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December 4, 2020

Shannon Ames, Executive Director
Low Impact Hydropower Institute
329 Massachusetts Ave, Suite 2
Lexington, MA 02420
sames@lowimpacthydro.org

Re: LIHI Recertification submittal for the Texon Hydroelectric Project (FERC Exemption P-2986-MA)

Dear Director Ames:

Hitchcock Hydropower, LLC (HH), a wholly owned subsidiary of Gravity Renewables, Inc., (Gravity) submitted an application to the Low Impact Hydropower Institute (LIHI) for Re-certification of the Texon Project as low impact in June 2020. In July 2020 LIHI submitted a Stage I Recertification Review for the project which included additional information requests and clarifications. The enclosed application has been revised to address the Stage I recertification Review questions/comments.

HH acquired the Project in 2017. There have been no changes to the Project or its operation since the previous LIHI recertification in 2015.

If you have any questions or comments regarding the submittals, please feel free to contact me.

Best regards,

Celeste Fay
Regulatory Manager / Project Engineer
Celeste@gravityrenewables.com

Introduction

The Texon Project (FERC P-2986) is an existing 1.5 MW hydropower project, located on the Westfield River in the town of Russell, MA. The Project was acquired by Hitchcock Hydro, LLC, a wholly owned subsidiary of Gravity Renewables, Inc. (Gravity) in 2017. The Texon Project is sometimes referred to as the Crescent or Crescent Mills Project.

The Project was issued an exemption from licensing from the Federal Energy Regulatory Commission (FERC) in 1982. The Massachusetts Department of Environmental Protection (DEP) issued a section 401 Water Quality Certificate (WQC) on August 11, 1981. Operations are monitored closely to ensure compliant operations are maintained; the Project has no history of compliance violations.

LIHI first certified the Project as low impact in 2015 (Certificate #119). Based on the consistency of operations, absence of any modifications since the last certification, as well as the information provided herein, Gravity is seeking concurrence that the Project be re-certified by the Low Impact Hydropower Institute (LIHI).

Project Location

The Project is located in the upper reaches of the Westfield River in the Town of Russell, Hampden County, Massachusetts. The Westfield River is located in Western Massachusetts and flows southeasterly from the Berkshire Hills region to its confluence with the Connecticut River. The Texon Dam is the fourth dam on the Westfield River; there are three dams downstream and one upstream.

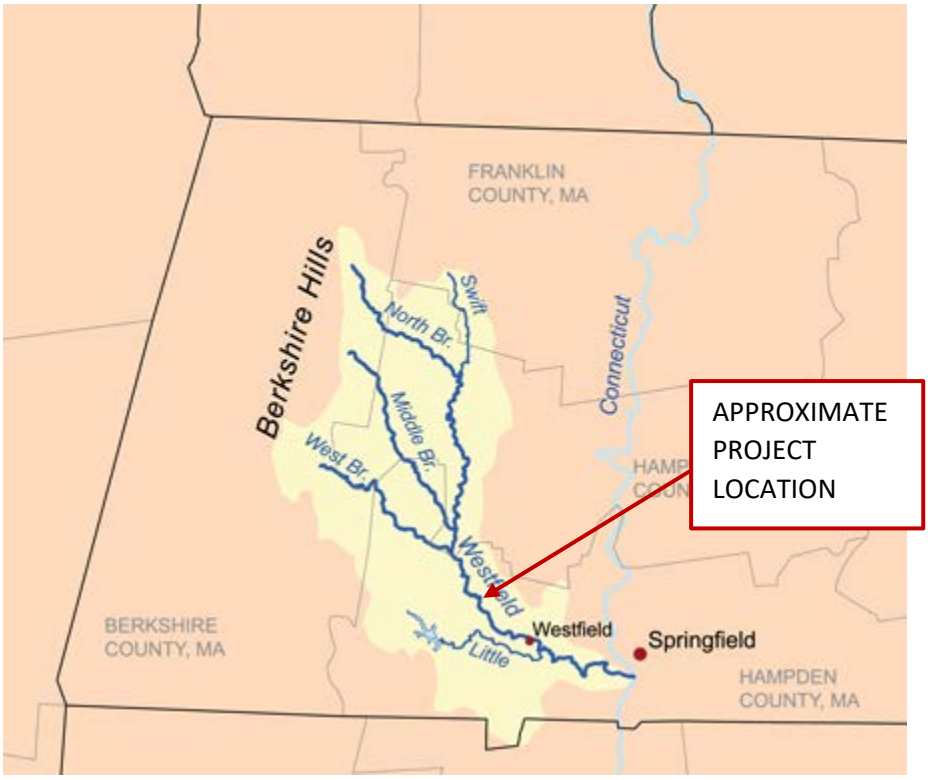

Figure 1. Overview Westfield River Watershed

The Texon Project is located at mile 24 on the Westfield River. The Knightville Dam is located upstream of Texon at River mile 30. There are three dams located downstream of the Texon project including the Russell dam located at River mile 21, the Woronoco dam located at River mile 18 and the West Springfield Dam located at river mile 4. The Knightville Dam is a US Army Corps Of Engineers (USACE) flood control structure. The three downstream dams, Russell, Woronoco and West Springfield are all active hydroelectric power generation facilities.

