ATTACHMENT A

QUESTION 3:

PROJECT DESCRIPTION

PROJECT MAP

AERIAL PHOTOS

BEAVER RIVER PROJECT DESCRIPTION

Erie Boulevard Hydropower, L.P.'s (Erie's) Beaver River Project (FERC No. 2645) consists of eight hydroelectric developments along the Beaver River in Lewis and Herkimer Counties, New York.

The developments are operated in a coordinated manner as store-and-release facilities primarily to meet peak demand. Flows reaching the Project are controlled by releases from the Hudson River-Black River Regulating District's (Hudson-Black) Stillwater Reservoir Project No. 6743, located approximately five miles upstream of the most upstream Beaver River Project development, Moshier.

The Project was constructed between 1903 and 1930. Four of the developments (Moshier, Eagle, Soft Maple and Taylorville) have extensive bypassed reaches. These range from about 3,850 feet at Eagle to over 11,700 feet at Moshier.

The eight hydropower dams and powerhouses that comprise Erie's Beaver River Project are located in the Towns of Croghan and Watson in Lewis County and in the Town of Webb in Herkimer County, New York. Progressing downstream these are the Moshier (RM 29.9), Eagle (23.0), Soft Maple (RM 21.0), Effley (RM 16.9), Elmer (RM 16.2), Taylorville (RM 14.8), Belfort (RM 13.5) and High Falls (RM 11.0) developments.

Beaver River Project

Moshier Development

The Moshier Development consists of: (1) a 920-foot-long by 93-foot-high earth embankment dam containing a 200-foot-long concrete spillway topped with two-foot-high flashboards and a 53-foot-long non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,641 feet National Geodetic Vertical Datum (NGVD), has a surface area of 340 acres, a gross storage capacity of 7,339 acre-feet, and a usable capacity of 4,463 acre-feet; (3) a 28-foot-wide by 51-foot-high concrete intake structure containing two 11-

foot-wide by 51-foot-high trashracks and two 10-foot-wide by 12-foot-high steel slide gates; (4) a 3,740-foot-long by 10-foot-diameter steel penstock connected to a 5,620-foot-long by 10-foot-diameter fiberglass reinforced plastic penstock for a total penstock length of 9,360 feet; (5) an excavated tailrace channel; (6) a 30-foot-diameter steel surge tank; (7) a penstock bifurcation downstream of the surge tank that divides into two 70-foot-long by 7-foot-diameter steel penstocks; (8) a 34-foot-wide by 70-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 4,000 kilowatts (kW), a hydraulic capacity of 330 cfs, and a design head of 196 feet; (9) a 36-inch-diameter minimum flow pipe and butterfly valve; (10) an 11-mile-long, 115-kV transmission line; and (11) appurtenant equipment.

Photo 1. Powerhouse and surge tank at Moshier Development.

Photo 2. Dam at Moshier Development.

Eagle Development

The Eagle Development consists of: (1) a 365-foot-long by 21-foot-high concrete gravity dam containing a 185-foot-long ogee spillway topped with 1-foot flashboards and an 85-foot-long, non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,426.2 feet (NGVD), has a surface area of 138 acres, a gross storage capacity of 668 acre-feet, and a usable capacity of 123 acre-feet; (3) a 20-foot-wide gated log sluice; (4) a 50-foot-long headgate structure with four 9.5-foot-wide stop log slots and four 9.5-foot by 9.5-foot trashracks; (5) an 18-foot-wide by 16-foot-deep by 540-foot-long forebay canal; (6) a concrete intake structure containing three 10-foot-wide by 7-foot-high timber slide gates; (7) a 2,725-foot-long by 9-foot-diameter steel penstock; (8) a 63-foot-wide by 87-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,350 kW (units 1 through 3) and 2,000 kW (unit 4), hydraulic capacities of 150 cfs (units 1 through 3) and 200 cfs (unit 4), and design

heads of 135 feet (units 1 through 3) and 125 feet (unit 4); (9) a 5-foot-wide aluminum slide gate that supplies minimum flow to the bypass; (10) a 300-foot-long tailrace channel; (11) a 160-foot-long, 115-kV transmission line; and (12) appurtenant equipment.

Photo 3. Powerhouse at Eagle Development.

Soft Maple Development

The Soft Maple Development consists of: (1) five earth embankment dikes; (2) a 910-foot-long by 115-foot-high earth embankment diversion dam; (3) a 720-foot-long by 100-foot-high earth embankment terminal dam; (4) an impoundment which, at the normal maximum surface elevation of 1,289.9 feet (NGVD), has a surface area of 400 acres, a gross storage capacity of 2,678 acre-feet, and a usable capacity of 1,150 acre-feet; (5) a 144-foot-long concrete ogee spillway with 1.5-foot-high flashboards; (6) two 10-foot-wide aluminum sluice gates; (7) a 600-foot-long forebay; (8) an 81.5-foot-wide concrete intake structure containing three 26-foot-wide by 33.5-foot-high trashracks; (9) two 530-foot-long by 11.5-foot-diameter steel penstocks; (10) intake facilities for an additional penstock; (11) an 82-foot-wide by 50-foot-long

concrete/masonry powerhouse containing two identical vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 7,500 kW, a hydraulic capacity of 860 cfs, and a design head at 121.5 feet; (12) an excavated tailrace channel; (13) a 20-foot-long, 115-kV transmission line; and (14) appurtenant equipment.

Photo 4. Powerhouse at Soft Maple Development.

Effley Development

The Effley Development consists of: (1) a 647-foot-long by 30-foot-high concrete gravity dam containing a 430-foot-long by 30-foot-high concrete ogee spillway and a 188-foot-long non-overflow concrete abutment; (2) a gated 29-foot-long log chute; (3) an impoundment which, at the normal maximum surface elevation of 1,163 feet (NGVD), has a surface area of 340 acres, a gross storage capacity of 3,140 acre-feet, and a usable capacity of 1,420 acre-feet; (4) a 100-foot-long forebay; (5) a 38.5-foot- wide intake structure containing a 22-foot-wide by 22-foot-high trashrack and three 6-foot-wide by 8-foot-high timber slide gates; (6) a 36-foot-wide concrete intake structure containing a 20-foot-wide by 27-foot-high trashrack and an 11-foot by 11-foot

slide gate; (7) three 87-foot-long by 5-foot-diameter steel penstocks and one 148-foot-long by 8-foot-diameter steel penstock; (8) two concrete/masonry powerhouses, one that is 58-feet-wide by 53-feet-long containing three horizontal Francis turbines connected to direct-drive synchronous generators rated at 400 kW (units 1 and 2) and 560 kW (unit 3) with hydraulic capacities of 135 cfs (units 1 and 2) and 200 cfs (unit 3) and design heads of 55 feet (units 1 and 2) and 54 feet (unit 3) and the second that is 42.5-feet-wide by 44-feet-long containing a single vertical Francis turbine connected to a direct-drive synchronous generator rated at 1,600 kW, with a hydraulic capacity of 450 cfs and a design head of 52.6 feet; (9) excavated tailrace channels; (10) a 2.3-mile-long, 23-kV transmission line; and (11) appurtenant equipment.

Photo 5. Powerhouse at Effley Development.

Elmer Development

The Elmer Development consists of: (1) a 238-foot-long by 23-foot-high concrete gravity spillway; (2) a 25-foot-wide sluice gate with needle beams; (3) an impoundment which, at the normal maximum surface elevation of 1,108 feet (NGVD), has a surface area of 34 acres, a gross storage capacity of 345 acre-feet, and a usable capacity of 138 acre-feet; (4) a forebay; (5) a 39-foot-wide concrete intake structure containing two 16.5-foot-wide by 21.5-foot-high trashracks and four 6-foot-wide by 11-foot-high timber slide gates; (6) a 78-foot-wide by 34-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 750 kW, a hydraulic capacity of 290 cfs, and a design head of 37 feet; (7) an excavated tailrace channel; (8) a 2,270-foot-long, 23-kV transmission line; and (9) appurtenant equipment.

Photo 6. Powerhouse and dam at Elmer Development.

Taylorville Development

The Taylorville Development consists of: (1) a 1,003-foot-long by 23-foot-high concrete gravity dam; (2) an impoundment which, at the normal maximum surface elevation of 1,076.6 feet (NGVD), has a surface area of 170 acres, a gross storage capacity of 1,091 acre-feet, and a usable capacity of 406 acre-feet; (3) a 33-foot-wide concrete intake structure containing a 25-foot-wide by 20-foot-high trashrack and three 5.5-foot-wide by 13-foot-high timber slide gates; (4) a 2,725-foot-long by 9.5-foot-diameter steel penstock; (5) an 18-foot-diameter surge tank located about 40 feet upstream of the powerhouse; (6) a 93-foot-wide by 62.5-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,100 kW (units 1 and 2), 1,372 kW (unit 3), and 1,200 kW (unit 4), each with a hydraulic capacity of 180 cfs, and a design head of 96.6 feet; (7) an excavated tailrace channel; (8) two 7.5-foot-wide aluminum slide gates for minimum flows; (9) a 400-foot-long, 23-kV transmission line; and (10) appurtenant equipment.

Photo 7. Powerhouse and surge tank at Taylorville Development.

Photo 8. Dams at Taylorville Development.

Belfort Development

The Belfort Development consists of: (1) a 206-foot-long by 17-foot-high concrete gravity dam with a 161-foot-long concrete ogee spillway equipped with 2-foot-high flashboards; (2) an impoundment which, at the normal maximum surface elevation of 966 feet (NGVD), has a surface area of 50 acres, a gross storage capacity of 120 acre-feet, and a usable capacity of 73 acre-feet; (3) a 120-foot-long forebay; (4) a 62-foot-wide concrete intake structure containing one 12-foot-wide by 17-foot-high trashrack, one 12-foot-wide by 23-foot-high trashrack, and two 11-foot by 11-foot timber slide gates; (5) one 52-foot-long by 7-foot-diameter steel penstock and one 52-foot-long by 7.5-foot-diameter steel penstock and penstock bifurcation; (6) a 78-foot-wide by 39-foot-long concrete/masonry powerhouse containing three horizontal Francis turbines connected to direct-drive synchronous generators, with a rated capacity of 400 kW (unit 1), 640 kW (unit 2), and 1,000 kW (unit 3), with hydraulic capacities of 200 cfs (units 1 and 2) and 310 cfs (unit 3), each with a design head of 48 feet; (7) a 400-foot-long tailrace channel; (8) a 3,540-foot-long, 23-kV transmission line; and (9) appurtenant equipment.

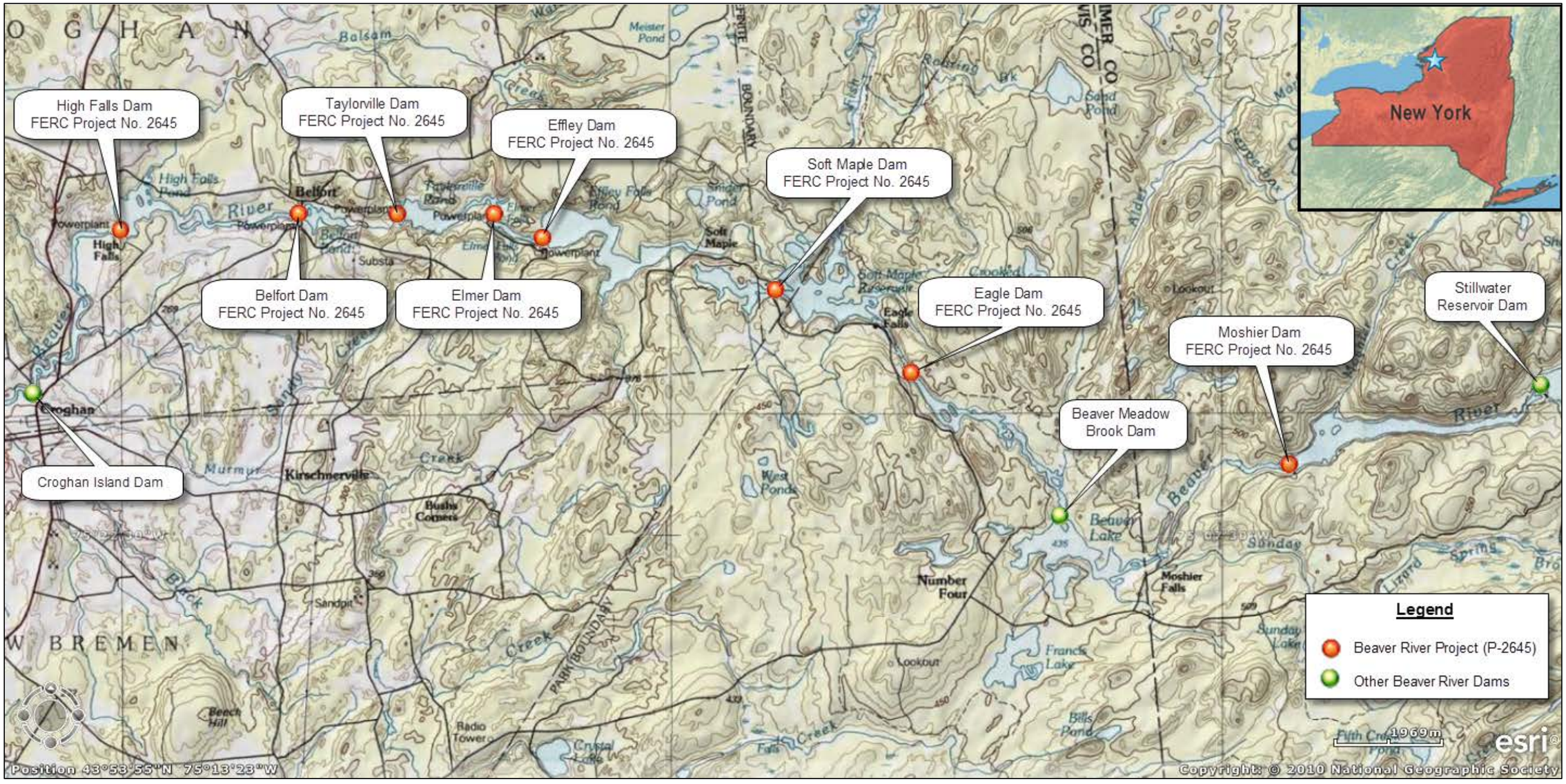
Photo 9. Powerhouse and dam at Belfort Development.

High Falls Development

The High Falls Development consists of: (1) a 1,233-foot-long, 50-foot-high concrete gravity dam containing a 470-foot-long non-overflow concrete gravity section and a 650-foot-long concrete ogee spillway; (2) an impoundment which, at the normal maximum surface elevation of 915 feet (NGVD), has a surface area of 145 acres, a gross storage capacity of 1,058 acre-feet, and a usable capacity of 135 acre-feet; (3) a 64 foot-wide by 29-foot-high concrete intake structure containing four 12-foot-wide by 20.5-foot-high trashracks and four steel slide gates; (4) a 49-foot-wide log sluice that has been sealed; (5) a 605-foot-long by 12-foot-diameter riveted steel penstock; (6) a 34-foot-wide by 99-foot-long concrete/masonry powerhouse containing three vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 1,600 kW, a hydraulic capacity of 300 cfs, and a design head of 100 feet; (7) a spare turbine bay for future expansion; (8) a 3.7-mile-long, 23 kV transmission line; and (9) appurtenant equipment.

Photo 10. Powerhouse and dam at High Falls Development.

LOCATION OF BEAVER RIVER PROJECT DAMS AND OTHER BEAVER RIVER DAMS



MOSHIER DEVELOPMENT

EAGLE DEVELOPMENT

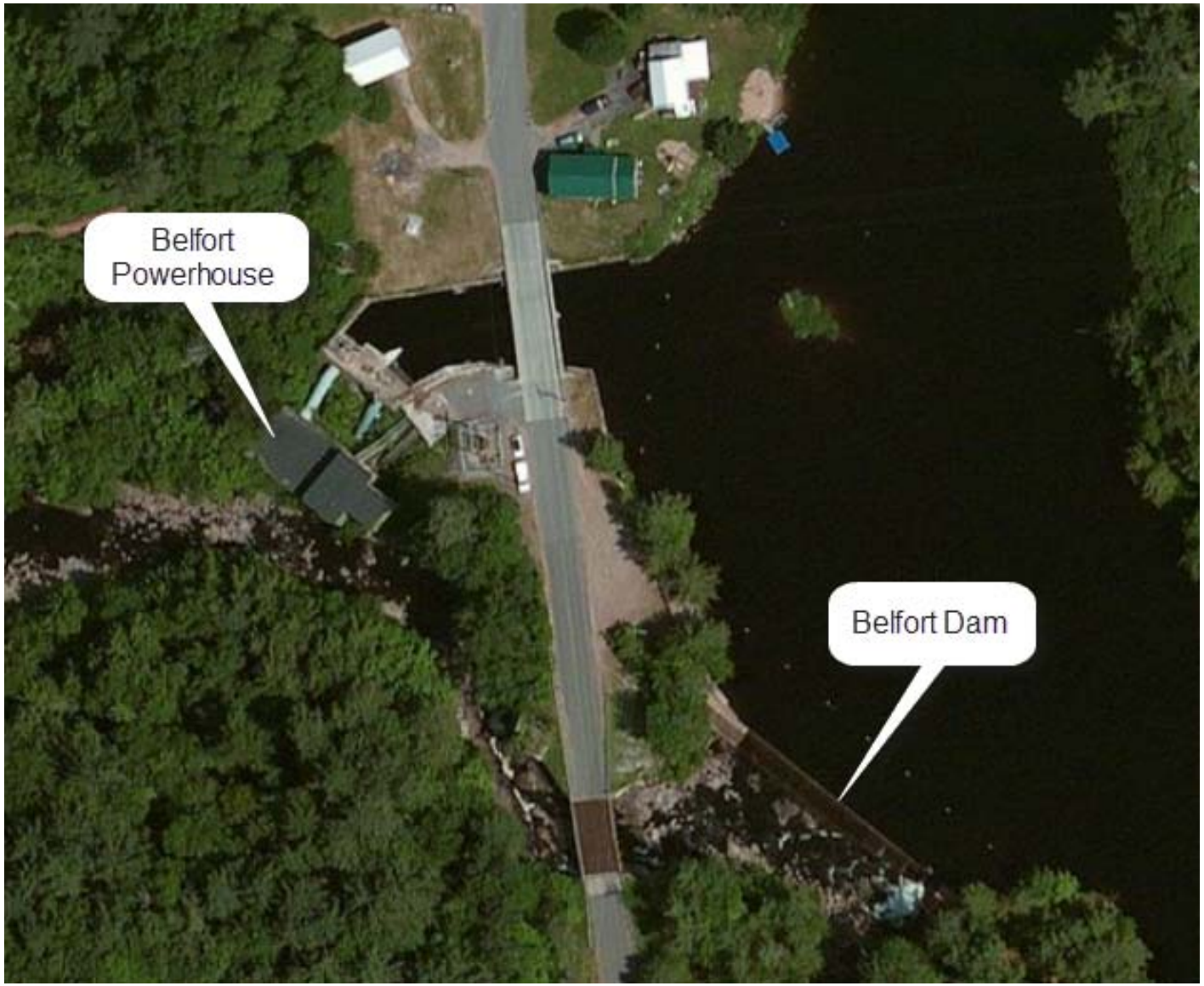
SOFT MAPLE DEVELOPMENT

EFFLEY DEVELOPMENT

ELMER DEVELOPMENT

TAYLORVILLE DEVELOPMENT

BELFORT DEVELOPMENT



HIGH FALLS DEVELOPMENT

ATTACHMENT B

QUESTION 6:

FEBRUARY 5, 1995 BEAVER RIVER PROJECT SETTLEMENT OFFER

AUGUST 2, 1996 ORDER ISSUING NEW LICENSE (P-2645)

AUGUST 24, 1995 WATER QUALITY CERTIFICATION

BEAVER RIVER PROJECT FERC NO. 2645

Settlement Offer

February 7, 1995
Amended March 8, 1995

TABLE OF CONTENTS

I. INTRODUCTION

The purpose of this document is to highlight, summarize and document the areas of agreement that exist as the result of comprehensive settlement discussions between the signators with regard to the operation and maintenance of the Beaver River Project (Federal Energy Regulatory Commission (FERC) Project No. 2645). This document is intended as a Settlement Offer. As such, it is a summary of all areas of agreement and is not meant to replace the detailed license application exhibits, studies, reports, meeting minutes and other consultation records that have been and will be developed for the project and submitted to the consulted resource agencies and FERC.

Recreational facilities, as described in Niagara Mohawk Power Company's FERC license application and Additional Information Request (AIR) responses filed with FERC, will be provided at each applicable development according to any applicable schedules provided in those documents. Any exceptions or additions are described under the Recreation section for each development listed in this Settlement Offer. Existing recreational facilities, as described in the application, will be maintained.

The Beaver River Project consists of the Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort and High Falls Developments. The eight developments are located on the Beaver River between Stillwater Reservoir and the confluence with the Black River (in New York State). The Moshier Development is located 29 miles from the confluence with the Black River and the High Falls Development is located 11 miles from the confluence. The Moshier Development is in the Town of Webb, Herkimer County and the Eagle Development is in the Town of Watson, Lewis County. The remaining developments are in the Town of Croghan, Lewis County, New York.

The Adirondack Park boundary (blue line) includes the Moshier Development, Eagle Development and most of the Soft Maple impoundment.

Niagara Mohawk's proposals to construct a minimum flow generating unit at Eagle and to upgrade the Belfort development by construction of a new powerhouse are withdrawn.

II. MOSHIER DEVELOPMENT

A. Reservoir Fluctuations

From July 1 to April 30, the maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1639.5 and 1641.0 feet with flashboards and elevations 1637.5 and 1639.0 without flashboards.

From May 1 to June 30, in order to protect nests of reservoir spawning fish and of nesting birds, the maximum daily reservoir fluctuation will be limited to 1.0 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1640.0 and 1641.0 with flashboards and elevations 1638.0 and 1639.0 without flashboards. If flashboards are down or fail during this period, the flashboards will not be replaced until July 1 or later.

As described in Niagara Mohawk's Beaver River license application to FERC, dated November 25, 1991 (FERC license application), the normal maximum headwater elevation corresponds to the elevation at the top of the flashboards. In the case where flashboards do not exist, the normal maximum headwater elevation corresponds to the top of the spillway crest. Regulation along the Beaver River usually prevents the flashboards from failing due to high water or ice conditions. However, flashboards are usually replaced every three to five years as part of Niagara Mohawk's maintenance program.

Maximum seasonal reservoir fluctuation will be limited to 3.0 feet from the normal maximum headwater elevation. Further, during periods when the daily average inflow below High Falls (Beaver River inflow to Moshier Development plus all intervening tributary flow between Moshier Development and High Falls Development) is less than 250 cfs ("low flow periods"), additional storage at the Moshier Development may be used, in conjunction with storage at the downstream Soft Maple, Effley and High Falls Developments (see sections IV. A, V. A, and IX. A), to supplement the base flow requirements below High Falls (see Section IX.C). During low flow periods, the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevations 1638.0 and 1641.0 feet with flashboards. Upon observing the low flow condition described above, Niagara Mohawk will initiate the following:

1. Contact the Hudson River Black River Regulating District (HRBRRD) and seek HRBRRD assistance in increasing flows, if possible, to address the low flow condition;
2. Document the response from the HRBRRD; and
3. Notify the New York State Department of Environmental Conservation (NYSDEC) and advise of the situation and steps to be taken.

B. Minimum Flows

A year-round minimum flow of 45 cfs will be provided in the bypassed reach and will be provided through a combination of a) the existing minimum flow discharge pipe and orifice plate, and b) a slide gate structure which will also accommodate whitewater releases and downstream fish passage.

A route for downstream fish passage for the Moshier Development will be provided through a new gate structure. Final details of the design, including final location and the potential need for fish protection and conveyance measures (e.g., distribution of flows between release structures and minor channel modifications), if any, and installation will be undertaken by Niagara Mohawk based on 1995 field inspections and professional judgment of the USFWS and NYSDEC within 2 years of FERC license acceptance.

C. Fish Passage and Protection

Upstream fish passage will not be required at the Moshier Development at this time.

In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within two years of license acceptance.

D. Recreation

The following will be provided:

1. Whitewater Releases - One 4-hour release of 400 cfs will be provided in September or October (prior to October 15) of each year, the exact timing of which is to be determined by Niagara Mohawk and American Whitewater Affiliation (AWA), in consultation with the Beaver River Advisory Council. Additionally, ramping flows not to exceed 200 cfs will be made two hours before the boating flow release and two hours after the release. The total volume of each release, including ramping flows, shall not exceed 2400 cfs-hrs. The releases at the Moshier Development will be coordinated, to the extent feasible, with the releases at the Eagle and Taylorville Developments.

