determined by a comprehensive Offer of Settlement. The licensing processes for this Project included consultation with resource agencies regarding threatened and endangered species.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.30575049061727N73.90942342449051W



Counties: Saratoga, NY

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

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

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

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

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

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered

Critical habitats

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

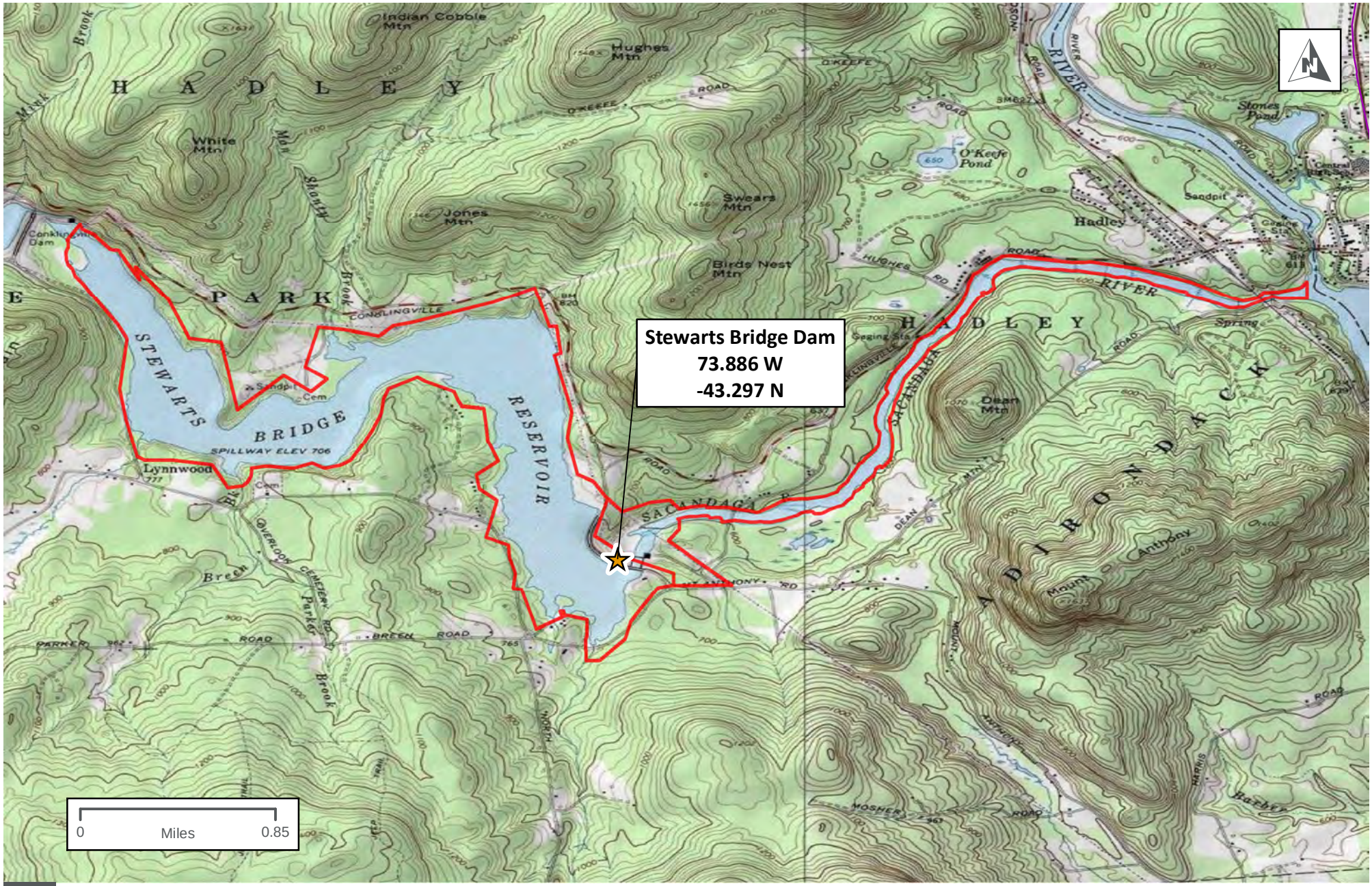
Caley, Katherine

From: naturalheritage@nynhp.org
Sent: Thursday, February 13, 2020 2:36 PM
To: Caley, Katherine
Subject: Confirmation of your submitted request to New York Natural Heritage

Submission ID: 4140
Submitted on Thursday, February 13, 2020 - 14:35 Submitted values are:

Company, Organization, or Agency: HDR, Inc.
Requestor Name: Katherine Caley
Requestor Address (Street/PO Box): 1304 Buckley Road, Suite 202 Requestor City: Syracuse Requestor State: New York
Requestor Zip Code: 13212 Requestor Telephone #: 315-414-2213 Requestor Email: Katherine.Caley@hdrinc.com
Project Type: hydroelectric facility/project Project Name: Stewarts Bridge LIHI Application Project Applicant: Erie Boulevard Hydropower Project County: Saratoga Town (Saratoga County): Hadley Project Summary:
Erie is presently working with the Low Impact Hydropower Institute (LIHI) to certify the Stewarts Bridge Hydroelectric Project (FERC No. 2047) as a low impact project. In preparing the application for LIHI certification, Erie must update or confirm consultation with resource agencies with respect to the presence of threatened or endangered species within the vicinity of the hydroelectric development. Per the request from LIHI, Erie respectfully requests information on the presence of threatened or endangered species within the vicinity of the above-listed project.

As a matter of background, the license from the Federal Energy Regulatory Commission (FERC) was issued for this Project on September 25, 2002. Project operations and environmental protection measures at this Project have been largely determined by a comprehensive Offer of Settlement that Erie developed in conjunction with the New York State Department of Environmental Conservation and other entities in 2002. The licensing processes for this Project included consultation with resource agencies regarding threatened and endangered species.
Current Land Use: The site is currently developed for the primary purpose of hydroelectric energy production on the Sacandaga River.
Tax parcel number:
Latitude: 43.297
Longitude: 73.886
Street Address of Project:
Project Notes:



HDR

STEWARTS BRIDGE DEVELEOPMENT

USGS QUADRANGLE(S): LAKE LUZERNE AND CONKLINGVILLE

PATH: C:\USERS\KAUSTIN\DESKTOP\STEWARTS\MAP_DOCS\DRAFT\MAP_LIH\APP_USGS_STEWARTSDAM.MXD - USER: KAUSTIN - DATE: 2/13/2020

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

February 27, 2020

Katherine Caley
HDR, Inc.
1304 Buckley Road, Suite 202
Syracuse, NY 13212

Re: Stewarts Bridge LIHI Application
County: Saratoga Town/City: Hadley

Dear Ms. Caley:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 5 Office, Division of Environmental Permits, at dep.r5@dec.ny.gov.

Sincerely,

Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

The following state-listed animal has been documented at the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 5 Office at dep.r5@dec.ny.gov, (518) 623-1286.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Birds				
Bald Eagle	*Haliaeetus leucocephalus*	Threatened		9004
Breeding near Lynnwood and nonbreeding throughout the general Reservoir area.				

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare animal has been documented in the vicinity of the project site.

We recommend that potential impacts of the proposed project on this species be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animal, while not listed by New York State as Endangered or Threatened, is rare in New York and is of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Dragonflies and Damselflies			
Pygmy Snaketail	*Ophiogomphus howei*	Special Concern	Critically Imperiled in NYS and Globally Uncommon

Docmented along the upper Hudson River and so could occur in the vicinity of the project site. 2009-06-08. 6479

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).