II. Suggested Format for the HYDRO General Permit Notice of Intent (NOI):

Request for General Permit Authorization to Discharge Wastewater Notice of Intent (NOI) to be covered by Hydroelectric Generating Facilities General Permit (HYDROGP) No. MAG360000 or NHG360000

Indicate Applicable General Permit for Discharge(s): ☑MAG360000 ☐ NHG360000

A. Facility Information

1.	Facility Location	Name: LOWELL HYDROELECTRIC PROJECT	
		Street: 145 PAWTUCKET STREET	
		City: LOWELL	State: MA
		Zip: 01854	SIC Code: 4911
		Latitude: N 42° 39’ 09”	Longitude: W 71° 19’ 21”
		Type of Business: ELECTRIC POWER GENERATION	
2.	Facility Mailing Address (if different from Location)	Street: 670 N. COMMERCIAL ST SUITE 204	
		City: MANCHESTER	State: NH
		Zip: 03101	
3.	Facility Owner	Name: PATRIOT HYDRO, LLC	Email: SILLER@PATRIOTHYDRO.COM
		Street: 670 N. COMMERCIAL ST SUITE 204	Telephone: (603) 540 - 8238

		City: MANCHESTER	State: NH
		Contact Person: SEAN ILLER	Zip: 03101
4.	Facility Operator (if different from above)	Name:	Email:
		Street:	Telephone:
		City:	State:
		Zip:	
5.	Current Permit Status	Has prior HYDROGP coverage been granted for the discharge(s) listed in the NOI?	☑ Yes ☐ No
		Permit number (if yes): MAG360024	
		Is the facility covered under an Individual Permit?	☐ Yes ☑ No
		Is there a pending NPDES application of file with EPA for the discharge(s)?	☐ Yes ☑ No
		Date of Submittal (if yes): Click or tap to enter a date.	Permit Number (if known):
		Attach a topographic map indicating the locations. of the facility and outfall(s) to the receiving water	☑ Map Attached
		Number of turbines: 2	
		Combined turbine discharge (installed capacity) at:	Maximum capacity? 6400 cfs Minimum capacity? 900 cfs
		Is this facility operated as a pump storage project?	☐ Yes ☑ No

B. Discharge Information

1.	Name of Receiving Water(s): MERRIMACK RIVER	☑ Freshwater ☐ Marine
2.	Waterbody classification: ☐ Class A ☑ Class B ☐ Class SA ☐ Class SB	
3.	Is the receiving water is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d))?	☑ Yes ☐ No
4.	If the applicant answered yes to B.2, has the applicant identified the designated uses that are impaired, any pollutants indicated, and whether a final TMDL is available for any of the indicated pollutants in a separate attachment to the NOI?	☑ Yes ☐ No
5.	Attach a line drawing or flow schematic showing water flow through the facility including location of intake(s), operations contributing to effluent flow, treatment units, outfalls, and receiving water(s).	☑ Line Drawing Attached

6. List each outfall (numbered sequentially) discharging effluent from the following categories and provide an estimate of the average monthly flow (in gallons per day) for each discharge type. See Parts 1.1 through 1.5 (for MA) or Parts 2.1 through 2.5 (for NH) for descriptions and permit conditions for each discharge type.

Equipment-related cooling water	Outfalls: 001	604,800 gpd
Equipment and floor drain water	Outfalls: 002	388,800 gpd
Maintenance-related water	Outfalls: 003	250 gpd
Facility maintenance-related water during flood/high water events	Outfalls:	gpd
Equipment-related backwash strainer water	Outfalls:	gpd