   Notwithstanding the above provisions and those specified for whitewater releases at Taylorville and Eagle elsewhere in this Settlement Offer, the schedule and flows for releases at all three developments may be modified by Niagara Mohawk and AWA, based on the recommendations of the Beaver River Advisory Council., to the extent that any modifications do not exceed the equivalent of 96,600 kilowatt-hours in lost energy generation represented by the specified whitewater release provisions of this Settlement Offer. This, however, does not limit any newly created opportunities for additional whitewater releases that may arise from future mutually agreed changes to the terms of this Settlement Offer by its signatories.

2. Canoe/Boat Take-out on Moshier Impoundment - Niagara Mohawk will provide a canoe take-out at the downstream end of the Moshier impoundment. The canoe take-out will be located on the southwest corner of the impoundment near the end of the existing access road. The portage trail from this takeout will use this access road and connect to the existing canoe portage trail near the powerhouse.

Vehicular access along the pipeline will not be provided except by special permit for handicapped access and scheduled whitewater releases. The caretaker at the Soft Maple campsite will provide access on an as-needed basis.

3. Canoe Put-in at Moshier Tailrace - Niagara Mohawk will consult with the Adirondack Mountain Club (ADK) to make minor improvements to the canoe portage facilities. Specifically, the width of the foot bridge along the portage trail may need to be improved.

4. Bypassed Reach Access Trail - Niagara Mohawk has agreed to keep the existing bypassed reach access trail (south side only - the trail crosses the bypassed reach approximately three quarters of the way up the bypassed reach) and the canoe route access trail brushed. Other than the installation of trail markers, the trail will remain primitive and unimproved. The existing trail markers will be replaced with new trail markers designed and placed in consultation with ADK.

5. Pepperbox Wilderness Access Trail - This trail will be brushed by Niagara Mohawk.

6. Other - A kiosk will be installed near the existing Niagara Mohawk/NYSDEC parking lot located near the Moshier powerhouse. The kiosk will provide a map and a description of the Beaver River canoe route, portage and foot trails.

E. Land Transfers and Conservation Easements

The sand and gravel rights along the south side of the bypassed reach and the fee title for the acreage between the sand and gravel rights and the pipeline parcel's northerly FERC project boundary will be provided to NYSDEC (see Attachment 1). Furthermore, a 25 foot wide conservation easement (see Attachment 1) around the reservoir will be provided to NYSDEC to maintain the wilderness characteristics of the area. Fair market value will be paid for the land and easements through the upfront money provided by Niagara Mohawk to the river fund, as described in Attachment 2.

III. EAGLE DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily and seasonal reservoir fluctuation will be limited to 1.0 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1425.2 and 1426.2 feet with flashboards and elevations 1424.2 and 1425.2 without flashboards. Flashboards will not be erected or replaced during the period May 1 to June 30 so as to protect the nests of reservoir spawning fish and of nesting birds.

B. Minimum Flows

A year-round minimum flow of 45 cfs will be provided in the bypassed reach via the existing minimum flow slide gate. As indicated in Item 3 of Attachment 2, the minimum flow could be reduced down to as low as 30 cfs seasonally based on the results of two bypassed reach site inspections tentatively scheduled for July 1995 and in the winter of 1995/1996 and with the mutual agreement of NYSDEC and USFWS after consultation with the Beaver River Advisory Council and within 2 years of license acceptance. The seasonal minimum flow reduction would occur from October 1 to the end of spring runoff when uncontrolled spillage ceases or May 31, whichever comes first.

Instream flow releases from the existing gate structure will provide a downstream fish passage route. Minor channel modifications below the release gate will be undertaken by Niagara Mohawk based on 1995 field inspections and the professional judgment of USFWS and the NYSDEC within 2 years of FERC license acceptance.

C. Fish Passage and Protection

Upstream fish passage will not be required at this time. In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks at the entrance to the power canal with new trashracks (or equivalent) with 1-inch clear bar spacing within 10 years of FERC license acceptance.

D. Recreation

The following will be provided:

1. Whitewater Releases - Five four-hour releases of at least 200 cfs will be provided in September and October of each year, the exact timing of which is to be determined by Niagara Mohawk and AWA, in consultation with the Beaver River Advisory Council. Additionally, ramping flows not to exceed 100 cfs will be made for one hour before the boating flow release and one hour after the release. The total volume of each release, including ramping flows, shall not exceed 1000 cfs-hrs. The releases at the Eagle Development will be coordinated, to the extent feasible, with the releases at the Taylorville Development.

2. Rock Climbing - When the section of the bypassed reach that contains the cliffs and rock ledges (halfway down the northerly side of the bypass reach and known as "Eagle Canyon") is acquired, NYSDEC will provide access for rock climbing and other associated recreational activities. Niagara Mohawk will provide access to this area via the existing canoe portage trail located along the lower section of the south side of the bypassed reach.

3. Bypassed Reach Access Trail - Niagara Mohawk will keep the existing access trail along the south side of the bypassed reach brushed. Other than the installation and maintenance of trail markers, the trail will remain primitive and unimproved.

4. Other - The Niagara Mohawk access road along the pipeline will be open to the public. Niagara Mohawk will work with the ADK to make minor improvements to the canoe put-in located near the tailrace of the powerhouse and to design and place the trail markers.

E. Land Transfers

A section of the bypassed reach in the area of the cliffs and rock ledges halfway down the northerly side of the bypass reach on both the north and south side, as depicted in Attachment 1, will be provided to the NYSDEC. Fair market value will be paid for the land through the upfront money provided by Niagara Mohawk to the river fund, as described in Attachment 2.

IV. SOFT MAPLE DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1288.4 and 1289.9 feet with flashboards and elevations 1286.9 and 1288.4 without flashboards.

From May 1 to June 30, in order to protect nests of reservoir spawning fish and of nesting birds, the maximum daily reservoir fluctuation will be limited to 1.0 feet from the normal maximum headwater elevation. If flashboards are down or fail during this period, the flashboards will not be replaced until July 1 or later.

During periods when the daily average inflow at High Falls is less than 250 cfs ("low flow periods"), additional storage at the Soft Maple Development may be used to supplement the base flow requirements below High Falls (see Section II. A, V. A, IX. A. & C.). During such low flow periods, the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevations 1286.9 and 1289.9 feet with flashboards.

B. Minimum Flows

A year-round minimum flow of 35 cfs will be provided in the bypassed reach. Both existing slide gates located at the spillway will be used to release 15 cfs; 20 cfs will be provided through a diversion tunnel. The release device for the diversion tunnel remains to be designed.

C. Fish Passage and Protection

Neither upstream nor downstream fish passage will be required for the Soft Maple Development at this time.

After three full years of the above referenced minimum flows being provided, NYSDEC will conduct a fisheries investigation on resident brook trout. If the investigation reveals the need to supplement the existing brook trout population, then NYSDEC will commence a four year program of transplanting native brook trout from local heritage streams to enhance prospects for a sustainable brook trout fishery. Niagara Mohawk will provide two fisheries biologists for three days in each year of the transplant program and equipment necessary for safe transport of fish during this effort.

In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within 2 years of FERC license acceptance. Furthermore, to prevent reservoir fish from entering the bypassed reaches, Niagara Mohawk will install within the same 2 years a fish screen (or equivalent) with no greater than ½-inch clear space openings at the upstream end of the diversion tunnel, and, equally open the two existing release gates to the minimum opening necessary to release the required minimum flow; it is anticipated that the gate openings will be approximately ½-inch.

D. Recreation

The following will be provided:

1. Boat Launch at Proposed Campground - The boat launch at the proposed campground will be a car-top launch and not a ramped/trailer launch as proposed in Niagara Mohawk's FERC license application.

2. Island Campgrounds - The campgrounds on the islands will be primitive.

3. Canoe Put-in at Soft Maple Tailrace - Niagara Mohawk will consult with the ADK to make minor improvements to the canoe portage facilities.

4. Bypassed Reach Access Trail - Niagara Mohawk will keep the access trail along the south side of the bypassed reach brushed. Other than the installation of trail markers, the trail will remain primitive and unimproved.

V. EFFLEY DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1161.5 and 1163.0 feet without flashboards as there are no flashboards.

During the period from May 1 to June 30, fluctuations will be limited to 1.0 feet in order to protect nests of reservoir spawning fish and of nesting birds. This 1.0 foot fluctuation corresponds to fluctuations between elevations 1162.0 and 1163.0.

During periods when the daily average inflow at High Falls is less than 250 cfs ("low flow periods"), additional storage at the Effley Development may be used to supplement the base flow requirements below High Falls (see Sections II. A, IV. A, IX. A, C). During low flow periods, the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevations 1160.0 and 1163.0 feet.

B. Minimum Flows

A year-round nominal flow of 20 cfs will be provided in the bypassed reach via a new gate structure located on the north side of the spillway.

A route for downstream fish passage for the Effley Development will be provided through the new gate structure. This structure will be a gated orifice through the dam, approximately 2 SF in area, with its invert located approximately 5.0 feet below normal maximum headwater elevation without flashboards. It will be designed to pass a nominal 20 cfs (ranging from 18 cfs to 22 cfs as controlled by pond level). Final details of the design, including final location and the potential need for fish protection and conveyance measures (e.g., plunge pools, piping, etc.), if any, and installation will be undertaken by Niagara Mohawk based on 1995 field inspections and professional judgment of the USFWS and NYSDEC within 2 years of FERC license acceptance.

C. Fish Passage and Protection

Upstream fish passage will not be required at this time.

In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within 6 years of FERC license acceptance.

D. Recreation

No additional recreational facilities will be required beyond those already provided in the FERC license application and AIR responses filed with FERC.

VI. ELMER DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily reservoir fluctuation will be limited to 1.0 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1107.0 and 1108.0 feet without flashboards as there are no flashboards.

B. Minimum Flows

A year-round nominal flow of 20 cfs will be provided in the bypassed reach and will be provided through the existing needle beam structure located in the middle of the spillway, the release structure for which remains to be designed. Furthermore, it is agreed that the minimum flow may be reduced by USFWS after consultation with the Beaver River Advisory Council, to no less than 10 cfs within 1 year of license acceptance.

A downstream fish passage route for the Elmer Development will be provided through the new release structure. This structure will be approximately 2 SF in area, with its invert located approximately 5.0 feet below normal maximum headwater elevation without flashboards. It will be designed to pass a nominal 20 cfs (ranging from 18 cfs to 22 cfs as controlled by pond level). Final details of the design, in consideration of reduced flows to 10 cfs, including the potential need for fish protection and conveyance measures (e.g., plunge pools, piping, etc.), if any, and installation will be undertaken by Niagara Mohawk based on 1995 field inspections and professional judgment of the USFWS and NYSDEC within 2 years of license acceptance.

C. Fish Passage and Protection

Upstream passage will not be required at this time. In order to effectively exclude adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within 14 years of FERC license acceptance.

D. Recreation

No additional recreational facilities will be required beyond those already provided in the license application and AIR responses filed with FERC.

VII. TAYLORVILLE DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily and seasonal reservoir fluctuation will be limited to 1.0 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1069.6 and 1070.6 feet with flashboards and elevations 1068.8 and 1069.8 without flashboards. In order to protect nests of reservoir spawning fish and of nesting birds, flashboards will not be replaced during the May 1 through June 30 period.

B. Minimum Flows

A year-round minimum flow of 60 cfs will be provided in the bypassed reach via the existing minimum flow slide gate. It is further agreed that the minimum flow may be reduced to between 45 and 60 cfs based on the results of a bypassed reach site inspection tentatively scheduled for July 1995 and with the mutual agreement of NYSDEC and USFWS after consultation with the Beaver River Advisory Council and within 1 year of license acceptance.

Instream flow releases from the existing gate structure will provide a downstream fish passage route. Minor channel modifications below the release gate will be undertaken by Niagara Mohawk based on 1995 field inspections and the professional judgment of the USFWS and NYSDEC within 2 years of license acceptance.

C. Fish Passage and Protection

Upstream fish passage will not be required at this time. In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within 10 years of FERC license acceptance.

D. Recreation

The following will be provided:

1. Whitewater Releases - Five four-hour releases not-to-exceed 400 cfs will be provided in September and October of each year, the exact timing of which is to be determined by Niagara Mohawk and AWA, in consultation with the Beaver River Advisory Council. Additionally, ramping flows not-to-exceed 200 cfs will be made before and after the boating flow release for a total duration not-to-exceed three hours. The total volume of each release, including ramping flows, shall not exceed 2200 cfs-hrs. The releases at the Taylorville Development will be coordinated, to the extent feasible, with the releases at the Eagle Development.

2. Other - A kiosk will be installed at the existing Taylorville parking lot that describes the Beaver River canoe route.

VIII. BELFORT DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily reservoir fluctuation will be limited to 1.0 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 965.0 and 966.0 feet with flashboards and 964.0 and 965.0 without flashboards. Flashboards will not be replaced during the May 1 through June 30 period.

B. Minimum Flows

A year-round nominal flow of 20 cfs will be provided in the bypassed reach via a new gate structure located on the south side of the spillway.

This structure will be a gated orifice through the dam, approximately 2 SF in area, with its invert located approximately 5.0 feet below normal maximum headwater elevation without flashboards. It will be designed to pass a nominal 20 cfs (ranging from 18 cfs to 22 cfs as controlled by pond level).

Final details of the design for the above referenced structure, including final location and the potential need for fish protection and conveyance measures (e.g., plunge pools, piping, etc.), if any, and installation will be undertaken by Niagara Mohawk based on 1995 field inspections and the professional judgment of the USFWS and the NYSDEC within 2 years of license acceptance. Instream flow releases through the new release structure will provide a downstream fish passage route.

C. Fish Passage and Protection

Upstream fish passage will not be required at this time. In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within 14 years of FERC license acceptance.

D. Recreation

The following will be provided:

1. Canoe Route - Niagara Mohawk will consult with the ADK to design the canoe route portages.

IX. HIGH FALLS DEVELOPMENT

A. Reservoir Fluctuations

The maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 913.5 and 915.0 feet without flashboards as there are no flashboards.

During periods when the daily average inflow at High Falls is less than 250 cfs ("low flow periods"), additional storage at the High Falls Development may be used to supplement the base flow requirement below. (See Section II. A, IV. A, V. A.) During low flow periods, the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevations 912.0 and 915.0 feet.

B. Minimum Flows

A year-round nominal flow of 30 cfs $\pm$ 3 cfs, depending on head, will be provided in the bypassed reach. Ten cfs ($\pm$ 1 cfs, depending on head) will be provided through the existing low-level slide gate structure located in the middle of the spillway and 20 cfs ($\pm$ 2 cfs, depending on head) will be provided through a new gate structure located at the north side of the spillway. This structure will be a gated orifice through the dam, approximately 2 SF in area, with its invert located approximately 5.0 feet below normal maximum headwater elevation without flashboards. It will be designed to pass a nominal 20 cfs (ranging from 18 cfs to 22 cfs as controlled by pond level). Final details of the design for the above referenced new structure, including final location and the potential need for fish protection and conveyance measures (e.g., plunge pools, piping, etc.), if any, and installation will be undertaken by Niagara Mohawk based on 1995 field inspections and the professional judgment of the USFWS and NYSDEC within 2 years of license acceptance. Instream flow releases through this orifice will provide a downstream passage route.

C. Fish Passage and Protection

Upstream fish passage will not be required at this time. In order to effectively exclude many adult fish from being entrained into the intake, Niagara Mohawk will replace the existing trashracks with new trashracks (or equivalent) with 1-inch clear bar spacing within 6 years of FERC license acceptance.

D. Base Flows

A year-round base flow of at least 250 cfs will be provided through the existing units and the new minimum flow release structure at the High Falls Development. The target base flow will be measured and monitored by Niagara Mohawk preferably using the United States Geological Survey (USGS) streamflow gage in Croghan. Niagara Mohawk will be responsible for measuring and monitoring base flows.

E. Recreation

No additional recreational facilities will be required beyond those described in the FERC license application and AIR responses filed with FERC.

X. MISCELLANEOUS

A. Beaver River Advisory Committee

In order to keep abreast of changing conditions that may affect river flows and management objectives, an Advisory Committee representative of the various interests in the Beaver River corridor will be formed as more specifically detailed in Attachment 2.

B. Beaver River Fund

A river fund, contributed by Niagara Mohawk, will be established as described in Attachment 2.

C. Enforceability

This Settlement Offer shall be considered a Memorandum of Understanding between the signators, which shall be enforceable by any party to the extent that this Settlement Offer is accepted and approved by the NYSDEC and/or FERC and incorporated into the terms and conditions of any 401 water quality certificate issued by NYSDEC or any new license issued by FERC for the Beaver River Project No. 2645.

D. Cooperation

Each and all signators will abide by and support the agreements and understandings commemorated herein in the context of their participation in the Beaver River Project No. 2645 licensing proceeding before the FERC, the 401 water quality certification proceeding before NYSDEC and any other forum, as appropriate.

E. Streamflow Monitoring

Niagara Mohawk shall submit a flow monitoring plan for NYSDEC approval within three (3) months of FERC license acceptance. This flow monitoring plan will provide for the installation and maintenance of a USGS gaging station, unless justification for an alternative gaging system is provided. The flow monitoring plan shall include all gages and/or equipment for the purposes of:

a. determining the stage and/or flow of the stream on which the project is located;

b. determining all other project flows including flow through the turbine(s) and any other bypass/diversion flows; and,

c. determining project headpond and tailwater elevation.

Niagara Mohawk shall keep accurate and sufficient records of the foregoing flow/stage data to the satisfaction of the NYSDEC and shall provide such data in a format and interval as the NYSDEC may prescribe. All records will be available for inspection within 5 business days of Niagara Mohawk's receipt of a written request for same by one of the signators to this Settlement Offer.

All gaging and ancillary equipment associated with the project, including the headpond and tailwater gages, shall be made operational and fully calibrated within 12 months of FERC license acceptance.

A gage calibration plan shall be submitted to the NYSDEC for review and approval. Ongoing calibration of all gaging equipment shall be performed to the satisfaction of the NYSDEC and/or its authorized representative.

Permanent staff gages shall be installed to allow independent verification of headpond and tailwater elevations. Stage vs. discharge ratings shall be calibrated when rating changes occur, and maintained for these sites. Access to staff gages shall be provided to the NYSDEC and/or its authorized representative.

Headpond and tailwater elevations shall be gaged and recorded to the nearest 0.1 ft.

F. Compliance With The Law

Nothing in this Settlement Offer shall preclude FERC, any resource agency or Niagara Mohawk from complying with their obligations under the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, the Federal Power Act as amended by the Electric Consumers Protection Act, the Fish and Wildlife Coordination Act or any other applicable state or federal laws. However, by entering into this Settlement Offer, each signator represents that it believes its statutory obligations are, or can be, met consistent with this Settlement Offer.

G. Binding Effect

Nothing in this Settlement Offer shall be construed as binding the USFWS or the National Park Service (NPS) to expend in any one fiscal year any sum in excess of appropriations made by Congress or administratively allocated for the purpose of this Settlement Offer for the fiscal year, or to involve the USFWS or the NPS in any contract or other obligation for the future expenditure of money in excess of such appropriations or allocations.

H. Conditions For Stillwater Reservoir

The signators reserve for future consideration how any prospective modifications in the current operations of the upstream HRBRRD's Stillwater Reservoir or the Stillwater Hydro Project (FERC Project No. 6743), thereon, might affect the purposes for which the Stillwater Reservoir was created and is operated, as well as the eight downstream hydroelectric facilities of Niagara Mohawk and the natural resources of the environs of those facilities that are the subject of this Settlement Offer.

The signators may amend this Settlement Offer on the basis of such further consideration as may be mutually agreed upon.

With or without such amendment of this Settlement Offer by mutual assent, any signator may seek such further relief from the FERC to enhance the power resources, the flood control and low flow augmentation purposes of the HRBRRD's operation of the Stillwater Reservoir and/or the environmental benefits (including the flow schedule) provided herein for the downstream hydro developments of Niagara Mohawk's Beaver River Hydro Project (FERC Project No. 2645) through such modification in the current operation of the Stillwater Reservoir as the HRBRRD may determine or the FERC may appropriately order for the Stillwater Project No. 6743.

I. Coverage

This Settlement Offer provides the terms and conditions for the resolution of the fisheries, fish entrainment and passage, wildlife, water quality, lands management and ownership, recreation and aesthetics issues raised by the signators regarding the issuance of a new license for the Beaver River Project, these being all the issues presently addressed.

J. General Provisions

1. Niagara Mohawk agrees to implement the various obligations and requirements set forth herein. Resource agencies and other signators agree to support a new 30-year license for the Beaver River Project, incorporating and implementing the provisions contained herein. This support shall include reasonable efforts to expedite the National Environmental Policy Act (NEPA) process. For those issues addressed herein, the signators agree not to propose, support or otherwise communicate to FERC or any other federal or state resource agency with jurisdiction directly related to the relicensing process any comments, certificate or license conditions other than ones consistent with the terms of this Settlement Offer. However, this Settlement Offer shall not be interpreted to restrict any signator's participation or comments in future relicensing of this project. Further, this section shall not be read to predetermine the outcome of the NEPA analysis.

If such NEPA analysis leads to addition of any license conditions inconsistent with those contained herein, the signators recognize that such addition would trigger the rights of the signators to withdraw from the Settlement Offer pursuant to Paragraph K.1.

2. The signators agree that this Settlement Offer fairly and appropriately balances the environmental, recreational, fishery, energy and other uses and interests served by the Beaver River. The signators further agree that this balance is specific to the Beaver River Project. No signator shall be deemed, by virtue of execution of this Settlement Offer, to have established precedent, or admitted or consented to any approach, methodology, or principle except as expressly provided for herein. In the event that this Settlement Offer is approved by the NYSDEC and/or FERC, such approval shall not be deemed precedential or controlling regarding any particular issue or contention in any other proceeding.

3. This Settlement Offer shall become effective upon the later of: (1) final 401 water quality certificate issuance by NYSDEC, or (2) issuance of a new license, consistent with this Settlement, by FERC and acceptance of same by Niagara Mohawk. If a 401 water quality certification or FERC license is issued that results in certificate or FERC license terms inconsistent with the terms of the Settlement Offer, any signator may withdraw pursuant to Paragraph K.1 of this Settlement Offer. The Settlement Offer, including all mitigative measures and annual contributions to the Beaver River fund, shall remain in effect for the term of the new license and for any annual license issued subsequent thereto, subject to authority reserved by FERC in the new license to require modifications.

4. The signators have entered into the negotiations and discussions leading to this Settlement Offer with the explicit understanding that all offers of settlement and the discussions relating thereto are privileged, shall not prejudice the position of any signator participant taking part in such discussions and negotiations, and are not to be otherwise used in any manner in connection with these or any other proceedings.

5. The Settlement Offer shall apply to, and be binding on, the signators and their successors and assigns, but only with regard to the above-captioned proceeding and then only if the Settlement Offer is made effective as provided herein. No change in corporate status of Niagara Mohawk shall in any way alter Niagara Mohawk's responsibilities under the Settlement Offer. Each signatory to the Settlement Offer certifies that he or she is authorized to execute the Settlement and legally bind the party he or she represents.

K. Approval of Settlement

1. The signators have entered into and jointly submit this Settlement Offer with the express conditions that NYSDEC approves and accepts all provisions herein and either issues or waives a 401 water quality certification and that FERC approves and accepts all provisions herein and issues a new project license for the Beaver River Project consistent with the terms of the Settlement Offer. In the event that either NYSDEC and/or FERC changes, conditions or modifies any provision contained herein in any NYSDEC issued 401 water quality certification or FERC order issuing a new license, whether through its own action or through incorporation of conditions of a 401 water quality certification, the Settlement Offer shall be considered modified to conform to the FERC order unless any signator to the Settlement Offer within 60 days of NYSDEC's or FERC's action provides written notice by certified mail to the other signators that it objects to the modification, change or condition. The signators shall then commence negotiations for a period of up to 60 days to resolve the issue and modify the Settlement Offer, as needed. If agreement cannot be reached, then the objecting party may withdraw from the Settlement Offer, without incurring any obligations or benefitting from rights associated with the Settlement Offer. In the event that the Settlement Offer is withdrawn, it shall not constitute a part of the record of ongoing proceedings.