Project Description

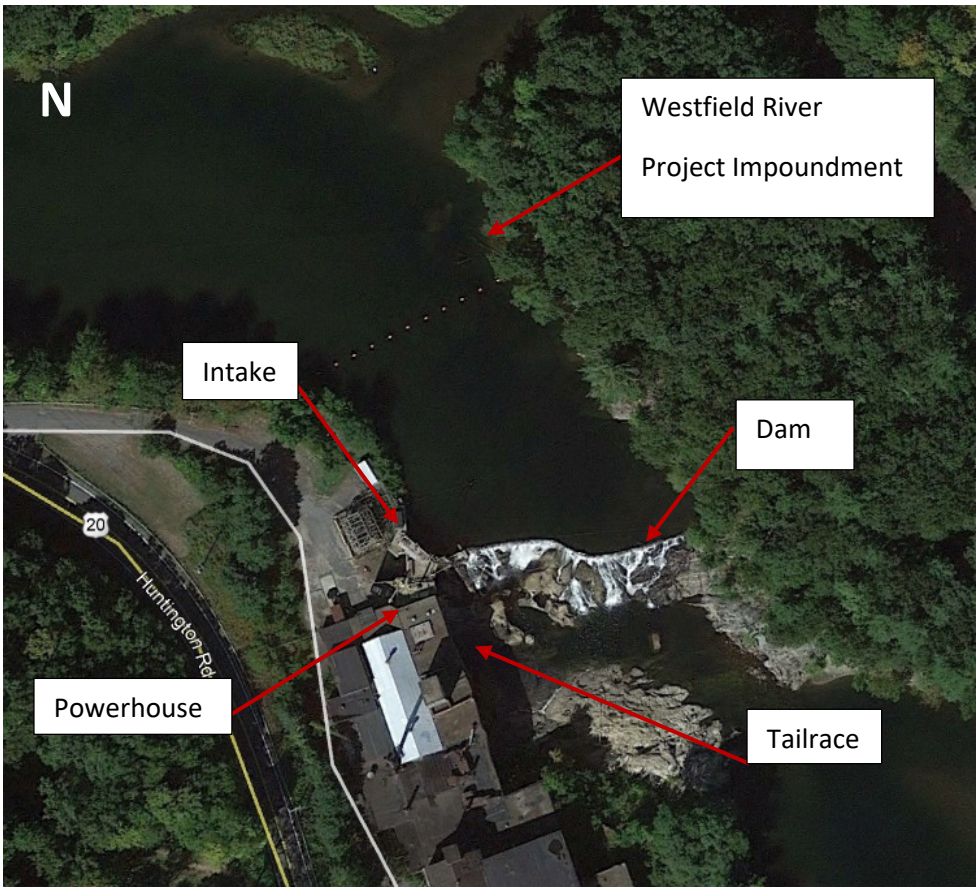

Figure 2. Overview Site Features

The Texon Project consists of an impoundment, dam, spillway, intake, powerhouse and tailrace.

The dam consists of a 200-ft long by 12-ft high spillway in a curved alignment. There is an approximate 40-ft wide angled intake structure at the right abutment of the dam. The spillway is a concrete and stone block gravity structure which sits on top of a natural ledge outcrop for a total height of 32-ft. In plan view, the spillway has an "s" shaped footprint. At the right abutment, the intake entrance that contains the trashracks angles upstream while a concrete gravity retaining wall approximately 3.5-ft wide leads downstream to the powerhouse building. There are 3-ft high wooden flashboards supported by steel pipe spaced about 4-ft on center are affixed to the dam spillway crest.

The intake is a concrete structure equipped with steel trash racks and a cable operated drag rake. Downstream of the intake, there is a concrete forebay that conveys water to the turbine.

The powerhouse is a concrete structure located in the extreme northern end of the mill building. A concrete superstructure approximately 40-ft long by 30-ft wide with a removable roof hatch encloses the turbine-generator, control room and auxiliary equipment. After passing through the turbine, water is discharged through an approximately 10-ft long tailrace located under the powerhouse foundation. From the tailrace, water is conveyed directly back to the Westfield river at the toe of the dam and waterfall. There is a single full Kaplan turbine with a rated capacity of 1,500 kW.

Hydrology

The Westfield River is a major tributary of the Connecticut River located in the Berkshires and Pioneer Valley regions of western Massachusetts. With four major tributary branches that converge west of the City of Westfield, it flows 78.1 miles (as measured from its North Branch) before its confluence with the Connecticut River at Agawam. The Westfield River is the Connecticut River's longest tributary in Massachusetts. The Westfield River has a total drainage area of 497 square miles including three named branches which join in Huntington to form the Westfield River's main stem, which flows through the Project area in Russell. The branches are the North Branch, the Middle Branch and the West Branch. The North Branch rises in the town of Savoy and flows southeast through Windsor, Cummington and Chesterfield. The Middle Branch rises in the town of Peru and flows southeast through Worthington, Middlefield and Chester. The West Branch which has origins in Washington and Becket, then flows east through Chester. The three branches converge in the town of Huntington; the Middle and North Branches merge near the hamlet of Gross Heights, 2 miles north of their junction with the West Branch at Huntington Village. From Huntington, the main stem of the Westfield River flows through Russell and Westfield, then forms the boundary between West Springfield and Agawam before discharging into the Connecticut River.

According to USGS Streamstats, the Texon Project has a drainage area of 327 square miles. USGS Gage No. 01183500 near Westfield, MA (USGS Gage) has a drainage area of 497 square miles. The USGS gage has a total period of record of May 1914 to present. Throughout this application, the period of record utilize was the previous 30 years of full records (1989-2019). Based on the previous 30 years of data available at the USGS gage with a drainage area ratio applied, the average annual flow at the project is estimated at 674 cfs.

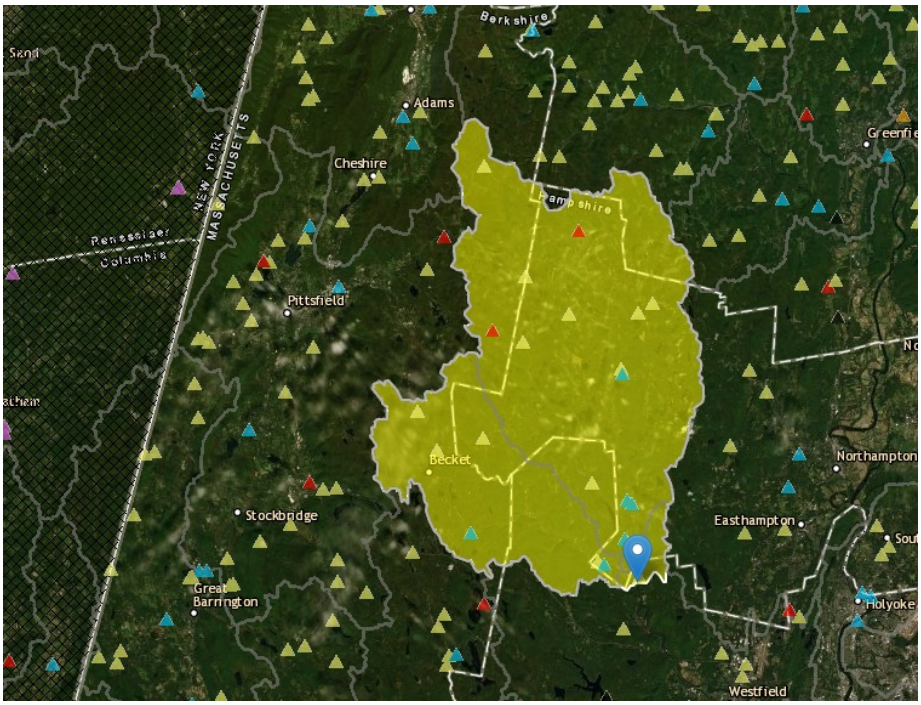

Figure 3. Texon drainage area map (Stream Stats May 8, 2020).

