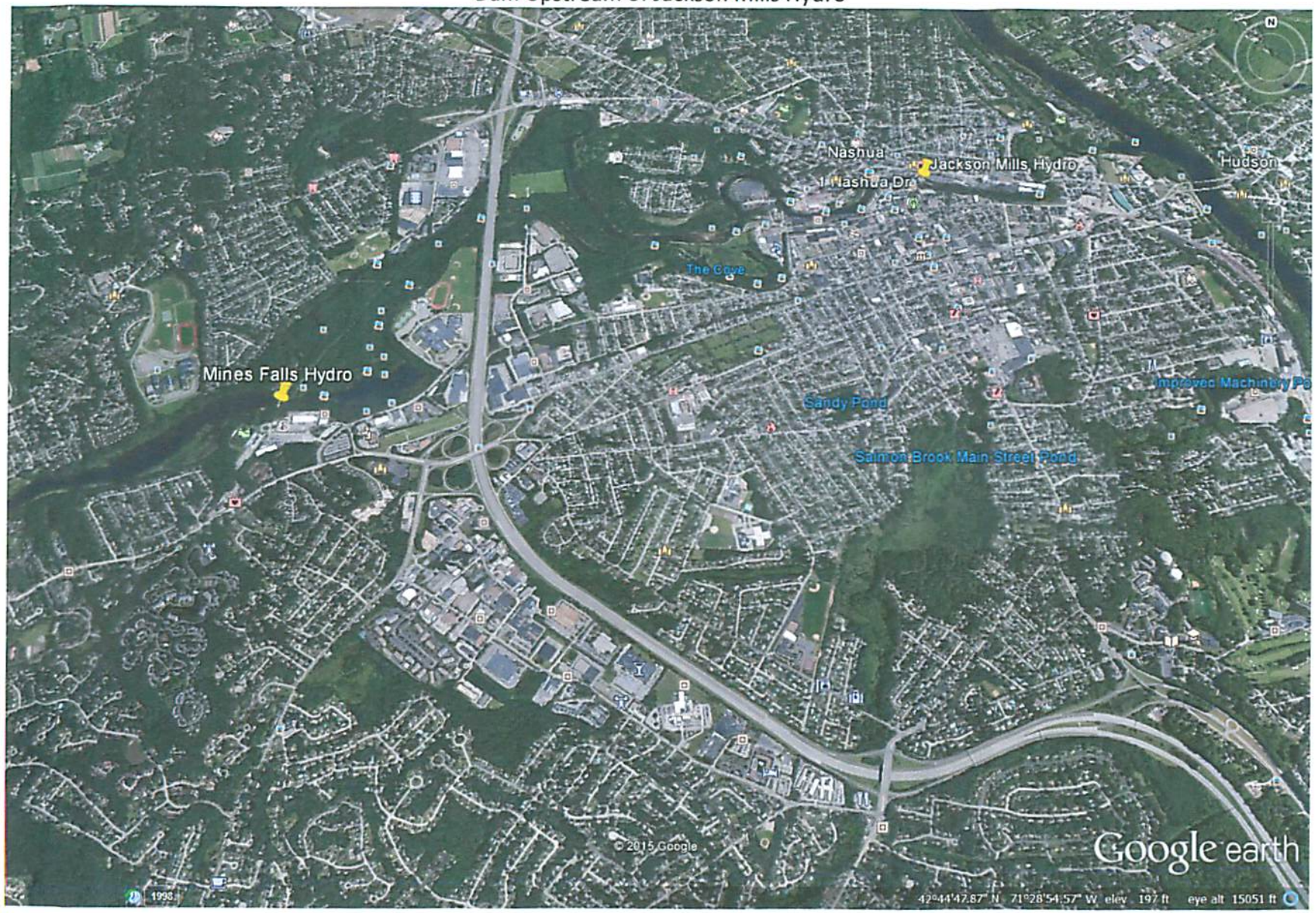
APPENDIX 1

LOCATION MAP OF UPSTREAM AND DOWNSTREAM DAMS

APPENDIX 1

Dam Upstream of Jackson Mills Hydro



APPENDIX 2

OWNERSHIP/REGULATORY STATUS

APPENDIX 2

Ownership/Regulatory Status

On February 16, 1981 the City of Nashua, New Hampshire applied for and received a minor FERC license for a 1,000 kW project involving the construction of a new powerhouse on the right bank of the Nashua River at the Jackson Mills dam, circa 1980. On April 22nd, 1980, as part of it's FERC licensing process, the City of Nashua submitted a request for a fill and dredge permit to the State of New Hampshire Water Supply and Pollution Control Commission to construct a powerhouse and temporary cofferdam, see Exhibit 2-1. On May 21, 1981, the City's request for a fill and dredge permit was approved by the New Hampshire Water Supply and Pollution Control Commission and the project was issued a certificate pursuant to sections 401(a)(1) and 401(d) of the Federal Water Supply and Pollutions Control Act. (see Appendix 2-2)

On February 16, 1983, The City of Nashua selected Essex Development Associates, Inc. (EDAI) as the developer of the proposed Jackson Mills Hydroelectric Plant. After considerable study, EDAI concluded that the most cost-effective development of the Jackson Mills project ("the project") would be on the left bank of the Nashua River. To receive authorization for the left bank development, which differed from the right bank development originally license by the FERC, and to establish its legal position as the developer, EDAI filed an Order No. 202 Notice of Exemption for the Jackson Mills site with the FERC on September 18, 1983. (see Exhibit 2-3).

In 1984, EDAI formed Nashua Hydro Associates, a special purpose New Hampshire Limited Partnership to develop the Jackson Mills Hydroelectric site. An Order Granting Exemption from Licensing of a Small Hydroelectric Project of 5 Megawatts or less was granted to Nashua Hydro Associates (FERC Project No. 7590) on April 24, 1984 (Exhibit 2-4). Nashua Hydro Associates proceeded to construct the Jackson Mills Hydroelectric Project powerhouse and install a single propeller-type turbine with an installed capacity of 1.1MW on the left bank of the Nashua River at the base of the Jackson Mills Dam (No. 165.02 in the New Hampshire Water Resource's Board files) in the City if Nashua, New Hampshire.

EDAI, a General Partner of Nashua Hydro Associates signed a 30-year variable rent lease with the City of Nashua on July 18th, 1984, which expired in December 2014.

Nashua Hydro Associates filed an Application for an amendment of the exemption to allow the installation of a pneumatic crest gate at the Jackson Mills Dam and on January 11, 2013 the FERC approved the request and issued an Order Amending Exemption (Exhibit 2-5).

Effective December 21, 2014 the FERC exemption from licensing for the Jackson Mills Project was transferred from Nashua Hydro Associates to the City of Nashua, New Hampshire (Appendix 2-6).

APPENDIX 2-1

New Hampshire Water Supply and Pollution Control Commission Request to Fill and Dredge Permit Approval issued April 22, 1980

The State of New Hampshire

Water Supply and Pollution Control Commission

P.O. Box 95 - Hazen Drive

Concord, N.H. 03301

April 22, 1980

N-501

City of Nashua
Mayor Maurice L. Arel
Box 805
Nashua, New Hampshire 03061

Subject: REQUEST TO FILL AND DREDGE TO CONSTRUCT POWERHOUSE AND TEMPORARY COFFER DAM DURING CONSTRUCTION, NASHUA RIVER, VICINITY OF HARTSHORN STREET, NASHUA, NH

Dear Sirs:

Subject request has been duly considered and is hereby approved pursuant to RSA 149:8-a.

This permit is valid for two years from the date of issue under the following conditions:

1. There shall be no interference with water supplies or fish and other aquatic life; and

2. There shall be no lowering of the Class B water quality classifications assigned by the legislature.

Very truly yours,

Terrence P. Frost

Terrence P. Frost
Chief Aquatic Biologist &
Director of Subsurface Systems

TPF/DD/cc

cc: Mr. George McGee, Sr.
Mr. Dudley S. Dean

APPENDIX 2-2

New Hampshire Water Supply and Pollution Control Commission
401(d) Water Quality Certificate issued May 21, 1980

The State of New Hampshire

MAY 23 1980

Water Supply and Pollution Control Commission
P.O. Box 95 - Hazen Drive
Concord, N.H. 03301

May 21, 1980

Mr. Morgan R. Rees
Chief, Regulatory Branch
Operations Division
Department of the Army
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Attention: NEDOD

Dear Mr. Rees:

Subject: REQUEST TO FILL AND DREDGE TO CONSTRUCT POWERHOUSE AND TEMPORARY COFFER DAM DURING CONSTRUCTION, NASHUA RIVER, VICINITY OF HARTSHORN STREET, NASHUA, NEW HAMPSHIRE

This will certify that on review of the subject request, the Commission has determined that the project described in the request will be in conformance with applicable New Hampshire laws and that, to the best of its knowledge, no federal limitation applicable to the proposed project has been established under sections 301(b), 302, 306 or 307 of the Federal Water Pollution Control Act (P.L. 92-500), as amended to date. This certification is furnished pursuant to sections 401(a)(1) and 401(d) of the Act, and included herewith and made a part hereof are state permits issued pursuant to NHRSA 149:8-a (supp) and NHRSA 483-A (supp).

Very truly yours,

Terrence P. Frost

Terrence P. Frost, Director
Permits and Enforcement and
Chief Aquatic Biologist

TPF/csc
Enclosures
cc: Mr. W. J. Naulty, USCG
Mr. Russell Nylander, P.E.
Mr. Paul L. Heirtzler, P.E.
City of Nashua, Attention: Mayor Maurice L. Arel

The State of New Hampshire

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STAFF
WILLIAM A. HEALY, P.E.
Executive Director
DANIEL COLLINS, P.E.
Deputy Executive Director
Chief Engineer

Water Supply and Pollution Control Commission
Hazen Drive — P.O. Box 95
Concord, N.H. 03301

May 6, 1903

Mr. Morgan R. Rees
Chief, Regulatory Branch
Operations Division
Department of the Army
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Attention NEDOD

Dear Mr. Rees:

Subject: REQUEST TO FILL AND DREDGE TO CONSTRUCT POWERHOUSE AND TEMPORARY COFFER DAM DURING CONSTRUCTION, NASHUA RIVER, VICINITY OF HARTSHORN STREET, NASHUA, NEW HAMPSHIRE

Having received the revised application of May 6, 1903, this will certify that our 401 certification of May 21, 1980, signed by Terrence P. Frost, is still valid and appropriate.

Very truly yours,

Peter H. Allen, Ph.D.
Principal Planner
Water Quality Management Planning

PHA/cnb

APPENDIX 2-3

Jackson Mills Hydroelectric Project Application for an Exemption of Small Hydroelectric Project From Licensing

JACKSON MILLS
HYDROELECTRIC PROJECT

APPLICATION FOR EXEMPTION
OF SMALL HYDROELECTRIC PROJECT
FROM LICENSING

JACKSON MILLS HYDROELECTRIC PROJECT

Table of Contents

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR EXEMPTION OF
SMALL HYDROELECTRIC POWER PROJECT
FROM LICENSING

(1) Nashua Hydro Associates applies to the Federal Energy Regulatory Commission for an exemption for the Jackson Mills Hydroelectric Project, a small hydroelectric power project that is proposed to have an installed capacity of 5 megawatts or less, from licensing under the Federal Power Act.