2. In the event that FERC issues a final order that does not include conditions consistent with Paragraphs X.A, X.B and Attachment 2 of this Settlement Offer and regardless of whether this Settlement is withdrawn from by a party other than Niagara Mohawk, NYSDEC or USFWS, Niagara Mohawk agrees that it will comply with and implement the terms of Paragraphs X.A and X.B and Attachment 2 as long as the Beaver River Project receives a new license with operational terms and conditions and financial impacts consistent with the Settlement Offer as filed.

3. In the event that FERC rejects or modifies any of the provisions of this Settlement Offer, then the rest of the agreement shall remain in effect.

L. Dispute Resolution

In the event that any dispute arises over compliance with the terms and conditions of this Settlement Offer, the signators agree to engage in good faith negotiations for a period of at least 60 days, if necessary, in an effort to resolve the dispute, said negotiations to be initiated and facilitated by NYSDEC. A minimum of two meetings shall be held to attempt to resolve the dispute during the 60-day period, if necessary. In the event that resolution cannot be reached within the 60-day negotiating period, the dispute may be referred to FERC pursuant to FERC's Rules of Practice and Procedure (18 CFR 385, et seq.).

Notwithstanding any other provision of this Settlement Offer, any signatory may seek relief in any appropriate forum for noncompliance with this Settlement Offer by any signatory hereto.

M. Project Decommissioning

This Settlement Offer does not include any condition relating to decommissioning or dam removal of the Beaver River Project in whole or part. With or without amendment of this Settlement Offer by mutual consent, any signatory may seek such further relief from FERC regarding such decommissioning as FERC may order, recognizing that no signatory to this Settlement Offer has or is advocating decommissioning of the project or any of the project facilities during the term of the new license for the project.

N. Use of Reopener Clauses in the New License

This Settlement Offer is not intended to limit or restrict any signatories authority, if any, to seek different or modified license conditions through a license reopener. Before any signatory proceeds to seek a reopener, the signatory shall request all signatories to commence negotiations for a period of at least 90 days to resolve the issue, and to agree to modify this Settlement Offer accordingly, if necessary.

O. Effectiveness Studies

Effectiveness Studies will not be required for minimum flows, fish exclusion, protection or passage.

XI. SIGNATORS

NIAGARA MOHAWK POWER CORPORATION

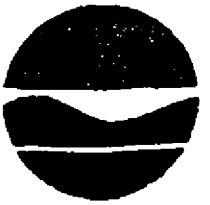
By: T. H. Baron

T. H. Baron

Title: Vice President -
Fossil & Hydro Generation

Date: 2/23/95

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-1550
Room 514



Gary Spiekmann
Acting Executive Deputy
Commissioner

March 9, 1995

Re: BEAVER RIVER PROJECT FERC NO. 2645

Dear Beaver River Party:

Enclosed is an errata list and corrected pages dated March 8, 1995 to the February 7, 1995 Beaver River Settlement Offer which was transmitted to you previously. These changes reflect corrections and clarifications which do not substantially alter the terms of the agreement.

If you have already returned an authorized signature for the agreement, please sign the bottom of this letter and return it as an affirmation that the original signature remains valid and your organization accepts these errata as an update to the agreement. If you have not yet returned a signed signature page, please do so. We need all signatures by Friday, March 17, 1995.

When all signatures have been recieved, we will provide a copy of the fully executed agreement with all signatures to all parties. Thank you.

Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

Sam Hinckley 3/16/95
Please sign here as noted above and return to the address shown

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By: Langdon Marsh

Title: Commissioner

Date: Feb 13, 1995

Beaver River Project FERC No. 2645
Settlement Offer

ORGANIZATION: NYSDEC

BY: [signature]

Title: Assistant Counsel

Date: April 12, 1995

Beaver River Project FERC No. 2645
Settlement Offer

ADIRONDACK COUNCIL

By: Bernard C. Melewski

Title: Counsel

Date: March 17, 1995

UNITED STATES FISH AND WILDLIFE SERVICE

By: [signature]

Title: [signature]

Date: 3-20-95

AMERICAN WHITEWATER AFFILIATION

By: Peter H. Lee

Title: Director

Date: March 17, 1996

Beaver River Project FERC No. 2645
Settlement Offer dated February 7, 1995
amended March 8, 1995

ADIRONDACK PARK AGENCY

By: Barbara A. Rettler

Title: Associate Counsel

Date: March 14, 1995

TROUT UNLIMITED, NEW YORK STATE COUNCIL

By: Thomas R. Matisa

Title: Committee on Hydro Relicensing

Date: March 14, 1995

Beaver River Project FERC No. 2645
Settlement Offer

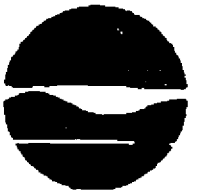
NEW YORK RIVERS UNITED

By: _____
Bruce R. Carpenter

Title:
Executive Director, New York Rivers United

Date: 02/13/95

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-1550
Room 514



Gary Spleimann
Acting Executive Deputy
Commissioner

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 1
To	From J. Sama
Co.	Co.
Dept.	Phone #
Fax # 315 336 6028	Fax # 518-457-5965

March 9, 1995

Re: BEAVER RIVER PROJECT FERC NO. 2645

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Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

3/17/95

Please sign here as noted above and return to the address shown

TOTAL P.01

Beaver River Project FERC No. 2645
Settlement Offer

ORGANIZATION: National Audubon Society

BY: John Echeverria

TITLE: General Counsel

DATE: 3/24/95

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-1550
Room 514

Gary Spielmann
Acting Executive Deputy
Commissioner

March 9, 1995

Re: BEAVER RIVER PROJECT FERC NO. 2645

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Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

John O. Echeverria

Please sign here as noted above and return to the address shown

Beaver River Project FERC No. 2645
Settlement Offer

NEW YORK STATE CONSERVATION COUNCIL

By: Henry Cosselman

Title: President

Date: March 6, 1995

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-1550
Room 514

Gary Spiekmann
Acting Executive Deputy
Commissioner

March 9, 1995

Re: BEAVER RIVER PROJECT FERC NO. 2645

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Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

Henry Coselman

Please sign here as noted above and return to the address shown

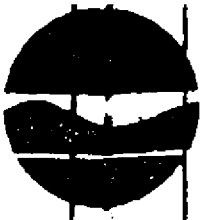
American Canoe Association

By: _____

Title: Director of Conservation and Public Policy

Date: February 17, 1995

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-1550
Room 514



Gary Goldmann
Acting Executive Deputy
Commissioner

March 9, 1995

Re: BEAVER RIVER PROJECT FERC NO. 2645

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Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

Please sign here as noted above and return to the address shown

Beaver River Project FERC No. 2645
Settlement Offer

ORGANIZATION: The Association for the Protection of the Adirondacks

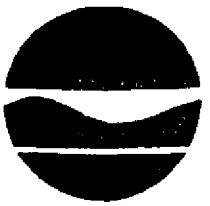
BY: David H. Gibson, Executive Director

Title: Executive Director

Date: March 17, 1995

TOTAL P.02

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-1550
Room 514



Gary Spielmann
Acting Executive Deputy
Commissioner

March 9, 1995

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Sincerely,

Jeffrey J. Shana
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

David H. Gibson, Executive Director
Please sign here as noted above and return to the address shown
The Associates of the Protection of the Adirondacks

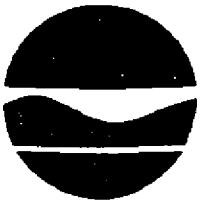
ADIRONDACK MOUNTAIN CLUB

By: Betty Lou Bailey

Title: Chrm. Canoe Route Subcommittee

Date: Feb. 16 1995

:w York State Department of Environmental Conservation
. Wolf Road, Albany, New York 12233-1550
Room 514



Gary Spielmann
Acting Executive Deputy
Commissioner

March 9, 1995

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Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator
Division of Regulatory Affairs

Enc.

Betty Lou Bailey 3/17/95
Please sign here as noted above and return to the address shown

Beaver River Project FERC No. 2645
Settlement Offer

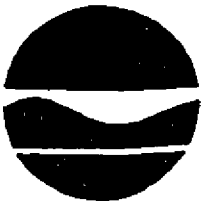
ORGANIZATION: American Rivers

BY: Margaret Bowman
Margaret Bowman

TITLE: Director of Hydropower Programs

DATE: February 17, 1995

w York State Department of Environmental Conservation
, Wolf Road, Albany, New York 12233-1550
Room 514



Gary Spiekmann
Acting Executive Deputy
Commissioner

March 9, 1995

Re: BEAVER RIVER PROJECT FERC NO. 2645

Dear Beaver River Party:

Enclosed is an errata list and corrected pages dated March 8, 1995 to the February 7, 1995 Beaver River Settlement Offer which was transmitted to you previously. These changes reflect corrections and clarifications which do not substantially alter the terms of the agreement.

If you have already returned an authorized signature for the agreement, please sign the bottom of this letter and return it as an affirmation that the original signature remains valid and your organization accepts these errata as an update to the agreement. If you have not yet returned a signed signature page, please do so. We need all signatures by Friday, March 17, 1995.

When all signatures have been recieved, we will provide a copy of the fully executed agreement with all signatures to all parties. Thank you.

Sincerely,

Jeffrey J. Spina
Deputy Chief Permit Administrator
Division of Regulatory Affairs

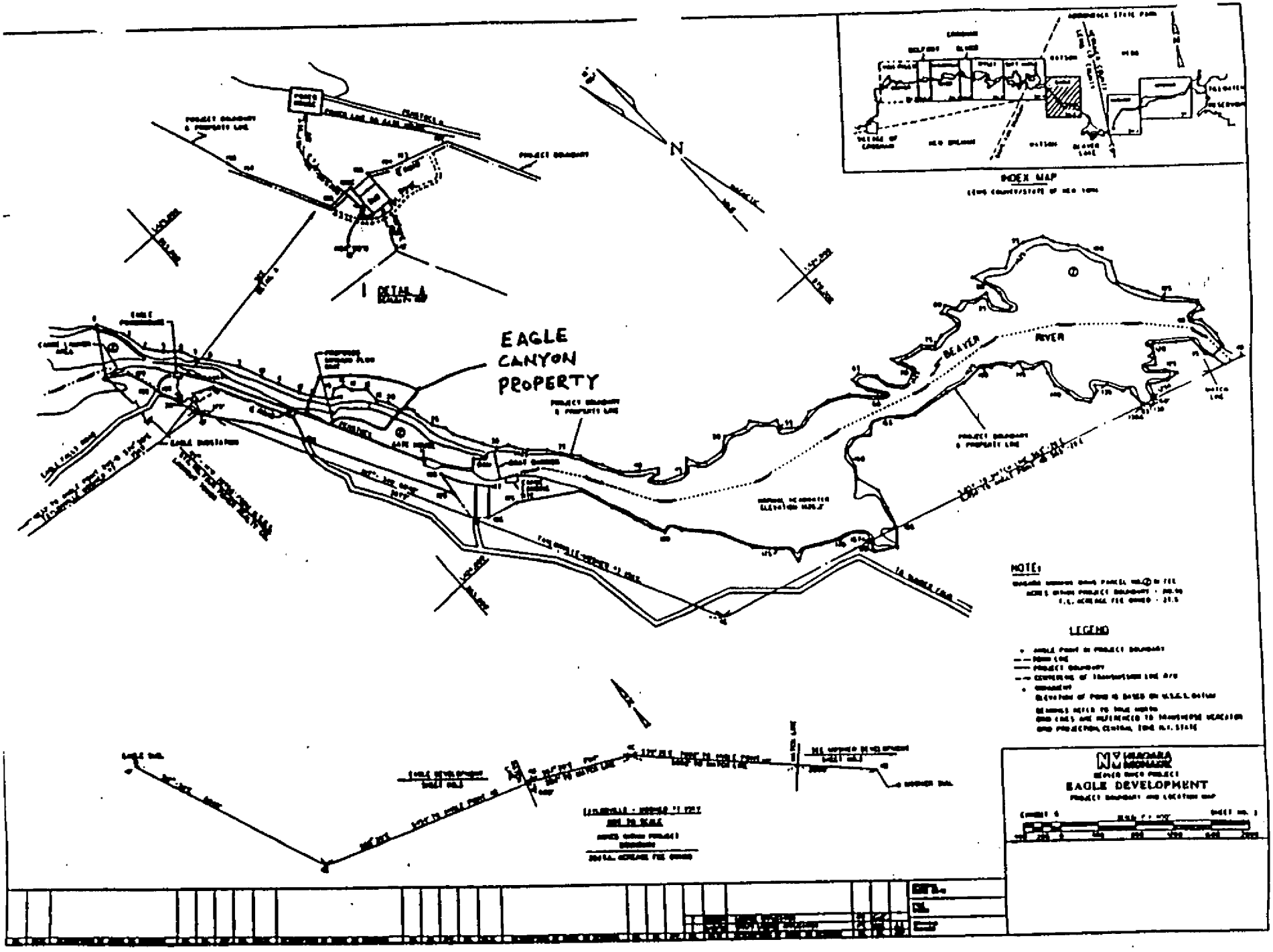
Enc.

Please sign here as noted above and return to the address shown

ATTACHMENT 1

LANDS AND INTERESTS

TO BE CONVEYED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EAGLE CANYON PROPERTY
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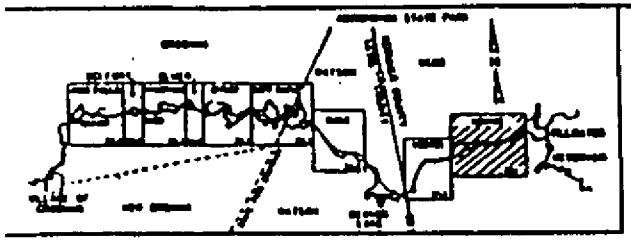


INDEX MAP

BEAVER RIVER

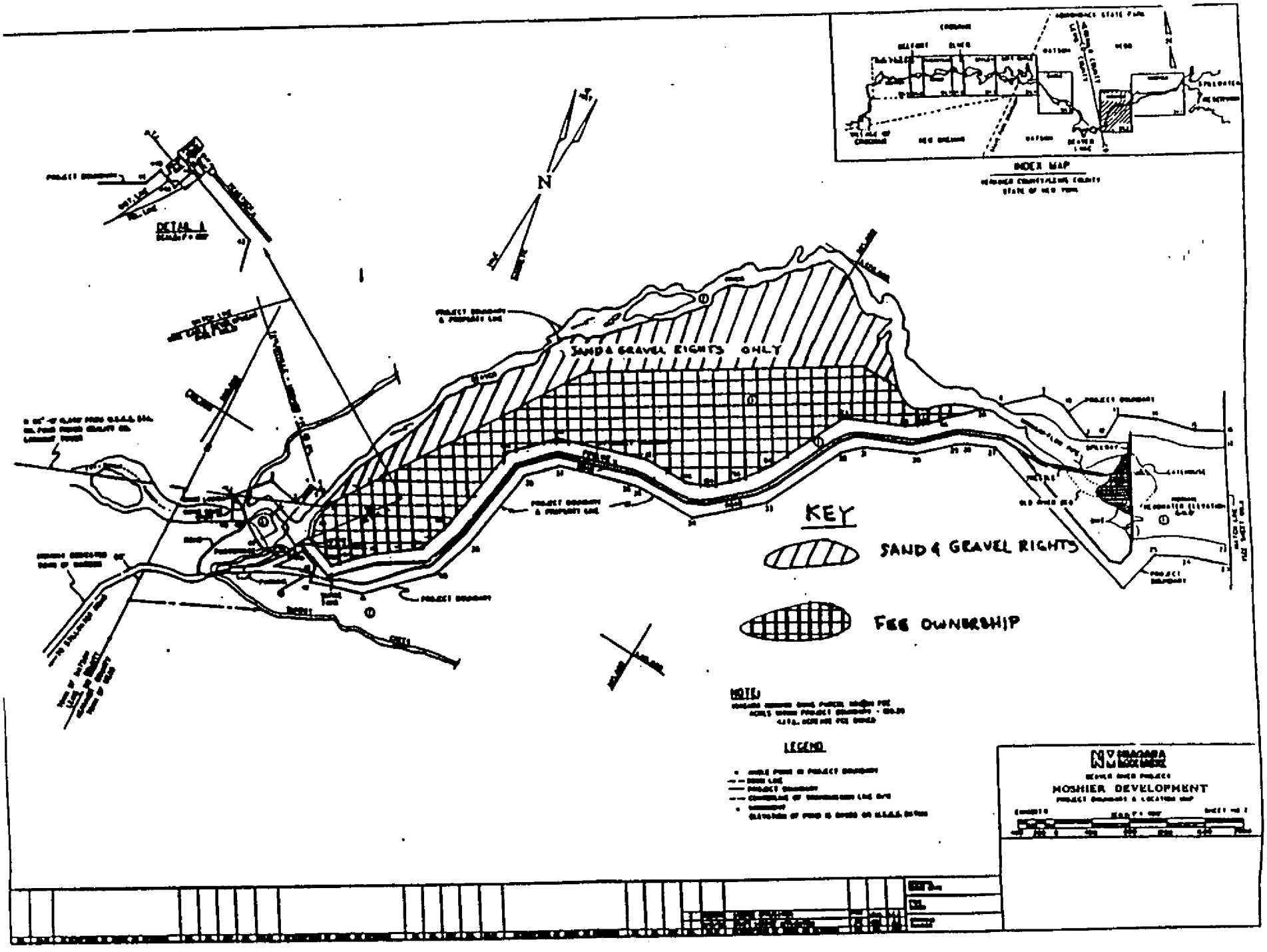
BEAVER RIVER

KEY

25' STRIP

LEGEND

MOSHIER DEVELOPMENT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ATTACHMENT 2

BEAVER RIVER FUND AND ADVISORY COUNCIL

THE BEAVER RIVER FUND AND ADVISORY COUNCIL

1. Niagara Mohawk will provide $80,000 within one year of FERC license acceptance ("upfront money") to be deposited into the Beaver River Fund. As indicated in Attachment 1, all or part of the upfront money will be used to facilitate the State's acquisition of the following from Niagara Mohawk within eighteen months of Niagara Mohawk's FERC license acceptance for Beaver River Project No. 2645: (a) a conservation easement, 25 feet in width, around the Moshier impoundment, (b) reserved sand and gravel rights along Moshier bypassed reach and the fee title to the abutting acreage to the south, and (c) fee title to "Eagle Canyon", all with appropriate reservations for Niagara Mohawk access, operation and maintenance purposes, d) any other Niagara Mohawk lands, easements and mineral rights not essential to project operation and not otherwise identified herein. Any money not used to purchase the land will remain in the fund for other uses. The State will prepare the title documents, appraisal, surveys and all other documents necessary to transfer title of the property at no cost to the Beaver River Fund or Niagara Mohawk.

2. Niagara Mohawk will contribute no less than $14,000 (fixed contribution) annually to the Beaver River Fund for the years 1-15 following acceptance of the FERC license and $20,000 annually for the following 15 years for the purposes described herein.

3. The base minimum flows at Moshier, Eagle, Elmer and Taylorville will be 45, 45, 20, and 60 cfs, respectively. If downward adjustments to any or all of these base minimum flows are made, Niagara Mohawk will supplement the Beaver River Fund annually by an amount equivalent to 50 percent of the annual hydropower generating value associated with the difference between the flows selected and the base minimum flows using the energy values prevailing in that year. For the purposes of this evaluation, the Public Service Commission (PSC) Service Classification No. 6 (SC6) for transmission Voltage, blended on peak/off peak "energy only" rates will be used for the value of energy.

4. The Beaver River Fund will be administratively managed by Niagara Mohawk and distributed according to the recommendation of a Beaver River Advisory Council. The NYSDEC will chair the council. At a minimum the following entities shall be invited to serve on the Council.

    - New York State Department of Environmental Conservation (NYSDEC)
    - Niagara Mohawk Power Corporation (NMPC)
    - United States Fish & Wildlife Service (USFWS)
    - New York Rivers United (NYRU)
    - Board of Hudson River-Black River Regulating District (HRBRRD)
    - New York State Conservation Council (NYSCC)
    - Adirondack Park Agency (APA)
    - Adirondack Mountain Club (ADK)
    - Lewis County
    - Trout Unlimited (TU)

- American Whitewater Affiliation (AWA)
- Adirondack Council (AC)
- National Park Service (NPS)

Each member will have one vote with regards to the distribution of funds based on majority vote.

The Council will also make recommendations which must be considered by the regulatory agencies and Niagara Mohawk regarding management of the Beaver River and hydropower project operations, in accordance with other provisions of this agreement.

5. The Beaver River Fund will be used within the Beaver River basin for projects and services designated by majority vote of the council for purposes of ecosystem restoration and protection, natural resource stewardship, public education, facility maintenance, and applied research necessary to accomplish these projects and provide these services and additional public access to outdoor recreational resources not currently agreed to by Niagara Mohawk as its commitment to these purposes. The fund is not intended for any of the parties to carry out any obligations under the new FERC license or any amendment thereto. Furthermore, the fund is not intended for any person or party to discharge any legal or statutory obligations. Unspent funds shall accumulate with interest in a Federal Deposit Insurance Corporation (FDIC) insured account or instrument managed pursuant to prevailing trust standards. Within one year following surrender or expiration without annual renewal of the new FERC license, the funds accumulated and not otherwise obligated shall revert to Niagara Mohawk.

76 FERC - 101 FERC, 76 FERC ¶61,152, Niagara Mohawk Power Corporation, Project No. 2645-029, (Aug. 02, 1996) , Federal Energy Regulatory Commission, (Aug. 2, 1996)

Niagara Mohawk Power Corporation, Project No. 2645-029

[61,828]

[¶61,152]

Niagara Mohawk Power Corporation, Project No. 2645-029

Order Approving Settlement Agreement and Issuing New License

(Issued August 2, 1996)

Before Commissioners: Elizabeth Anne Moler, Chair; Vicky A. Bailey, James J. Hoecker, William L. Massey, and Donald F. Santa, Jr.

Niagara Mohawk Power Corporation (Niagara Mohawk) has filed an application for a new license, [1] pursuant to sections 4(e) and 15 of the Federal Power Act (FPA), [2] authorizing the continued operation and maintenance of the 44.8-megawatt (MW) Beaver River Project, located on the Beaver River [3] in the Towns of Croghan and Watson in Lewis County and in the Town of Webb in Herkimer County, New York. The project comprises eight developments spanning 18 miles. They are (in descending order) Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls.

On May 30, 1995, Niagara Mohawk amended its license application by filing a Settlement Offer dated February 7, 1995, and amended March 8, 1995, and May 19, 1995. The Settlement Offer, which is unopposed and is signed by most of the parties to the relicense proceeding, contains certain revised and additional environmental measures. We are approving the Settlement and incorporating all appropriate provisions thereof into Niagara Mohawk's license.

I. Background

In response to the published notice of Niagara Mohawk's license application, [4] timely motions to intervene were filed by the Adirondack Park Agency (the Park Agency), U.S. Department of the Interior (Interior), New York State Department of Environmental Conservation (NYSDEC), the City of Watertown, New York, Adirondack Mountain Club, New York Rivers United (New York Rivers), American Whitewater Affiliation (Whitewater), American Rivers, Inc. (American Rivers), Adirondack Council, Association for the Protection of the Adirondacks, National Audubon Society, Trout Unlimited (on its own behalf and, in a separate motion, together with the New York Council of Trout Unlimited), and Natural Heritage Institute. The Park Agency submitted letters in both 1992 and 1993. Interior and Trout Unlimited/New York Council opposed the relicense application as filed.

The Settlement Offer filed in May 1995 is the product of negotiations begun after NYSDEC, in 1992, denied the Beaver River Project water quality certification, which is a prerequisite to licensing. All intervenors in both the Commission proceeding and the certification proceeding were invited to participate in the negotiations. All licensing intervenors signed the Agreement, except the City of Watertown and the Natural Heritage Institute. [5]

On June 14, 1995, the Commission issued notice that the license application, as amended by the offer of settlement, was ready for environmental analysis. On October 23, 1995, Commission staff issued a Draft Environmental Assessment (Draft EA) on the application. Comments on the Draft EA were filed by Niagara Mohawk, the U.S. Environmental Protection Agency (EPA), the National Park Service (Park Service), the U.S. Fish and Wildlife Service (FWS), and the Adirondack Mountain Club. These comments were considered in preparing the Final Environmental Assessment

(Final EA), which is attached to this order. Background information, analysis of impacts, and the basis for a finding of no significant impact on the environment are contained in the Final EA. [6] All comments received from interested agencies and individuals have been fully considered in determining whether, and under what conditions, to issue this license.