Project Operations

The Project is operated in instantaneous run-of-river mode with no pondage or storage. Turbine flow is controlled by the project's automatic programable logic controller (PLC). A minimum flow release is not required. The Project's bypass reach consists of the nearly vertical waterfall and does not create or maintain aquatic habitat; flow from the draft tube discharges directly to the toe of the waterfall. There is a requirement that water is either being discharged over the dam or through the tailrace to maintain the downstream channel. See Photo 1.

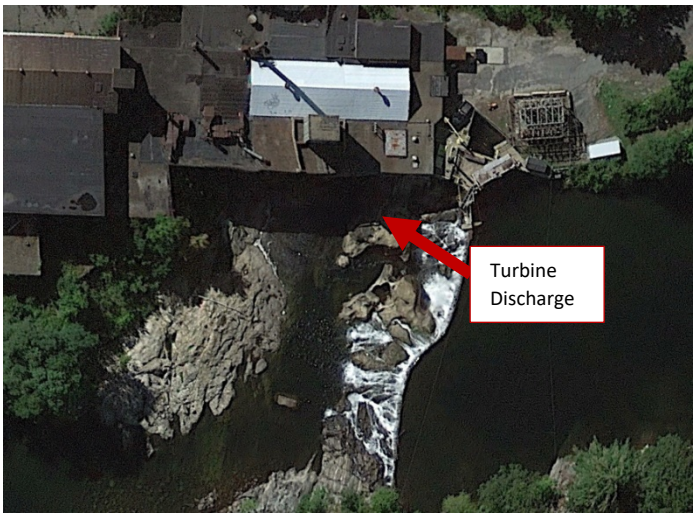

Photo 1. Bedrock Bypass Looking upstream to dam.

Table 1. LIHI B-1 Table Facility Information

Item	***Information Requested***	***Response (include references to further details)***
Name of the Facility	Facility name (use FERC project name or other legal name)	Texon Hydroelectric Project
Location	River name (USGS proper name)	Westfield River
	Watershed name (select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html)	Westfield River, HUC-8: 01080206
	Nearest town(s), county(ies), and state(s) to dam	Town of Russell, Hampden County, Massachusetts
	River mile of dam	Approx. River Mile 24
	Geographic latitude of dam	42.1318”
	Geographic longitude of dam	-72.5132”
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Celeste Fay, Manager of Regulatory Affairs, Gravity Renewables, Inc.
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Hitchcock Hydro, LLC. Mark Boumansour, Manager Ownership changed 2017
	FERC licensee company name (if different from owner)	Hitchcock Hydro, LLC
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	FERC P-2986-MA FERC Exemption Issued in 1982
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", “non-jurisdictional”)	Exemption issued in 1982
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	Water Quality Certificate issued on August 11th, 1981 by The Commonwealth of Massachusetts

Item	*Information Requested*	*Response (include references to further details)*
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories[1]	See Attachment A for copies of key documents See Attachment B for key contact information
Powerhouse	Date of initial operation (past or future for pre-operational applications)	Project Commissioned in 1985
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	1.5 MW, has not changed since last certification
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	+/- 5,000 MWh, has not changed since last certification
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	The project operates in Run-of-River Mode and has not changed since last certification.
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	The turbine is a vertical Kaplan unit with a maximum hydraulic capacity of 700 cfs and a minimum hydraulic capacity of 165 cfs.
	Trashrack clear spacing (inches), for each trashrack	One-inch clear space
	Dates and types of major equipment upgrades	None
	Dates, purpose, and type of any recent operational changes	None
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	N/A
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1880's original dam construction. 1965 current dam construction. Existing hydropower 1985.

[1] For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land

Item	*Information Requested*	*Response (include references to further details)*
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	The dam is 12ft high with 3ft high wooden flashboards. The dam is seated on top of a natural waterfall.
	Spillway elevation and hydraulic capacity	Dam crest elev. 329.7 ft (NGVD)[2] Top flashboards elev. 332.7 ft
	Tailwater elevation (provide normal range if available)	Elev. 295.1 ft
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	Forebay is approximately 50 feet.
	Dates and types of major infrastructure changes	None
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power Generation
	Source water	Westfield River
	Receiving water and location of discharge	Westfield River at base of waterfall.
Conduit	Date of conduit construction and primary purpose of conduit	NA
Impoundment and Watershed	Authorized maximum and minimum water surface elevations **For recertifications: Indicate if these values have changed since last certification**	Normal, maximum and minimum operating water surface elevation with flashboards in place is 332.7 ft. **There has been no change from previous certification.**
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	The project is operated as run of river. There is no allowable fluctuation of water surface elevation for power generation. The normal, maximum and minimum operating water surface elevation is 332.7 ft. **There has been no change from previous certification.**
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	The surface area of the reservoir is approximately 3 acres. The volume of the reservoir is approximately 20 acre-feet. **There has been no change from previous certification.**

[2] Unless otherwise noted, all elevations are provided in NGVD 29.

Item	*Information Requested*	*Response (include references to further details)*
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	None. **There has been no change from previous certification.**
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	None.
	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.	Knightville USACE Flood Control Dam RM: 30
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Indian River Project, Eagle Creek, P-12462: RM 21 Woronoco Project, Eagle Creek, P-2631: RM 18 West Springfield Project, A&D Hydro, P-2608, RM 4
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	None.
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	Approximately 5 acres.
Hydrologic Setting	Average annual flow at the dam, and period of record used	USGS Gage 01183500 Previous 30 years (1989-2019) Average annual flow: 674 cfs

Item	*Information Requested*	*Response (include references to further details)*
	Average monthly flows and period of record used	USGS Gage 01183500 Previous 30 years (1989-2019) DA Ratio: 0.67 Month — Average Flow (cfs) January — 744 February — 696 March — 1111 April — 1479 May — 833 June — 607 July — 312 August — 312 September — 357 October — 579 November — 684 December — 835
	Location and name of closest stream gauging stations above and below the facility	USGS Gage No. 01183500, WESTFIELD RIVER NEAR WESTFIELD, MA
	Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.	Site: 327 SM (StreamStats) USGS Gage No. 01183500: 497 SM
Designated Zones of Effect	Number of zones of effect	3
	Upstream and downstream locations by river miles	Reservoir RM: 24 Tailrace RM:23.9 Bypass RM:23.9
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Zone 1: Reservoir Zone 2: Bypass Zone 3: Tailrace
	Delimiting structures or features	Zone 1: Elevation change in river channel Zone 2: Dam/waterfall & powerhouse exterior wall Zone 3: Power house exterior wall
	Designated uses by state water quality agency	Supporting Fish, other aquatic life and wildlife Primary and secondary recreation contact.
Pre-Operational Facilities		