(2) The location of the project is:

State	New Hampshire
County	Hillsborough
City	Nashua
River	Nashua
River Basin	Merrimack

(3) The exact name and business address of applicant is:

Nashua Hydro Associates
99 N. State Street
Concord, New Hampshire 03301

(4) The exact name and business address of each person authorized to act as agent for the applicant in this application is:

Thomas A. Tarpey, Jr.
Nashua Hydro Associates
99 N. State Street
Concord, NH 03301
(603) 224-8333

David B Ward, Esq.
Flood, Bechtel, Ward & Cole
1000 Potomac St., N.W.
Suite 402
Washington, DC 20007
(202) 298-6910

(5) Nashua Hydro Associates is a New Hampshire limited partnership organized under the laws of the State of New Hampshire. The City of Nashua and Roland and Patricia Lapierre, owners of the existing dam, land and water rights, have granted applicant the exclusive rights to

develop a hydroelectric facility at the Jackson Mills Dam. Letters from the City of Nashua and Roland and Patricia Lapierre attesting to applicant's exclusive development rights are attached as Appendix A of Exhibit B.

Based upon the above information and the Exhibits and Appendices attached hereto, applicant submits that it is a "qualified exemption applicant" within the meaning of Section 4.102(j) of the Regulations in that it has the requisite property rights; that its proposed project is a "small hydroelectric power project" within the meaning of Section 4.102(l) of the Regulations in that (1) the proposed project will utilize for electric power generation the water power potential of an "existing dam" as defined in Section 4.102(b) of the Regulations; and that, accordingly, applicant's project should be exempted from Part I of the Federal Power Act in accordance with Section 4.106 of the Regulations, Section 408(b) of the Energy Security Act and the Commission's Order No. 106.

Respectfully submitted,

NASHUA HYDRO ASSOCIATES

Thomas A. Tarpey
Project Manager

VERIFICATION

Thomas A. Tarpey, Jr., being first sworn, deposes and says that he is the Project Manager of Nashua Hydro Associates; that he has read the foregoing document and knows the contents thereof; that the facts set forth therein are true and correct to the best of his information, knowledge and belief; and that he is duly authorized to sign said document on its behalf.

Thomas A. Tarpey, Jr.

Subscribed and sworn to before me this 1st day of September, 1983.

Notary Public
My commission expires:

JULIE MECK HAMLIN, Notary Public
My Commission Expires April 8, 1988

EXHIBIT A

DESCRIPTION OF PROJECT AND PROPOSED MODE OF OPERATION

The Jackson Mills Dam, identified as No. 165.02 in the New Hampshire Water Resources Board files, is located approximately 700 feet downstream from the crossing of U.S. Route 3 (Main Street) over the Nashua River. Construction of the dam was completed in 1920.

(1) Dam and Impoundment

Design	Gravity-type stone masonry spillway, with a concrete cap and a concrete extension and concrete-faced stone gravity-type abutments
Material	Concrete on stone masonry
Height	33 feet
Length	180 feet
Crest Elevation	115.6 feet National Geodetic Vertical Datum of 1929 116.6 with one foot flashboards
Impoundment Storage Capacity	150 acre-feet

(2)(3) Number and Type of Generating Units

Applicant proposes to install one single-regulated propellor-type turbine. The installed capacity of the unit will be 1,100 KW.

(4) Method of Operation

The plant will be operated as a run-of-river facility.

(5) Flow Duration Curve

Attached as Figure 1 to this Exhibit is a flow duration curve.

(6) Statistical Estimates

Estimated Average Annual Generation	4 Million KWH
Average Hydraulic Head	19 feet
Design Hydraulic Head	20.5 feet
Average Annual Stream Flow	720 cfs
Number of Surface Acres of Impoundment Used at Normal Maximum Surface Elevation	40 acres
Net Storage Capacity	- 0 -
Gross Storage Capacity	150 acre-feet

(7) Construction

Construction would begin as soon as possible following receipt of an exemption from licensing, depending upon weather conditions in New Hampshire. Applicant estimates construction to be completed within one year.

(8) Dam Repair

None required.

EXHIBIT A

Figure 1

JACKSON MILLS HYDROELECTRIC PROJECT

FLOW DURATION CURVE 1936 - 1977

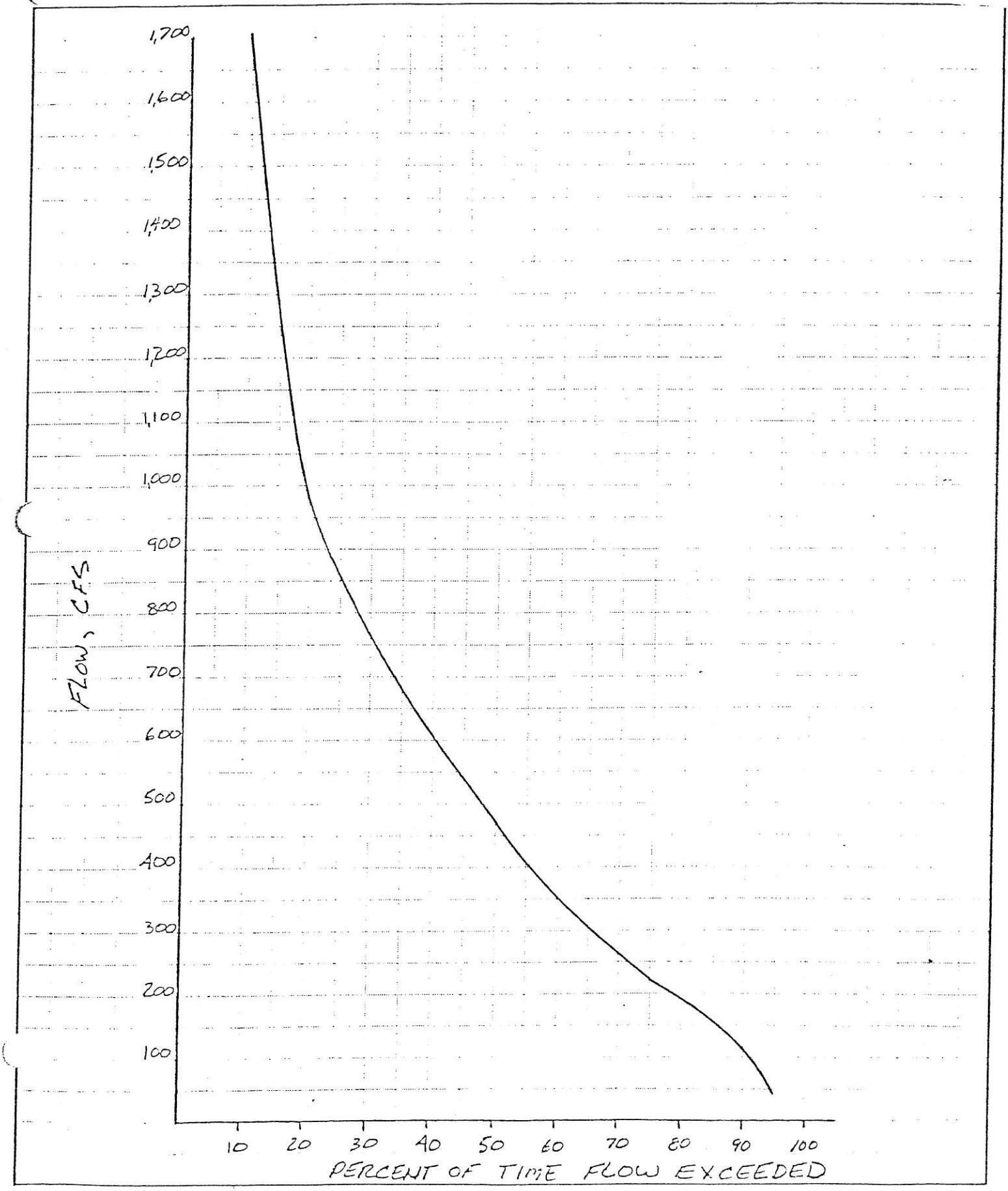


EXHIBIT B

GENERAL LOCATION MAP

Attached hereto is a general location map showing the location of the proposed project.


JACKSON MILLS DAM
NASHUA, NEW HAMPSHIRE
Broad Acres
Lithuanian Cem
St Stanislaus Cem
INTERCHANGE
BOSTON
St Fra Cem
Sewage Disposal
Shopping Center
NASHUA R
NASHUA
CANAL
Water Tank
Youth Center
City Hall
Library
High Sch
Memorial Hosp
Jr High Sch
Fire Sta
RIVER
JACK
Amherst St Sch
North Common
Mt Pleasant School
St Francois Acader
Mt St Mary's Seminary
GREELEY
HENRI A
WATSON
Pet Cem
PARK
Ledge St Sch
LEDGE
STREET
WEST HOLLIS STREET
Woodlawn Cemetery
KINSLEY
Substa
Lincoln Park
Radio Towers (WSMN)
Radio Tower (WOTW)
LUND
St Josephs Sch
Fairgrounds Sch
Nashua Jr High Sch
Sandy Pond
LOWELL ST
PINE ST
HUNT
NAGLE ST
LINWOOD
ALMONT
LEWIS
SWAN ST
Pumping Stations
Brook
JACKSON
NORTH NA
CHANNEL I

This drawing is part of the application for exemption from all or part of Part I of the Federal Power Act, made by the undersigned this 1st day of September, 1983.