7. For each outfall listed above, provide the following information (attach additional sheets if necessary). Outfalls may be eligible for alternative pH effluent limits. See Parts 1.7.l. and 2.7.l of the permit for additional information. Contact MassDEP or NHDES to determine the required information and protocol to request alternative pH effluent limits.		
Outfall No. 001	Latitude: N 42° 39’ 15”	Longitude: W 71° 19’ 36”
	Discharge is: ☐ Continuous ☐ Intermittent ☑ Seasonal	
	Maximum Daily Flow .605 MGD	Average Monthly Flow .303 MGD
	Maximum Daily Temperature °F Varies	Average Monthly Temperature °F Varies
	Maximum Daily Oil & Grease 15 mg/L	Average Monthly Oil & Grease mg/L >0 <15
	Maximum Monthly pH 8.3s.u.	Minimum Monthly pH 6.5s.u.
	Alternative pH limits requested? ☐ Yes ☑ No	State approval attached? ☐ Yes ☐ No
Outfall No. 002	Latitude: N 42° 39’ 16”	Longitude: W 71° 19’ 36”
	Discharge is: ☑ Continuous ☐ Intermittent ☐ Seasonal	
	Maximum Daily Flow .389 MGD	Average Monthly Flow .195 MGD
	Maximum Daily Temperature °F Varies	Average Monthly Temperature °F Varies
	Maximum Daily Oil & Grease 15 mg/L	Average Monthly Oil & Grease mg/L >0 <15
	Maximum Monthly pH 8.3 s.u.	Minimum Monthly pH 6.5 s.u.
	Alternative pH limits requested? ☐Yes ☑ No	State approval attached? ☐ Yes ☐ No

Outfall No. 003	Latitude: N 42° 39’ 16”	Longitude: W 71° 19’ 36”
	Discharge is: ☐ Continuous ☑ Intermittent ☐ Seasonal	
	Maximum Daily Flow .00025 MGD	Average Monthly Flow .000125 MGD
	Maximum Daily Temperature °F Varies	Average Monthly Temperature °F Varies
	Maximum Daily Oil & Grease 15mg/L	Average Monthly Oil & Grease >0 <15mg/L
	Maximum Monthly pH 8.3s.u.	Minimum Monthly pH 6.5s.u.
	Alternative pH limits requested? ☐ Yes ☑ No	State approval attached? ☐ Yes ☐ No

C. Best Technology Available for Cooling Water Intake Structures

Facilities that checked “equipment-related cooling” as one of the discharges in Part B. of this NOI are subject to the following requirements.	
1. Does the facility intake water for cooling purposes subject to the BTA Requirements at Part 4 of the HYDROGP?	☐ Yes ☑ No If no, skip to Part D of this NOI.
2. If yes, indicate which technology employed to comply with the general BTA requirements at Part 4.2.b of the HYDROGP:	
☐ An existing technology (e.g., a physical or behavioral barrier, spillway, or guidance device) that directs fish towards a downstream passage that minimizes exposure to the CWIS. Has the applicant attached a narrative description of the barrier to demonstrate that the downstream fish passage effectively transports live fish in a manner that minimizes the likelihood of becoming impinged or entrained at the cooling water intake? ☐ Yes ☐ No	
☐ An effective intake velocity at the point of cooling water withdrawal, or alternatively, at the point where cooling water enters the penstock (for intakes located within the penstock), not to exceed 0.5 fps. Has the applicant attached a demonstration of compliance with this intake velocity through observation of live fish in the intake or calculation based on the maximum intake volume and minimum bypass flow? ☐ Yes ☐ No	

☐ For cooling water withdrawn directly from the source waterbody (*i.e.*, not from within the penstock), a physical screen or other barrier technology with a mesh size no greater than ½-inch) that minimizes the potential for adult and juvenile fish to become entrapped in the CWIS. Has the applicant attached a description of the technology? ☐ Yes ☐ No If the mesh size of the screen is greater than ½-inch has the applicant demonstrated that the calculated intake velocity is less than 0.5 fps based on the screen dimensions, maximum intake volume, and source water 7Q10 low flow?
3. If the answer to question C.1 is yes, in addition to complying with one of the criteria above, the applicant must submit the following information:
Maximum daily volume of cooling water withdrawn during previous five (5) years: gpd
Maximum monthly average volume of cooling water withdrawn during the previous five (5) years: gpd
Maximum daily and average monthly volume of water used exclusively for cooling: Max: gpd Avg: gpd Maximum daily and average monthly volume of water used for another process before or after being used for cooling: Max: gpd Avg: gpd Has the applicant attached a narrative description explaining how cooling water is reused? ☐ Yes ☐ No
Volume of total intake water withdrawn and used in facility as a percentage of: Installed turbine capacity % Average daily flow through penstock % Minimum flow through penstock %
Source water annual mean flow (*e.g.*, available from USGS, MassDEP, or NHDES): cfs
Source water 7-day mean low flow with 10-year recurrence interval (7Q10): cfs
Volume of total intake water withdrawn and used in facility as a percentage of: Source water mean annual flow cfs Source water 7Q10 flow cfs