Item	*Information Requested*	*Response (include references to further details)*
Expected operational date	Date generation is expected to begin	N/A
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	N/A
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	N/A

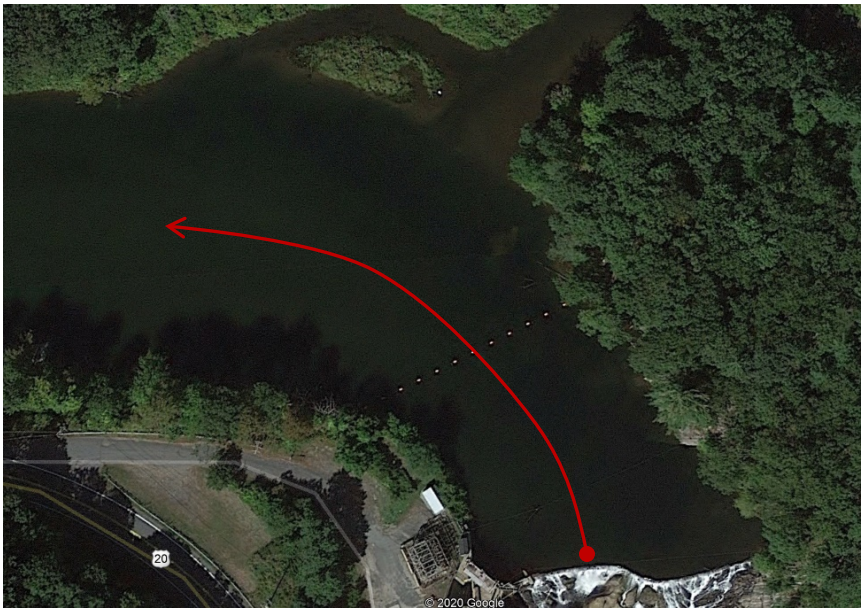

Figure 4. Zone of Effect No. 1 - Reservoir

Figure 5. Zone of Effect No. 2 - Bypass

Figure 6. Zone of Effect No. 3 - Tailrace

Table B-1.2. Matrix of Alternative Standard Template Responses for Zones 1, 2 and 3 – Texon Hydroelectric Project

Zone of Effect # 1: Impoundment

		Alternative Standards				
	Criterion	***1***	***2***	***3***	***4***	***Plus***
A	**Ecological Flow Regimes**	X				X
B	**Water Quality**	X				
C	**Upstream Fish Passage**	X				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			

Zone of Effect # 2: Bypass

		Alternative Standards				
	Criterion	***1***	***2***	***3***	***4***	***Plus***
A	**Ecological Flow Regimes**		X			X
B	**Water Quality**		X			
C	**Upstream Fish Passage**		X			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				

Zone of Effect # 3: Tailrace

		Alternative Standards				
	Criterion	***1***	***2***	***3***	***4***	***Plus***
A	**Ecological Flow Regimes**		X			X
B	**Water Quality**		X			
C	**Upstream Fish Passage**		X			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				

B.2.1 Ecological Flow Standards – Texon Project

Zone of Influence #1, #2 & #3- <u>Impoundment, Bypass & Tailrace</u> Ecological Flow Standards

Zone of Influence #1 meets Standard A-1. Zone of Influence #2 and #3 meet standard A-2.

The site is operated in an instantaneous run-of-river mode with reservoir maintained at elevation 332.7 ft during normal project operation. Requirements for these project operations are specified in the August 11, 1981 water quality certificate (WQC) and the FERC exemption issued on May 11, 1982.

The Project bypass reach is near vertical bedrock and does not create or maintain aquatic habitat. The project does not have a bypass flow; however, there is a minimum environmental flow. The 1981 WQC states the following: "To maintain water quality in the vicinity of the facility, a continuous minimum flow of 22 cfs must be maintained. The minimum low flow can be passed either through the tailrace or over the dam. "

The minimum hydraulic capacity of the turbine is 165 cfs, the maximum hydraulic capacity of the turbine is 700 cfs. See Table 1.

Table 2. Project Flow Operations

Flow Dispatch		
River Inflow (cfs)	**Description of Operations**	
0-164	Inflow is less than the Plant's minimum operating capacity. All flows released over the spillway.	
165-700	Turbine operates from minimum flow of 165 cfs to maximum flow of 700 cfs.	
701+	Turbine operates at maximum hydraulic capacity with any flow exceeding 700 cfs discharged over the spillway.	
Flow Distribution		
River Inflow (cfs)	**Primary Spillway**	**Turbine**
0 - 164	0 - 164	0
165-700	0	165-700
701 +	1+	700

As indicated by the environmental requirements and physical layout of the site; the bypass is a vertical waterfall and does not include any habitat. Zone of Effect #2, bypass reach, does not require a minimum flow since the turbines discharge directly to the base of the falls.

Zones of Effect #1 and #3, (impoundment and tailrace, respectively), do not include a bypass reach. Since Zone of Effect #1 is upstream of any diversions and there are no Project related impoundment fluctuations, it is not affected by the Project. Since the Project is operated in instantaneous run-of-river

mode with all inflows equaling outflows.

The project is currently in compliance with all State and Federal resource Agency recommendations in the FERC exemption and WQC. The original scientific studies to support the technical basis for the site flow requirements is not available. Written confirmation from the MA Department of Environmental Protection Wetlands and Waterways Program was received on August 28, 2020 stating that the WQC is still valid.

The applicant has identified that the plus standard applies with regard to the ecological flow regimes as significantly more than the required 22 cfs out of the tailrace or over the dam is typically provided.

B.2.2 Water Quality Standards – Texon Project

Zone of Effect #1, #2 and #3- Impoundment, Bypass & Tailrace Water Quality Standards

Zone of Influence #1 meets Standard B-1. Zone of Influence #2 and #3 meet standard B-2. There have been no Project changes since the previous LIHI certification.