NASHUA HYDRO ASSOCIATES

Thomas A. Tarpey, P.E., Project Manager

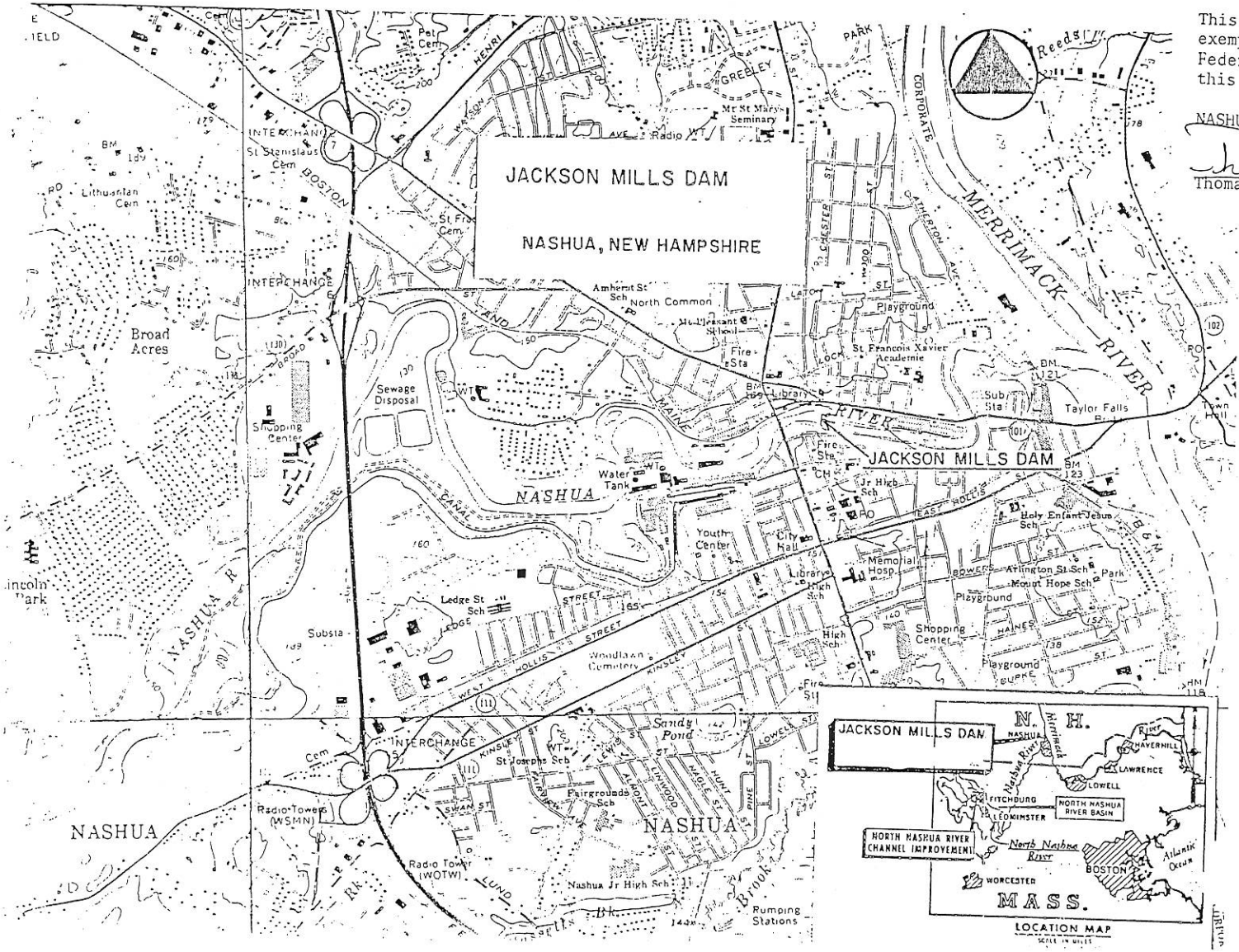


EXHIBIT B

GENERAL LOCATION MAP

EXHIBIT E

ENVIRONMENTAL REPORT

1. Environmental Setting

The Nashua River watershed includes 34 communities in Massachusetts and New Hampshire. The river is 57 miles long with the South Branch flowing from the Wachusett Reservoir in Clinton, Massachusetts where it continues north to Lancaster, Massachusetts joining the North Branch and forming the main stem. From there the river flows north to Nashua, New Hampshire, and ultimately into the Merrimack River. For three-fourths of its length it flows through country consisting of fields, wetlands and forests.

Jackson Mills is located in downtown Nashua, New Hampshire, approximately 700 feet downstream from the crossing of Main Street (old U.S. Route 3) over the Nashua River. The area in the vicinity of the dam is urban in character and typical of an old New England manufacturing city. The Nashua Public Library is located on the south bank of the river. The former powerhouse on the north bank currently houses the Chart House Restaurant which contains some of the original features of the old operation. Along both banks above and below the dam the vegetation consists of planted ornamentals and those types typical of disturbed ground.

The Nashua River basin has a total drainage area of 529 square miles, with 88 square miles being in New Hampshire, and 441 square miles in Massachusetts.

The relief of the area varies with gentle slopes and low hills on the eastern side of the main stem valley, and steeper topography on the highland edge on the west. The Wachusett range divides the subwatershed of the southern region. The highest peak in the watershed is Mt. Wachusett with an elevation of 2,006 feet (NGVD).

From the central valley of the main stem of the Nashua River to the limits of the watershed, the landscape is broad, forested and rural, with small towns and cities scattered throughout.

The gradient of the river is gentle, with the main stem dropping 105 feet from Lancaster to the Merrimack River 35 miles downstream.

The bedrock of the Nashua River watershed is mostly granite, and is covered with a mantle of soils, sand, gravel, and rock which was placed as glacial drift or as interglacial deposits. The basin is underlain by quartzites and schists which were metamorphosed during the collision of the North American and European plates in the Early Paleozoic period, causing the general north-south orientation of the basin.

In the central valley of the watershed, deep sand and gravel deposits are found at many places, including hardpan and bedrock in shallow areas.

Soils present in the watershed include clay, peat, and deep sandy loams. Most of the river has between 6 and 8 feet of sludge covering the bottom which may also extend a short distance up the banks at various places.

A. Vegatative Cover

Within the overall area of the watershed, the vegetative cover is primarily second-growth mixed hardwood/softwood forests. White pine, red pine, and hemlock are the common softwood species, and the common hardwood species include red maple, silver maple, white oak, willow, slippery elm and birch. In 1972, between 70 and 75 percent of the total area of the watershed consisted of forests and primarily wooded land.

Common shrubs found along the streamsides and in wetlands are button bush, sweet viburnum, witch hazel, blueberry, alder, sumac, and marsh lady slippers.

Table 1 lists the types of vegetation found in the vicinity of Jackson Mills.

The species found here are in general old field primary successional species that are indicative of an area that has previously been cut over and disturbed. Examples of these are goldenrod, nightshade, sumac and various species of grasses and ferns. Ornamentals are also prevalent, having been planted when the Nashua Public Library was built. These include crabapple trees, cherry trees and roses. The trees are directly behind the library next to the south end of the dam.

i. Rare and Endangered Species

The following plant species have been reported to be present at stations in the area of Nashua, New Hampshire. They are considered rare by the New England Botanical Club as reported in the 1978 publication from NEBC entitled: "Rare and Endangered Vascular Plant Species in New Hampshire." However, as some of the stations date back to the 1800's, the

presence of these plants is questionable. They were not found in the vegetation surveys done for the listings provided in Table 1.

It should be noted that, at present, none of these are on the Federal list of endangered plants of this area nor are they being proposed for inclusion on this list.

Zizania aquatica L. var. angustifolia Hitche - wildrice
Allium canadense L. - wild garlic
Prunus americana Marsh - American plum
Tephrosia virginiana L. Pers. - Goat's Rue
Xanthoxylum americanum Miller - Northern Prickly Ash
Viola pedata L. var. Lineariloba DC - Birdfoot violet

No rare and/or endangered faunal species are known to exist in the vicinity of Jackson Mills.

B. Fish and Wildlife Resources

i. Aquatic Ecosystem

The nearest Great Ponds (more than 10 acres) in the study area are in the Hollis, New Hampshire, approximately eight miles south of Nashua. They are: (1) Flints Pond, 48 acres in size and private with no public access or use; and (2) Rocky Pond, 46 acres in size and also private with no public access or use.

The area of the Nashua River which includes the Jackson Mills Dam has not been stocked with trout by the New Hampshire Fish and Game Department. A short-term fishery investigation was conducted on the Nashua River by the State Fish and Game Department during the summer of 1974. Four stations were sampled downstream of the Mine Falls Dam in the area between the crossing of the Everett Turnpike and Runnell's Dam. The catch consisted of warmwater and non-game fish species, and was representative of those types of species which are found in the New Hampshire portion of the river. Brown and yellow bullheads were the most numerous species netted. Table 2 lists those fish netted in the survey. It did not include any stations downstream from the Mine Falls Dam to the confluence of the Merrimack River.

There is a potential to establish a fishery for small-mouth bass and related warmwater species. However, the water quality of the river must improve from its present state to allow for management of a successful warmwater fishery.

TABLE 1

Vegetation in the Vicinity of Jackson Mills

Gleditsia triacanthos	Honey Locust
Acer saccharinum	Silver maple
Pinus nigra	Austrian pine
Crataegus spp.	Hawthorns
Rosa spp.	Wild roses
Ulmus americana	American elm
Rhus typhina	Staghorn sumac
Populus tremuloides	Quaking aspen
Juglans cinerea	Butternut
Sorbus aucuparia	European mountain ash
Malus sp.	Ornamental crabapple
Acer negundo	Box elder
Euonymus atropurpureus	Burning bush
Rubus sp.	Raspberry
Populus deltoides	Common Cottonwood
Catalpa bignonioides	Common Catalpa
Solidago sp.	Goldenrod
Aster novae - angliae	New England Aster
Acer saccharum	Sugar Maple
Ulmus rubra	Slippery elm
Solanum nigrum	Common nightshade
Acer platanoides	Norway maple
Cornus stolonifera	Red-Osier Dogwood
Morus mibra	Red mulberry
Lonicera tatarica	Tartarian Honeysuckle
Prunus sp.	Cherry
Quercus rubra	Red Oak
Fraxinis pennsylvanica	Green Ash
Peltandra virginica	Arrow-Arum
Salix sp.	Willow
Salix babylonica	Weeping willow
Acer rubrum	Red Maple

Table 2

List of Fish Netted in the Nashua River, August 1974

N. H. Fish and Game Department

Yellow Bullhead	Ictalurus natalis
Brown Bullhead	Ictalurus nebulosus
Black Crappie	Pomoxis nigromaculatus
Golden Shiner	Notemigonus crysoleucas
Common Sunfish	Eupomotis gibbosus
Common White Sucker	Catosomus commersoni
Blue Gill	Lepomis macrochirus
Yellow Perch	Perca flavescens
Carp	Cyprinus carpio

In a subsequent survey performed in the summer of 1975, approximately 250 crayfish were live-trapped in the Nashua River at the Runnell's Dam. No other species were sampled for in this survey.

According to the Nashua River Watershed Association, the only areas in the watershed where gamefish are found are in the Nissitissit and Squannacook Rivers which are tributaries of the Nashua River, and are located south of Nashua, New Hampshire, in Pepperell and Townsend, Massachusetts, respectively. Rainbow trout, brook trout, brown trout, bass and pickerel are most commonly found in these rivers. However, the Nissitissit and Squannacook Rivers are well beyond the scope of the study area of Jackson Mills.

The deed to Jackson Mills Dam requires that the permanent spillway crest not be raised above its present level, and that the level of the water not be lowered below the spillway. The maintenance of the water level is required to provide enough head to maintain the flow of water for fire protection for Sanders Associates and the Nashua Corporation. However, since the turbine will not operate in any instance where the water level is equal to or less than the elevation of the spillway, the proposed powerhouse would have no added impact on downstram habitat and resources.

ii. Wildlife

Small mammals are very common along the riverbank where development is not heavy and include raccoon, woodchuck and possibly otter and beaver. In the wooded areas, chipmunks, squirrels, mice, foxes and shrews are present.

Avifauna includes songbirds such as catbirds, chickadees, robins, nuthatches and others that typically inhabit city areas where food sources are available.

C. Water Quality and Quantity

i. Quality

The entire length of the Nashua River in New Hampshire has been assigned an objective water quality standard of Class C by the New Hampshire Water Supply and Pollution Control Commission. Class C waters are suitable for boating, fishing and industrial water supply. Present water quality conditions in the river, however, do not meet the required criteria for

Class C waters. Based upon data collected by the State of New Hampshire in 1977 and 1978 four miles upstream from Mine Falls Dam at Hollis, New Hampshire, high concentrations of total coliform bacteria and phosphorous are primarily responsible for the degradation. No data are available for the immediate area around the Jackson Mills Dam. The bacterial contamination is of both human and animal origins probably emanating from nonpoint sources and urban run-off. Concentrations of nitrogen and phosphorous are very high, and biological response is active with chlorophyl "A" levels typically about 30 mg/M^3 and as high as 150 mg/M^3. Daytime dissolved oxygen levels are always above 6 mg/l; pH varies within 0.5 units of neutrality; and suspended solids range up to 15 mg/l.