D. Chemical Additives

1.	Does the facility use or plan to use non-toxic chemicals for pH adjustment?	☐ Yes ☑No
2.	Does the facility use or plan to use chemicals for anti-freeze purposes?	☐ Yes ☑No
3.	If the answer to D.2 is yes, provide the following for **EACH** chemical additive used for anti-freeze:	
Chemical Name and Manufacturer:		
Maximum Dosage Concentration Used:		Average Dosage Concentration Used:
Maximum Concentration in Discharge: mg/L		Average Concentration in Discharge: mg/L
Material Safety Data Sheet (MSDS) or other toxicity documentation for each chemical attached? ☐ Yes ☐ No		

E. Endangered Species Act Certification

Appendix 2 to the HYDROGP explains the certification requirements related to threatened and endangered species and designated critical habitat. Indicate under which criteria the discharge is eligible for coverage under the HYDROGP:	
1. ESA eligibility for species under jurisdiction of USFWS	**Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area." See Appendix 2, Part B for documentation requirements. Documentation attached? ☐ Yes ☐ No
	☑ **Criterion B**: Formal or informal consultation with the USFWS under Section 7 of the ESA ulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a ding that the discharges and related activities are "not likely to adversely affect" listed species or critical bitat. Has the operator completed consultation with USFWS and attached documentation? ☑ Yes ☐ No If no, is consultation underway? ☐ Yes ☐ No

	☐ **Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and designated critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered species or designated critical habitat under the jurisdiction of the USFWS. Has the applicant attached documentation of the "no effect" finding? ☐ Yes ☐ No
2. ESA eligibility for species under jurisdiction of NMFS	Is the facility located on: the Connecticut River between the Massachusetts/Connecticut state line and Turners Falls, MA; the Taunton River; the Merrimack River between Lawrence, MA and the Atlantic Ocean; the Piscataqua River including the Salmon Falls and Cocheco Rivers; or a marine water? ☐ Yes ☑ No
	If yes, was the applicant authorized to discharge from the facility under the 2009 HYDROGP? ☐ Yes ☐ No
	If the discharge is to one of the named rivers above or to a marine water *and* the facility was not previously covered under the 2009 HYDROGP, has there been any previous formal or informal consultation with NMFS? ☐ Yes ☐ No Documentation of consultation attached? ☐ Yes ☐ No

F. National Historic Properties Act Eligibility

1. Indicate under which criterion the discharge(s) is eligible for covered under the HYDROGP:
☐ **Criterion A**: No historic properties are present.
☑ **Criterion B**: Historic properties are present. The discharges and related activities do not have the potential to impact historic properties.
☐ **Criterion C**: Historic properties are present. The discharges and related activities have the potential to impact or adversely impact historic properties.

2.	Has the applicant attached supporting documentation for NHPA eligibility described in Appendix 3, Part C of the HYDROGP? ☐ Yes ☑ No
3.	Does supporting documentation include a written agreement from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or other tribal representative that outlines measures the operation will carry out to mitigate or prevent any adverse effects on historic properties? ☐ Yes ☐ No