II. Project Description

The Beaver River Project's eight developments extend upstream from the High Falls Development at river mile (RM) 11 to the Moshier Development at RM 27.5. The developments are operated in a coordinated manner as store-and-release facilities primarily to meet peak demand in the Niagara Mohawk system. Flows reaching the project are controlled by releases from the Hudson River-Black River Regulating District's (Hudson-Black) Stillwater Reservoir Project No. 6743, located approximately five miles upstream of the most upstream Beaver River Project development, Moshier. [7]

The project was constructed between 1903 and 1930. Four of the developments--Moshier, Eagle, Soft Maple, and Taylorville --have extensive bypassed reaches. These range from about 3,850 feet at Eagle to over 11,700 feet at Moshier.

We describe each of the eight developments in the following section. More detailed descriptions are set forth in Ordering Paragraph (B)(2) of this order.

Moshier Development

The Moshier Development includes: (1) a 920-foot-long by 93-foot-high earth embankment dam containing a 200-foot-long concrete spillway topped with two-foot-high flashboards and a 53-foot-long non-overflow concrete abutment; (2) a reservoir with a surface area of 340 acres, a gross storage capacity of 7,339 acre-feet, and a usable capacity of 4,463 acre-feet; (3) a 9,360-foot-long, 7-foot-diameter penstock; and (4) a concrete/masonry powerhouse containing two generators, each with a rated capacity of 4,000 kilowatts (kW).

Eagle Development

The Eagle Development includes: (1) a 365-foot-long by 21-foot-high concrete gravity dam containing a 185-foot long ogee spillway topped with one-foot-high flashboards and an 85-foot-long, non-overflow concrete abutment; (2) a reservoir with a surface area of 138 acres, a gross storage capacity of 668 acre-feet, and a usable capacity of 123 acre-feet; (3) a 2,725-foot-long, 9-foot-diameter penstock; and (4) a concrete/masonry powerhouse containing four generators, with rated capacities of 1,350 kW (units 1 through 3) and 2,000 kW (unit 4).

Soft Maple Development

The Soft Maple Development includes: (1) five earth embankment dikes; (2) a 910-foot-long, 115-foot-high earth embankment diversion dam; (3) a 720-foot-long earth, 100-foot-high earth embankment terminal dam; (4) an impoundment with a surface area of 400 acres, a gross storage capacity of 2,678 acre-feet, and a usable capacity of 1,150 acre-feet; (5) two 530-foot-long, 11.5-foot-diameter steel penstocks; and (6) a concrete/masonry powerhouse containing two generators, each with a rated capacity of 7,500 kW.

Effley Development

The Effley Development includes: (1) a 647-foot-long by 30-foot-high concrete gravity dam, containing a 430-foot-long by 30-foot-high concrete ogee spillway and a 188-foot-long non-overflow concrete abutment; (2) a reservoir with a surface area of 340 acres, a gross storage capacity of 3,140 acre-feet, and a usable capacity of 1,420 acre-feet; (2) three 87-foot-long by 5-foot-diameter steel penstocks and one 148-foot-long by 8-foot-diameter steel penstock; and (3) two concrete/masonry powerhouses, one containing three generators rated at 400 kW (units 1 and 2) and 560 kW (unit 3) and the second containing a single generator rated at 1,600 kW.

Elmer Development

The Elmer Development includes: (1) a 238-foot-long by 23-foot-high concrete gravity spillway; (2) a 25-foot-wide sluice gate with needle beams; (3) an impoundment with a surface area of 34 acres, a gross storage capacity of 345 acre-feet, and a usable capacity of 138 acre-feet; (5) a 39-foot-wide concrete intake

structure; and (6) a concrete/masonry powerhouse containing two generators, each with a rated capacity of 750 kW.

Taylorville Development

The Taylorville Development includes: (1) a 1,003-foot-long by 23-foot-high concrete gravity dam; (2) an impoundment with a surface area of 170 acres, a gross storage capacity of 1,091 acre-feet, and a usable capacity of 406

[61,830]

acre-feet; (3) a 2,725-foot-long by 9.5-foot-diameter steel penstock; and (4) a concrete/masonry powerhouse containing four generators, with rated capacities of 1,100 kW (units 1 and 2), 1,372 kW (unit 3), and 1,200 kW (unit 4).

Belfort Development

The Belfort Development includes: (1) a 206-foot-long by 17-foot-high concrete gravity dam with a 161-foot-long concrete ogee spillway; (2) an impoundment with a surface area of 50 acres, a gross storage capacity of 120 acre-feet, and a usable capacity of 73 acre-feet; (3) a 62-foot-wide concrete intake structure; (4) one 52-foot-long by 7-foot-diameter steel penstock and one 52-foot-long by 7.5-foot-diameter steel penstock and penstock bifurcation; and (5) a concrete/masonry powerhouse containing three generators, with a rated capacity of 400 kW (unit 1), 640 kW (unit 2), and 1,000 kW (unit 3).

High Falls Development

The High Falls Development includes: (1) a 1,233-foot-long, 50-foot-high concrete gravity dam containing a 470-foot-long non-overflow concrete gravity section and a 650-foot-long concrete ogee spillway; (2) an impoundment with a surface area of 145 acres, a gross storage capacity of 1,058 acre-feet, and a usable capacity of 135 acre-feet; (3) a 64 foot-wide by 29-foot-high concrete intake structure; (4) a 605-foot-long, 12-foot-diameter steel penstock; and (5) a concrete/masonry powerhouse containing three generators, each with a rated capacity of 1,600 kW.

Project Operations

As noted, the Beaver River Project operations are controlled by the daily releases of the upstream Stillwater Reservoir, which is operated by Hudson-Black, [8] an entity created by New York to regulate river flows, principally for the purposes of flood control and flow augmentation. Niagara Mohawk operates its eight developments as store-and-release facilities that operate in a peaking mode. Niagara Mohawk discharges water in a concentrated time frame associated with peak electric demand periods, usually weekday hours. Discharges are curtailed during off-peak hours. The Soft Maple Development has the greatest discharge capacity and, therefore, operates with the highest concentration of power generation. At the succeeding downstream developments, water is stored and released at lower generation levels over longer peak demand periods. Together, the developments convert (reregulate) the peaking flow into a steadier continuous flow at the furthest downstream development, High Falls, which maintains a base minimum flow of 250 cubic feet per second (cfs) downstream of the powerhouse. During periods of reduced flow from the Stillwater Reservoir, Niagara Mohawk draws water from the storage at the Moshier, Soft Maple, Effley, and High Falls Developments to maintain the base minimum flow.

The units at the developments usually operate at the “efficient gate.” [9] However, when the river flow exceeds the capacity of the units’ efficient gate, they operate at full gate. [10] Flows in excess of the full gate and minimum flows are spilled over the dam or released through the gates.

The Moshier, Eagle, Soft Maple, and Taylorville Developments currently maintain minimum flows for aquatic habitat in their respective bypassed reaches of 30, 30, 20, and 30 cfs.

III. Description of the Settlement Agreement

Niagara Mohawk’s relicense application proposed a variety of environmental resource measures, [11] most of which are included in the Settlement. [12] The Settlement is organized in sections pertaining to each of the eight project

developments. For convenience, we will summarize the Settlement by topic.

A. *Flows*

Niagara Mohawk will submit for Commission approval a flow monitoring plan, including specified gaging equipment to determine stream stage and/or flow, other project flows, and headpond and tailwater elevations.

Niagara Mohawk will provide releases for whitewater recreation at Moshier, Eagle, and Taylorville Developments. Unless modified by agreement, there will be one release of 400 cfs for four hours in September or October at Moshier, five 4-hour releases of at least 200 cfs in September or October at Eagle, and five 4-hour releases not to exceed 400 cfs in September or October at Taylorville. Ramping flows (200/100 cfs) and a maximum equivalent lost energy (96,600 kWh) are also specified. [13]

Minimum flows in the bypassed reaches are specified at each development as follows:

Moshier: 45 cfs.

Eagle: 45 cfs, with a possible reduction to 30 cfs.

Soft Maple: 35 cfs.

Effley: 20 cfs.

Elmer: 20 cfs, with a possible reduction to 10 cfs.

Taylorville: 60 cfs, with a possible reduction to 45 cfs.

Belfort: 20 cfs.

High Falls: 30 cfs.

The method of release and time of implementation are also provided. Year-round flows of 250 cfs will be provided at High Falls. Under low-flow conditions, Niagara Mohawk will take additional steps to maintain the flow to the extent feasible.

B. *Structural Enhancements*

Existing trashracks at the intake for each development will be replaced with new trashracks with one-inch clear bar spacing to exclude adult fish. The new trashracks are to be in place on a specified schedule.

New gate structures will be designed and built to provide for flow releases or fish conveyance as follows:

Moshier: minimum flow, fish passage, whitewater release.

Effley: minimum flow, fish passage.

Elmer: fish passage.

Belfort: minimum flow, fish passage.

High Falls: minimum flow, fish passage.

The Settlement states that a release device for the minimum flows through the diversion tunnel at Soft Maple remains to be designed.

Screening for fish protection will be installed on the upstream end of the diversion tunnel at Soft Maple. Fish conveyance measures associated with downstream passage must be developed and installed at Moshier, Eagle, Effley, Elmer, Taylorville, Belfort, and High Falls.

C. *Reservoir Fluctuations*

Maximum daily reservoir fluctuations under normal flow conditions will be limited as follows:

Moshier: 1.5 feet from July 1 to April 30, 1 foot from May 1 to June 30.

Eagle: 1 foot.

Soft Maple: 1.5 feet from July 1 to April 30, 1 foot from May 1 to June 30.

Effley: 1.5 feet from July 1 to April 30, 1 foot from May 1 to June 30.

Elmer: 1 foot.

Taylorville: 1 foot.

Belfort: 1 foot.

High Falls: 1.5 feet.

During low-flow periods, an additional fluctuation of 3 feet is permitted at Moshier, Soft Maple, Effley, and High Falls.

Niagara Mohawk will implement minor channel modifications for downstream fish passage at Eagle and Taylorville, and will maintain streamflow gaging records to the satisfaction of NYSDEC. If required after a fisheries investigation on brook trout at Soft Maple, Niagara Mohawk will participate in a three-year transplanting program by providing two fisheries biologists for three days each year and equipment to transport fish. It will also provide enhanced recreational opportunities, primarily in the areas of canoeing and hiking, at Moshier, Eagle, Soft Maple, Effley, and Belfort.

D. *Beaver River Fund*

The Settlement provides for the establishment of the Beaver River Advisory Committee, which will manage a Beaver River Fund. [14] The Fund would be administratively managed by Niagara Mohawk and used according to the recommendation of the Advisory Council, which would be chaired by NYSDEC and comprise representatives of a number of federal, state, and local agencies and nongovernmental organizations.

[61,832]

Niagara Mohawk's initial contribution to the Fund would be used for the State of New York's acquisition of a 25-foot-wide conservation easement around the Moshier Development impoundment; sand and gravel rights along the Moshier bypassed reach; and fee title to abutting acreage and to a parcel of land partly within the Project's Eagle Development's boundary.

E. *Dispute Resolution*

The Settlement contains a Dispute Resolution clause (section X.L.), which requires a 90-day process among the signatories to resolve conflicts over proper compliance with the terms of the Settlement. This provision also states that, failing resolution of the dispute under such process, the dispute may be referred to the Commission for resolution pursuant to the Commission's Rules of Practice and Procedure.

IV. Water Quality Certification

Under section 401(a)(1) of the Clean Water Act, [15] the Commission may not issue a license for a hydroelectric project unless the state certifying agency has issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable time, not to exceed one year. [16]

On August 24, 1995, NYSDEC issued the Beaver River Project water quality certification, conditioned on the terms of the Settlement described above, and on Niagara Mohawk's compliance with certain standard terms. [17]

The standard certification conditions provide for: (1) NYSDEC representatives' authority to inspect the project and project records in order to ensure compliance with the certification terms; (2) cessation of flow through the turbine prior to maintenance dredging in the intake/forebay; (3) testing of sediments to be removed and prior approval of disposal locations of any contaminated sediments; (4) approval and implementation of an erosion and sediment control plan to deal with activities that could adversely affect water quality; (5) design of structures which encroach on the bed or banks of the river to be in accordance with the erosion and sediment control plan; (6) maintenance of flows to maintain water quality standards throughout periods of construction; (7) monitoring of potential turbidity during construction, and corrective action when turbidity occurs; and (8) notification to NYSDEC prior to commencing work subject to these conditions. These are valid certification conditions, and they will be adopted by the Commission as conditions of the new license being issued to Niagara Mohawk.

We note however that it is the Commission, and not the certifying agency, that enforces such license conditions and controls the timing of actions under the license. Thus, for example, it will be the Commission that ensures compliance with the requirement that the licensee permit inspections by state officials, and, while Niagara Mohawk must notify the state prior to beginning certain activities covered by the certification, it will be the Commission that authorizes Niagara Mohawk to commence those activities. [18]

V. Environmental Analysis

The environmental analysis of Niagara Mohawk's license application, as amended by the offer of settlement, included an examination of water quality, the maintenance of stable minimum flows, fisheries (including fish passage), vegetation and wildlife, geological resources, visual resources, cultural resources, aesthetic resources, and recreation.

Niagara Mohawk's proposed project conditions will have many beneficial effects. Water

[61,833]

level fluctuations in the project reservoirs will be restricted, enhancing conditions for fisheries and wetlands and reducing the potential for erosion of the shoreline. Minimum flows will be provided in all bypassed reaches and increased in the bypassed reaches of four of the developments, [19] thus improving and stabilizing the fisheries. Fish protection measures will be installed at all eight developments and fish passage will be provided at seven developments. Recreational enhancements, including whitewater releases, access trails, campgrounds, canoe/boat take-outs and put-ins, and portage trails, will be developed to better serve the public. Required flows will be monitored. Some short-term erosion may occur where new facilities are constructed.

Based on the environmental analysis conducted for this project, the Commission concludes that issuance of a new license for the Beaver River Project, as conditioned herein, will not constitute a major federal action significantly affecting the quality of the human environment.

VI. Discussion

The Settlement Agreement proffered by the majority of the parties to this proceeding resolves a range of resource use issues, and we commend the parties for their successful efforts. While we may not, absent the Settlement, have conditioned a new license for this project with all the terms we herein approve, we conclude that the agreement negotiated by the parties is in the public interest, and we include in the license the terms of the Settlement, [20] along with provisions to enable the Commission to ensure compliance with all license conditions. [21]

We do note, however, that the Settlement's dispute resolution process must not be allowed to inhibit Niagara Mohawk's compliance with its license. [22] Thus, Niagara Mohawk will remain obligated to comply with Commission orders, even if the orders relate to a matter currently subject to dispute resolution, and Niagara Mohawk may not perform actions subject to Commission approval until it has received such approval, even if such actions are required by the result of the dispute resolution process.

Finally, with respect to the provisions for Niagara Mohawk to transfer certain property rights to NYSDEC, [23] the terms of such conveyances must ensure that Niagara Mohawk retains all rights necessary to carry out not just hydropower operations but all project purposes identified in the license. [24] The transfer of these lands to NYSDEC does not extinguish our regulatory jurisdiction over the property; rather, NYSDEC will be in the position of a landowner whose property rights are subject to a binding easement.

VII. Section 18 Fishway Prescription

Section 18 of the FPA, 16 U.S.C. §811 , states that the Commission shall require construction, maintenance, and operation by a licensee of such fishways as the Secretaries of Commerce or the Interior may prescribe. By letter filed July 13, 1995, Interior stated that it is not necessary to prescribe fishways at this time, but requested that the Commission reserve authority to require the construction, operation, and maintenance of

fishways subsequently prescribed by Interior. Consistent with Commission practice, Article 414 includes the requested reservation. [25]

VIII. Recommendations of Federal and State Fish and Wildlife Agencies and the Section 10(j) Process

Section 10(j)(1) of the FPA [26] requires the Commission, when issuing a license, to include conditions based upon recommendations of federal and state fish and wildlife agencies, submitted pursuant to the Fish and Wildlife Coordination Act, [27] for the protection and enhancement

[61,834]

of fish and wildlife and their habitat affected by the project. The recommendations of the fish and wildlife agencies for the Beaver River Project, as now reflected in the Settlement Offer, are included in the license.

IX. Consistency with Comprehensive Plans

Section 10(a)(2)(A) of the FPA [28] requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. [29] federal and state agencies filed 27 qualifying comprehensive plans, of which we identified seven state and three federal comprehensive plans that are applicable. [30] We did not find any conflicts.

X. Applicant's Plans and Capabilities

In accordance with sections 10 and 15 of the FPA, [31] we have evaluated Niagara Mohawk's record as a licensee for these areas: (1) consumption efficiency improvement program; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission services; (7) cost effectiveness of plans; and (8) actions affecting the public.

A. *Consumption Efficiency Improvement Program (Section 10(a)(2)(C))*

In 1990, Niagara Mohawk prepared a Demand-Side Management Program (DSM) Plan in response to New York State Public Service Commission Opinion No. 89-15 . Niagara Mohawk's goal with respect to DSM is to encourage efficient use of energy resources. Niagara Mohawk has twelve large scale DSM programs. The energy-efficiency programs are basically conservation programs and include measures ranging from water heater wraps to high efficiency lighting and equipment. Niagara Mohawk also has innovative rate options which include new time-of-use rates, real-time pricing, and voluntary interruptible and curtailable rate programs.

Niagara Mohawk views the innovative rate programs as one of the most promising. The general policy is that rates should be designed to encourage efficiency in consumption and production. Efficient rate design would encourage conservation when rates are high and encourage consumption when rates are low. In 1990, Niagara Mohawk's goal was to reduce summer and winter peak load by 145 MW and 150 MW, respectively, and reduce annual energy use by 133,000 MWh.

Niagara Mohawk's conservation and load management programs, as described, show that it has made an effort to conserve electricity and reduce peak hour demands. We conclude that Niagara Mohawk is making a satisfactory good faith effort to comply with section 10(a)(2)(C) of the FPA.

B. *Compliance History and Ability to Comply with the New License (Section 15(a)(2)(A))*

We have reviewed Niagara Mohawk's license application in order to judge its ability to comply with the conditions of any license issued, and with applicable provisions of Part I of the FPA. We have also reviewed Niagara Mohawk's record of compliance with Commission requirements under its prior license.

Our review shows that Niagara Mohawk has a satisfactory record of filing submissions in a timely manner and of generally complying with the terms of its existing license. Therefore, we conclude that Niagara

Mohawk has acquired or can acquire the resources and experience necessary to carry out its plans and to comply with all conditions of a new license and applicable provisions of Part I of the FPA.

[61,835]

C. *Safe Management, Operation, and Maintenance of the Project (Section 15(a)(2)(B))*

Niagara Mohawk owns and operates a series of hydroelectric developments along the Beaver River. The developments are inspected daily and serviced periodically by Niagara Mohawk's operating department. During flood conditions, personnel are sent to the site to monitor conditions and take protective measures as appropriate. To date, Niagara Mohawk has not needed to restrict project operation.

All of the dams at the project have boat barriers as part of the ongoing maintenance program. These barriers are used along with warning signs to warn recreational users of hazards. An Emergency Action Plan has been filed to comply with the Commission's requirements. [32]

Niagara Mohawk retains an independent consultant to make a complete inspection of the Moshier, Soft Maple, Effley and High Falls Developments every five years in accordance with Part 12 of the Commission's regulations.

Measures taken to ensure public safety include warning signs, fencing around project facilities, and monitoring the activities of the public. There are no records of drownings at the project.

As a result of our review of Niagara Mohawk's plans, we conclude that it will be able to manage, operate, and maintain the Beaver River Project in a safe manner.

D. *Ability to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))*

We reviewed Niagara Mohawk's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service.

Over the past several years many capital improvements have been performed on the developments since the issuance of the original license. These improvements include work on the penstocks, generators, spillways and gates.

Niagara Mohawk has an ongoing preventative maintenance tracking system. Maintenance personnel routinely perform service and repair tasks to keep the developments in good operating condition. Daily checks of the equipment are made at the developments by a travelling operator, who can send maintenance crews to repair and restore operation in a timely manner to reduce downtime losses.

Based on our review of the information, we conclude that Niagara Mohawk has been operating the project in an efficient manner within the constraints of the prior license and that it will continue to provide efficient and reliable electric services in the future.

E. *Need for Power (Section 15(a)(2)(D))*

Niagara Mohawk's operation of the 44.8-MW Beaver River Project under the requirements of this license will result in an estimated annual net energy production of 190 gigawatt-hours (GWh) of renewable energy.

Hydroelectric generation accounts for approximately 10 percent of Niagara Mohawk's total owned generation capability. The Beaver River Project has provided and can continue to provide a portion of Niagara Mohawk's power requirements, and contribute to Niagara Mohawk's resource diversity, as well as to the capacity needs of the New York Power Pool (NYPP) area of the Northeast Power Coordination Council (NPCC) region.

The NYPP forecasts an average annual increase in peak capacity demand of 0.8 percent during the summer months and 0.9 percent during the winter months for the 1995 to 2004 planning period. During the same period, NYPP forecasts an increase in planned capacity of 0.2 percent during the summer and 0.1 percent during the winter. Based on these estimates, current capacity reserve margins, while adequate, may diminish in the short run. Relicensing the project will contribute to maintaining available capacity.

We conclude that Niagara Mohawk will continue to need power for the short and long term, and that the Beaver River Project can contribute to meeting that need.

F. *Transmission Services (Section 15(a)(2)(E))*

Niagara Mohawk states that the existing transmission facilities at the Beaver River Project are adequate for the existing and proposed generation. If another licensee were to take over the project, interconnection costs and construction activities would be required for the new owner to distribute the power from the project site.

We have considered Niagara Mohawk's transmission system with respect to the application for new license, and we find that licensing the project to continue operations would have no significant effect on the existing or planned transmission system.

The effects on Niagara Mohawk's transmission system of replacing the power from the project are uncertain, because the effects would depend on the type, location, and size of the next available least-cost resource.

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G. *Cost-Effectiveness of Plans (Section 15(a)(2)(F))*

We conclude, based on the license application, Niagara Mohawk's past practice, and the provisions of the Settlement, that Niagara Mohawk's continued operation of the project under a new license will be achieved in a cost-effective manner.

H. *Actions Affecting the Public (Section 15(a)(3)(A) and (B))*

The Beaver River Project generates electricity which is used to serve Niagara Mohawk and other customers. Niagara Mohawk pays taxes annually to local and state governments. The project also provides employment opportunities and attracts tourists who patronize local businesses.

XI. Comprehensive Development and Recommended Alternative

Sections 4(e) and 10(a)(1) of the FPA [33] require the Commission, in acting on applications for a license, to give equal consideration to the power and development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses. The decision to issue a license for this project, and the terms and conditions included herein, reflects such consideration.

The issuance of a new license for the Beaver River Project with the enhancement measures provided in the Settlement will allow Niagara Mohawk to continue to operate the project as an economically beneficial, dependable, and inexpensive source of electric energy for its customers. The beneficial effects on the environment associated with relicensing the project will result from the enhancement measures proposed in the Settlement. The nondevelopment benefits of these measures include improvements in habitat and production conditions for resident fish, fish protection at intakes, wildlife habitat in the basin, recreational facilities, visual quality, erosion control, in project impoundments, protection and knowledge about archaeologic and historic resources.

We find the project to be economic even with the resource measures included in the license. The electricity generated from the Beaver River Project will be beneficial, because it will continue to reduce the use of fossil-fueled electric generating plants, conserve nonrenewable energy resources, and reduce atmospheric pollution.

XII. License Term

Pursuant to section 15(e) of the FPA, [34] relicense terms shall be not less than 30 years nor more than 50 years. According to the Settlement Offer filed in this proceeding, the parties contemplate a 30-year license for the Beaver River Project. Because the term of the new license was likely an important element in the negotiations which led to the Settlement, we will issue the license for a 30-year term.

XIII. Summary

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the Final Environmental Analysis. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

In light of all of the above, including our review of the environmental analysis of the proposed project and its alternative conducted by our staff, we conclude that issuing a new license for the Beaver River Project with the requirements included herein will not conflict with any planned or authorized development and will best adapt the project to a comprehensive plan for developing the Beaver River for beneficial public purposes.