In support of the development of a water quality management plan for the Nashua River Basin, sediment sampling and analysis was performed in 1973 by Camp Dresser & McKee, Inc. at two sites behind Jackson Mills Dam. The survey revealed the existence of two types of PCB's, dieldrin, DDT and trace metals including alumunium, chromium, copper, mercury, lead and zinc in the sediments. The chlorinated hydrocarbons are very insoluble in water, with saturation concentrations of 1 to 2 (parts per billion), and toxic concentrations were not expected to exist in the water. The trace metals concentrations in the sediments were not expected to induce toxic conditions of metals release.

ii. Watershed Description

The city of Nashua is located on the southern New Hampshire boundary approximately 12 miles north of Lowell, Massachusetts. The city straddles the Nashua River at its point of discharge to the Merrimack River. The city is located on a gently sloping low plateau that is characterized by stratified and unstratified material of silt, sand and gravel that were deposited by the meltwaters of a retreating glacial ice sheet. Elevations range from approximately 100 feet NGVD at the mouth of the river to 426 feet NGVD on Gilboa Hill, the highest point in town. The Nashua River basin has a total watershed area of 529 square files located within the states of Massachusetts and New Hampshire. Portions of the watershed lie in the following counties: Worcester and Middlesex Counties, Massachusetts and Hillsborough County, New Hampshire. The Nashua River has two principal branches: the south or main branch originating north of Worcester at the Wachusett Reservoir Dam in Clinton and the north branch formed by the junction of the Whitman River and Flagg Brook in West Fitchburg. The two branches join in

Lancaster, Massachusetts, and flow northeasterly to the Merrimack River at Nashua, New Hampshire.

Though the gross watershed area of the Nashua River is 529 square miles, the Wachusett water supply reservoir diverts the run-off from 115 square miles, or 21 percent of the watershed, out of the basin to the Boston MDC water supply system. With the exception of very infrequent spillage, the only discharge from Wachusett Reservoir to the Nashua River is a prescribed minimum release of about 3 cfs. Therefore, the net effective drainage area of the Nashua River is 414 square miles. The most westerly headwater region of the watershed lies on the easterly slope of the Berkshire hills resulting in a hydrologically "flashy" North Nashua River. However, the mainstream Nashua River has a very flat gradient for New England rivers, with extensive swamps and natural valley storage areas, resulting in an overall hydrologically "sluggish" river basin.

The average annual temperature in the Nashua River basin is about 50°F varying from a seasonal average in the winter of about 30° to 70° in the summer. Extremes range from highs of near 100°F to lows in the minus 20°s. There are about 150 days per year with temperatures below 32°F. Average annual precipitation is about 42 inches, occurring quite uniformly throughout the seasons; however, some of the winter precipitation occurs as snow with an average annual snowfall of about 55 inches.

iii. Streamflow

The average annual run-off in the Nashua River basin is about 24 inches or nearly 60 percent of annual precipitation. This amount of run-off rate of between 1.7 and 1.8 cfs per square mile of drainage area, results in a total average flow at Nashua, from the net drainage area of 414 square miles, of about 720 cfs. Though precipitation is quite uniformly distributed throughout the year, the melting of the winter snow cover results in about 40 percent of the annual run-off during the spring months - March, April and May. Flows are usually lowest during July, August and September.

The U. S. Geological Survey has recorded flows on the Nashua River at East Pepperell, Massachusetts (net drainage area equals 316 square miles) continuously since 1935. The long term average at this station is 557 cfs. Average monthly and maximum and minimum daily flows at the station site are listed in Table 3. The peak discharge at the gage was 20,900

cfs on 20 March, 1936. The minimum flow was 1.1 cfs on 13 August, 1939. A flow duration curve for the period of record (1936-1977) is shown as Figure 1 to Exhibit A.

The foregoing flow analysis excludes consideration of flow maintenance required by the recently revised National Pollution Discharge Elimination System (NPDES) provisions for the river at the James River Pepperell Company just upstream of the USGS gage at East Pepperell, Massachusetts. According to the Company's NPDES permit, the James River - Pepperell Company is required to pass a minimum of 60 cfs into Pepperell Pond. Prior to 1977, their operation was required to pass approximately 15 cfs. Thus, it is possible that the low flow portion of the computed flow duration curve will change, however, any change would be in the very low range of the duration curve and should have no effect on the estimates of hydropower potential.

When a fish-passage facility is installed, minimum fishway flows will be maintained subject to the deed restrictions for the dam which prohibit the pond level being drawn below the spillway elevation.

D. Land and Water Uses

As mentioned previously, Jackson Mills is located in downtown Nashua, New Hampshire, approximately 700 feet downstream from the crossing of Main Street (old U.S. Route 3) over the Nashua River. The area in the vicinity of the dam is urban in character and typical of an old New England manufacturing city. The Nashua Public Library is located on the south bank of the river. The former powerhouse on the north bank has been renovated for the Chart House Restaurant. The land uses along the north side of the river to the east of the Chart House Restaurant are

TABLE 3

Average Monthly Flows (1936-1977)
Nashua River At East Pepperell, Massachusetts

(Gross D.A. = 433 sq. mi.)
(Net D.A. = 316 sq. mi.)

Month	Avg. Flow (cfs)	% of Annual Runoff	Maximum Daily	Minimum Daily
January	578	8.6	5,000	2.8
February	616	9.2	4,160	6.7
March	1,125	16.7	19,400	6.1
April	1,247	18.6	5,340	5.5
May	720	10.7	2,780	5.5
June	454	6.8	6,840	3.5
July	260	3.9	4,550	5.2
August	206	3.1	3,600	2.0
September	242	3.6	9,790	3.6
October	269	4.0	5,530	3.4
November	442	6.6	4,090	3.7
December	560	8.3	3,510	2.0
Annual	560		19,400	2.0

predominantly industrial and to the west they are commercial. On the south side of the river the land usage to the east of the Library is predominantly urban residential with commercial uses lying to the west.

Utilization of the water at the dam is confined to meeting fire protection requirement for Sanders Associates and Nashua Corporation per deed and the operation of the proposed hydroelectric station has been designed to maintain a sufficient water level for this purpose.

E. Recreational Uses

No existing recreational utilization of the Nashua River at or near the Jackson Mills Dam currently occurs. The city is contemplating the construction of a bicycle/pedestrian path along the south bank of the river. The path would tie into the parking lot to the rear of the public library and run easterly along the sewer interceptor easement to the railroad crossing of the Nashua River in the vicinity of Sanders Associates mill building.

The city does own the 300+ acre Mine Falls Park between the Nashua River and Canal beginning approximately 3,500 feet upstream of the Jackson Mills Dam land running westerly between the river and canal a distance of over two miles. The park has been developed with hiking and bicycle trails, with canoeing and swimming eventually planned with the canal system. The proposed hydroelectric facility to be installed at the Jackson Mills Dam will not affect the viability of the park as a recreational facilitiy.

F. Historical and Archaeological Resources

The existing dam at Jackson Mills consists of the following features (north to south):

A concrete-faced masonry retaining wall on the north bank, with a penstock gate to the Jackson Mills canal (now culverted).

A concrete and brick powerhouse structure built in 1919, and recently converted to a restaurant.

A concrete-faced masonry abutment between the former powerhouse and dam spillway.

The dam of concrete capped masonry for 150 feet and concrete for 30 feet, of "gravity" design, with a spillway across the top.

The south abutment, of concrete-faced masonry, with riprap protection extending 500 feet downstream.

A masonry gravity dam at this site by 1877 (H. F. Walling, Atlas of New Hampshire. Comstock Cline, New York. 1877), providing power for a sawmill and a gristmill near the dam and the Jackson Mills downriver. In 1919, the powerhouse was built near the north bank and the dam was apparently rebuilt to a greater height. The concrete capping probably dates from this time or from possible modifications in the late 1930's.

The riverbank near the south abutment was apparently devoid of structures until the 20th century (Walling 1877; D. H. Hurd & Co. Town & City Atlas of the State of New Hampshire. Boston 1892). The slope of the bank today contains a large sewer interceptor, while the new library stands atop the terrace.

The considerable alterations to the dam during the 20th century have resulted in a structure which is visually more 20th than 19th century in character, while the lack of historic period structures and extensive modern disturbance on the south bank for the public library and Nashua River Sewer interceptor project preclude preservation of significant prehistoric or historic archaeological resources in that area. However, photographic and/or graphic recording will be undertaken if any fabric of earlier dams become visible during construction.

The existing powerhouse structure was built in the early 20th century, and is typical of numerous powerhouses built at that time and still in operation. It has undergone considerable exterior and interior modifications in conversion to a restaurant and is unlikely to be eligible for nomination to the National Register of Historic Places.

The only building in Nashua on the National Register of Historic Places is the Hunt Building, approximately 1,000 feet from the dam site. The Stark House and Spaulding House have been placed in nomination for the National Register and are also at least 1,000 feet from the site of the dam. None of these buildings can be seen from the dam nor will they be impacted by the proposed dam modifications.

2. Expected Environmental Impacts

A permanent powerhouse access road will be constructed on the left bank immediately downstream from the old powerhouse. Construction of this roadway will necessitate the removal of a number of trees and bushes. Construction of this roadway will also entail the placement of fill in a section of the old tailrace immediately adjacent to the downstream wall of the old powerhouse.

Increased turbidity and siltation in the river would be evident for the duration of construction, but would disappear upon completion of construction.

There is the possibility that resident wildlife in this area would be temporarily or permanently displaced, with some returning after construction is completed and the facility is operating. These species would include mice, shrews, squirrels, chipmunks, rabbits and raccoons. Noise from the powerhouse would discourage animals from returning to this area. Birds will also be affected to a minor extent. The bushes and trees provide cover and food which will no longer be available once the structure is completed. However, there is substantial vegetation around the pond and also downstream of the dam that could possibly provide alternate sources of food for those birds that are displaced from the construction site.

This displacement could put pressure on the existing mammal and avifaunal populations which are probably operating under maximum carrying capacity. Local increases in the surrounding populations would increase feeding in these areas and may eventually reduce productivity.

Fluctuations in the pool level could cause some unpleasant odors as a result of sections of the riverbanks being exposed. The water level change would not seriously affect fish in the pool. Any submergent and emergent vegetation growing in the fluctuation zone could possibly be desiccated as a result of being exposed to higher termperature. These impacts would be minor as fluctuations due to the generation of power would occur in the same zone as fluctuations during freshets; i.e., not exceeding 0.5 feet per hour. Should fluctuations go up to 1 foot per hour, the above impacts would also be evident and would be minor in nature.

In order to mitigate the adverse impacts of the project on the environmental resources and values, the following actions are proposed:

A. The contractor will be required to prepare for applicant's approval prior to the start of construction an erosion and sedimentation plan to be followed during the course of construction.

B. All disturbed areas are to be re-seeded and covered with hay.

C. Any disturbed vegetation, except that required by the New Hampshire Water Resources Board to be removed for safety reasons from the dam abutments, will be replaced upon completion of construction. This applies particularly to the vegetation along the permanent access road.

The proposed actions to mitigate the adverse environmental impacts are those typically required of a contractor and would not add any costs to the project beyond those normally associated with such a project.

3. Consultation with Federal and State Jurisdictional Agencies

Applicant has consulted with federal and state fish, wildlife and water quality agencies having jurisdiction over the project regarding the potential impacts of the Jackson Mills Hydroelectric Porject. Copies of the correspondence between applicant and the agencies are appended to this exhibit.

Applicant has taken particular note of the concerns expressed by the U.S. Department of the Interior Fish and Wildlife Service and the National Marine Fisheries Service regarding construction of fish passage facilities at the Jackson Mills Hydro site one year following the completion of such facilities at the Lowell Hydroelectric Project (FERC No. 2790). Applicant will comply with this request and will monitor the development of fish passage facilities in Lowell, Massachusetts.

Applicant will also comply with the other issues addressed by the Fish and Wildlife Service and will permit access to the project area whenever possible to allow for public utilization of fish and wildlife resources. Similarly, applicant will maintain the requested discharge flow from the project and will present to the Fish and Wildlife Service a plan for monitoring instantaneous flow released within six months after the issuance of an exemption from licensing from the Federal Energy Regulatory Commission.