G. Supplemental Information

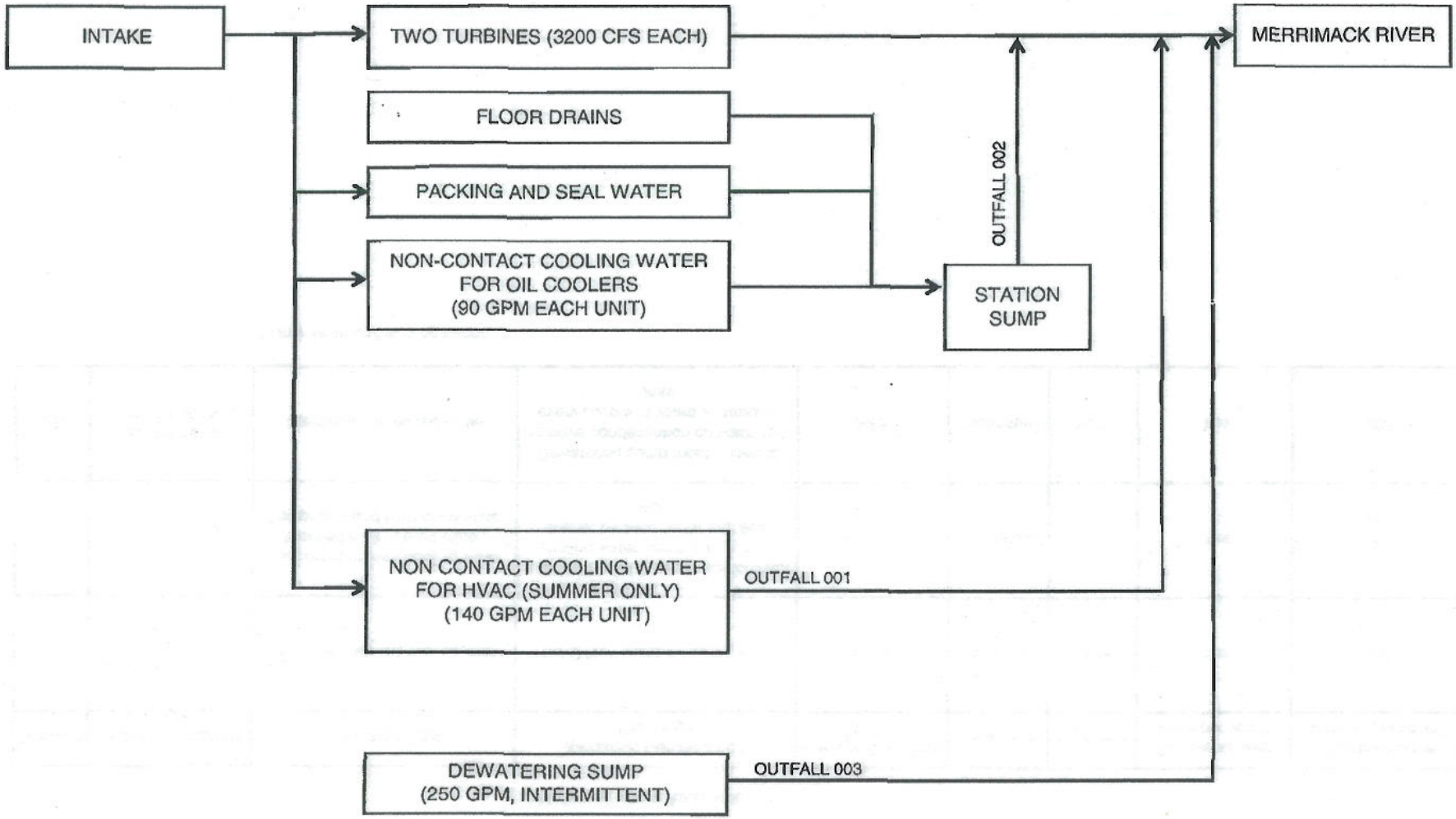
Please provide any supplemental information, including antidegradation review information applicable to new or increased discharges. Attach any certifications required by the HYDROGP. Supplemental information attached? ☐ Yes ☐ No

H. Signature Requirements

1.	The NOI must be signed by the operator in accordance with the signatory requirements of 40 C.F.R. § 122.22, including the following certification:	
	I certify under penalty of law that no chemical additives are used in the discharges to be authorized under this General Permit except for those used for pH adjustment or anti-freeze purposes and that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
2.	Notification provided to the appropriate State, including a copy of this NOI, if required?	☐ Yes ☐ No
	Signature:	Date: Click or tap to enter a date. 04-25-2023
	Print Name and Title: Sean J. Iller, EHS Manager	

Eldred L. Field Powerhouse
Lowell, MA

Notice of Intent Attachment 1



Eldred L. Field Powerhouse

Lowell, MA

Notice of Intent Attachment 2

Outfall #	Latitude / Longitude	Discharge Type	Operations Contributing to Discharge	Average Daily Flow (GPD)	Flow Type	Treatment	Sample at least once per year?	Representative sampling location?
001	42° 39.15' N 71° 19.36' W	Equipment related cooling water	HVAC Non contact cooling water	0-604,800	Seasonal (Summer Only)	None	Yes	001
002	42° 39.16' N 71° 19.36' W	Equipment related cooling water, Maintenance related water, Equipment and floor drain water	Lubricating Oil Coolers Non contact cooling water Sump pump, floor drains, packing water and seal water.	0-388,800	Continuous*	None	Yes	002
003	42° 39.16' N 71° 19.36' W	Maintenance related water	Dewatering sump mostly used to remove condensation on walls and every couple of years to dewater units.	0-250	Intermittent	None	Yes	003