The Commission orders:

(A) This license is issued to Niagara Mohawk Power Corporation (Licensee) for a term of 30 years, effective the first day of the month in which the license is issued, to operate and maintain the Beaver River Project No. 2645. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

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Exhibit FERC No.         Showing

  G-1    2645-1  Project Boundary and Location Map

  G-2    2645-2  Project Boundary and Location Map

  G-3    2645-3  Project Boundary and Location Map

  G-4    2645-4  Project Boundary and

Location Map
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  G-5    2645-5  Project Boundary and Location Map

  G-6    2645-6  Project Boundary and Location Map

  G-7    2645-7  Project Boundary and Location Map

  G-8    2645-8  Project Boundary and Location Map

  G-9    2645-9  Project Boundary and Location Map
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(2) The Beaver River Project consists of eight developments extending from the High Falls Development at river mile 11 to the Moshier Development at river mile 27.5.

Moshier Development

The Moshier Development consists of: (1) a 920-foot-long by 93-foot-high earth embankment dam containing a 200-foot-long concrete spillway topped with 2-foot-high flashboards and a 53-foot-long non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,641 feet National Geodetic Vertical Datum (NGVD), has a surface area of 340 acres, a gross storage capacity of 7,339 acre-feet, and a usable capacity of 4,463 acre-feet; (3) a 28-foot-wide by 51-foot-high concrete intake structure containing two 11-foot-wide by 51.5-foot-high trashracks and two 10-foot-wide by 12-foot-high steel slide gates; (4) a 3,740-foot-long by 10-foot-diameter steel penstock connected to a 5,620-foot-long by 10-foot-diameter fiberglass reinforced plastic penstock for a total penstock length of 9,360 feet; (5) an excavated tailrace channel; (6) a 30-foot-diameter steel surge tank; (7) a penstock bifurcation downstream of the surge tank that divides into two 70-foot-long by 7-foot-diameter steel penstocks; (8) a 34-foot-wide by 70-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-

drive synchronous generators, each with a rated capacity of 4,000 kW, a hydraulic capacity of 330 cfs, and a design head of 196 feet; (9) a 36-inch-diameter minimum flow pipe and butterfly valve; (10) an 11-mile-long, 115-kV transmission line; and (11) appurtenant equipment.

Eagle Development

The Eagle Development consists of: (1) a 365-foot-long by 21-foot-high concrete gravity dam containing a 185-foot-long ogee spillway topped with 1-foot flashboards and an 85-foot-long, non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,426.2 feet (NGVD), has a surface area of 138 acres, a gross storage capacity of 668 acre-feet, and a usable capacity of 123 acre-feet; (3) a 20-foot-wide gated log sluice; (4) a 50-foot-long headgate structure with four 9.5-foot-wide stop log slots and four 9.5-foot by 9.5-foot trashracks; (5) an 18-foot-wide by 16-foot-deep by 540-foot-long forebay canal; (6) a concrete intake structure containing three 10-foot-wide by 7-foot-high timber slide gates; (7) a 2,725-foot-long by 9-foot-diameter steel penstock; (8) a 63-foot-wide by 87-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,350 kW (units 1 through 3) and 2,000 kW (unit 4), hydraulic capacities of 150 cfs (units 1 through 3) and 200 cfs (unit 4), and design heads of 135 feet (units 1 through 3) and 125 feet (unit 4); (9) a 5-foot-wide aluminum slide gate that supplies minimum flow to the bypass; (10) a 300-foot-long tailrace channel; (11) a 160-foot-long, 115-kV transmission line; and (12) appurtenant equipment.

Soft Maple Development

The Soft Maple Development consists of: (1) five earth embankment dikes; (2) a 910-foot-long by 115-foot-high earth embankment diversion dam; (3) a 720-foot-long by 100-foot-high earth embankment terminal dam; (4) an impoundment which, at the normal maximum surface elevation of 1,289.9 feet (NGVD), has a surface area of 400 acres, a gross storage capacity of 2,678 acre-feet, and a usable capacity of 1,150 acre-feet; (5) a 144-foot-long concrete ogee spillway with 1.5-foot-high flashboards; (6) two 10-foot-wide aluminum sluice gates; (7) a 600-foot-long forebay; (8) an 81.5-foot-wide concrete intake structure containing three 26-foot-wide by 33.5-foot-high trashracks; (9) two 530-foot-long by 11.5-foot-diameter steel penstocks; (10) intake facilities for an additional penstock; (11) an 82-foot-wide by 50-foot-long concrete/masonry powerhouse containing two identical vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 7,500 kW, a hydraulic capacity of 860 cfs, and a design head at 121.5 feet; (12) an excavated tailrace channel; (13) a 20-foot-long, 115-kV transmission line; and (14) appurtenant equipment.

Effley Development

The Effley Development consists of: (1) a 647-foot-long by 30-foot-high concrete gravity dam containing a 430-foot-long by 30-foot-high concrete ogee spillway and a 188-foot-long non-overflow concrete abutment; (2) a gated 29-foot-long log chute; (3) an impoundment which, at the normal maximum surface elevation of 1,163 feet (NGVD), has a surface area of 340 acres, a gross storage capacity of 3,140 acre-feet, and a usable capacity of 1,420 acre-feet; (4) a 100-foot-long forebay; (5) a 38.5-foot-wide intake structure containing a 22-foot-wide by 22-foot-high trashrack and three 6-foot-wide by 8-foot-high timber slide gates; (6) a 36-foot-wide concrete intake structure containing a

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20-foot-wide by 27-foot-high trashrack and an 11-foot by 11-foot slide gate; (7) three 87-foot-long by 5-foot-diameter steel penstocks and one 148-foot-long by 8-foot-diameter steel penstock; (8) two concrete/masonry powerhouses, one that is 58-feet-wide by 53-feet-long containing three horizontal Francis turbines connected to direct-drive synchronous generators rated at 400 kW (units 1 and 2) and 560 kW (unit 3) with hydraulic capacities of 135 cfs (units 1 and 2) and 200 cfs (unit 3) and design heads of 55 feet (units 1 and 2) and 54 feet (unit 3) and the second that is 42.5-feet-wide by 44-feet-long containing a single vertical Francis turbine connected to a direct-drive synchronous generator rated at 1,600 kW, with a hydraulic capacity of 450 cfs and a design head of 52.6 feet; (9) excavated tailrace channels; (10) a 2.3-mile-long, 23-kV transmission line; and (11) appurtenant equipment.

Elmer Development

The Elmer Development consists of: (1) a 238-foot-long by 23-foot-high concrete gravity spillway; (2) a 25-foot-wide sluice gate with needle beams; (3) an impoundment which, at the normal maximum surface

elevation of 1,108 feet (NGVD), has a surface area of 34 acres, a gross storage capacity of 345 acre-feet, and a usable capacity of 138 acre-feet; (4) a forebay; (5) a 39-foot-wide concrete intake structure containing two 16.5-foot-wide by 21.5-foot-high trashracks and four 6-foot-wide by 11-foot-high timber slide gates; (6) a 78-foot-wide by 34-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 750 kW, a hydraulic capacity of 290 cfs, and a design head of 37 feet; (7) an excavated tailrace channel; (8) a 2,270-foot-long, 23-kV transmission line; and (9) appurtenant equipment.

Taylorville Development

The Taylorville Development consists of: (1) a 1,003-foot-long by 23-foot-high concrete gravity dam; (2) an impoundment which, at the normal maximum surface elevation of 1,076.6 feet (NGVD), has a surface area of 170 acres, a gross storage capacity of 1,091 acre-feet, and a usable capacity of 406 acre-feet; (3) a 33-foot-wide concrete intake structure containing a 25-foot-wide by 20-foot-high trashrack and three 5.5-foot-wide by 13-foot-high timber slide gates; (4) a 2,725-foot-long by 9.5-foot-diameter steel penstock; (5) an 18-foot-diameter surge tank located about 40 feet upstream of the powerhouse; (6) a 93-foot-wide by 62.5-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,100 kW (units 1 and 2), 1,372 kW (unit 3), and 1,200 kW (unit 4), each with a hydraulic capacity of 180 cfs, and a design head of 96.6 feet; (7) an excavated tailrace channel; (8) two 7.5-foot-wide aluminum slide gates for minimum flows; (9) a 400-foot-long, 23-kV transmission line; and (10) appurtenant equipment.

Belfort Development

The Belfort Development consists of: (1) a 206-foot-long by 17-foot-high concrete gravity dam with a 161-foot-long concrete ogee spillway equipped with 2-foot-high flashboards; (2) an impoundment which, at the normal maximum surface elevation of 966 feet (NGVD), has a surface area of 50 acres, a gross storage capacity of 120 acre-feet, and a usable capacity of 73 acre-feet; (3) a 120-foot-long forebay; (4) a 62-foot-wide concrete intake structure containing one 12-foot-wide by 17-foot-high trashrack, one 12-foot-wide by 23-foot-high trashrack, and two 11-foot by 11-foot timber slide gates; (5) one 52-foot-long by 7-foot-diameter steel penstock and one 52-foot-long by 7.5-foot-diameter steel penstock and penstock bifurcation; (6) a 78-foot-wide by 39-foot-long concrete/masonry powerhouse containing three horizontal Francis turbines connected to direct-drive synchronous generators, with a rated capacity of 400 kW (unit 1), 640 kW (unit 2), and 1,000 kW (unit 3), with hydraulic capacities of 200 cfs (units 1 and 2) and 310 cfs (unit 3), each with a design head of 48 feet; (7) a 400-foot-long tailrace channel; (8) a 3,540-foot-long, 23-kV transmission line; and (9) appurtenant equipment.

High Falls Development

The High Falls Development consists of: (1) a 1,233-foot-long, 50-foot-high concrete gravity dam containing a 470-foot-long non-overflow concrete gravity section and a 650-foot-long concrete ogee spillway; (2) an impoundment which, at the normal maximum surface elevation of 915 feet (NGVD), has a surface area of 145 acres, a gross storage capacity of 1,058 acre-feet, and a usable capacity of 135 acre-feet; (3) a 64 foot-wide by 29-foot-high concrete intake structure containing four 12-foot-wide by 20.5-foot-high trashracks and four steel slide gates; (4) a 49foot-wide log sluice that has been sealed; (5) a 605-foot-long by 12-foot-diameter riveted steel penstock; (6) a 34-foot-wide by 99-foot-long concrete/masonry powerhouse containing three vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 1,600 kW, a hydraulic capacity of 300 cfs, and a design head of 100 feet; (7) a spare turbine bay for future expansion; (8) a 3.7-mile-long, 23 kV transmission line; and (9) appurtenant equipment.

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The project works generally described above are more specifically shown and described by those portions of exhibits A and F below:

Exhibit A:

Pages A-4 through A-26 describing the existing mechanical, electrical and transmission equipment, filed November 29, 1991.

Exhibit F

Drawings	FERC No.	Showing
1	2645-1	General Plan and Details of Pipeline
2	2645-2	Details of Intake and Minimum Flow Pipe
3	2645-3	Dam and Spillway Plan, Elevation and Sections
4	2645-4	Surge Tank, Penstock and Powerhouse Plan and Section
5	2645-5	General Plan and Details of Dam and Penstock
6	2645-6	General Plan and Details Minimum Flow Unit and Minimum - Flow Gate
7	2645-7	Intake Canal and Gatehouse Plans and Sections
8	2645-8	Powerhouse Plans and Sections
9	2645-9	General Plan and Details Dams, Dikes and Canals
10	2645-10	Spillway Dam Plan and Sections
11	2645-11	Powerhouse and Penstock Plans and Sections
12	2645-12	General Plan and Details of Dam, Canal and Intake
13	2645-13	Powerhouse and Penstock Plan, Profile and Sections
14	2645-14	Powerhouse Plan Elevations and Sections
15	2645-15	General Plan and Sections of Dam and Sluice
16	2645-16	Powerhouse and Racks Plans and Sections
17	2645-17	General Plan Dam and Sections
18	2645-18	Intake, Pipeline and Surge Tank Plans and Sections
19	2645-19	Powerhouse Plans and Sections General Plan and Details
20	2645-20	General Plan and Details Dam, Intake and Powerhouse
21	2645-21	General Plan and Details Dam, Intake and Powerhouse
22	2645-22	General Plan-Dam and Sections

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibits A, F, and G described above are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-5 (October 1975), entitled “Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States,” and the following additional articles.

Article 201. The licensee shall pay the United States an annual charge effective the first day of the month in which this license is issued, for the purpose of reimbursing the United States for the Commission’s administrative costs, pursuant to Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission’s regulations in effect from time to time. The authorized installed capacity for that purpose is 44,800 kilowatts.

Article 202. Pursuant to section 10(d) of the Federal Power Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment.

To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee’s long-term debt and proprietary capital accounts as listed in the Commission’s Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department’s 10 year constant maturity

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series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. If the licensee’s project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

Article 301. Within 90 days of completion of construction of the facilities directed by any article of this license (trashracks, fish passage, recreation, *etc.*), the licensee shall file for Commission approval revised exhibits A, F, and G, as appropriate, to show those project facilities as built.

Article 401. Within two years of license issuance, the licensee shall release from the Moshier Development into the bypassed reach a year-round minimum flow of 45 cubic feet per second. The release will be through the existing minimum flow discharge pipe and orifice plate and through a new slide gate structure to be installed within two years of the issuance date of this license and which will also accommodate whitewater releases and downstream fish passage.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the New York State Department of Environmental Conservation (NYSDEC). If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed slide gate structure together with a schedule to construct/install the structure.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish & Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Construction of new minimum flow facilities shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 402. Within one year of license issuance, the licensee shall release from the Eagle Development into the bypassed reach a year-round minimum flow of 45 cubic feet per second (cfs). The release will be through the existing minimum flow slide gate.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the New York State Department of Environmental Conservation (NYSDEC). If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

In accordance with section III (B) of the Settlement, the minimum flow may be reduced to as low as 30 cfs based on two bypassed reach site inspections and with the mutual agreement of NYSDEC and U.S. Fish and Wildlife Service (FWS) after consultation with the Beaver River Advisory Council and within two years of license issuance. The reduction would occur from October 1 to the end of spring runoff when uncontrolled spillage ceases or May 31, whichever comes first. Modification of the required minimum flow at this development or any other in this project on other than the temporary basis noted is subject to prior approval of the Commission. To obtain this approval, the licensee must apply for an amendment to the conditions of this license.

Article 403. Within two years of license issuance, the licensee shall release from the Soft Maple Development into the bypassed reach a year-round minimum flow of 35 cubic feet per second (cfs). The release of 15 cfs will be through the existing slide gates at the spillway. The remaining 20 cfs will be provided through the existing diversion tunnel and a new release structure. The release structure is to be installed within two years of the issuance date of this license.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the

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New York State Department of Environmental Conservation (NYSDEC). If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed release structure together with a schedule to construct and install the structure. The drawings shall include the fish screen (or equivalent) proposed for the upstream end of the diversion tunnel.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish and Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of

consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed structures and schedule. Construction of the new release structure and screen shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

After three full years of these minimum flows being provided, NYSDEC will conduct a fisheries investigation on resident brook trout in the bypassed reach. If the investigation reveals the need to supplement the existing brook trout population, then NYSDEC will commence a four-year program of transplanting native brook trout from local heritage streams to enhance prospects for a sustainable brook trout fishery in the bypassed reach. The licensee will provide two fisheries biologists for three days in each year of the transplant program and equipment necessary for safe transport of fish during this effort.

Article 404. Within two years of license issuance, the licensee shall release from the Effley Development into the bypassed reach a year-round minimum flow of 20 cubic feet per second. The release will be through a new gate structure in the north side of the spillway to be installed within two years of the issuance date of this license and which will also accommodate downstream fish passage.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and NYSDEC. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed gate structure together with a schedule to construct and install the structure.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish and Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Construction of new minimum flow facilities shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 405. Within two years of license issuance, the licensee shall release from the Elmer Development into the bypassed reach a year-round minimum flow of 20 cubic feet per second. The release will be through a new release structure that will be designed in the existing needle beam structure in the middle of the spillway to be installed within two years of the issuance date of this license and which will also accommodate downstream fish passage.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and NYSDEC. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

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The minimum flow may be reduced by U.S. Fish and Wildlife Service after consultation with the Beaver River Advisory Council to no less than 10 cubic feet per second within one year of license issuance,

in accordance with section VI (B) of the Settlement. Modification of the required minimum flows at this development on other than the temporary basis noted in the previous paragraph is subject to prior approval of the Commission. To obtain this approval, the licensee must apply for an amendment to the conditions of this license.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed release structure together with a schedule to construct and install the structure.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish & Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Construction of new minimum flow facilities shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 406. Within one year of license issuance, the licensee shall release from the Taylorville Development into the bypassed reach a year-round minimum flow of 60 cubic feet per second. The release will be through the existing minimum flow slide gate which will also accommodate downstream fish passage.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the NYSDEC. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

The minimum flow may be reduced to between 45 and 60 cubic feet per second based on the results of a bypassed reach site inspection and with the mutual agreement of NYSDEC and the U.S. Fish and Wildlife Service after consultation with the Beaver River Advisory Council and within one year of license issuance, in accordance with section VII.B. of the Settlement. Modification of the required minimum flow at this development on other than the temporary basis noted just above is subject to prior approval of the Commission. To obtain this approval, the licensee must apply for an amendment to the conditions of this license.

Article 407. Within two years of license issuance, the licensee shall release from the Belfort Development into the bypassed reach a year-round minimum flow of 20 cubic feet per second. The release will be through a new gate structure located on the south side of the spillway to be installed within two years of the issuance date of this license and which will also accommodate downstream fish passage.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and NYSDEC. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed gate structure together with a schedule to construct and install the structure.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish & Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the

licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Construction of new minimum flow facilities shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 408. Within two years of license issuance, the licensee shall release from the High Falls Development into the bypassed reach a year-round nominal flow of 30 cubic feet per

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second (cfs). The release of 10 cfs will be through the existing low-level slide gate structure in the middle of the spillway. The remaining 20 cfs will be provided through a new gate structure at the north side of the spillway to be installed within two years of the issuance date of this license and which will also accommodate downstream fish passage.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and NYSDEC. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed gate structure together with a schedule to construct and install the structure.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish & Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Construction of new minimum flow facilities shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 409. Within two years of license issuance, the licensee shall release from the High Falls Development into the Beaver River a year-round base flow of at least 250 cubic feet per second. The release will be through the existing units and a new minimum flow release structure to be installed within two years of the issuance date of this license. The release shall be measured and monitored by the licensee using a United States Geological Survey type stream flow gage located at Croghan.

This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods upon the mutual agreement of the licensee and New York State Department of Environmental Conservation. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident.

Within one year of the issuance date of this license, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed flow release structure together with a schedule to construct/ install the structure.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish & Wildlife Service and NYSDEC. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the

licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Construction of new minimum flow facilities shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 410. Within one year of license issuance, the licensee shall operate the Beaver River Project to control fluctuations of the reservoir surface elevations for the protection of wetlands, wildlife, and fish habitat impoundment water surface elevations, as measured at each development's dam, as follows:

Moshier: From July 1 to April 30, the maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This fluctuation is between elevations 1639.5 and 1641.0 feet with flashboards and between elevations 1637.5 and 1639.0 feet without flashboards.

From May 1 to June 30, the maximum daily reservoir fluctuation will be limited to 1.0 foot from the normal maximum headwater elevation. This fluctuation is between elevations 1640.0 and 1641.0 feet with flashboards and between elevations 1638.0 and 1639.0 feet without flashboards. If flashboards are down or fail during this period, the flashboards will not be replaced until July 1 or later.

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During low flow conditions (when Beaver River inflow to Moshier plus flow from all intervening tributaries from Moshier to High Falls is less than 250 cubic feet per second (cfs) daily average), the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevation 1638.0 and 1641.0 feet with flashboards. This fluctuation is to be used only under specific conditions as described in Article 411.

Eagle: The maximum daily and seasonal reservoir fluctuation will be limited to 1.0 foot from the normal maximum headwater elevation. This fluctuation is between elevations 1425.2 and 1426.2 feet with flashboards and between elevations 1424.2 and 1425.2 feet without flashboards. Flashboards will not be erected or replaced during the period May 1 through June 30 so as to protect nests of reservoir spawning fish and of nesting birds.

Soft Maple: The maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This fluctuation is between elevations 1288.4 and 1289.9 feet with flashboards and between elevations 1286.9 and 1288.4 feet without flashboards.

From May 1 to June 30, the maximum daily reservoir fluctuation will be limited to 1.0 foot from the normal maximum headwater elevation. If flashboards are down or fail during this period, they will not be replaced until July 1 or later.

During low flow periods (when Beaver River inflow to Moshier plus flow from all intervening tributaries from Moshier to High Falls is less than 250 cfs daily average), the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevations 1286.9 without flashboards and 1289.9 feet with flashboards. This fluctuation is to be used only under specific conditions as described in Article 411.

Effley: The maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This fluctuation is between elevations 1161.5 and 1163.0 feet without flashboards as there are no flashboards.

During the period from May 1 to June 30, fluctuations will be limited to 1.0 foot to protect reservoir spawning fish and nesting birds. This 1.0-foot fluctuation corresponds to fluctuations between elevations 1162.0 and 1163.0 feet.

During low flow periods (when Beaver River inflow to Moshier plus flow from all intervening tributaries from Moshier to High Falls is less than 250 cfs daily average), the daily maximum reservoir fluctuation will be limited to 3.0 feet, corresponding to fluctuations between elevations 1160.0 and 1163.0 feet. This fluctuation is to be used only under specific conditions as described in Article 411.

Elmer: The maximum daily reservoir fluctuations will be limited to 1.0 foot from the normal maximum headwater elevation. This fluctuation is between elevations 1107.0 and 1108.0 feet without flashboards as there are no flashboards.

Taylorville: The maximum daily and seasonal reservoir fluctuations will be limited to 1.0 foot from the normal and maximum headwater elevation. This fluctuation is between elevations 1069.6 and 1070.6 feet with flashboards and between elevation 1068.8 and 1069.8 without flashboards. Flashboards will not be replaced during the May 1 through June 30 period.

Belfort: The maximum daily reservoir fluctuation will be limited to 1.0 foot from the normal maximum headwater elevation. The fluctuation is between elevation 965.0 and 966.0 feet with flashboards and between 964.0 and 965.0 feet without flashboards. Flashboards will not be replaced during the May 1 through June 30 period.

High Falls: The maximum daily reservoir fluctuation will be limited to 1.5 feet from the normal maximum headwater elevation. This fluctuation is between elevations 913.5 and 915.0 feet without flashboards as there are no flashboards.

During low flow periods (when Beaver River inflow to Moshier plus flow from all intervening tributaries from Moshier to High Falls is less than 250 cubic feet per second daily average), the daily maximum reservoir fluctuations will be limited to 3.0 feet, corresponding to fluctuations between elevations 912.0 and 915.0 feet. This fluctuation is to be used only under specific conditions as described in Article 411.

Article 411. The licensee shall, during periods when the daily average inflow below High Falls is less than 250 cfs, contact the Hudson River Black River Regulating District (Hudson-Black) and seek its assistance in increasing flows, if possible, to address the low flow condition. In the event that a flow of 250 cfs below High Falls can not be ensured by Hudson-Black, the licensee will provide supplemental flow by drawing on additional storage capacity at Moshier, Soft Maple, Effley and High Falls by using the daily maximum reservoir fluctuation of 3.0 feet, noted in Article 410. The licensee will provide the maximum continuously available flow below High Falls, up to 250 cfs.

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The licensee, within six months of issuance of this license, shall file, for Commission approval, a plan for consulting with Hudson-Black, deciding whether supplemental flows are needed, and providing supplemental flow from Moshier, Soft Maple, Effley and High Falls, such plan to remain in effect throughout the term of the license.

The licensee shall prepare the plan after consultation with the U.S. Fish & Wildlife Service, Hudson-Black, and the New York State Department of Environmental Conservation. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 412. Within six months of the issuance date of this license, the licensee shall file, for Commission approval, a plan for streamflow and headpond elevation monitoring at each of the Beaver River Project's developments and below High Falls Development at Croghan. The purposes of this plan include: (1) determining the stage and/or flow of the stream on which the project is located; (2) determining all other project flows including the flow through the turbine(s) and any other bypass/diversion flows; and (3) determining project headpond and tailwater elevations. The plan shall include, but not be limited to:

(1) a description of the type and location of all gaging and ancillary equipment, including the headpond and tailwater gages;

(2) a gage calibration plan, capable of ongoing performance at NYSDEC standards;

(3) confirmation that headpond and tailrace elevations shall be gaged and recorded to the nearest 0.1 feet;

(4) provision for installation and maintenance of a U.S. Geological Survey gaging station unless an alternative gaging system is justified;

(5) a description of permanent staff gages to be installed to allow independent verification of headpond and tailwater elevations;

(6) stage versus discharge ratings calibrations.