EXHIBIT G

DRAWINGS SHOWING PROJECT STRUCTURES AND EQUIPMENT

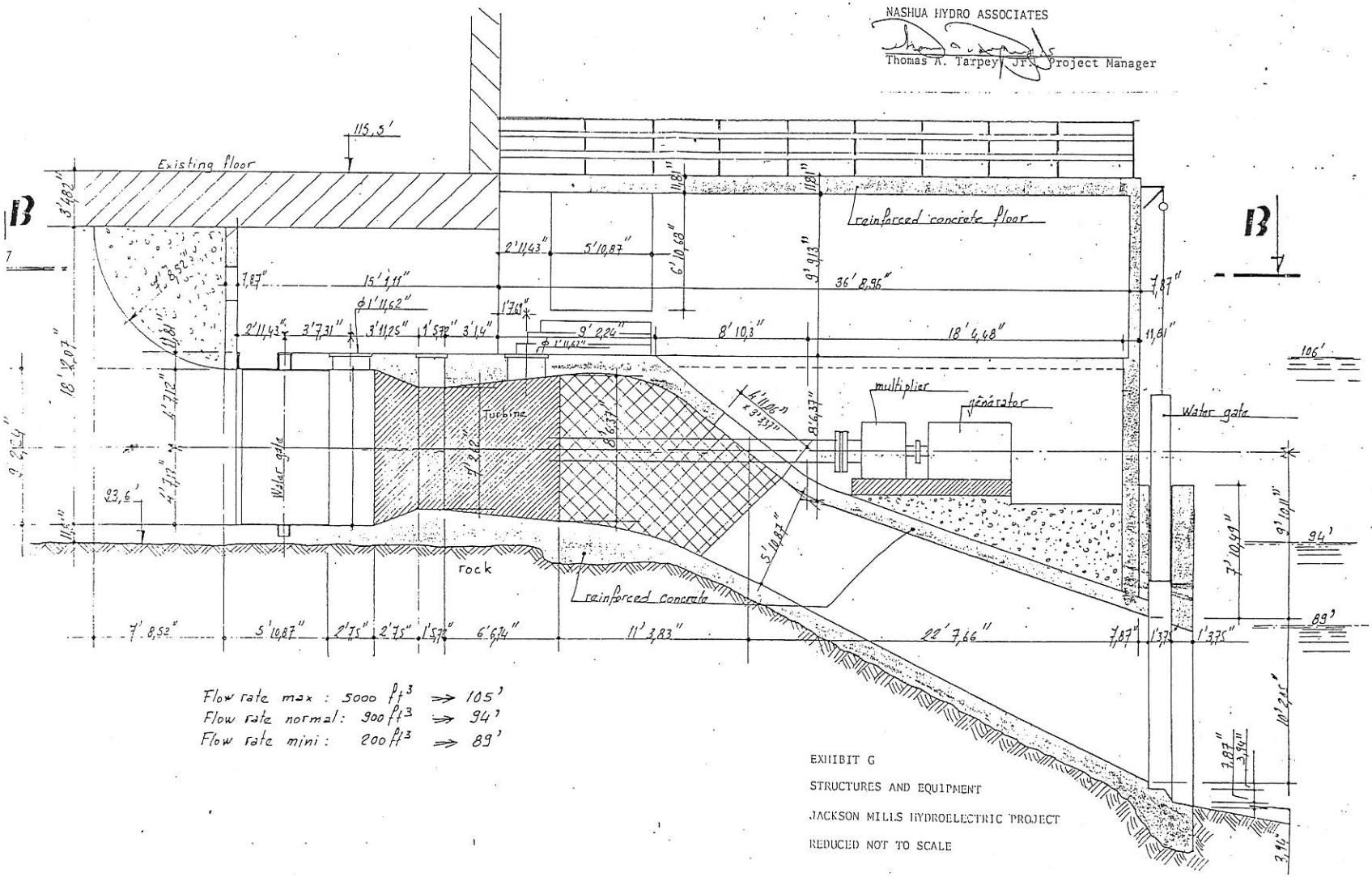
Attached hereto as Exhibit G are drawings showing the project's structures and proposed equipment.

This drawing is part of the application for exemption from all or part of Part I of the Federal Power Act, made by the undersigned this 1st day of September, 1983.

NASHUA HYDRO ASSOCIATES

Thomas A. Tarpey, Jr., Project Manager

Section A A



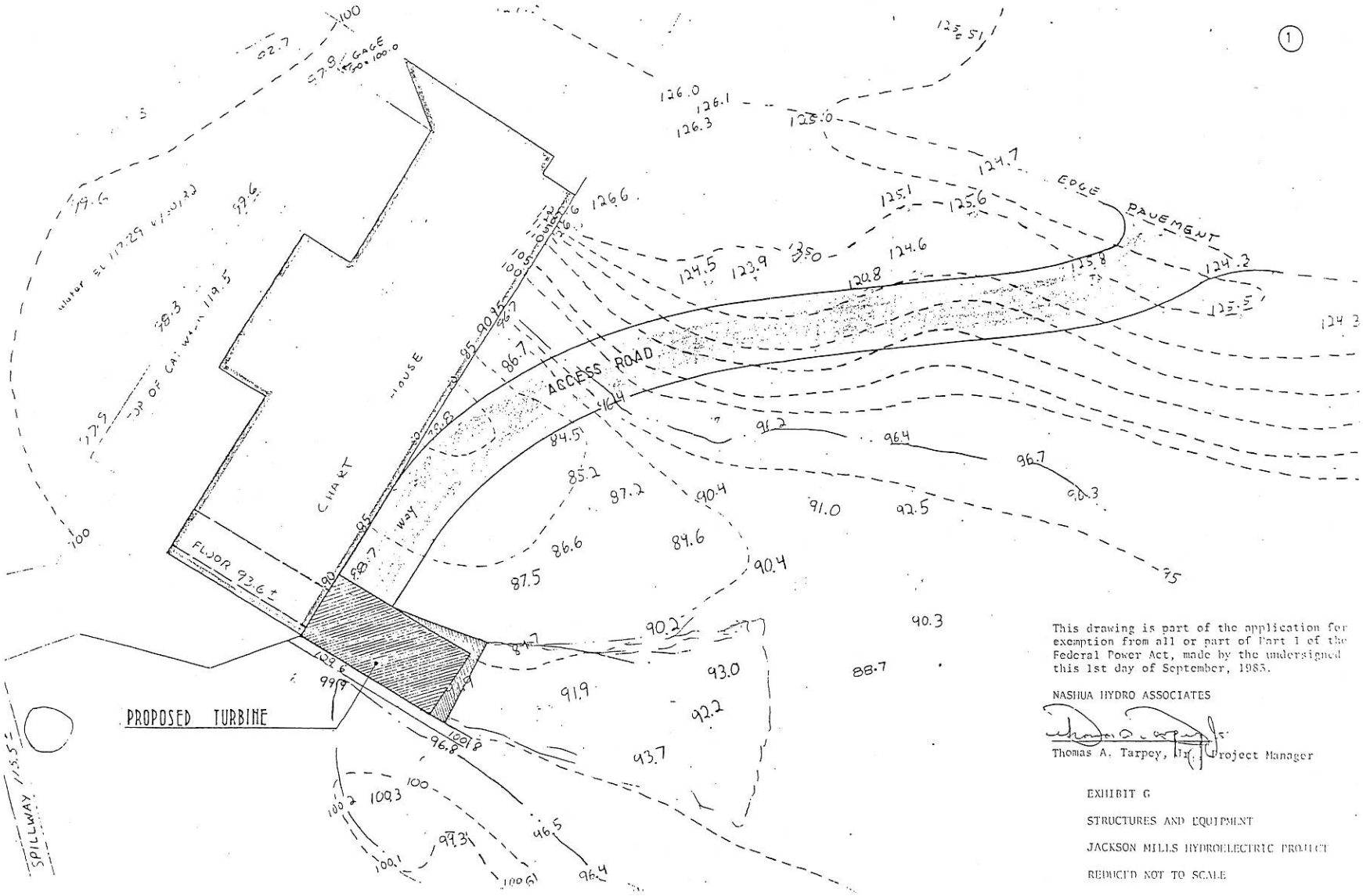
Flow rate max : 5000 ft^3 ⇒ 105'
Flow rate normal: 900 ft^3 ⇒ 94'
Flow rate mini : 200 ft^3 ⇒ 89'

EXHIBIT G

STRUCTURES AND EQUIPMENT

JACKSON MILLS HYDROELECTRIC PROJECT

REDUCED NOT TO SCALE



1

This drawing is part of the application for exemption from all or part of Part I of the Federal Power Act, made by the undersigned this 1st day of September, 1983.

NASHUA HYDRO ASSOCIATES

Thomas A. Tarpey, Jr., Project Manager

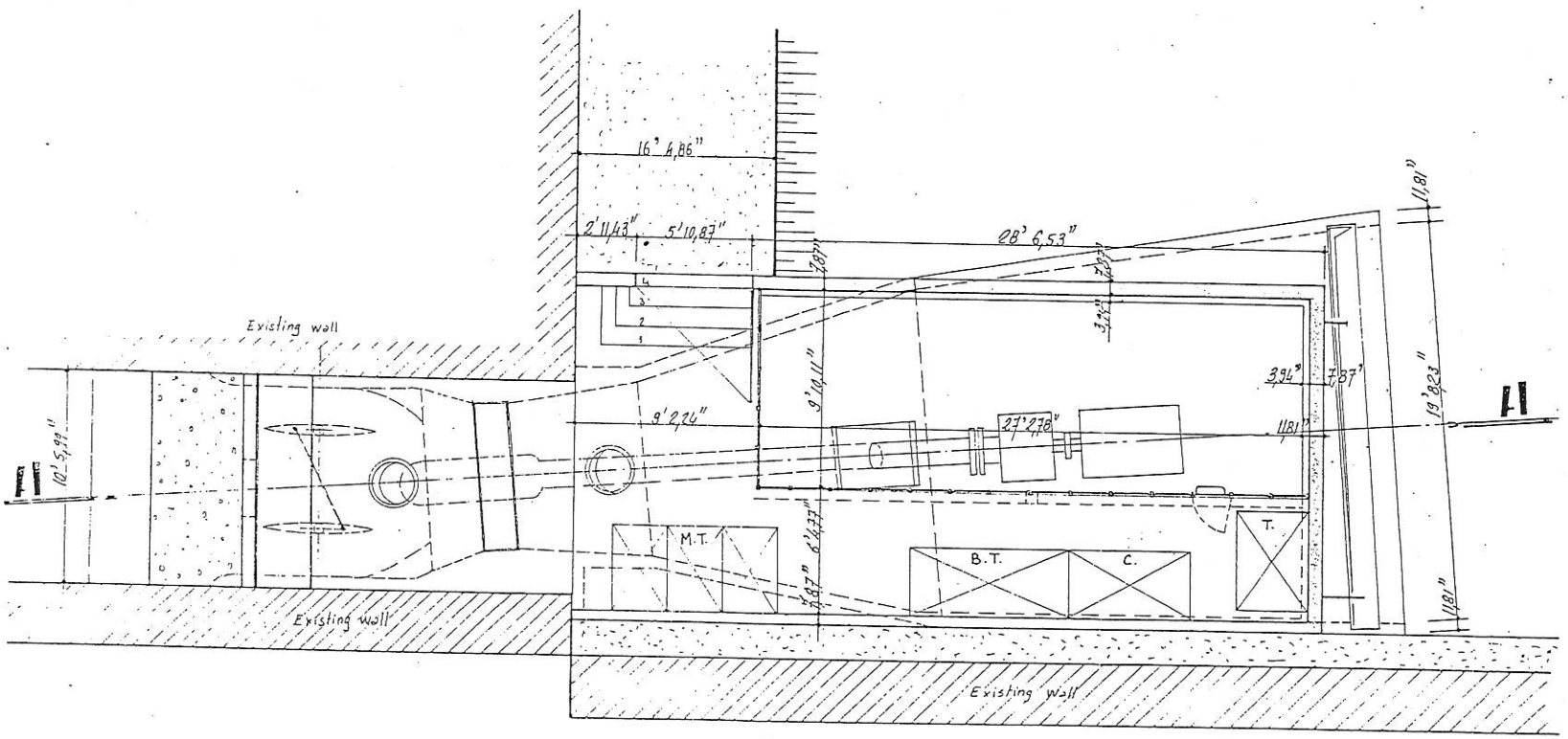
EXHIBIT G

STRUCTURES AND EQUIPMENT

JACKSON MILLS HYDROELECTRIC PROJECT

REDUCED NOT TO SCALE

Section B-B



This drawing is part of the application for exemption from all or part of Part I of the Federal Power Act, made by the undersigned this 1st day of September, 1983.