A 2016 list of Massachusetts Integrated Waters Report is available and was developed by the State of Massachusetts pursuant to Sections 305(b), 314 and 303(d) of the Clean Waters Act.[3]

According to the 2016 report, the reach of river that the Texon Project is located on (MA32-05) is classified as a Category 2 waterway. A Category 2 waterway is designated as those waters supporting some uses but not assessed for others. The reach of Westfield River designated as MA32-05 is listed as supporting fish and other aquatic life and habitat, primary contact for recreation and secondary contact for recreation. Shellfish harvesting has not been evaluated for this reach of river. This status is unchanged from the previous LIHI certification. Additional information can be found in Table 2.

Table 3. Summary 2016 Assessment of Blackstone River at Project Location

Use Description	Use Attainment Status	Causes/Impairment
Fish, other Aquatic Life and Wildlife	Supporting	N/A
Primary Contact Recreation	Supporting	N/A
Secondary Contact Recreation	Supporting	N/A

The project is currently in compliance with all State and Federal resource Agency requirements in the FERC exemption and WQC. The original scientific studies to support the technical basis for the site flow requirements are not available. However, written confirmation from the MA Department of Environmental Protection Wetlands and Waterways Program was received on August 28, 2020 stating that the WQC is still valid.

[3] https://www.mass.gov/files/documents/2020/01/07/16ilwplist.pdf

B.2.3 Upstream Fish Passage Standards – Texon Project

Zone of Effect #1, #2 & #3- Impoundment, Bypass & Tailrace Upstream Fish Passage Standards

Zone of Influence #1 meets Standard C-1. Zone of Influence #2 and #3 meet standard C-2. There have been no project changes since the previous LIHI certification.

There are several dams downstream of the Texon Project including the West Springfield Project (first), Woronoco Project (second) and Indian River Project (third). The West Springfield Project has a denil fish ladder installed to facilitate the movement of herring and shad to upstream waters of the Westfield River. The Woronoco Project and Indian River Project do not have upstream fish passage structures; therefore, the Texon Project is not the barrier to upstream fish passage. Furthermore, the natural falls is likely a natural barrier to upstream non-leaping migratory species. The Wornoco Project is located within a significant natural cascade and gorge complex and it is unclear if migratory fish species would have historically migrated past the natural barriers in the river downstream of Texon.

There are requirements for upstream eel passage at the West Springfield, Woronoco and Indian River Projects as part of their FERC license requirements. The West Springfield and Woronoco Projects have passage installed and it is understood that Indian River is working on upstream eel passage. As a requirement of previous LIHI certification at Texon, upstream eel passage is installed at the Texon project and typically operates in the spring through the fall. The voluntary eel passage at Texon consists of a short eel ladder section that terminates at a trap. Water (estimated at less than 1CFS) is discharged at the upstream end of the ladder to ensure the system remains wetted. The trap is checked daily for the presence of eels. In the event that an eel was observed in the trap, the operations staff would manually release the eel in the impoundment.

Photo 1. Overview Voluntary Upstream Eel Passage System

Since installation of the upstream eel passage at Texon, the records indicate that no eels have utilized the system. Discussions with Mass Fish and Wildlife Staff indicate that it is unclear if the lack of eels at the Texon Project are due to downstream barriers or if Texon is upstream of the extent of the eel migratory run. Correspondence with the Massachusetts Fish and Wildlife Staff is attached.

The Project is currently in compliance with all State and Federal resource Agency requirements in the exemption and WQC as well as LIHI certification requirements based on the last review.

The applicant has identified that the plus standard applies with regard to the upstream fish passage as the upstream eel passage is installed as a voluntary measure above and beyond any requirements of the 401 WQC or FERC exemption.

B.2.4 Downstream Fish Passage and Protection Standards – Texon Project

Zone of Effect #1, #2 & #3- <u>Impoundment, Bypass & Tailrace</u>

Downstream Fish Passage Standards

Zone of Influence #1 meets Standard D-2. Zone of Influence #2 and #3 meet standard D-1. There have been no project changes since the previous LIHI certification.

There are no migratory fish passing downstream through the impoundment, bypass or tailrace. The estimated approach velocity at the trashrack is 1.5 ft/s.

Historically there was an effort to restore Atlantic Salmon to the Connecticut River watershed, including parts of the Westfield River, and the Project previously installed downstream passage for Atlantic Salmon. However, the Atlantic Salmon program was abandoned and downstream passage is no longer a requirement of the Project. As such, the downstream passage facilities are not operable. The Project also has the option of seasonal trashrack change outs. The licensee does not complete any seasonal trash rack change outs at this time and keeps the smaller spaced racks in all year.

As discussed in Section B.2.3, there are no migratory fish within the project area. Based on the annual upstream eel passage counts at the voluntary upstream passage system, there are no eels present upstream of the dam.

The Project is currently in compliance with all State and Federal resource Agency requirements in the exemption and WQC.

B.2.5 Shoreline and Watershed Protection Standards – Texon Project

Zone of Effect #1, #2 & #3- Impoundment, Bypass & Tailrace Shoreline and Watershed Protection Standards

Zone of Influence #1, #2 and #3 meet Standard E-1.

There are no provisions or requirements for shoreline management in the FERC exemption or 401 WQC. The project operates in instantaneous run-of-river mode therefore causing no unnatural water surface fluctuations. It also operates in compliance with its exemption, all WQC requirements and all state and federal laws.

The project boundary includes approximately 5 acres total. Of this area, approximately 3 acres are water (impoundment). Approximately 1 acre is wooded shoreline and approximately 1 acre is industrial.

The project is currently in compliance with all State and Federal resource Agency requirements in the FERC exemption and WQC.

The applicant has identified that the plus standard applies with regard to the shoreline and watershed protection as the exemption did not seek to operate in store and release mode in the original exemption application. Instead the Project maintains run of river operations.

B.2.6 Threatened and Endangered Species Standards – Texon Project

Zone of Effect #1, #2 & #3- <u>Impoundment, Bypass & Tailrace</u>

Threatened and Endangered Species

Zone of Influence #1, #2 and #3 meet Standard F-2. There have been no Project changes since the previous LIHI certification.

The USFWS's Information for Planning and Consultation (IPaC)[4] online tool was utilized to complete a site-specific review for threatened and endangered species and critical habitats. The IPaC review identified one threatened mammal, the Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*), potentially within the project area. Note that the IPaC review specified that there are no critical habitats within the project area. The full IPaC report can be found in Attachment C.