(7) a plan to keep accurate and sufficient records of flow/stage data and to provide data to NYSDEC in an appropriate format and at a planned interval; and

(8) a means to allow record inspection within five business days of a written request by a signatory to the Settlement Agreement.

The licensee shall prepare the plan after consultation with the U.S. Fish & Wildlife Service, Hudson-Black, and the New York State Department of Environmental Conservation.

The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Monitoring facilities shall not be installed until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 413. Within one year of the date of issuance of this license, the licensee shall file, for Commission approval, detailed design drawings for the licensee's proposed new trashracks (or equivalent) with one inch clear bar spacing for installation at each of the eight developments. The schedule for each development in terms of the date of issuance of this license is as follows:

Moshier: within 2 years.

Eagle: within 10 years.

Soft Maple: within 2 years.

Effley: within 6 years.

Elmer: within 14 years.

Taylorville: within 10 years.

Belfort: within 14 years.

High Falls: within 6 years.

The filing shall also include descriptions and drawings of any fish protection and conveyance measures (*e.g.*, distribution of flows, minor channel modifications, plunge pools, piping, *etc.*) found to be needed for downstream fish passage routes at any of the developments except Soft Maple. These measures are to be installed within two years of license issuance.

The filing shall include, in addition to descriptions and drawings, information on maximum intake approach velocities and the

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methods and detailed schedules to complete the installations.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish & Wildlife Service and the New York State Department of Environmental Conservation. The licensee shall include with the drawings documentation of consultation, copies of agency comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed facilities and schedule. Trashrack replacement or installation of conveyance measures shall not begin until the licensee is notified by the

Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 414. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain, or to provide for construction, operation, and maintenance of, such fish passage facilities as may be prescribed by the Secretary of the Interior under section 18 of the Federal Power Act.

Article 415. Within six months of license issuance, the licensee shall file for Commission approval a detailed plan for constructing, operating, and maintaining the recreational facilities at the project developments specified in: Pages E.5-9 to E.5-14 of the application for relicense, filed on November 29, 1991; the responses to Additional Information Request Nos. 11, 13, and 15, dated August 21, 1992; and recreation enhancements described in the Settlement Agreement filed with the Commission on May 30, 1995.

The recreation plan shall include, but not be limited to:

(1) a provision for annual whitewater boating releases commencing in 1997 at the Moshier, Eagle, and Taylorville bypass reaches in accordance with the following schedule for each development: (a) Moshier one 4-hour release of 400 cubic feet per second (cfs) in September or October (prior to October 15) of each year. Ramping flows not to exceed 200 cfs will be provided for two hours before and two hours after the boating flow release. The total volume of each release, including ramping flows, shall not exceed 2,400 cfs-hrs; (b) Eagle - five 4-hour releases of at least 200 cfs will be provided in September and October of each year. Ramping flows not to exceed 100 cfs will be provided for one hour before and one hour after the boating flow releases. The total volume of each release, including ramping flows, shall not exceed 1,000 cfs-hrs; (c) Taylorville - five 4-hour releases not to exceed 400 cfs will be provided in September and October of each year. Ramping flows not to exceed 200 cfs will be made before and after boating flow releases for a total duration of time, not to exceed three hours. The total volume of each release, including ramping flows, shall not exceed 2,200 cfs-hrs. The releases at the three developments shall be coordinated with one another to the extent feasible. The exact timing of the releases will be determined by the licensee and American Whitewater Affiliation (AWA), in consultation with the Beaver River Advisory Council (BRAC). The schedule and flows for releases from all three developments may be modified by the licensee and AWA, based on the recommendations of BRAC, but the total of all the releases shall not exceed the equivalent of 96,600 kilowatt-hours (kWh).

(2) new recreation facilities and measures including but not limited to those described at each of the following developments:

Moshier: a canoe/boat take-out at the southwest corner of the downstream end of the Moshier impoundment near the end of the existing access road; a new gravel parking area and two trash receptacles in the vicinity of the powerhouse; minor improvements to the canoe portage made in consultation with the Adirondack Mountain Club (Adirondack), including widening of the footbridge; a kiosk adjacent to the canoe put-in that provides a map and a description of the Beaver River canoe route, portage, and foot trails; a sign-in register; a whitewater canoe put-in and four-car parking lot at the upper end of the bypass reach; replacement of existing trail markers to the bypass reach trail with new trail markers placed in consultation with Adirondack; manual brushing of the Pepperbox Wilderness Access Trail, the bypass reach trail, and the canoe route access trail; and removal of trash in the areas;

Eagle: a fishing access trail to the bypass reach, including a widened roadside gravel parking area adjacent to the trailhead with a vehicle barrier and trash receptacle; trail markers; a provision to provide access for the public to the road along the pipeline; a canoe rest and bench mid-way along the portage

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trail; and working with the Adirondack Mountain Club to make other minor improvements to the canoe portage and put-in near the tailrace;

Soft Maple: ten tent and recreational vehicle campsites and an 800-foot gravel access road on a peninsula of land on the south shore of the Soft Maple impoundment accessible from Eagle Falls Road; one car-top boat launch; one 1,000-square foot caretaker's cabin and one 500-square foot garage; one 20-car gravel parking lot with a gravel access road adjacent to the proposed campsites, boat launch, and picnic area; a picnic area, including 15 picnic tables, grills, and trash receptacles, four restrooms, and a 200 foot trail extending from the south end of the parking lot adjacent to the boat launch and camping area; seven primitive canoe

campsites on islands and isolated peninsulas in the reservoir; new trail markers at the existing informal primitive trails to the south side of the bypass reach; a 150-foot scenic overlook trail; one 20-car parking lot in the abandoned gravel pit area at the head of the bypass reach access trails; one 4-car road widening on Soft Maple Road at the head of the new access trail to the scenic overlook; manual brushing of trails along the south side of the bypass reach; minor improvements made in consultation with the Adirondack Mountain Club, including a new footbridge, to the canoe portage and put-in near the tailrace of the powerhouse; and a small parking area near the powerhouse to allow access to the canoe route;

Taylorville: one car-top boat launch and parking lot north of the dam; a kiosk at the existing parking lot that provides a map and a description of the Beaver River canoe route, portage and foot trails; a picnic area including four picnic tables, four grills, six trash receptacles, and two restrooms adjacent to the car-top boat launch; non-vehicular access trails to the bypass reach area, including barrier-free trails accessible by persons with disabilities; a canoe portage, including two benches, two canoe rests, and a downriver put-in;

Belfort: a canoe portage, including a bench, canoe rest, and downriver put-in developed in consultation with the ADK; one 600-square foot, barrier-free fishing deck and a gravel parking lot for six vehicles off Belfort Road providing fishing access to Belfort reservoir for persons with disabilities; a sign-in register and two trash receptacles adjacent to the parking lot; and signs along Belfort Road indicating the location of boat access points and parking facilities at Taylorville;

High Falls: five primitive campsites on islands in the High Falls Reservoir; a canoe portage and downriver put-in; two picnic tables, grills, and trash receptacles at the existing Cooperative Day Use area;

(3) final site plans for the facilities;

(4) the name of the entity or entities responsible for operating and maintaining the facilities;

(5) a discussion of how the design of the facilities take into consideration the guidelines established by the Architectural and Transportation Barriers Compliance Board (36 C.F.R. Part 1191) and designing facilities wherever practicable to meet these guidelines using the U.S. Forest Service's Design Guide for Accessible Outdoor Recreation;

(6) erosion and sediment control measures and measures for revegetation of disturbed areas to be implemented during and after construction of the new recreational facilities; and

(7) a schedule for constructing the facilities within one year of plan approval.

The licensee shall file the plan after consultation with the Beaver River Advisory Council (BRAC). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the BRAC, and specific descriptions of how the BRAC's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the BRAC to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No ground-disturbing or land-clearing activities shall begin until the licensee is notified that the plan is approved. Upon approval, the licensee shall implement the plan, including any changes required by the Commission. Within 90 days after completion of construction, the licensee shall file as-built drawings of the recreation facilities with the Commission.

Article 416. Within 90 days from the date of this order, the licensee shall file for Commission approval a detailed plan for the licensee's participation in and management of the Beaver River Fund, as set forth in Attachment 2 to the Settlement approved and made part of the new license issued for the Beaver River Project. On or before October 1 of each year, in accordance with the articles of this license and the Commission's Uniform System of Accounts, the licensee

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shall file for Commission approval a plan which shows the amount of money that the licensee will spend or contribute to the Beaver River Fund for the following year, pursuant to the funding provisions set forth in the Settlement. The Commission reserves the right to require changes in the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. The Commission

also reserves the right, after notice and opportunity for hearing, to modify the funding arrangement, including ordering a suspension or cessation of contributions and expenditures, should it be necessary or appropriate.

The licensee shall also file, on or before April 1 of each year, a statement for the previous calendar year, in accordance with the articles of this license and the Commission's Uniform System of Accounts, showing the amounts of money the licensee has spent or contributed to the Beaver River Fund, and the purposes for which these amounts have been spent or contributed. The statement shall be sufficiently detailed to show whether the money has been spent on the purposes approved in the license.

Article 417. The licensee shall implement the Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the New York State Historic Preservation Officer for Managing Historic Properties That may be Affected by a License Issuing to the Niagara Mohawk Power Corporation for the Continued Operation of Eleven Hydroelectric Projects in New York," executed on July 19, 1996, including but not limited to the Cultural Resources Management Plan (CRMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee shall implement the provisions of its approved CRMP. The Commission reserves the authority to require changes to the CRMP at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the CRMP, the licensee shall obtain approval before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effect.

Article 418. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic recreational and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article.

If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are:

(1) landscape plantings;

(2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single family type dwellings.

(3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and

(4) food plots and other wildlife enhancement.

To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall:

(1) inspect the site of the proposed construction;

(2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and

(3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline.

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To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of the standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for:

(1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained;

(2) storm drains and water mains;

(3) sewers that do not discharge into project waters;

(4) minor access roads;

(5) telephone, gas, and electric utility distribution lines;

(6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary;

(7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and

(8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir.

No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for:

(1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained;

(2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained;

(3) other pipelines that cross project lands or waters but do not discharge into project waters;

(4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained.

(5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina;

(6) recreational development consistent with an approved exhibit R or approved report on recreational resources of an exhibit E; and

(7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year.

At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from

the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or approved report on recreational resources of an exhibit E; or, if the project does not have an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance

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of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project, and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(E) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order is final unless a request for rehearing is filed within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this license.

Environmental Assessment for Hydropower License

Federal Energy Regulatory Commission

Office of Hydropower Licensing

Division of Project Review

Beaver River Hydroelectric Project

FERC Project No. 2645 - New York

Summary

On November 29, 1991, Niagara Mohawk Power Corporation (NMPC) filed an application with the Federal Energy Regulatory Commission (Commission) for a major new license (relicense) for the 44.8-megawatt (MW) Beaver River Project (FERC Project No. 2645). The project includes eight developments: Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls. The application was amended and supplemented by NMPC's responses to information requests issued by the Commission on August 22, 1992, and February 10, 1993. The project is located on a reach of the Beaver River between 11 and 29 miles upstream of the confluence with the Black River in Herkimer and Lewis Counties, east of Carthage, New York. The current license for the project expired at the end of 1993. No new capacity is proposed at the project.

NMPC revised its application on May 30, 1995, by filing a Settlement Offer (Settlement) dated February 7, 1995, and amended March 8, 1995. The purpose of the Settlement is to highlight, summarize, and document the areas of agreement that exist as a result of settlement discussions among the signatories with regard to the operation and maintenance of the Beaver River Project. NMPC negotiated the Settlement with 13 parties, including the New York Department of Environmental Conservation, the Adirondack Council, the U.S. Fish and Wildlife Service, the American Whitewater Affiliation, the Adirondack Park Agency, Trout Unlimited, New York Rivers United, the National Audubon Society, the New York State Conservation Council, the American Canoe Association, the Association for the Protection of the Adirondacks, the Adirondack Mountain Club, and American Rivers. The Settlement contains NMPC's revised proposals for environmental enhancement measures.

This final environmental assessment (EA) prepared for the Beaver River Project analyzes and evaluates the effects associated with the issuance of a new license for the existing hydropower developments and recommends terms and conditions to become a part of any license issued. For any license issued, the Commission must determine that the project licensed will be best adapted to a comprehensive plan for improving or developing the waterway. In addition to the power and development purposes for which licenses are issued, the Commission must give equal consideration to the following purposes: energy conservation; the protection and enhancement of fish and wildlife; aesthetics; cultural resources; and the protection of recreational opportunities. This final EA for

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the Beaver River Project reflects staff's consideration of these factors.

Based on our consideration of all developmental and nondevelopment resource interests related to the project, the following measures to protect and enhance environmental resource values should be included in any license issued for the Beaver River Project.

The licensee should: (1) plan and implement an effective streamflow monitoring system; (2) provide specified whitewater releases; (3) provide canoe portages as part of an unimpeded route through the project area; (4) maintain minimum flows in all bypassed reaches; (5) replace trashracks at all developments; (6) construct, operate and maintain new gate structures at Moshier, Effley, Belfort, and High Falls and a new release structure at Elmer; (7) plan and implement fish protection screening and trashracks at Soft Maple and fish protection trashracks and conveyance measures at Moshier, Eagle, Effley, Elmer, Taylorville, Belfort, and High Falls; (8) institute reservoir fluctuation limits at each development; (9) make minor channel modifications at Eagle and Taylorville; (10) put a fish screen on the entrance to the existing diversion tunnel at Soft Maple; (11) participate with NYSDEC, if warranted, in a trout transplanting program at Soft Maple; and (12) establish and maintain a 250 cfs baseline flow downstream of High Falls.

These environmental measures are recommended to protect or enhance fishery resources, water quality, recreational and aesthetic resources and undiscovered properties listed on or eligible for listing on the *National Register of Historic Places.* In addition, the electricity generated from the project will be beneficial because it would: continue to reduce the use of fossil-fuel, electric generating plants; conserve nonrenewable energy resources; and continue to reduce atmospheric pollution.

The environmental impacts of the proposed action (relicensing the Beaver River Project under the proposed Offer of Settlement), are the effects of operational changes that would occur if such a new license were issued. Many of the terms of the Settlement propose enhancements to resources of the baseline environment as it exists today. As part of our independent analysis of the proposed Settlement, we also considered, although not in great detail, other methods of enhancing environmental resources. For example, we compared the effects on water quality parameters such as pH (a measure of acidity) of minimum flows proposed in NMPC's application as filed with the minimum flows proposed in the Settlement. Also, we have considered and are not recommending as a license requirement the provisions of the Settlement establishing the Beaver River Fund and Advisory Council.

Retirement alternatives to the project were considered and rejected in the DEA. The no-action alternative (which we use as the environmental baseline) was considered and is addressed in the environmental analysis and the comprehensive development sections of this EA. Denial of the license would mean that about 190 gigawatt-hours (GWh) of electric energy generation per year would be lost, and no measures would be implemented to protect or enhance existing environmental resources.

NMPC filed an application for a Water Quality Certificate (WQC) from the New York State Department of Environmental Conservation (NYSDEC) for the Beaver River Project. The application was denied without prejudice on November 19, 1992. Subsequent activities eventually led to settlement talks, resulting in the Settlement. As part of the Settlement, NYSDEC issued on August 24, 1995, a §401 WQC which is based on the Settlement.

Pursuant to section 10(j) of the Federal Power Act (FPA), we make a determination that the recommendations of the federal and state fish and wildlife agencies are consistent with the purposes and requirements of Part I of the FPA and applicable law. Section 10(j) of the FPA requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection and enhancement of fish and wildlife resources. For the Beaver River Project, these recommendations have been incorporated into the Settlement. Thus, we have addressed the concerns of the federal and state fish and wildlife agencies and made recommendations consistent with those of the agencies.

Under section 18 of the FPA, the U.S. Department of the Interior has reserved authority to prescribe the construction, operation, and maintenance of fishways at the project.

Based on our independent analysis of the project, including our consideration of all relevant economic and environmental concerns, we conclude in this EA that: (1) the Beaver River Project, as proposed in the revised application and with other special license conditions, would be best adapted to a comprehensive plan for the proper use, conservation, and development of the Beaver River and other project-related resources; and (2) issuance of a new license for the project would not constitute a major Federal action significantly affecting the quality of the human environment.

Introduction

The Federal Energy Regulatory Commission issued the Beaver River Hydroelectric Project Draft Environmental Assessment (DEA) for

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comment on October 23, 1995. We received five comment letters. Those commentors are listed in section IV.C., Comments on the DEA. All timely-filed comment letters were reviewed by the staff. The sections of the DEA that have been modified as a result of comments received are identified in the staff responses to the right of the letters of comments, in appendix B [*] .

I. Application

On November 29, 1991, Niagara Mohawk Power Corporation (NMPC) filed an application for a major new license (relicense) for the Beaver River Project (FERC Project No. 2645), which consists of eight developments on the Beaver River in the towns of Webb (Herkimer County), Watson, and Croghan (Lewis County), New York (Figure 1). The project is located on a reach of the Beaver River between 11 and 29

miles upstream of the confluence with the Black River and has a total installed capacity of 44.8 megawatts (MW). The project does not occupy any United States lands.

On May 30, 1995, NMPC revised its application to the Commission by filing an Offer of Settlement (Settlement) dated February 7, 1995, and amended March 8, 1995. The Settlement (appendix A*) has been signed by: the New York Department of Environmental Conservation (NYSDEC), the Adirondack Council, the U.S. Fish and Wildlife Service, the American Whitewater Affiliation, the Adirondack Park Agency, Trout Unlimited, New York Rivers United, the National Audubon Society, the New York State Conservation Council, the American Canoe Association, the Association for the Protection of the Adirondacks, the Adirondack Mountain Club, and American Rivers.

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Figure 1 Project Location Map Beaver River Project

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II. Purpose and Need for Action

A. *Purpose of Action*

In this final Environmental Assessment (EA), we analyze the impacts of continued operation of the constructed project, evaluate alternatives to the proposed project, and make recommendations to the Commission on whether to issue a license, and if so, recommend terms and conditions to become part of any license issued. The Federal Power Act (FPA) provides the Commission with the exclusive authority to license nonfederal water power projects on navigable waterways and federal lands.

In deciding whether to issue any license, the Commission must determine that the project adopted will be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued, the Commission must give equal consideration to the purposes of energy conservation; the protection of, mitigation of damage to, and enhancement of fish and wildlife; the protection of recreation opportunities; and the preservation of other aspects of environmental quality.

B. *Need for Power*

If the licensee's proposal is approved and a new license is issued, NMPC would continue to operate the eight developments of the Beaver River Project. This would result in an estimated annual net energy production of 190 gigawatt-hours (GWh).

The eight developments are in the New York Power Pool (NYPP) area of the Northeast Power Coordination Council (NPCC) Region of the North American Electric Reliability Council (NERC). NYPP forecasts an average annual increase in peak capacity demand of 0.8 percent during the summer months and 0.9 percent during the winter months for the 1995 to 2004 planning period. During the same period, NYPP forecasts an increase in planned capacity of 0.2 percent during the summer and 0.1 percent during the winter.

NYPP forecasts a capacity margin, the difference between the planned capacity and the capacity demand, ranging from a high of 34.8 percent during the winter of 1995 to a low of 18.6 percent during the summer of 2003. During this same time period, NERC reports that the forecasted average capacity margin in the United States ranges from a high of 28.9 percent during the winter of 1995 to a low of 15.1 percent during the summer of 2004. The relicensing of the Beaver River Project would contribute to maintaining available capacity.

NYPP requires NMPC to have available additional capacity (capacity margin) equal to 18 percent of the peak demand to provide an adequate level of system reliability. In the short and long term, the capacity supplied by the project would help NMPC maintain sufficient capacity to meet NYPP requirements.

III. Proposed Action and Alternatives

A. *Proposed Action*

1. *Project Description*

The Beaver River Project is composed of eight developments extending from the High Falls Development at river mile (RM) 11 to the Moshier Development at RM 27.5. The developments are operated in a coordinated manner as store and release facilities primarily to meet peak demand in the NMPC system. Flows through the project are also controlled by releases from Stillwater Reservoir, upstream of the Moshier Development.

The project was constructed between 1898 and 1930. Four of the developments, Moshier, Eagle, Soft Maple, and Taylorville, have extensive bypassed reaches. These range from about 3,850 feet at Eagle to over 11,700 feet at Moshier.

We describe each of the eight developments in the following section.

Moshier Development

Figure 2 shows the site plan for the Moshier Development, which includes: (1) a 920-foot-long by 93-foot-high earth embankment dam containing a 200-foot-long concrete spillway topped with 2-foot-high flashboards and a 53-foot-long non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,641 feet National Geodetic Vertical Datum (NGVD) (formerly mean sea level), as calculated by the U.S. Geological Survey), has a surface area of 340 acres, a gross storage capacity of 7,339 acre-feet (ac-ft), and a usable capacity of 4,463 ac-ft; (3) a 28-foot-wide by 51-foot-high concrete intake structure containing two 11-foot-wide by 51.5-foot-high trashracks and two 10-foot-wide by 12-foot-high steel slide gates; (4) a 3,740-foot-long by 10-foot-diameter steel penstock connected to a 5,620-foot-long by 10-foot-diameter fiberglass reinforced plastic penstock for a total penstock length of 9,360 feet; (5) an excavated tailrace channel; (6) a 30-foot-diameter steel surge tank; (7) a penstock bifurcation downstream of the surge tank that divides into two 70-foot-long by 7-foot-diameter steel penstocks; (8) a 34-foot-wide by 70-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 4,000 kilowatts (kW), a hydraulic

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capacity of 330 cfs, and a design head of 196 feet; (9) a 36-inch-diameter minimum flow pipe and butterfly valve; (10) an 11-mile-long, 115-kV transmission line; and (11) appurtenant equipment.

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Figure 2 Moshier Development Beaver River Project

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Eagle Development

Figure 3 shows the site plan for the Eagle Development, which includes: (1) a 365-foot-long by 21-foot-high concrete gravity dam containing a 185-foot-long ogee spillway topped with 1-foot-high flashboards and an 85-foot-long, non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,426.2 feet (NGVD), has a surface area of 138 acres, a gross storage capacity of 668 ac-ft, and a usable capacity of 123 ac-ft; (3) a 20-foot-wide gated log sluice; (4) a 50-foot-long headgate structure with four 9.5-foot-wide stop log slots and four 9.5-foot by 9.5-foot trashracks; (5) an 18-foot-wide by 16-foot-deep by 540-foot-long forebay canal; (6) a concrete intake structure containing three 10-foot-wide by 7-foot-high timber slide gates; (7) a 2,725-foot-long by 9-foot-diameter steel penstock; (8) a 63-foot-wide by 87-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,350 kW (units 1 through 3) and 2,000 kW (unit 4), hydraulic capacities of 150 cfs (units 1 through 3) and 200 cfs (unit 4), and design heads of 135 feet (units 1 through 3) and 125 feet (unit 4); (9) a 5-foot-wide aluminum slide gate that supplies minimum flow to the bypass; (10) a 300-foot-long tailrace channel; (11) a 160-foot-long, 115-kV transmission line; and (12) appurtenant equipment.

Soft Maple Development

Figure 4 shows the site plan for the Soft Maple Development, which includes: (1) five earth embankment dikes; (2) a 910-foot-long by 115-foot-high earth embankment diversion dam; (3) a 720-foot-long by 100-foot-high earth embankment terminal dam; (4) an impoundment which, at the normal maximum surface elevation of 1,289.9 feet (NGVD), has a surface area of 400 acres, a gross storage capacity of 2,678 ac-ft, and a usable capacity of 1,150 ac-ft; (5) a 144-foot-long concrete ogee spillway with 1.5-foot-high flashboards; (6)

two 10-foot-wide aluminum sluice gates; (7) a 600-foot-long forebay; (8) an 81.5-foot-wide concrete intake structure containing three 26-foot-wide by 33.5-foot-high trashracks; (9) two 530-foot-long by 11.5-foot-diameter steel penstocks; (10) intake facilities for an additional penstock; (11) an 82-foot-wide by 50-foot-long concrete/masonry powerhouse containing two identical vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 7,500 kW, a hydraulic capacity of 860 cfs, and a design head at 121.5 feet; (12) an excavated tailrace channel; (13) a 20-foot-long, 115-kV transmission line; and (14) appurtenant equipment.