* Only when unit is in operation

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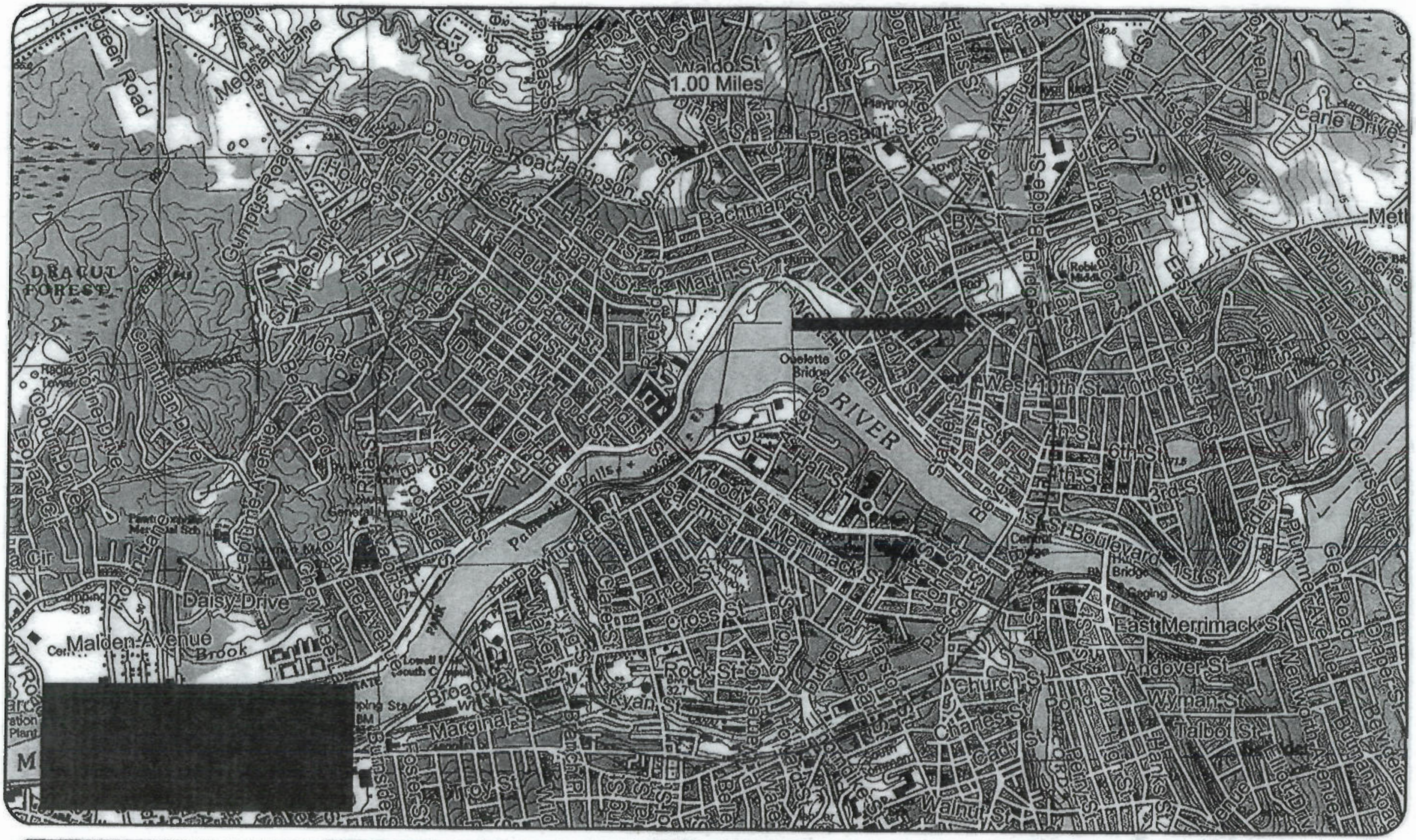

PROJECT TITLE: NPDES Permitting	CLIENT: Eldred L. Field Hydroelectric Projec Boott Hydropower, Inc.	Capaccio Environmental Engineering, Inc. 293 Boston Post Road-West Marlborough, MA 01752 (508) 970-0033 * www.capaccio.com "Helping Industry and the Environment Prosper"	JOB NO: 08-034.013	SHEET: Figure 1
			SCALE: 1" = 2083'-0"	
			REV: A	
DRAWING TITLE: Site Location Map	JOB LOCATION: 145 Pawtucket Street Lowell, MA 01854		DRW: CPC	NORTH
			CHK: CAW	SIZE: A
			ENG:	
			DATE: 05-10-12	

utilized producing an additional 5,750,000 kWh, with an 8% plant factor. The total hydroelectric energy produced by the project represents a fuel savings of 127,000 barrels of oil or 37,000 tons of coal annually.