M. septentrionalis is a medium-sized bat which winters in caves and mines with other bats. During the summer they can be found roosting in colonies or singly. Summer roosting usually occurs in cavities or crevices of both live and dead trees and occasionally in caves and mines. USFWS reports that summer roosting locations appear to be flexible. Foraging occurs between dusk and dawn and primarily occurs in the understory of forested areas. The species has been in decline in large part due to the outbreak of white-nose syndrome.

Normal operations and maintenance of the project does not have an impact on the Northern Long-eared bat. The Project is located at a former industrial site and there is no landscaping or vegetation management that would have the potential to impact the NLEB.

Based on a preliminary review of the Massachusetts Natural Heritage Endangered Species (NHESP) maps, it appears that there is a state listed species potentially within the project area. See Figure 4.

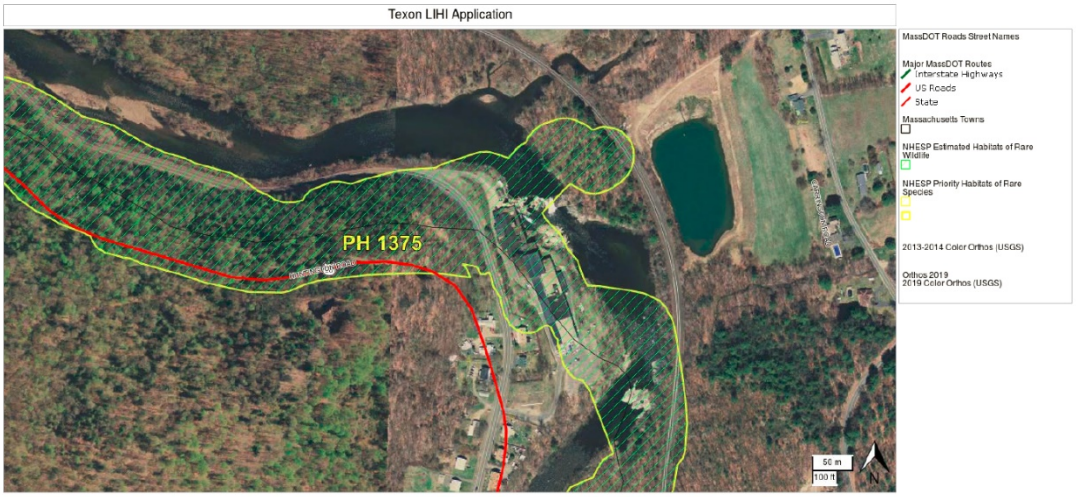

Figure 7. Mass OLIVER Estimated NHESP Habitat Areas in Vicinity of Texon Project.

[4] https://ecos.fws.gov/ipac/

NHESP Letter Dated July 17, 2020 is attached and states that the Project will not result in a prohibited Take of any state-listed species; no additional detail was provided.

The Project is currently in compliance with all State and Federal resource Agency requirements FERC exemption and WQC.

B.2.7 Cultural and Historic Resources Standards – Texon Project

Zone of Effect #1, #2 & #3- Impoundment, Bypass & Tailrace Cultural and Historic Resources

Zone of Influence #1, #2 and #3 meet Standard G-1. There have been no Project changes since the previous LIHI certification.

There are no requirements in the FERC exemption regarding cultural resources protection.

From the Town of Russell website[5]:

> *The Town of Russell, originally part of the "New Addition" section of Westfield was incorporated into a town in 1792. The early settlement was around Hazard Pond (now known as Russell Pond) with small grist mills, tanneries and saw mills making use of plentiful water.*
>
> *In 1841 the railroad came through the Berkshire Hills, changing the makeup of Russell forever. The town developed into three distinct villages joined by the Westfield River, Woronoco, home of the Strathmore Paper Mills, Russell Village, site of charcoal and brick kilns and eventually the site of the Westfield River Paper Company and Crescent Mills, home of Chapin and Gould Paper (now Texon). The railroad made industrial access to tremendous waterpower possible. Russel changed from a small isolated agrarian community with small lumber and grist mills to a prosperous town with jobs for all. The Industrial Revolution had arrived in Russell.*
>
> *The early settlement near Hazard Pond survived only as a ghost of what it once was. Woronoco was a "company town" planned and owned by the Strathmore Paper Company, owner Horance Moses. New immigrants to the United States settle where there were jobs and Russell had steady work to offer at its three paper mills.*
>
> *In recent years, Russell has seen the decline of industry as the backbone of its economic well-being. Of the three mills, only Texon remains. In many ways Russell has become a suburb of Westfield, yet it clings to its association with other Hilltowns. It is a special place where the hills are higher, the rocks are more plentiful and the people truly care about their neighbors.*

Hitchcock Hydro does not own the adjacent Texon mill or industrial properties. However, by continuing the operation of the hydroelectric facilities, Hitchcock Hydro is preserving the foundation of the previous industrial revolution.

The Project is currently in compliance with all State and Federal resource Agency requirements in the FERC exemption and WQC.

[5] http://www.townofrussell.us/history.html

B.2.8 Recreational Resources Standards – Texon Project

Zone of Effect #1 & #3- Impoundment, Bypass & Tailrace Recreational Resources

Zone of Influence #1 meets Standard H-2. Zone of Influence #2 and #3 meet Standard H-1. There have been no Project changes since the previous LIHI certification.

There is a boat portage on the left side of the dam for canoes and kayaks. The portage is boat access only.

The reservoir is very small and extends from the Texon dam to approximately 400 feet upstream of the dam. The falls and tailrace area are not safely accessible and are bordered by the former industrial buildings (not owned by Hitchcock Hydro).

The Project is currently in compliance with all State and Federal resource Agency requirements in the FERC exemption and WQC.

Attachment A

ANTHONY D. CORTESE, Sc. D.
Commissioner

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Water Pollution Control
One Winter Street, Boston 02108

August 11, 1981

Halliwell Associates, Inc.
865 Waterman Avenue
East Providence, Rhode Island 02914

Re: Water Quality Certification
Texon Hydroelectric
Westfield River
Russell

Dear Mr. Ryder:

In response to your request dated July 28, 1981 submitted on behalf of Texon, Inc., this Division has reviewed your application for a license for the operation and maintenance of a hydropower facility located on the Westfield River, Russell. This certification of water quality is directed solely at the operation of the facility and not any work such as dredging or cofferdam construction which is anticipated prior to operation.