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Figure 3 Eagle 76FERCP61152.61860 76FERCPAGE61860 Development Beaver River Project

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Figure 4 Soft Maple Development Beaver River Project

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Effley Development

Figure 5 shows the site plan for the Effley Development, which includes: (1) a 647-foot-long by 30-foot-high concrete gravity dam containing a 430-foot-long by 30-foot-high concrete ogee spillway and a 188-foot-long non-overflow concrete abutment; (2) a gated 29-foot-long log chute; (3) an impoundment which, at the normal maximum surface elevation of 1,163 feet (NGVD), has a surface area of 340 acres, a gross storage capacity of 3,140 ac-ft, and a usable capacity of 1,420 ac-ft; (4) a 100-foot-long forebay; (5) a 38.5-foot-wide intake structure containing a 22-foot-wide by 22-foot-high trashrack and three 6-foot-wide by 8-foot-high timber slide gates; (6) a 36-foot-wide concrete intake structure containing a 20-foot-wide by 27-foot-high trashrack and an 11-foot by 11-foot slide gate; (7) three 87-foot-long by 5-foot-diameter steel penstocks and one 148-foot-long by 8-foot-diameter steel penstock; (8) two concrete/masonry powerhouses, one that is 58 feet wide by 53 feet long containing three horizontal Francis turbines connected to direct-drive synchronous generators rated at 400 kW (units 1 and 2) and 560 kW (unit 3) with hydraulic capacities of 135 cfs (units 1 and 2) and 200 cfs (unit 3) and design heads of 55 feet (units 1 and 2) and 54 feet (unit 3) and the second that is 42.5 feet wide by 44 feet long containing a single vertical Francis turbine connected to a direct-drive synchronous generator rated at 1,600 kW, with a hydraulic capacity of 450 cfs and a design head of 52.6 feet; (9) excavated tailrace channels; (10) a 2.3-mile-long, 23-kV transmission line; and (11) appurtenant equipment.

Elmer Development

Figure 6 shows the site plan for the Elmer Development, which includes: (1) a 238-foot-long by 23-foot-high concrete gravity spillway; (2) a 25-foot-wide sluice gate with needle beams; (3) an impoundment which, at the normal maximum surface elevation of 1,108 feet (NGVD), has a surface area of 34 acres, a gross storage capacity of 345 ac-ft, and a usable capacity of 138 ac-ft; (4) a forebay; (5) a 39-foot-wide concrete intake structure containing two 16.5-foot-wide by 21.5-foot-high trashracks and four 6-foot-wide by 11-foot-high timber slide gates; (6) a 78-foot-wide by 34-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 750 kW, a hydraulic capacity of 290 cfs, and a design head of 37 feet; (7) an excavated tailrace channel; (8) a 2,270-foot-long, 23-kV transmission line; and (9) appurtenant equipment.

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Figure 5 Effley Development Beaver River Project

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Figure 6 Elmer Development Beaver River Project

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Taylorville Development

Figure 7 shows the site plan for the Taylorville Development, which includes: (1) a 1,003-foot-long by 23-foot-high concrete gravity dam; (2) an impoundment which, at the normal maximum surface elevation of 1,076.6 feet (NGVD), has a surface area of 170 acres, a gross storage capacity of 1,091 ac-ft, and a usable capacity of 406 ac-ft; (3) a 33-foot-wide concrete intake structure containing a 25-foot-wide by 20-foot-high trashrack and three 5.5-foot-wide by 13-foot-high timber slide gates; (4) a 2,725-foot-long by 9.5-foot-diameter steel penstock; (5) an 18-foot-diameter surge tank located about 40 feet upstream of the powerhouse; (6) a 93-foot-wide by 62.5-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,100 kW (units 1 and 2), 1,372 kW (unit 3), and 1,200 kW (unit 4), each with a hydraulic capacity of 180 cfs, and a design head of 96.6 feet; (7) an excavated tailrace channel; (8) two 7.5-foot-wide aluminum slide gates for minimum flows; (9) a 400-foot-long, 23-kV transmission line; and (10) appurtenant equipment.

Belfort Development

Figure 8 shows the site plan for the Belfort Development, which includes: (1) a 206-foot-long by 17-foot-high concrete gravity dam with a 161-foot-long concrete ogee spillway equipped with 2-foot-high flashboards; (2) an impoundment which, at the normal maximum surface elevation of 966 feet (NGVD), has a surface area of 50 acres, a gross storage capacity of 120 ac-ft, and a usable capacity of 73 ac-ft; (3) a 120-foot-long forebay; (4) a 62-foot-wide concrete intake structure containing one 12-foot-wide by 17-foot-high trashrack, one 12-foot-wide by 23-foot-high trashrack, and two 11-foot by 11-foot timber slide gates; (5) one 52-foot-long by 7-foot-diameter steel penstock and one 52-foot-long by 7.5-foot-diameter steel penstock and penstock bifurcation; (6) a 78-foot-wide by 39-foot-long concrete/masonry powerhouse containing three horizontal Francis turbines connected to direct-drive synchronous generators, with a rated capacity of 400 kW (unit 1), 640 kW (unit 2), and 1,000 kW (unit 3), with hydraulic capacities of 200 cfs (units 1 and 2) and 310 cfs (unit 3), each with a design head of 48 feet; (7) a 400-foot-long tailrace channel; (8) a 3,540-foot-long, 23-kV transmission line; and (9) appurtenant equipment.

High Falls Development

Figure 9 shows the site plan for the High Falls Development, which includes: (1) a 1,233-foot-long concrete gravity dam containing a 470-foot-long non-overflow concrete gravity section and a 650-foot-long concrete ogee spillway; (2) an impoundment which, at the normal maximum surface elevation of 915 feet (NGVD), has a surface area of 145 acres, a gross storage capacity of 1,058 ac-ft, and a usable capacity of 135 ac-ft; (3) a 64 foot-wide by 29-foot-high concrete intake structure containing four 12-foot-wide by 20.5-foot-high trashracks and four steel slide gates; (4) a 49-foot-wide log sluice that has been sealed; (5) a 605-foot-long by 12-foot-diameter riveted steel penstock; (6) a 34-foot-wide by 99-foot-long concrete/masonry powerhouse containing three vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 1,600 kW, a hydraulic capacity of 300 cfs, and a design head of 100 feet; (7) a spare turbine bay for future expansion; (8) a 3.7-mile-long, 23 kV transmission line; and (9) appurtenant equipment.

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Figure 7 Taylorville 76FERCP61152.61867 76FERCPAGE61867 Development Beaver River Project

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Figure 8 Belfort Development Beaver River Project

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Figure 9 High Falls Development Beaver River Project

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2. *Project Operation*

The Beaver River Project operates in conjunction with the daily releases of the Stillwater Reservoir located upstream of the Moshier Development. The Stillwater Reservoir is operated by the Hudson River-Black River Regulatory District (HRBRRD), an entity created by New York to regulate river flows, principally for the

purpose of flood control. NMPC operates the eight developments as store and release facilities that operate in a peaking mode. NMPC discharges water in a concentrated time frame associated with peak electric demand periods, usually weekday hours. Discharges are curtailed during off-peak hours. The Soft Maple Development has the greatest discharge capacity, and therefore, operates with the highest concentration of power generation. At the succeeding downstream developments, water is stored and released at lower discharge levels over longer peak demand periods. Together, the developments convert the peaking flow into a steadier continuous flow at the High Falls Development. The High Falls Development is operated to maintain a base flow of 250 cfs downstream of the powerhouse to supply projects downstream. During periods of reduced flow from the Stillwater Reservoir, NMPC uses water from the reservoir storage capacity at the Moshier, Soft Maple, Effley, and High Falls Developments to supply the water.

The units at the developments usually operate at the efficient gate, approximately 85 percent of the hydraulic capacity of the turbines. However, when the river flow exceeds the capacity of the units' efficient gate, the units operate at full gate. Flows in excess of the full gate and minimum flows are spilled over the dam or released through the gates.

The Moshier, Eagle, Soft Maple, and Taylorville Developments currently maintain environmental minimum flows in the bypassed reach of 30, 30, 20, and 30 cfs, respectively.

3. *Proposed Environmental Measures*

NMPC proposed environmental enhancement measures both in its application for relicensing and in subsequent filings of information requested by the staff. Most of the significant measures were formalized in the Settlement. These measures are described in detail in the Settlement (appendix A of this EA), and are summarized below:

• plan and implement an effective streamflow monitoring system;

• provide specified whitewater releases;

• maintain minimum flows in all bypassed reaches;

• replace trashracks at all developments;

• construct, operate, and maintain a new gate structure at Moshier, Effley, Belfort, and High Falls and a new release structure at Elmer;

• plan and implement fish protection screening and trashracks at Soft Maple and fish protection trashracks and conveyance measures at Moshier, Eagle, Effley, Elmer, Taylorville, Belfort, and High Falls;

• institute reservoir fluctuation limits at each development;

• make minor channel modifications at Eagle and Taylorville;

• screen the diversion tunnel at Soft Maple;

• participate in the trout transplant program at Soft Maple; and

• establish and maintain a 250 cfs base flow downstream of High Falls.

B. *Alternatives to the Proposed Project*

Because NMPC is not pursuing its original relicense proposal, and in light of the Settlement, we have elected not to examine the proposal in this analysis. We also have not identified any other alternative project operation or enhancement measures apart from those contained in the Settlement that warrant significant consideration.

C. *No-Action Alternative*

Under the no-action alternative, the project would continue to operate under the terms and conditions of the existing license, with no change in existing environmental conditions. Because no participant advocates continuing the *status quo*, we use this alternative to establish baseline environmental conditions for comparison with other alternatives. We discuss the alternative of license denial and project retirement in section III.D.

D. *Alternatives Considered but Eliminated from Detailed Study*

As a part of the scoping meetings and process, we considered several other alternatives to the relicensing proposal, but eliminated them from detailed study because they are not reasonable in the circumstances of this case. They are: (1) Federal government takeover of the project; (2) issuing a non-power license; or (3) retiring the project.

We do not consider Federal takeover to be a reasonable alternative. Federal takeover of the project would require congressional approval. While that fact alone would not preclude further consideration of this alternative, there is no evidence indicating that a Federal takeover should be recommended to Congress. No party has suggested that Federal takeover would be

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appropriate and no Federal agency has expressed interest in operating the project.

Issuing a non-power license would not provide a long-term resolution of the issues presented. A non-power license is a temporary license that the Commission would terminate whenever it determines that another governmental agency will assume regulatory authority and supervision over the lands and facilities covered by the non-power license. In this case, no agency has suggested its willingness or ability to do so. No party has sought a non-power license, and we have no basis for concluding that the project should no longer be used to produce power. Thus, a non-power license is not a realistic alternative to relicensing in these circumstances.

The Commission could deny the new license for the project, which would in effect result in project retirement. Project retirement could be accomplished with or without dam removal. Either option would involve denial of the relicense application and surrender or termination of the existing license with appropriate conditions.

The first alternative involving surrender or termination would be to retain the dam but require removal or disabling of the equipment used to generate power. No participant has advocated removal of electric generating equipment, nor have we any basis for recommending it. Because the power supplied by the project is needed, a source of replacement power would have to identified. Under the circumstances, we do not consider this a reasonable alternative.

The second alternative is surrender or termination coupled with removal of the dam. No agency recommended that the EA consider dam removal and restoration of pre-project conditions as a present action. No agencies addressed this issue throughout the consultation process, nor have any site-specific issues been raised to compel the Commission to address dam removal as a reasonable alternative for in-depth evaluation at this time. We note, however, that removal of the dam would introduce significant issues and impacts, including loss of important wetland areas, wildlife habitat, and recreational opportunities. We conclude that dam removal, at this time, is not a reasonable alternative to some form of new license with mitigation and enhancement measures.

IV. Consultation and Compliance

A. *Agency Consultation*

The Commission issued a Public Notice on June 14, 1995, indicating that the license application was ready for environmental analysis. The following entities commented on the application:

Commenting Entity	***Date of Letter***
Adirondack Mountain Club	July 10, 1995
U.S. Department of Interior	July 13, 1995
NYSDEC	July 19, 1995

B. *Interventions*

In addition to providing comments, organizations and individuals may petition to intervene and become a party to subsequent proceedings. The following entities filed for and were granted intervenor status for the Beaver River Project:

Intervenor	***Date of Motion***

New York Adirondack

Park Agency April 20, 1992

U.S. Department of Interior August 10, 1992

NYSDEC March 8, 1993

City of Watertown, NY March 10, 1993

Adirondack Mountain Club April 8, 1993

New York Rivers United; American

Whitewater Affiliation;

American Rivers, Inc.; Adirondack Council;

Association for the Protection of the

Adirondacks; National Audubon Society;

Trout Unlimited; and Natural Heritage

Institute April 12, 1993

Trout Unlimited April 12, 1993

New York Adirondack

Park Agency April 12, 1993

We address intervenor concerns in the environmental analysis section (section V) of this EA.

C. *Comments on the Draft Environmental Assessment*

The respondents commenting on the DEA are as follows:

Commenting Entity Date of Letter

Adirondack Mountain

Club November 21, 1995

Niagara Mohawk Power

Corporation November 21, 1995

U.S. Environmental Protection

Agency November 22, 1995

National Park Service November 27, 1995

U.S. Fish and Wildlife

Service November 29, 1995

D. *Water Quality Certification Conditions*

On November 25, 1991, NMPC submitted a request for a Water Quality Certification (WQC) from NYSDEC pursuant to section 401 of the Clean Water Act. On November 19,

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1992, NYSDEC denied (without prejudice) NMPC's request for certification. On December 23, 1992, NMPC submitted a request for a NYSDEC hearing on the WQC denial. Subsequent activities eventually led to settlement talks, the Settlement, and a certification, which is based on the Settlement plus standard conditions.

On August 24, 1995, NYSDEC issued a water quality certification for the Beaver River Project. The certification could be reconsidered if there are significant changes in the project's facilities or operation, the license articles, or the Settlement. It is contingent on NMPC's meeting the Settlement conditions as well as NYSDEC's standard conditions. The standard conditions deal with the following:

• compliance inspection by NYSDEC representatives of the project and project records, including the WQC and referenced material;

• cessation of flow through the turbine prior to maintenance dredging in the intake/forebay;

• testing of sediments to be removed and prior approval of disposal locations of any contaminated sediments;

• approval and implementation of an Erosion and Sediment Control Plan (ESCP) to deal with activities that could adversely affect water quality;

• design of structures that encroach on the river bed or banks must be developed in accordance with the ESCP;

• maintenance of flows to maintain water quality standards throughout construction;

• monitoring of potential turbidity during construction and taking corrective action when turbidity occurs; and

• notification of NYSDEC prior to commencing work subject to the conditions.

E. *Section 18 Fishway Prescription*

Section 18 of the FPA provides the Secretary of the Interior (Interior) authority to prescribe fishways at Commission-licensed projects. [1] On July 13, 1995, Interior responded to the Commission's Notice of Ready for Environmental Assessment. The letter noted that it is not necessary at present to prescribe fishways. However, Interior requests a reservation of the authority to prescribe the construction, operation, and maintenance in the future of fishways under section 18. The Commission's practice has been to include license articles that reserve Interior's authority to prescribe fishways.

F. *Dredge and Fill Permit Conditions*

Pursuant to section 404 of the Clean Water Act, the U.S. Army Corps of Engineers issues dredge and fill permits for specified types of construction in wetlands. These permits generally include conditions applicable to project construction activities. To date, it appears that no section 404 permit will be required for this project and there are no applicable conditions.

G. *Coastal Zone Management Program*

The Beaver River Project is not in a state-designated coastal zone management area.

H. *Scoping*

On December 17, 1994, we issued a Scoping Document 1 (SD1) describing the environmental issues that we would and would not subject to detailed analysis in this EA. We based our preliminary conclusions on information provided in the application for relicense and in comment letters.

On January 10, 1995, we held two public meetings in Watertown, New York, to discuss the SD1 and other pertinent information concerning the projects. The meetings were attended by representatives of NMPC, U.S. Fish and Wildlife Service, New York State Department of Environmental Conservation, Trout Unlimited, New York Rivers United, the city of Watertown, and members of the public. We established a 30-day comment period to receive additional comments after the meeting.

A site visit was previously conducted on December 5 through 7, 1994, with representatives of NMPC, U.S. Fish and Wildlife Service, New York State Department of Environmental Conservation, and New York Rivers United. The purpose of the site visit was to acquaint Commission staff with each of the developments and to obtain additional site-specific information.

The following entities filed comments on the SD1:

Commenting Entities	***Date of Letter***
U.S. Department of Interior	February 24, 1995
U.S. Environmental Protection Agency	February 24, 1995

We considered these comments as well as those from the scoping meetings in the environmental analysis section of the DEA.

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V. Environmental Analysis [2]

In this section, we present a general description of the river basin, describe existing and proposed hydropower projects in the basin, and summarize the potential for cumulative impacts on environmental resources.

We begin our detailed assessment of the potential environmental impacts on area resources resulting from relicensing the Beaver River Project by first describing the affected environment. Then we use the existing state of each resource as the baseline for measuring and defining the effects of the proposed relicensing action. Next we describe the potential effects on each environmental resource resulting from the implementation of new operational procedures and environmental enhancement measures, and the development of additional recreational facilities.

We do not discuss land use and socioeconomics because these resources would be largely unaffected by the relicensing of the project. Land transfers that result from the Settlement are discussed in section V.C.7. These involve project lands at the Moshier and Eagle bypassed reaches and a conservation easement around Moshier reservoir. The transferred land will be provided to NYSDEC and made available for recreation.

A. *General Description of the Locale*

1. *Black River Basin*

The Black River Basin is located east of Lake Ontario in north-central New York. The basin extends east-southeast from Lake Ontario and is approximately 75 miles long and 45 miles wide (Figure 10). The basin lies within three physiographic regions; the Adirondack Mountains, Tug Hill Plateau, and Eastern Ontario Plain (FWS, NYSDEC, 1994).

All areas of the basin are drained by an extensive network of streams, and there are numerous lakes, ponds and wetlands. Major bodies of water include Stillwater Reservoir, the Fulton Chain of Lakes, and Lila, Big Moose, Beaver, Old Forge, Sixth, Woodhull, Kayuta, Little Moose, North, and South Lakes.

The topography of the basin divides the river naturally into three reaches. The upper reach (Reach 3) extends upstream from the natural falls at Lyons Falls and consists of a mountainous area where the river drops 1,023 feet over a 40-mile distance. The middle reach (Reach 2) is a 42-mile stretch locally known as the Black River Flats because the river drops less than 15 feet through this region before reaching Carthage where it enters a well-defined channel in the lower reach (Reach 1). The lower reach drops 480 feet in about 30 miles as it flows west over rolling terrain to Lake Ontario. Rapids and falls are common in both the lower and upper reaches (FWS, NYSDEC, 1994).

The climate of the Black River Basin is characterized by moderate summers and cold winters. Due to its location along the slope of the Adirondack Highlands and prevailing westerly winds off Lake Ontario, the basin receives the highest annual precipitation of any watershed in New York State. Precipitation is generally uniform throughout the year, and averages about 45 inches annually.

Spring rains combined with snowmelt create heavy runoff volumes resulting in annual flooding, particularly in the central basin (Reaches 1 and 2). Streamflow generally recedes during the summer, but high flows from rain and warm weather are not uncommon during mid-winter. The average annual discharge of the Black River, measured in Watertown, is about 4,077 cubic feet per second (cfs) (FWS, NYSDEC, 1994).

There are approximately 14,500 acres of wetlands in the Black River Basin. A majority of the riverine wetlands along the Black River occur in the Black River Flats. About 5,216 acres are located along and hydrologically influenced by the Black River in Reach 2.

The flow in the Black River is regulated by numerous natural lakes and, to varying degrees, man-made dams on the upper Black and Beaver Rivers. The Black River and its tributaries are used extensively for hydroelectric power generation. Currently, there are 39 hydroelectric facilities in the Black River drainage;

21 are located along the Black River, 11 are on the Beaver River, 4 are on the Moose River, 2 are on the Deer River, and one is on Otter Creek. Hydropower operations along the lower Black and Beaver Rivers are strongly affected by the operation of the Stillwater Reservoir.

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Figure 10 Black River Basin Beaver River Project

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2. *Beaver River Sub Basin*

The Beaver River Project is located in northern New York in the northwestern Adirondack Mountains, on the Beaver River between RMs 11 and 28 from its confluence with the Black River (Figure 1). The Beaver River, which is a principal tributary of the Black River, has a drainage area of 338 square miles. The river's source is within the Adirondack Park in northwestern Hamilton County. From its source 1,965 feet above sea level, the river flows 51 miles westerly across steep slopes, dropping more than 1,200 feet in elevation from its headwaters to the confluence of the Black River near Castorland, less than 10 miles west of the High Falls Development.

The Beaver River drainage area above Moshier dam is 182 square miles; it is 267 square miles above High Falls dam. Like the Black River, the Beaver River is regulated by the HRBRRD at the Stillwater Reservoir. The eight developments of the Beaver River Project operate in conjunction with the daily releases from Stillwater Reservoir.

There are currently 11 hydropower developments on the Beaver River (Table 1). Two projects, Beaver Falls (FERC Project No. 2593) and Lower Beaver Falls (FERC Project No. 2832) are located below the project at RMs 5 and 4, respectively. Each development operates as run-of-the-river and has an installed total capacity of 1,500 kW. Stillwater Reservoir (FERC Project No. 6743) is located above the project at RM 31. It is an exempted project owned by HRBRRD with an installed capacity of 1,200 kW.

The regional climate is characterized by extremely cold, snowy winters and very cool, wet summers. The average frost-free season ranges from 85 to 140 days due to the high elevation and latitude.

Table 1. Hydropower developments on the Beaver River (Source: FWS, NYSDEC, 1994)

Project No.	Project/Development Name	Normal Operating Mode	Pond Surface Area (Acres)	River Mile	Total Capacity (kW)
6743	Stillwater Reservoir	NA	6,200	approx. 31	1,200
2645	Moshier	Store & Release	340	29	8,000
2645	Eagle	Store & Release	138	approx. 23	6,050
2645	Soft Maple	Store & Release	400	approx. 20	15,000
2645	Effley	Store & Release	340	approx. 16	2,960
2645	Elmer	Store & Release	34	approx. 15	1,500
2645	Taylorville	Store & Release	170	approx. 14	4,772

2645	Belfort	Store & Release	50	approx. 13	2,040
2645	High Falls	Store & Release	145	11	4,800
2593	Beaver Falls	ROR	48	approx. 5	1,500
2832	Lower Beaver Falls	ROR	4	approx. 4	1,500

The project lies within the Adirondack physiographic province, which consists of the Adirondack Piedmont and Adirondack Mountain sections. The Piedmont consists of the foothills surrounding the higher interior mountains. The project lies wholly within the Fall Zone belt of the Piedmont. The Fall Zone belt is characterized by numerous waterfalls with relief ranging from 300 to 400 feet. The average drop in the river valley is 60 feet per mile.

The region was heavily glaciated during the Pleistocene epoch. Advances and retreats of the glaciers resulted in a thin veneer of till on the hills, stratified drift in the valleys, and formation of glacial lakes and deltas, characteristic of the region.

Wetlands in the study area, which are primarily associated with impoundment shorelines, are typically characterized as wooded wetlands and shrub wetlands. There are four NYSDEC-regulated wetlands located from the Soft Maple impoundment up to the Adirondack Park boundary. Upstream of the park boundary, there are 24 wetlands identified by the Adirondack Park Agency, most of which occur along the Beaver River and around Beaver Lake. Some wetlands, including the Moshier impoundment and part of the Soft Maple impoundment, are classified as lacustrine wetlands. The Eagle impoundment is classified as a riverine wetland.

The entire project area is rural. East of the Elmer Development, the vegetative cover is moderately to heavily forested, part of the Spruce-Fir-Northern Vegetation Zone dominated by hardwoods such as sugar maple, beech, and yellow birch, and conifer species such as eastern hemlock, white pine, and white cedar. Downstream (west) of the Elmer Development, land is agricultural along with a mixture of woodlands and brushlands, because of the more gentle topography and thicker soils. The region between Elmer and High Falls is a transitional area between the Adirondack Mountain Lowlands (Piedmont) and the Black River Valley.

Agricultural use is concentrated in the western portion of the area and includes areas around the High Falls, Belfort, Taylorville, and Elmer Developments, all located within the

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town of Croghan, Lewis County. Agricultural use of this area is typical of the balance of Lewis County, which is based on the production and sale of milk as the principal farm income. The climate favors forage crops such as hay and corn silage.

Forestland is concentrated in the eastern portion of the study area and includes the land areas surrounding the Effley, Soft Maple, Eagle, and Moshier Developments. Timber production is actively pursued in this area, and there are many sawmills in Lewis and Herkimer Counties. In the area of the project, a sawmill operates on the Beaver River near the village of Croghan just west of the study area boundary.