Boott Mills has entered into an agreement to sell all project power output to the Commonwealth Electric Company, a Massachusetts corporation. 4/ 5/ Based upon the terms of the agreement and the estimated annual cost of the project, the project is deemed economically feasible.

Cultural Resources

The area to be affected by the proposed project is located within the Locks and Canals Historic District, a property listed on the National Register of Historic Places. In addition, the project would be within the boundaries of the Lowell National Historical Park, and is situated in the Preservation District established by the Lowell Historic Preservation Commission. The area is also designated as a National Landmark, attesting to its significance in the history of the United States. The area also remains as one of the most important historic engineering resources in the northeast.

Historical properties within the immediate impact area include the Northern Canal, the Great River Wall, River Walk, Pawtucket Dam, Northern Canal Gatehouse and Lock, and the Northern Canal Waste gate structure.

The New Hampshire State Historic Preservation Officer (SHPO) concluded that the proposed project would have no effect on significant historic and archeological resources, located on upstream portions of the Merrimack River in New Hampshire.

Pursuant to extensive consultations with the Massachusetts SHPO and the National Park Service (NPS), Boott Mills has agreed to relocate the proposed powerhouse in order to avoid destroying the historic Waste Gates on the Northern Canal, and to repair, at its own expense, the Northern Canal Gates, and to restore them to their original condition. At the same time, Boott Mills has modified its plans for fish passage facilities so as to avoid any impacts to the Northern Canal Gatehouse, while still providing for the movement of anadromous fish past project facilities.

4/ Power Sales Contract dated January 10, 1983.

5/ The Massachusetts Municipal Wholesale Electric Company was ~~granted~~ intervenor status as a possible purchaser of power from the project.

Finally, Boott Mills has proposed the construction of a set of locks at the site of the new diversion/control structure in the Northern Canal to provide for passage of boat traffic, and to avoid any loss of historic function of the canal system.

As mitigation for the remaining effects of the project on historic properties, Boott Mills has advanced a series of proposals designed to minimize the impacts of introducing new structures into the historic district and historic park. These proposals include: (1) to compensate for impacts to the canal wall, cut ledge, and walkway, historical research designed to provide cultural and engineering data, and to produce plans and elevations for affected features; (2) field recording of any historic and engineering features, to include photographs, sketches, and notes; (3) reconstruction of a segment of the Northern Canal Walkway, using the original stones from the existing walkway; (4) landscaping treatments that would emphasize the revegetation of disturbed areas with native plant material, the integration of new facilities into existing state and Federal park designs, and the placement of transmission lines in inconspicuous or underground locations.

The Massachusetts SHPO has concluded that the proposed project would result in no adverse effect on the Locks and Canals Historic District provided that: (1) the SHPO would have an opportunity to review and comment upon the preliminary design of the power structure, that the structure would be designed to meet the Secretary of the Interior's standards for new construction adjacent to historic properties, and that the power structure would be compatible with the historic properties in size, scale, massing, and materials; (2) the SHPO would be provided with an opportunity to review and comment upon the design of the fish ladder with respect to its impacts on the Pawtucket Dam, and Boott Mills would develop a program to record the structural details of the dam in accordance with the standards of the Historic American Engineering Record; (3) any future action related to the hydroelectric project that would change the mean seasonal water level in the canal system, or would impair navigability, would be reviewed in accordance with the Advisory Council on Historic Preservation's regulations; and (4) the project would include a set of locks to allow passage around the diversion/control structure to be constructed across the Northern Canal. Boott Mills has agreed to all of the Massachusetts SHPO's conditions.

The NPS has concurred with the conditions of agreement between the SHPO and Boott Mills. According to the NPS, the conditions are consistent with NPS positions on the proposed project, and the NPS has reached an agreement with Boott Mills on two of the issues addressed by the SHPO--the regulation of water levels in the lower Pawtucket Canal and the construction of the bypass lock around the diversion/control structure.