In accordance with the provisions of Section 401 of the Federal Water Pollution Control Act as amended (Public Law 95-217), this Division hereby certifies that, based on information and investigations, there is reasonable assurance that the proposed activity will be conducted in a manner which will not violate applicable water quality standards adopted by this Division under authority of Section 27(5) of Chapter 21 of the Massachusetts General Laws, said water quality standards having been filed with the Secretary of State of the Commonwealth on September 15, 1978.

The proposed activity is a run-of-the-river facility with water being returned to the river through a tailrace, no further than fifty feet downstream of the hydroelectric dam. In order to maintain water quality in the vicinity of the facility, a continuous minimum low flow of 22 cubic feet per second must be maintained. This minimum low flow can be passed either through the tailrace or over the dam.

Should any violation of the water quality standards or the terms of this certification occur as a result of the proposed activity, the Division will direct that the condition be corrected. Non-compliance on the part of the permittee will be cause for this Division to recommend the revocation of the permit(s) issued therefor or to take such other action as is authorized by the General Laws of the Commonwealth. This certification does not relieve the applicant of the duty to comply with any other statutes or regulations.

Very truly yours,

Thomas C. McMahon

Thomas C. McMahon
Director

TCM/RT/wp

cc: Anthony D. Cortese, Sc.D., Commissioner, Department of Environmental Quality Engineering, One Winter Street, Boston 02108
Morgan Rees, Chief, Permits Branch, Corps of Engineers, 424 Trapelo Road, Waltham 02154
John J. Hannon, Director, Division of Land & Water Use, Department of Environmental Quality Engineering, One Winter Street, Boston 02108
Richard Cronin, Director, Division of Fisheries & Wildlife, 100 Cambridge Street, Boston 02202
Kimball Simpson, Division of Water Pollution Control, Westboro 01581
Robert Smart, Energy Facilities Siting Council, 73 Tremont Street, Boston 02108

Attachment B

APPENDIX B - CONTACTS

All applications for LIHI Certification must include complete contact information.

A. Applicant-related contacts

Facility Owner:	
Name and Title	Ted Rose, Manager
Company	Hitchcock Hydro, LLC c/o Gravity Renewables, Inc.
Phone	303-440-3378
Email Address	ted@gravityrenewables.com
Mailing Address	1401 Walnut Street, Suite 420, Boulder, CO 80302
Facility Operator (if different from Owner):	
Name and Title	Same
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	N/A
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Celeste N. Fay, Regulatory Manager
Company	Gravity Renewables, Inc.
Phone	413-262-9466
Email Address	celeste@gravityrenewables.com
Mailing Address	1401 Walnut Street, Suite 420, Boulder, CO 80302
Party responsible for accounts payable:	
Name and Title	Megan Oaks, Accounting Manager
Company	Gravity Renewables
Phone	303-440-3380
Email Address	megan@gravityrenewables.com
Mailing Address	1401 Walnut Street, Suite 420, Boulder, CO 80302

B. Current and relevant state, federal, and tribal resource agency contacts with knowledge of the facility (copy and repeat the following table as needed).

Agency Contact Flows, Water Quality	
Agency Name	Mass DEP
Name and Title	Robert Kubit
Phone	508-767-2854
Email address	Robert.kubit@state.ma.us
Mailing Address	
Agency Contact Flows, Fish/Wildlife Resources	
Agency Name	Mass Fish & Wildlife
Name and Title	Caleb Slater, Anadromous Fish Project Leader
Phone	508-389-6331
Email address	Caleb.slater@state.ma.us
Mailing Address	1 Rabbit Hill Road, Westborough, MA 01581
Agency Contact Flows, Fish/Wildlife Resources	
Agency Name	USFWS
Name and Title	John Warner, Assistant Supervisor Federal Activities
Phone	603-227-6420
Email address	John_warner@fws.gov
Mailing Address	70 Commercial Street, Suite 300, Concord, NH

Attachment C

United States Department of the Interior

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

In Reply Refer To: May 19, 2020
Consultation Code: 05E1NE00-2020-SLI-2636
Event Code: 05E1NE00-2020-E-07961
Project Name: Texon LIHI

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

To Whom It May Concern:

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

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 05E1NE00-2020-SLI-2636

Event Code: 05E1NE00-2020-E-07961

Project Name: Texon LIHI

Project Type: POWER GENERATION

Project Description: Texon LIHI Recertification

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.22170070064807N72.85942643485W

Counties: Hampden, MA

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.

---

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
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

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

Attachment D - Supplemental Information

Gmail

Celeste Fay <celeste@gravityrenewables.com>

Re: Texon/Crescent Upstream Eel Passage P-2986

1 message

Slater, Caleb (FWE) <caleb.slater@state.ma.us> Wed, Apr 8, 2020 at 12:41 PM
To: Celeste Fay <celeste@gravityrenewables.com>

Wayne says that Indian River will install an eelway this summer. They have done some scouting and know where it should be built.

Caleb

From: Celeste Fay <celeste@gravityrenewables.com>
Sent: Friday, April 3, 2020 2:08 PM
To: Slater, Caleb (FWE)
Subject: Re: Texon/Crescent Upstream Eel Passage P-2986

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hi Caleb,
Thank you for the call this morning.
To recap, there is not additional information on the status of Indian River (next downstream dam) eel passage at this time. Feel free to let me know if you receive information on that in the future.
We will operate the upstream eel passage at Texon in 2020 consistent with last year.

Best regards,
Celeste

On Fri, Feb 21, 2020 at 11:06 AM Celeste Fay <celeste@gravityrenewables.com> wrote:

> Hi Caleb,
> I hope you are well. I am reporting in on the Texon upstream Eel passage. The system operated in 2019 without issue. There were no eels reported by the operators in the system during the 2019 season. We anticipating deploying again in 2020.
>
> Do you have any counts at downstream projects available for 2019? Has the passage at Indian River/Russell been constructed yet?
>
> Thanks!
> Celeste
>
> --

Celeste Fay | *Regulatory Manager / Project Engineer*

Gravity Renewables Inc.

Office Location: 4145 Church Street, Thorndike, MA 01079

Mailing Address: 5 Dartmouth Drive, Suite 104, Auburn, New Hampshire 03032

Mobile: 413.262.9466 | Fax: 720.420.9956

www.gravityrenewables.com

--

Celeste Fay | *Regulatory Manager / Project Engineer*

Gravity Renewables Inc.