NASHUA HYDRO ASSOCIATES

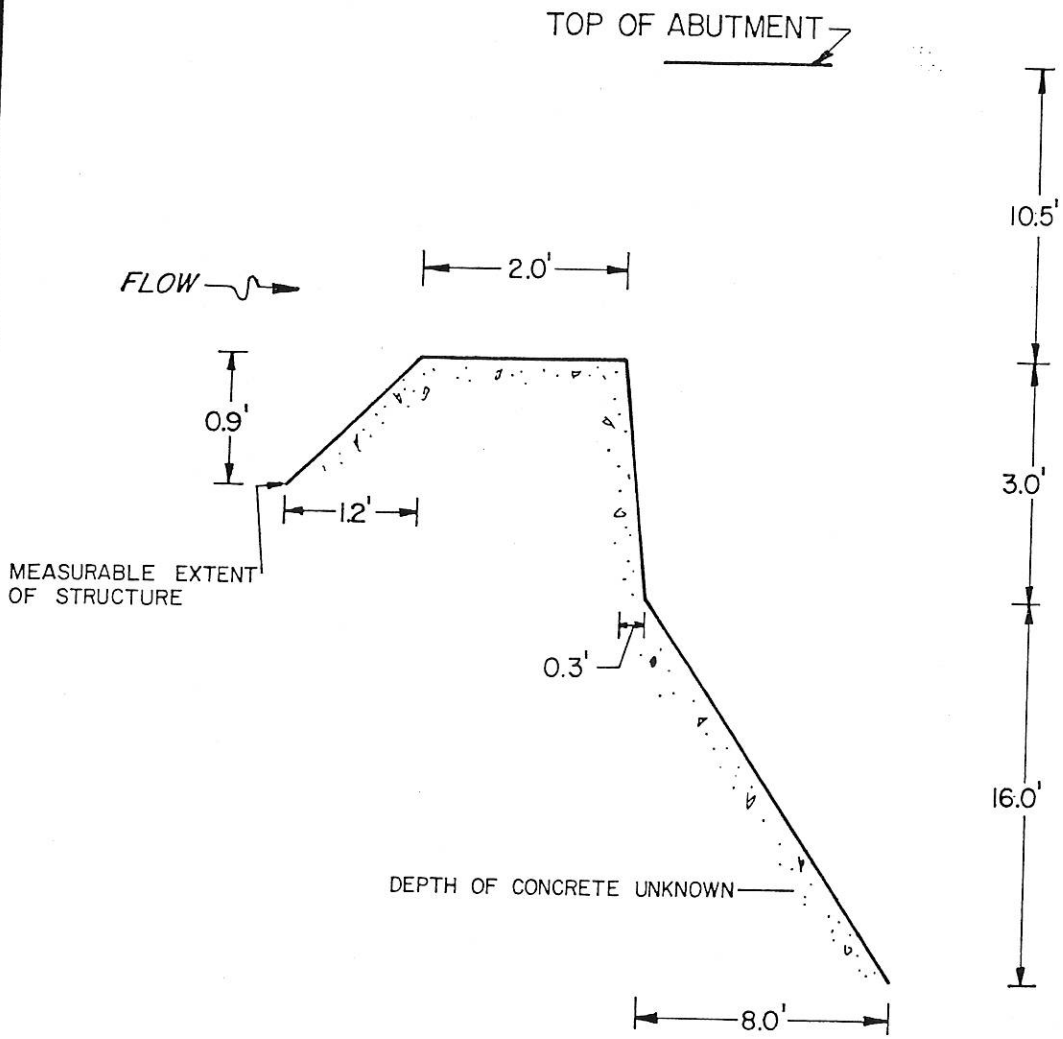
Thomas A. Tarpey, Jr., Project Manager

EXHIBIT G

STRUCTURES AND EQUIPMENT

JACKSON MILLS HYDROELECTRIC PROJECT

REDUCED NOT TO SCALE



NOT TO SCALE

SOUTH ABUTMENT CROSS SECTION

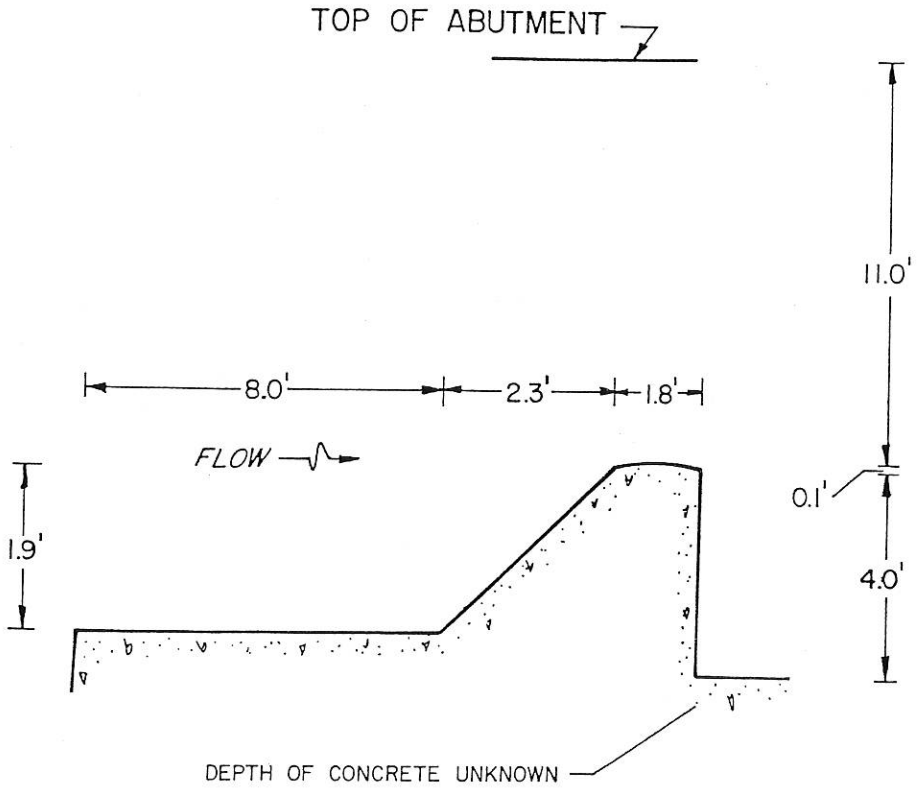
AS MEASURED 17 MARCH 1980

EXHIBIT G
STRUCTURES & EQUIPMENT
JACKSON MILLS HYDROELECTRIC PROJECT

This drawing is part of the application for exemption from all or part of Part I of the Federal Power Act, made by the undersigned this 1st day of Sept.,1983.

NASILA HYDRO ASSOCIATES

Thomas A. Tarpey, Jr.
Project Manager



NOT TO SCALE

NORTH ABUTMENT CROSS SECTION

AS MEASURED 17 MARCH 1980

EXHIBIT G
STRUCTURES & EQUIPMENT
JACKSON MILLS HYDROELECTRIC PROJECT

This drawing is part of the application for exemption from all or part of Part I of the Federal Power Act, made by the undersigned this 1st day of Sept., 1983.

NASHUA HYDRO ASSOCIATES

Thomas A. Tarpey, Jr.
Project Manager

APPENDIX 2-4

FERC Order Granting Exemption From Licensing dated April 24, 1984

1) copy [illegible]
2) File
27 FERC ¶62,078

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Nashua Hydro Associates) Project No. 7590-000

ORDER GRANTING EXEMPTION FROM LICENSING OF A SMALL HYDROELECTRIC PROJECT OF 5 MEGAWATTS OR LESS

(Issued April 24, 1984)

The Applicant 1/ filed an application for exemption from all or part of Part I of the Federal Power Act (Act) pursuant to 18 C.F.R. Part 4 Subpart K (1980) implementing in part Section 408 of the Energy Security Act (ESA) of 1980 for a project as described in the attached public notice. 2/ 3/

Notice of the application was published in accordance with Section 408 of the ESA and the Commission's regulations and comments were requested from interested Federal and State agencies including the U.S. Fish and Wildlife Service and the State Fish and Wildlife Agency. All comments, protests and petitions to intervene that were filed have been considered. No agency has any objection relevant to issuance of this exemption.

Standard Article 2, included in this exemption, requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. The terms and conditions referred to in Article 2 are contained in any letters of comment by these agencies which have been forwarded to the Applicant in conjunction with this exemption.

1/ Nashua Hydro Associates, Project No. 7590, filed on September 18, 1983.

2/ Pub. Law 96-294, 94 Stat. 611. Section 408 of the ESA amends *inter alia*, Sections 405 and 408 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. §§2705 and 2708).

3/ Authority to act on this matter is delegated to the Deputy Director, Office of Electric Power Regulation, under §375.308 of the Commission's regulations, 18 C.F.R. §375.308 (1983). This order may be appealed to the Commission by any party within 30 days of its issuance pursuant to Rule 1902, 18 C.F.R. 385.1902, (1983). Filing an appeal and final Commission action on that appeal are prerequisites for filing an application for rehearing as provided in Section 313(a) of the Act. Filing an appeal does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically directed by the Commission.

Should the Applicant contest any terms or conditions that were proposed by Federal or State agencies in their letters of comment as being outside the scope of Article 2, the Commission shall determine whether the disputed terms or conditions are outside the scope of Article 2.

Based on the terms and conditions required by Federal and State fish and wildlife agencies, the environmental information in the application for exemption, other public comments, and staff's independent analysis, issuance of this order is not a major Federal action significantly affecting the quality of the human environment.

It is ordered that:

(A) Jackson Mills Project No. 7590-000 as described and designated in Nashua Hydro Associates' application filed on September 18, 1983, is exempted from all of the requirements of Part I of the Federal Power Act, including licensing, subject to the standard articles in §4.106, of the Commission's regulations attached hereto as Form E-2, 18 C.F.R. §4.106 45 Fed. Reg. 76115 (November 18, 1980), and the following Special Article.

Article 6. Any exempted small hydroelectric power project that utilizes a dam which is more than 33 feet in height above streambed, as defined in 18 CFR 12.31(c) of this chapter, impounds more than 2,000 acre-feet of water, or has a significant or high hazard potential, as defined in 33 CFR Part 222, is subject to the following provisions of 18 CFR Part 12;

(i) Section 12.4(b)(1)(i) and (ii), (2)(i), (iii)(A) and (B), (iv), and (v);

(ii) Section 12.4(c);

(iii) Section 12.5;

(iv) Subpart C; and

(v) Subpart D.