Staff's review of the effects of the Lowell Hydroelectric Project on the Locks and Canals Historic District indicates that Boott Mills' design changes, and its proposed mitigative measures, will safeguard the historic characteristics that qualify the distict, and its individual components, for listing on the National Register of Historic Places. Boott Mills has agreed, at considerable additional cost, to design its project to avoid impacts to the historic waste gate structures, to provide for fish passage without affecting the historic Northern Canal Gatehouse, to repair and restore the Northern Canal Gates, to restore and preserve the Northern Canal Walkway, and to provide visitor facilties illustrating the similarities and contrasts between historic and modern power generation on the Lowell canal system. In addition, although the project will introduce new structures and features into the historic district, Boott Mills has agreed that the SHPO will be provided an opportunity to ensure compatibility with existing historic features. Moreover, when physical changes are made that would affect historic properties, the modifications will be preceded by a documentation program carried out in conformance with the standards of the Historic American Engineering Record. The Advisory Council on Historic Preservation has concurred with the staff's evaluation of effects on historic properties.

For the above reasons, it is concluded that the project as modified, with the mitigative measures agreed to among Boott Mills, the SHPO, and the NPS, will result in no adverse effect on the Locks and Canals Historic District. License Article 33 specifies the mitigative measures agreed to with the Massachusetts SHPO and concurred in by the Advisory Council on Historic Preservation.

Fish and Wildlife Resources

The U.S. Fish and Wildlife Service (FWS) stated that except for occasional transient individuals, no federally listed or proposed threatened or endangered species are known to exist in the project impact area.

FWS and the Massachusetts Division of Fish and Wildlife stated that the conceptual design of the fishway, modified channel, and fish elevator were adequate, and that submission of final plans to Federal and state agencies for approval prior to starting construction of the fish passage facilities would be necessary. These agencies concluded that: (1) the operating schedule for the fish passage facilties should be developed by the appropriate Federal and state agencies; (2) flows proposed by Boott Mills for operation of the fish passage facilities would have to be assessed for adequacy; and (3) downstream migrant facilities would be required.

Boott Mills stated that additional study and observation must be made in order to precisely define flows and the extent of channel modifications needed, and that studies utilizing tagged fish would have to be conducted to determine the suitability of the proposed fish passage facilities. Until studies are completed, however, Boott Mills requested that the project be licensed with their proposed mode of operation of the fish passage facilities, and further stated that operation could be modified in coordination with the Commission and other appropriate agencies if the studies indicate that such operation is inadequate.

It is concluded that the success of fish passage through the Northern Canal and Gatehouse should be assessed and studies conducted to determine if Boott Mills' proposed flows of 300 and 500 cubic feet per second (cfs) are adequate. Further, specific operating criteria and flow releases would have to be developed for the fish lift. Downstream migrant facilities would be needed at the project. This would require the Licensee to design such facilities, and file functional design drawings for approval. License Articles 34 and 35 require that appropriate studies be conducted, and functional design drawings be filed with the Commission for approval.

Water Quality and Quantity

The U.S. Department of Interior (Interior) noted that Boott Mills' proposal contained no information on providing flows through the canal system for maintenance of canal water quality. Boott Mills responded that flows would be provided for that purpose. Further, the Massachusetts State Division of Water Pollution Control (WPC) requires in its water quality certificate issued for the project on July 26, 1982, a study to determine the impacts of the project flows on the canal system water quality.

FWS recommended Aquatic Base Flows (ABF) of 4.0, 0.5, and 1.0 cubic feet per second per square mile of drainage area (cfsm) for the spring, summer and fall critical periods, respectively. Interior stated that the major concern was the impact of flows on late, adult migrant salmon in June and on juvenile shad migration in the fall. The FWS later stated that the above flow recommendations were preliminary and that an ABF of 0.5 cfsm or 1,990 cfs was appropriate to protect and maintain fishery resources. FWS also indicated that the ABF of 0.5 cfsm could be lowered provided that additional studies demonstrate that lower flows provide adequate protection and enhancement of resident and anadromous fishery resources.

The Environmental Protection Agency recommended that the project be operated in a manner that provides for an instantaneous minimum flow release equal to or greater than 862 cfs. WPC in its water