Office Location: 4145 Church Street, Thorndike, MA 01079

Mailing Address: 5 Dartmouth Drive, Suite 104, Auburn, New Hampshire 03032

Mobile: 413.262.9466 | Fax: 720.420.9956

www.gravityrenewables.com

This e-mail message and its contents are confidential, may be privileged, and are intended only for named recipients. If you received this message in error, do not use or rely upon it. Instead, please inform the sender and delete the message. Thank you.

Gravity Renewables, Inc.
1401 Walnut St. Suite 420
Boulder, CO 80302
Phone: 303.440.3378
Fax: 720.420.9956
www.gravityrenewables.com

April 17, 2020

Shannon Ames, Executive Director
Low Impact Hydropower Institute
329 Massachusetts Avenue, Suite 2
Lexington, MA 02420

Re: Texon Hydroelectric Project, FERC P-2986-MA
Annual American eel update

Dear Ms. Ames:

Per the requirements of the Low Impact Hydropower Institute (LIHI) certification for the Texon Hydroelectric Project, we are pleased to provide an update on the status of the efforts to support the American eel population in the Westfield River.

On February 21, 2020 a status update was provided to Caleb Slater, *Anadromous Fish Project Leader Massachusetts Division of Fisheries and Wildlife (MDFW).* In 2019, no American eel were observed by plant staff. At this time, there is no additional information on the status of Indian River (next dam downstream) eel passage; however, MDFW will provide information as it becomes available.

As prescribed by LIHI, efforts to support American eel at the Texon Project will continue in 2020.

Please do not hesitate to let us know if there are any questions or comments.

Sincerely,
Gravity Renewables, Inc.

Celeste N. Fay
Manager of Regulatory Affairs
Gravity Renewables, Inc.
celeste@gravityrenewables.com

Cc: Caleb Slater, MDFW
Maryalice Fischer, LIHI

Gmail

Celeste Fay <celeste@gravityrenewables.com>

FW: Texon Hydroelectric Project & Glendale Hydroelectric Project Call

1 message

Jon Petrillo <jon@gravityrenewables.com> Fri, Aug 28, 2020 at 10:54 AM
To: Celeste Fay <celeste@gravityrenewables.com>

From: Kubit, Robert (DEP) <robert.kubit@state.ma.us>
Sent: Friday, August 28, 2020 9:30 AM
To: Jon Petrillo <jon@gravityrenewables.com>
Subject: Re: Texon Hydroelectric Project & Glendale Hydroelectric Project Call

Hi John,

I understand FERC issued an exemption (license) for P-2986 Crescent (Texon) Dam in 1982. The Water Quality Certification issued for this Project is still valid.

Hope this helps.

Bob

Robert Kubit, P.E.

MA Department of Environmental Protection

Wetlands and Waterways Program

8 New Bond Street

Worcester MA 01606

robert.kubit@mass.gov

(508) 767-2854

From: Jon Petrillo <jon@gravityrenewables.com>
Sent: Thursday, August 27, 2020 10:59 AM
To: Kubit, Robert (DEP); Celeste Fay
Subject: RE: Texon Hydroelectric Project & Glendale Hydroelectric Project Call

Hi Bob,

Thanks for the follow-up.

Regarding the Texon Project (Westfield R) WQ Q; as part of the LIHI recertification process review they are asking if the existing 401 is still valid (this is essentially the Q).

Let us know if you need to confer with your colleagues before we chat.

Best,

Jon

Jonathan Petrillo | *Director of Regional Business Development*

Gravity Renewables Inc.

360 Thames St., Suite 4A Newport, Rhode Island 02840

Mobile: 203.623.4637 | Direct: 303.615.3099 | Fax: 720.420.9956

www.gravityrenewables.com

From: Kubit, Robert (DEP) <robert.kubit@state.ma.us>
Sent: Tuesday, August 25, 2020 2:59 PM
To: Celeste Fay <celeste@gravityrenewables.com>; Jon Petrillo <jon@gravityrenewables.com>
Subject: Re: Texon Hydroelectric Project & Glendale Hydroelectric Project Call

Hi folks,

I am available for a call this week anytime 8-3 except for 1000-1100 Wednesday. I need to ask for help in researching questions on water quality in the Westfield River, Could you provide your question to me prior to the call?

Bob

Robert Kubit, P.E.

MA Department of Environmental Protection

Wetlands and Waterways Program

8 New Bond Street

Worcester MA 01606

robert.kubit@mass.gov

(508)767-2854

From: Celeste Fay <celeste@gravityrenewables.com>
Sent: Tuesday, August 25, 2020 11:45 AM
To: Kubit, Robert (DEP); Jon Petrillo
Subject: Texon Hydroelectric Project & Glendale Hydroelectric Project Call

Hi Robert,

I am following up on the voicemail that Jon Petrillo left you last week. Do you have availability for a call to discuss a couple projects? We have some questions on the recent MassDEP letter regarding invasive species at the Glendale Project. In addition, we are in the process of re-certifying the Texon Project with the Low Impact Hydropower Institute (LIHI) and would like to ask you a couple questions about water quality in the Westfield River.

I will be out of the office until mid-next week; however, Jon can be available this week if you have time.

Thank you,

Celeste

--

Celeste Fay | *Regulatory Manager / Project Engineer*
Gravity Renewables Inc.

Office Location: 4145 Church Street, Thorndike, MA 01079

Mailing Address: 5 Dartmouth Drive, Suite 104, Auburn, New Hampshire 03032

Mobile: 413.262.9466 | Fax: 720.420.9956

www.gravityrenewables.com

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

July 17, 2020

Celeste Fay
Gravity Renewables, Inc.
1401 Walnut Street, Suite 420
Boulder CO 80302

RE: Project Location: Westfield River, Montgomery & Russell
Project Description: Texon Project LIHI recertification
NHESP File No.: 15-34419

Dear Applicant:

Thank you for submitting the MESA Project Review Checklist, plans and other required materials to the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for review pursuant to the Massachusetts Endangered Species Act (MESA) (MGL c.131A) and its implementing regulations (321 CMR 10.00).

MASSACHUSETTS ENDANGERED SPECIES ACT (MESA)

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not result in a prohibited Take** of state-listed rare species. This determination is a final decision of the Division of Fisheries & Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

This authorization is valid for 5 years from the date of issuance. Thereafter, the applicant shall re-file under the MESA.

FISHERIES COMMENTS

The Applicant shall continue to operate the eelway as described and required in the 2015 LIHI certification process.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Everose Schlüter, Ph.D.
Assistant Director

cc: Mark Boumansour, Hitchcock Hydro, LLC