For the purposes of applying these provisions of 18 CFR Part 12, the exempted project is deemed to be a licensed project development and the owner of the exempted project is deemed to be a licensee.

Robert E. Cackowski
Deputy Director, Office of
Electric Power Regulation

APPENDIX 2-5

FERC Order Amending Exemption Dated January 11, 2013

142 FERC ¶ 62,021
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Nashua Hydro Associates Project No. 7590-007

ORDER AMENDING EXEMPTION (5 MEGAWATTS OR LESS)

(Issued January 11, 2013)

1. On September 20, 2012, and as supplemented on December 21, 2012, Nashua Hydro Associates (Nashua), exemptee for the 1 megawatt (MW) Jackson Mills Project,[1] FERC No. 7590, filed an application for an amendment of the exemption from licensing. Nashua proposes to construct, install, operate, and maintain a pneumatic crest gate facility, within the existing overflow spillway of the Jackson Mills Dam, to alleviate upstream flooding. The project is located on the Nashua River in Hillsborough County, New Hampshire.

Background

2. The Jackson Mills Project is located on the Nashua River approximately 1.27 miles upstream of its confluence with the Merrimack River. The project consists of: (1) a 33-foot-high, 178-foot-long stone-masonry gravity dam with one-foot-high wooden flashboards along 38 feet of the dam's overflow spillway; (2) a 40-acre reservoir with no usable storage capacity; (3) a powerhouse containing a single 1 MW turbine-generator unit; and (4) a fishway located adjacent to the dam consisting of a downstream fish by-pass and upstream fish ladder.

Proposed Amendment

3. The exemptee proposes to construct the pneumatic crest gate facility on its existing 178-foot-long spillway of the Jackson Mills Dam, to alleviate upstream flooding. The exemptee proposes to construct the crest gate on 140-foot-long section of the spillway. It plans to reduce the dam's elevation by six feet, and replace that section with a six-foot-high, 140-foot-long, pneumatic spillway crest control system. The spillway crest control system would activate automatically during times of high water, when flows exceed 7,500 to 9,000 cubic feet per second (cfs).

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[1] *Nashua Hydro Associates*, 27 FERC ¶ 62,078 (1984).

4. The proposed pneumatic crest gate system would consist of multiple 20-foot-long, hinged steel panel sections supported on the downstream side by tubular, air-filled, rubber bladders. Restraining straps attached to each gate panel would prevent the panels from being raised above the six foot effective height above the dam crest. The exemptee also proposes to remove the 38-foot-long section of temporary flashboards located near the fishway.

5. The proposed crest gate will only operate under impending flood conditions. The exemptee is not proposing to modify the normal water surface elevation; the normal flows upstream and downstream of the project would not be altered upon installation of the crest gate system. The crest gate system would be designed to withstand overtopping in the raised position, and would be capable of operating in both a fully raised and partially raised position. The project will continue to operate in run-of-river mode.

6. The exemptee proposes to construct the crest gate in "dry conditions." It will eliminate flows over the Jackson Mills Dam by using an existing submerged cofferdam located about 300 feet upstream of the dam to divert all flows through the existing powerhouse, and setting the existing turbine unit to sluice mode.

Public Notice

7. On October 31, 2012, the Commission issued public notice accepting the exemption amendment application. The notice established November 30, 2012 as the deadline to file comments, motions to intervene, and protests. On November 29, 2012, the U.S. Department of the Interior, Office of the Secretary (Interior) filed, stating it had no comments. On December 21, 2012, New Hampshire Department of Environmental Services (New Hampshire DES) filed comments on the project's water quality certification. On January 10, 2013, the National Oceanic and Atmospheric Administration (NOAA) filed, stating it had no comments.

Pre-filing Consultation

8. On August 8, 2012, Nashua conducted a pre-filing consultation meeting with the City of Nashua, New Hampshire DES, the New Hampshire Division of Historical Resources (New Hampshire SHPO), and the U.S. Army Corps of Engineers (Corps). The exemptee also consulted with the New Hampshire Fish and Game (New Hampshire F&G) and the U.S. Fish and Wildlife Service (FWS). The exemptee asked these agencies to provide comments on the draft application.

9. Both New Hampshire F&G and New Hampshire DES waived its opportunity to comment on the draft application.[2] But both agencies did state that the operation of the

[2] On September 19, 2012, New Hampshire DES filed its comments with the (continued)

crest gates was not likely to cause any adverse environmental impacts or cause the project to violate the terms and conditions of the issued exemption from licensing as amended.[3]

Threatened and Endangered Species

10. Section 7(a)(2) of the Endangered Species Act (ESA) of 1973[4] requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of their designated critical habitat. No federally listed endangered or threatened species would be affected by the proposed action.

Water Quality Certification

11. By letter filed December 21, 2012, the New Hampshire DES stated it will not be amending the existing section 401 Water Quality Certification issued to the exemptee in 1983.

National Historic Preservation Act

12. Under section 106 of the National Historic Preservation Act (NHPA),[5] and its implementing regulations,[6] federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects. By letter dated October 5, 2012,[7] the New Hampshire SHPO provided a finding of "no effect" because there are no

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Commission on the draft application. New Hampshire F&G's September 19 comments on the draft application were included in the application.

[3] Both New Hampshire F&G and New Hampshire DES reserved their right to comment on the final exemption amendment application when filed with the Commission and to propose terms and conditions, but neither agency did so.

[4] 16 U.S.C. § 1536(a) (2006).

[5] 16 U.S.C. § 470 (2006).

[6] 36 CFR Part 800 (2012).

[7] Filed on October 18, 2012 as part of the exemption amendment application

(continued)

known properties of archaeological significance within the area of the undertaking's potential impact.

Discussion

A. Project Operation

13. The Jackson Mills Project is operated in a run-of-river mode and no changes to the project operation are proposed. The exemptee is not proposing to change the long-term operational pattern, frequency, or quantity of the run-of-river mode and project minimum flows, nor is it proposing to change the authorized normal headpond elevation or impoundment size as specified under the exemption from licensing for the Jackson Mills Project. During construction, the exemptee proposes to divert all flows through the powerhouse rather than using the spillway and maintain minimum flows by operating the turbine in sluice mode. The exemptee is required to discharge from the project an instantaneous flow of 207 cfs or inflow to the project, whichever is less, as set forth by the terms and conditions of the exemption required by the Interior.

B. Environmental Review

14. In this section we discuss the effects of the proposal on relevant environmental resources. Only those resources that would be affected, or for which comments were received, are addressed. In general, resources of the project area that could be affected by the exemptee's proposal include water quality and quantity and aquatic resources. Since we have not identified any substantive issues related to terrestrial, recreational or cultural resources, these resources have been omitted from the analysis.

Water Quality

15. The Nashua River flows from the Wachusett Reservoir in Massachusetts to the confluence with the Merrimack River in Nashua, New Hampshire. The New Hampshire State Legislature has designated it as a Class B surface water, meaning the water body is considered to be of the second highest water quality, with no objectionable physical characteristics, and has a dissolved oxygen content of 75 percent saturation, and a geometric mean *E. coli* count of 126 per 100 milliliters, or no more than 406 *E. coli* per 100 milliliters per single sample period. However, New Hampshire has also divided surface waters into smaller segments called assessment units. Two of the assessment units on the Nashua River are indentified as impaired, and one of the units includes the City of Nashua and the proposed project site. Water quality has exceeded the maximum allowable level of 406 *E. coli* per 100 milliliters per sample period on multiple occasions

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materials.

in the city of Nashua unit. The U.S. Environmental Protection Agency lists the Nashua River as "impaired" for aquatic life, fish consumption, and primary contact recreation.

16. Construction of the crest gate has the potential to cause short-term impacts to water quality. To facilitate construction, the exemptee proposes to raise the existing submerged cofferdam, located about 300 feet upstream of the dam, and divert all flows through the powerhouse with the turbine unit set to sluice mode. The exemptee would raise the submerged cofferdam, dewater the area between the upstream face of the dam and the cofferdam, mechanically excavate the sediments, and construct a temporary access road and staging area. The cofferdamed section of the river would be 150-feet-long by 200-feet-wide, and would be dewatered for approximately two and a half months, as weather conditions allow.

17. The exemptee estimates that approximately 2,800 cubic yards of sediment would be removed during construction. The exemptee has developed a sediment sampling plan to assess the presence of heavy metals and persistent bioaccummulative and toxic pollutants (PBTs), as well as physical characteristics. Sample locations would provide baseline conditions and toxicity information for sediments within the area of impact, specifically at the upstream face of the submerged cofferdam and at the upstream face of the Jackson Mills Dam. Based on sampling results, the exemptee would develop a Sediment Management Plan. If sampling results indicate hazardous sediments are present within the project area, the exemptee would excavate, export and dispose of the sediment in an approved landfill or at an approved location subject to a New Hampshire DES Activity and Use Restriction. Non-hazardous sediments would be transported offsite and stabilized either through land application and vegetated stabilization or incorporated into the landscape with stabilized vegetation. Proper handling and removal of sediment behind the Jackson Mills Dam would minimize any impact to water quality.

18. Dewatering the cofferdam area has the potential to cause increased erosion in the cofferdam area, and thereby potentially increasing turbidity during the dewatering process. Once construction is complete, refilling the dewatered area also has the potential to cause short-term turbidity downstream from previously disturbed sediments on the river bottom during construction. To minimize impacts, construction would be limited to the low-water season of July 1 through October 31. To minimize turbidity, the exemptee proposes to utilize turbidity curtains surrounding the river-side of the proposed cofferdam, and the tailrace outlet channel when river flow is sluiced through the powerhouse. Also, the exemptee would use siphons rather than pumping for initial dewatering between the cofferdam and the dam. Further, the exemptee would develop and implement a construction stormwater protection plan that would include stabilization of disturbed areas within the cofferdam with gravel, grading the floor of the cofferdam area to a low spot where runoff can be pumped to a silt bag, and utilizing haybale and mulch stabilization on the inside earth slopes of the cofferdam. These measures should

minimize water quality impacts. No significant impacts to water quality are expected as a result of the proposed construction.

19. Operation of the crest gate would not change project operation or current normal surface water elevation, nor would it alter normal flows upstream and downstream of the dam. Since project operations would not change, there would be no long-term effect to water quality.

Water Quantity

20. The Nashua River is gaged by U.S. Geological Survey (USGS) gage number 01096500 at East Pepperell, Massachusetts. Based on pro-rated data by drainage area to the project site, the average daily flow for the Nashua River ranges from approximately 300 cfs in the summer to 2,000 cfs in the spring.

21. During construction, flow over the spillway would be eliminated, and flow would be diverted through the powerhouse. However, flow downstream of the dam would remain unchanged. If during construction the river flow exceeds the ability of the turbine to sluice, the exemptee would use siphons or pumps to maintain water levels within the impoundment.

22. In the long-term, the operation of the new crest gate would not alter flow during normal flow periods. The crest gate would only begin to operate at flows in excess of 7,500 to 9,000 cfs. The new crest gate would lower the water surface elevation just upstream of the dam during a flood event, but would not change the overall magnitude of flow. The new crest gate provides additional spillway capacity during high flow conditions by lowering the flood water surface elevation just upstream of the dam, and diminishes the adverse impacts of flooding on upstream properties adjacent to the river. The proposed project would have no effect on normal water surface elevations, nor would it alter existing flows during normal conditions.

Aquatic Resources

23. Dewatering of the cofferdam area has the potential to cause an impact on aquatic resources in the construction area. Aquatic species residing in the area of the cofferdam and on the river bottom when the area is dewatered would be adversely impacted by the lack of water. To reduce impacts, the exemptee proposes to relocate fish and amphibian species when feasible. With the implementation of erosion and sediment control measures, as well as a stormwater protection plan, short-term impacts to aquatic resources are anticipated to be minimal.

24. As discussed above, no long-term impacts to water quality or quantity are anticipated, and therefore no long-term impacts to aquatic resources are anticipated. Impacts to aquatic resources would be short-term, and limited to the duration of

construction. The operation of the proposed crest gate would not affect normal river flows, water surface elevation, or project operation, and therefore would not affect aquatic resources in the river.

25. The Jackson Mills Dam has both upstream and downstream fish passage facilities. The downstream passage consists of an upper chamber separate from the turbine intake that allows fish near the surface safe passage to the tailrace. It operates from April 1 to June 30, and October 1 to November 30. The upstream passage consists of a Denil ladder with two points of entry, one near the dam and one near the turbine discharge. It operates from May 1 to June 30. Construction of the crest gate would occur from mid-July to early-October, a time period when the fish passage facility is not passing fish.

26. The FWS requested that the exemptee remove the 38-foot section of temporary flashboards located on the dam crest just in front of the fishway. These boards were originally installed to deflect debris from the fishway ladder exit and the bypass entrance. During consultation with the exemptee, the FWS indicated that removing the flashboards would help establish a more consistent water elevation at the fish ladder exit and bypass entrance. The exemptee proposes to remove this flashboard section as part of the proposal.

C. Operation Plan

27. In its December 21, 2012 letter, the New Hampshire DES notes that the exemptee would be submitting an operation plan for review and approval that describes operation during low, normal, and high flows, emergency drawdown, and refill procedures. The exemptee has not proposed to submit this plan to the Commission. However, in ordering paragraph (I) we are requiring the exemptee to file an operation plan for Commission approval by December 31, 2013. The exemptee shall include with the plan documentation of consultation, copies of the consulted entities' comments and recommendations on the completed plan, and specific descriptions of how the comments are accommodated by the plan. The exemptee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the exemptee does not adopt a recommendation, the filing shall include the exemptee's reasons, based on project-specific information. The Commission reserves the right to require changes to the plan.

D. Exhibits

28. The exemptee filed two Exhibit G drawings on September 20, 2012, and replaced those drawings with two drawings filed on December 21, 2012, which illustrate the site plan of the proposed pneumatic crest gates and cross section of the Jackson Mills Dam. The Exhibit G drawings accurately depict the installation of the pneumatic crest gates, conform to the Commission's rules and regulations, and are approved by this order in ordering paragraph (C). Ordering paragraph (D) requires the exemptee to file the

approved drawings in aperture and electronic file formats within 45 days of the date of this order. Prior to filing the exhibits in aperture card format, the exemptee should revise Exhibit G-3 to eliminate the words "To be removed" from the drawing in relation to the flashboard removal since this order authorizes the removal of the flashboards.

E. Plans and Specifications

29. To ensure that the exemptee is constructing and operating a safe and adequate project, ordering paragraph (G) requires the exemptee, at least 60 days prior to the start of any construction, to submit three copies of its plans and specifications and a supporting design document to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer for approval. The exemptee may not begin construction until the D2SI- New York Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

30. Ordering Paragraph (H) requires the exemptee to review and approved contractor-designed cofferdam construction drawings and deep excavations; and at least 30 days before starting construction, submit to the D2SI-New York Regional Engineer the approved cofferdam construction drawings and specifications and the letters of approval.

Conclusion

31. Based upon the review of the information provided by the exemptee, agency comments, and staff's independent analysis, Commission staff concludes that approval of the amendment of the exemption from licensing is not a major federal action significantly affecting the quality of the human environment. This order approves the amendment to construct, install, operate, and maintain a pneumatic crest gate facility on 140-feet of the existing overflow spillway of the Jackson Mills Dam, and to remove 38-feet of temporary flashboards adjacent to the fishway.

The Director orders:

(A) The amendment application for the Jackson Mills Project filed September 20, 2012, and supplemented December 21, 2012, is approved, as provided in this order.

(B) The Project works of the exemption from licensing is revised as follows:

The project consists of: (1) an existing 33-foot-high, 178-foot-long stone masonry uncontrolled spillway dam with a 6-foot-high pneumatic crest gate system on 140 feet of the spillway; (2) an existing 40-acre reservoir with no usable storage capacity and a normal maximum water surface elevation of 116.6 feet National Geodetic Vertical Datum (NGVD); (3) an existing powerhouse located at the north dam abutment containing a 1 megawatt turbine-generator; (4) a tailrace channel; (5) a transmission line; (6) a fishway;

and (7) appurtenant facilities.

(C) The following Exhibit drawings for the Jackson Mills Project, FERC Project No. 7590, filed on December 21, 2012, are approved and made a part of the exemption from licensing:

Exhibit	Drawing No.	Superseded Drawing No.	Title
G-3	7590-5	n/a	Site Plan
G-4	7590-6	n/a	Dam Cross Section

(D) Within 45 days of the date of issuance of this order, the exemptee shall file the approved exhibit drawings in aperture card and electronic file formats. Prior to filing the exhibits in aperture card format, the exemptee should revise Exhibit G-3 to eliminate the words "To be removed" from the drawing in relation to the flashboard removal since this order authorizes the removal of the flashboards.

a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-7590-5) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., G-3), Drawing Title, and date of this order shall be typed on the upper left corner of each aperture card. See Figure 1.

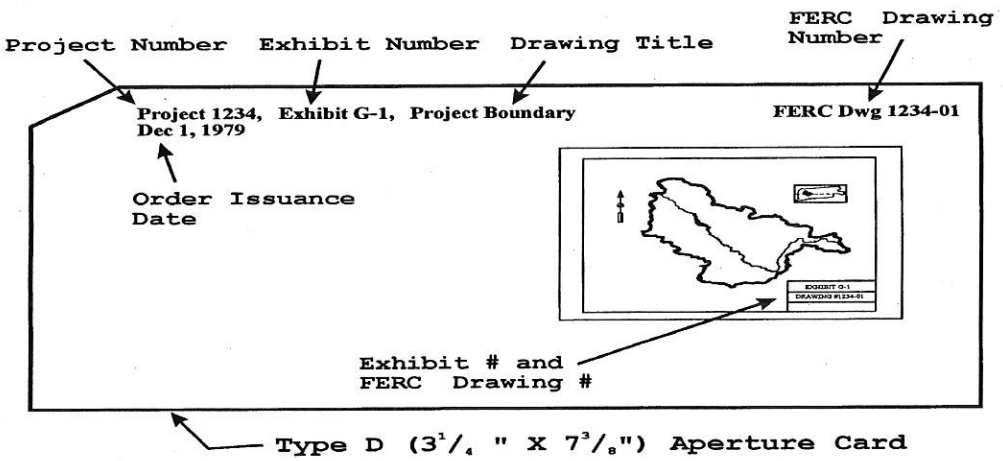

Figure 1 Sample Aperture Card Format

Two of the sets of aperture cards shall be filed with the Secretary of the

Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office.

b) The exemptee shall file two separate sets of the exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office. Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this order, and file extension in the following format [P-7590-5, G-3, title, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file
FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
RESOLUTION – 300 dpi desired, (200 dpi min)
DRAWING SIZE FORMAT – 24" X 36" (min), 28" X 40" (max)
FILE SIZE – less than 1 MB desired

(E) *As-built Drawings.* Within 90 days of completion of all construction activities authorized by this amendment, the exemptee shall file for Commission approval, revised Exhibits A, B and G, as applicable, to describe the project facilities as-built. A courtesy copy shall be filed with the Commission's D2SI – New York Regional Engineer; the Director, D2SI; and the Director, Division of Hydropower Administration and Compliance.

(F) *Start of Construction.* The exemptee shall start construction of the proposed work authorized in this order within two years and complete construction within four years from the issuance date of this order.

(G) *Contract Plans and Specifications.* At least 60 days prior to the start of any construction, the exemptee shall submit one copy of its final contract plans and specifications and supporting design report to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal must also include as part of preconstruction requirements: a Quality Control and Inspection Program, a Temporary Construction Emergency Action Plan, and a Soil Erosion and Sediment Control Plan. The exemptee may not begin construction until the D2SI-New York Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

(H) *Cofferdam Construction Drawings and Deep Excavations.* Before starting construction, the exemptee shall review and approve the design of contractor-designed

cofferdams and deep excavations and shall ensure construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of a cofferdam, the exemptee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI), of the approved cofferdam construction drawings and specifications and the letters of approval.

(I) *Operations Plan.* The exemptee shall submit an operation plan for Commission approval by December 31, 2013. With this plan, the exemptee shall submit documentation of consultation with New Hampshire Department of Environmental Services. The exemptee shall include with the plan documentation of consultation, copies of the consulted entities' comments and recommendations on the completed plan, and specific descriptions of how the comments are accommodated by the plan. The exemptee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the exemptee does not adopt a recommendation, the filing shall include the exemptee's reasons, based on project-specific information. The Commission reserves the right to require changes to the plan.

(J) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2006), and the Commission's regulations at 18 C.F.R. § 385.713 (2012). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The exemptee's failure to file a request for rehearing shall constitute acceptance of this order.

William Guey-Lee
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance

APPENDIX 2-6

FERC Notice of Transfer of Exemption Dated February 19, 2015

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Nashua Hydro Associates
City of Nashua, New Hampshire

Project No. 7590-010

NOTICE OF TRANSFER OF EXEMPTION

(February 19, 2015)

1. By letter filed January 23, 2015, the City of Nashua, New Hampshire informed the Commission that the exemption from licensing for the Jackson Mills Project, FERC No. 7590, originally issued April 24, 1984,[1] has been transferred from Nashua Hydro Associates to the City of Nashua, New Hampshire. The project is located on the Nashua River in Hillsborough County, New Hampshire. The transfer of an exemption does not require Commission approval.

2. The City of Nashua, New Hampshire is now the exemptee for the Jackson Mills Project, FERC No. 7590. All correspondence should be forwarded to: Ms. Sarah Marchant, Division Director, City of Nashua, New Hampshire, Community Development Division, 229 Main Street, Nashua, New Hampshire 03060.

Kimberly D. Bose,
Secretary.

[1] 27 FERC ¶ 62,078, Order Granting Exemption From Licensing of a Small Hydroelectric Project of 5 Megawatts or Less.

APPENDIX 3

Agency Contracts

APPENDIX 3

Agency Contacts

	Email	Telephone No.
John Warner US Fish and Wildlife Service	john_warner@fws.gov	603-223-2541 Ext. 15
Ted Walsh NH Department of Environmental Services	Ted.Walsh@des.nh.gov	603-271-2083
Carol Henderson NH Fish and Game	Carol.Henderson@wildlife.nh.gov	603-271-3511
Sara Cairns NH Department of Resources and Economic Development	Sara.Cairns@dred.state.nh.us	603-271-2215 Ext. 9302
Melissa Coppola NH Natural Heritage Bureau	Melissa.Coppola@dred.nh.gov	603-271-2215 Ext. 323
Jeff Murphy National Marine Fisheries Service	jeff.murphy@noaa.gov	207-866-7379
Kevin Mendik National Park Service	kevin_mendik@nps.gov	617-223-5299