The upper reaches of the Beaver River Project in which the Moshier and Eagle Developments are situated are heavily wooded and very sparsely populated. This area lies in the town of Webb in Herkimer County and the town of Watson in Lewis County. This heavily forested area is fully within the Adirondack Park Boundary. Residential development consists primarily of summer homes and camps, which are concentrated on the southern portion of Beaver Lake and are accessible via County Route 26 and town roads.

The middle section of the project area that includes the Soft Maple, Effley, and Elmer Developments is also very sparsely populated, heavily wooded, and access is provided by only a limited number of developed roadways, which are primarily owned and maintained by NMPC. Residential occupation is primarily seasonal, and it is tied to recreational opportunities.

The most downstream portion of the project area, including the Belfort and High Falls Developments, is more heavily populated than the rest of the area. Permanent homes are located in the vicinity of the Taylorville, Belfort, and High Falls Developments. Even with year-round residential occupation, there is still a very low population density. The landscape takes on a rural/agricultural character downstream of Belfort, in contrast to the heavily wooded and remote character of the upper reaches of the project area.

Commercial and industrial development is virtually nonexistent within the project area except for NMPC's hydro facilities.

The Moshier, Eagle, and the upper reservoir of the Soft Maple Development lie within the boundaries of the Adirondack Park. The land that lies north of the Beaver River from the Moshier powerhouse to Stillwater dam is almost entirely state owned and is classified by the Adirondack Park Agency as "wilderness area." The exceptions are parcels at the Moshier powerhouse and a parcel below Stillwater dam. These parcels are privately owned and are classified as resource management land (Adirondack Park Agency, 1989). Land adjacent to the Eagle Development is also classified as resource management.

B. *Cumulative Impact Summary*

An action may cause cumulative impacts on the environment if it overlaps in space and/or time with the impacts of other past, present, and reasonably foreseeable future actions. The individually minor impacts of multiple actions, when added together, may amount to collectively significant cumulative impacts. The existing environment shows the effects of past and present actions and provides the context for determining the cumulative impacts of future actions.

We reviewed the project's potential to cause adverse cumulative impacts. Given the project's location and design and the nature of the area's resources, we conclude that the project affects water quality and quantity, fish habitat, boating and other recreation. We consider cumulative impacts on these resources in individual resource sections (section V.C).

C. *Proposed Action*

In each of the following resource sections, we describe the environmental setting, NMPC's proposed operating procedures and environmental or enhancement measures, and the recommendations of resource agencies and other entities. We then provide our independent analysis and conclusions about the effects that the project may have on environmental resources, and we make recommendations to protect or enhance affected environmental resources.

Lastly, we discuss any unavoidable adverse impacts on each environmental resource as a consequence of relicensing the project with recommended protection or enhancement measures.

1. *Geological Resources*

a. Affected environment: The Beaver River Project lies entirely within the Adirondack physiographic province. The Adirondacks comprise the Adirondack Piedmont and Adirondack Mountains sections. The Adirondack Piedmont consists of the foothills surrounding the higher interior Adirondack Mountains, and it is further divided into the Grenville Lowlands, the Fall Zone, and the Childwold rock terrace. The project area lies entirely within Fall Zone, which is a belt in which waterfalls are sufficiently concentrated and common to characterize the topography. In this region, there is a close relationship between topography and the kind and structure of the underlying rocks. The foothills are

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low ridges of crystalline rock that are oriented in a northeast direction; consequently, the topography and drainage pattern of the region trends in this direction. The existing topography is the result of bedding planes, foliations, joint systems, and uneven erosion of bedrock with different resistances.

All bedrock in the project area consists of metamorphic and igneous rocks of the Precambrian age. The surficial geology of the project area originates mainly from the advance and retreat of glaciers. Abundant evidence indicates that this region was heavily glaciated during the Pleistocene epoch. Several ice advances occurred with intervening periods when the ice melted and retreated to the north, but only the effects of the last ice advance (i.e., Wisconsin Stage) have been identified. During glacial advances, hills were rounded off, soils were removed, valleys were eroded, and a thin veneer of bouldery drift (or till) was deposited on the hills and a stratified drift was deposited in the valleys. During the retreat of the ice, the rivers flowing

north were dammed by the ice front, and a succession of temporary lakes was formed. Deltas were formed at the location where streams flowed into these lakes. These extensive sand and gravel deltaic plains are common throughout the Adirondack Peidmont and are located well above the present river beds. Portions of the project area, including the Soft Maple Development and all developments downstream, are covered by these deltaic sands. Minor amounts of alluvial sand and gravel of recent geological time can be observed in the present flood plains. Other glacial features such as outwash, recessional moraines, and kame deposits are distributed throughout the region on a small scale.

The Beaver River Project area has historically been influenced by two earthquake activity zones, the Adirondack Seismic Zone (last event was magnitude 5.1 within about 50 miles of the project area in 1983) and the Western Quebec Seismic Zone (last event was magnitude 6.0 within about 350 miles of the project area in 1988). This project is also in Zone 2 of the Seismic Zone Map of the Contiguous States and Puerto Rico which recommends that concrete structures be designed using a seismic acceleration coefficient of 0.10. The Beaver River Project facilities were designed to this standard; therefore, moderate earthquakes should have no effect on project operation.

Mineral resources within the project area are limited to scattered sand and gravel deposits that are used locally as fill or roadway material.

We describe the major soil associations at each development in the following section.

Moshier Development - The soils on the south side of the bypassed reach at this development are deep, well drained, and coarse textured. These are the Colton Association and occupy the gently sloping plains and sloping outwash terraces in valley bottoms above the flood plains. The soils on the south side of impoundment at this development are of the Potsdam Crary-Association and are deep, very bouldery silt and very fine sand over well to somewhat poorly drained glacial till. These soils are formed on sloping hill sides and are highly erodible. The Bryton-Dannemora soils are deep, poorly drained, stony soils developed in glacial till. These soils tend to have a perched high water table during wet seasons and have a medium erodibility. Soils on the north side of the impoundment and bypass consist primarily of the Becket-Canaan Association, which are shallow to deep, well-drained, moderately coarse textured soils developed in bouldery glacial till. These soils develop on sloping to moderately steep slopes and have a low to medium erodibility.

Eagle Development - The north side of the bypass and impoundment at this development is dominated by the Colton Association. The upland soils around this development tend to be stony and have rocky outcrops. These soils are unsuitable for crops, and forest vegetation dominates.

Soft Maple Development - This development is also dominated by the Colton Association. The soils contain on average 35 percent gravel in the top 3 feet providing a minor mineral resource.

Effley Development - This development is dominated by the Colton Association previously discussed.

Elmer Development - This development is dominated by the Colton Association previously discussed.

Taylorville Development - The soils on both the south and north shores of the impoundment and the south side of the bypassed reach belong to the Colton Association. The north side of the bypassed reach is also dominated by the Colton Association, however, it has minor soil components. These minor soils have a low erodibility and are not significantly different from the Colton Association.

Belfort Development - The soils in the vicinity of this development are dominated by the Colton Association, although the southeastern shore of the impoundment has steeper slopes than the rest of the development. Rock outcrops are distributed around the dam, throughout the upper two-thirds of the bypassed reach, and along the north central and southwestern banks of the impoundment.

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High Falls Development - The soil in this area is extremely complex. Colton loamy fine sand, loamy sands, and cobbly loamy sands are still the most common soils; however, there are at least 15 additional minor soil types at this development.

b. Environmental impacts: The application identified several soils and environments (i.e., steep impoundment banks) susceptible or potentially susceptible to erosion and sedimentation. Neither NMPC nor the public, however, raised this issue. Operation of this project poses no immediate erosion or sedimentation threat and

would not require any enhancements. In fact, increased stabilization of impoundment water levels would reduce the potential for future erosion or sedimentation.

c. Unavoidable adverse impacts: There may be a minor, short-term increase in erosion and sedimentation associated with construction of proposed enhancements. These would include boat launches, canoe portages, hiking and fishing trails, fishing decks, and camping and picnicking sites. A site-specific Erosion and Sedimentation Control Plan should be developed and approved by the Commission in consultation with other appropriate entities or agencies prior to construction.

2. *Water Resources*

a. Affected environment: Water quality and quantity resources could be impacted by the Beaver River Project and by other activities upstream of the project.

River Flow

The Beaver River is regulated by the Hudson River-Black River Regulating District (HRBRRD) at Stillwater Reservoir, which is operated primarily for flood control of the Black River.

Stillwater Reservoir controls 171 of the 291-square-mile Beaver River drainage basin. The reservoir is typically lowered in the fall and filled during the spring. During periods of high rainfall, when flooding is expected on the Black River, the HRBRRD curtails all releases except for the minimum flow release of 50 cfs required by FERC (Stillwater Reservoir, Project No. 6743).

The Beaver River Project is integrated into the overall operating scheme of the Beaver River. Except for Moshier and High Falls, all developments are situated such that they discharge directly into the impoundment of the downstream development. The Moshier Development discharges into the river which enters Beaver Lake. The High Falls Development discharges directly into the river.

The developments of the Beaver River Project operate in conjunction with the daily releases from Stillwater Reservoir. Normal releases from Stillwater Reservoir are governed in part by the elevation of the downstream reservoir, Moshier. The objective is to keep the water level in Moshier Reservoir at the top of the flashboards, 2 feet over the dam crest. This enables Moshier to operate at maximum head; maximum hydraulic capacity is about 542 cfs plus an 80 cfs (minimum flow plus leakage) constant release through the dam. Moshier is a peaking plant and operates at maximum capacity during peaking hours. This is possible due to a release at Stillwater of 50 cfs, on a 24-hour basis.

Streamflow data were collected for the Beaver River from USGS gages at Stillwater Reservoir and from below High Falls at Croghan. Both gages were used to formulate the monthly and annual flow duration curves provided by NMPC. The period of record used to calculate the annual flow duration curves (January 1931 through September 1988) was longer than the period of record used to calculate the monthly flow duration curves (January 1, 1960 through December 31, 1980). The following descriptions are based on the annual flow duration curves for the period of record of January 1931 through September 1985.

The Moshier Development has a drainage area of 182 square miles. Since 1991, a minimum bypass flow of 30 cfs has been released through a 30-inch-diameter outlet pipe tapped into the existing 10-foot-diameter penstock. The average inflow at the Moshier Development was estimated at 409 cfs. The minimum flow was 7 cfs, and the maximum flow was approximately 2,900 cfs. The median flow was approximately 395 cfs.

Beaver Lake is located between the Moshier and Eagle Developments. The main tributaries consist of Alder Creek, Beaver Meadow Brook, Slough Brook, Three Mile Creek, and Sunday Creek. During high rainfall when the HRBRRD curtails flows, the only flow entering Beaver Lake is from the unregulated portion of the basin and the minimum release and leakage at Moshier.

Since 1991, a minimum bypass flow of 30 cfs has been released into the Eagle bypass through a 5-foot-wide slide gate. Eagle Reservoir has a drainage area of 224 square miles. USGS gage data indicate that the average flow at the Eagle Development was 483 cfs. The minimum flow at the development was 15 cfs, and the maximum flow was approximately 3,600 cfs. The median flow was approximately 460 cfs.

The Soft Maple Development has a drainage area of approximately 240 square miles. Since 1991, a minimum bypass flow of 20 cfs has been released at the Soft Maple Development through a 10-foot-wide aluminum slide gate. A

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continuously recording streamflow gage has been installed in the bypass to measure minimum flows. The average flow at the Soft Maple Development was estimated to be approximately 511 cfs. The historical minimum flow at the development was 18 cfs, and the maximum flow was approximately 3,800 cfs. The median flow was approximately 490 cfs. The Soft Maple Development has the greatest hydraulic turbine capacity and operates with the shortest peaking duration.

The Effley Development has a drainage area of approximately 249 square miles. Average flow at the Effley Development was an estimated 527 cfs. The minimum flow was 20 cfs, and the maximum flow was approximately 4,000 cfs. The median flow was approximately 500 cfs. No minimum bypass flows are currently being released.

The Elmer Development has a drainage area of approximately 250 square miles. The average flow at the Elmer Development was an estimated 529 cfs. The minimum flow at the development was 20 cfs, and the maximum flow was approximately 4,000 cfs. The median flow was approximately 500 cfs. No minimum bypass flows are currently being released.

The Taylorville Development has a drainage area of approximately 251 square miles. Currently, there is a bypass flow of 30 cfs being released at the Taylorville Development through an aluminum slide gate. The average flow at the Taylorville Development was an estimated 531 cfs. The minimum flow was 20 cfs, and the maximum flow was approximately 4,000 cfs. The median flow was approximately 500 cfs.

The Belfort Development has a drainage area of approximately 252 square miles. The average flow at the Belfort Development was an estimated 533 cfs. The maximum flow was approximately 4,000 cfs, and the median flow was approximately 510 cfs. No minimum bypass flows are currently being released.

The High Falls Development has a drainage area of approximately 267 square miles. The average flow was an estimated 559 cfs. The minimum flow was 23 cfs, and the maximum flow was approximately 4,300 cfs. The median flow was approximately 525 cfs. NMPC has an agreement with Missiquoi Associates, owner of the Beaver Falls Project (FERC Project No. 2593), to supply 250 cfs downstream of High Falls. The development is operated to maintain a base flow of 250 cfs downstream of the powerhouse so that adequate water is available in the town of Beaver Falls for mill processing, hydrogenerating, and sewage discharge requirements. This base flow requirement is not required by FERC. When the HRBRRD reduces flows from the Stillwater Reservoir, NMPC may rely on reservoir storage emergency reserves from the Moshier, Soft Maple, Effley, and High Falls Developments to satisfy its base flow requirements downstream of the High Falls powerhouse. No minimum bypass flows are currently released at High Falls.

Table 2 shows the percentage of time in each month that inflows at High Falls are less than 250 cfs. This corresponds to the percentage of time that the Moshier, Soft Maple, Effley, and High Falls reservoirs would be used to maintain flows.

Table 2. Average percent of time each month the flow at High Falls is less than 250 cfs (Source: NMPC, 1993 Monthly Flow Duration Curves) (Period of Record is January 1, 1960 through December 31, 1980)

January	6.5%
February	5.8%
March	10.8%
April	8.9%
May	20.0%
June	13.6%

July 12.7%

August 9.1%

September 12.7%

October 13.9%

November 17.4%

December 12.1%

The water quality management plan for the Black River Basin indicated that there were no consumptive uses of the Beaver River within the project area. At the time of the writing of the original application in 1991, NYSDEC indicated that no consumptive uses have been initiated since 1977.

The eight developments in the Beaver River Project are operated at efficient gate (approximately 85 percent of the hydraulic capacity of the turbine) or at full gate (at the hydraulic capacity of the turbine, 100 percent gate). Typically, when the available river flow exceeds the capacity of the units at efficient gate, the units will operate at full gate. Flows in excess of the combined full gate unit discharge, plus the required minimum flow, are spilled over the dam or released through the gates.

The peak load of the NMPC system usually occurs in December and consequently, December is a critical period of power supply. The dependable capacity for each development is defined as the 4-hour continuous power output developed from the usable storage capacity of the reservoir and the reservoir inflow that is equalled or exceeded 90 percent of the time.

Water Quality

NYSDEC classifies the waters of the Beaver River impoundments and their associated tributaries based on their designated best use. Water classifications for the project area include Class B (coldwater fishery), Class C(T)

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(coldwater fishery that supports trout), and Class D (warmwater fishery). The Beaver River water quality classification for the project area varies depending on location:

from the Stillwater tailrace downstream to High Falls dam is Class C(T);

the High Falls bypass is Class D; and

from the High Falls tailrace to the hamlet of Beaver Falls is Class B.

NYSDEC Class B waters are defined as follows:

The monthly median coliform value for one hundred milliliters (ml) of sample shall not exceed two thousand four hundred from a minimum of five examinations and provided that not more than twenty percent of the samples shall exceed a coliform value of five thousand for one hundred ml of sample and the monthly geometric mean fecal coliform value for one hundred ml of sample shall not exceed two hundred from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.

The pH shall be between 6.5 and 8.5. [3]

Total dissolved solids cannot be at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter (mg/l) shall be kept below this limit.

For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no

time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l At no time shall the DO concentration be less than 4.0 mg/l.

Best usage of Class B waters is primary contact recreation and any other uses except as a source of water supply for drinking and culinary or food processing purposes. [4]

NYSDEC Class C waters are defined as follows:

The monthly geometric mean total coliform value for one hundred ml sample shall not exceed ten thousand and the monthly geometric mean fecal coliform value for one hundred ml sample shall not exceed two thousand from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.

The pH shall be between 6.5 and 8.5.

Total dissolved solids cannot be at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.

For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

The best usage of Class C waters is fishing and all other uses except as a source of water supply for drinking, culinary or food processing purposes, and primary contact recreation.

NYSDEC Class D waters are defined as follows:

The pH shall be between 6.0 and 9.5.

Dissolved oxygen shall not be less than 3 milligrams per liter at any time.

The best usage of Class D waters is secondary contact recreation. [5]

The limited historical data for the Beaver River show that it is relatively unpolluted from point source discharges. NYSDEC, in its “Draft Water Quality Management Plan” for the Black River Basin stated that acid precipitation was likely the major nonpoint source for water quality problems in the basin. NMPC conducted extensive water quality monitoring at 12 locations along the Beaver River.

Results of water chemistry data collected in the Moshier, Eagle, Soft Maple, and Taylorville impoundments and tributaries indicate that pH for the Beaver River between Moshier and Taylorville ranged from 4.5 to 6.8 over the period of monitoring from 1987 through 1989. The water temperatures in the bypassed reaches ranged from 45°F to 75°F from May 1989 to October 1989. Water temperatures in the impoundments were approximately the same as the water temperatures in the bypassed reaches during the same time period. The dissolved aluminum concentrations ranged from 0.05 to 0.7 mg/l over the sampling period. The acid neutralizing capacity (ANC) of the

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Beaver River ranged from -30 to over 100 Ueq/l over the sampling period. The lowest pH and the lowest ANC occurred at the same time. DO levels were high and rarely fell below Class B standards.

These results led investigators to conclude that low pH, low ANC, and high aluminum concentrations were associated with high river flows. The temperature, aluminum concentration, and pH throughout the Beaver River reached levels reported to be lethal to brook trout. The impoundments did not appear to be a source of high quality water necessary to support a native brook trout fishery.

The pH levels for the Beaver River developments range from 4.5 to 6.2 from as deep as 9 meters below the surface to the surface. We discuss specific conditions in the following section.

The Moshier Development surface water pH levels are extremely low (4.5 to 5.0). These conditions typically occur beneath ice cover from February to April. During the warmer months, the pH levels tend to be higher at the surface and lower in the hypolimnion. The highest pH values recorded are only slightly above 6.0, while midcolumn pH values are generally between 5.5 and 6.0.

The Eagle Development does not exhibit significant stratification of pH within the impoundment. Data indicate a late winter to spring depression in pH, with values falling below 5.0, while summer pH values can be slightly greater than 6.0.

Data collected for the Soft Maple Development indicate a pH range of less than 5.0 in the spring to a high of 6.2 in late summer. Data are insufficient to demonstrate a seasonal stratification of pH.

Data collected for the Effley Development were obtained by NYSDEC and indicated a pH of 6.0 at both the surface and at 9.1 meters below the surface.

Data collected for the Taylorville Development indicate a pH level of 6.16 at 1.5 meters below the surface.

Data collected for the Belfort Development indicate a pH of 5.96 at 1.5 meters below the surface.

Data collected for the High Falls Development by NYSDEC indicate that on July 31, 1972, the pH both at the surface and at 9.1 meters below the surface was 6.0. On June 30, 1977, a pH of 5.6 was recorded at an unspecified depth.

Thermal stratification is known to occur at the Moshier and Taylorville Developments for a short time in early and midsummer, respectively. Soft Maple probably also thermally stratifies, but data are incomplete. Eagle, Effley, and Belfort do not thermally stratify, and there are no temperature data for Elmer or High Falls.

Water quality data indicate that water temperatures for the impoundments and bypassed reaches for the months of July and August have reached the upper 70°F. Temperature, therefore, is a limiting factor for a healthy, coldwater trout fishery.

Data provided by NYSDEC and NMPC indicate that DO in the Beaver River developments range from 4.0 mg/l in the hypolimnion to 12 mg/l at the surface, averaging about 8.4 mg/l. DO standards are being met for Class B, C, and D waters.

Water quality conditions in the north channel of the bypassed reach at Soft Maple resulted in formation of a red flocculent. Small amounts were seen by staff during the site visit and the U.S. Fish and Wildlife Service, in its letter dated November 29, 1995, again noted the presence of the material. While the impact of the flocculent is unknown, NMPC will take measures to flush the material out of the bypassed reach during spring runoff.

Water quality data downstream of the High Falls Development is limited. Data collected in Murmur Creek by NYSDEC in August, 1971 indicates that the DO approximately 1.5 miles downstream of the High Falls dam measured 6.8 and 7.9 and alkalinity (CaCo3) was 21 mg/l.

b. Environmental impacts: Proposed maximum daily and seasonal fluctuations of the reservoirs are indicated in Table 3 as defined in the Settlement.

When the HRBRRD reduces releases from Stillwater Reservoir to collect spring runoff, the Moshier, Soft Maple, Effley and High Falls impoundments each may be drawn down a maximum of 3.0 feet to satisfy the 250 cfs baseflow below High Falls. These maximum fluctuations represent an enhancement in the stabilization of the reservoir capacities compared to previous operations. Previously licensed operations included an annual draw-down of 25 feet below the dam crest at Moshier in the early spring. At High Falls, the proposed 3 foot draw-down is 1 foot greater than current licensed conditions. Overall, the Settlement is an enhancement of current project operation.

Shoreline studies submitted as part of the application indicate that the location of existing shoreline erosion at or above the high water line is the result of forces such as waves and shoreline bank slope rather than reservoir fluctuations. There is no evidence that project operation has contributed to existing shoreline erosion.

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Table 3. Beaver River maximum daily and maximum seasonal fluctuations of

project reservoirs (Source: Settlement, 1995)

	July 1-	May 1-

Reservoir	April 30	June 30	Maximum Seasonal
Moshier	1.5 feet	1.0 foot	3.0 feet
Eagle	1.0 foot		
Soft Maple	1.5 feet	1.0 foot	3.0 feet
Effley	1.5 feet	1.0 foot	3.0 feet
Elmer	1.0 foot		
Taylorville	1.0 foot	1.0 foot	
Belfort	1.0 foot		
High Falls	1.5 feet		3.0 feet

We reviewed the maximum daily and seasonal draw-downs proposed in the revised application and conclude that they would not contribute to additional shoreline erosion. The proposed draw-downs would be smaller than existing draw-downs, except at High Falls. Based upon the field studies, the shoreline appears to be in a state of equilibrium, and, therefore, proposed fluctuations would not accelerate shoreline erosion.

Water quality in the bypassed reaches may be modified by minimum flows. Minimum flows are currently released at four developments. FERC prescribed these interim flows on March 19, 1987:

Moshier ....59 cfs

Eagle ....59 cfs

Soft Maple ....34 cfs

Taylorville ....59 cfs

Subsequently, FERC issued an order amending the project license (December 5, 1991) and reducing these flows to 30, 30, 20, and 30 cfs, respectively. The flows were based on instream flow incremental methodology (IFIM) studies.

NMPC first proposed to maintain these minimum flows, but the revised application proposes the following minimum flows to the bypassed reaches:

Moshier ....45 cfs

Eagle 45 cfs, possibly reduced to 30 cfs seasonally

Soft Maple ....35 cfs

Effley ....20 cfs

Elmer 20 cfs, possibly reduced to no less than 10 cfs

Taylorville 60 cfs, possibly reduced to 45 cfs

Belfort ....20 cfs

High Falls ....30 cfs

We considered the minimum flows proposed for the bypassed reaches and possible effects on water quality from these releases. Available information indicates that flows of the size proposed are large enough to control the pH in the bypassed reaches. That is, the pH of inflow from local tributaries entering the reaches is not a significant factor. In contrast, the pH in the impoundments is significant, and higher flows result in lower pH's. Thus, the Settlement proposes a water quality enhancement to previous interim flows by

reducing the flows but will decrease pH compared to currently licensed minimum flows. The minimum flows proposed by NMPC in its original application would be more beneficial to pH, because the flows are lower than those in the Settlement. The proposed flows, however, represent an effective compromise between water quality concerns and other aspects of habitat in the bypassed reach. We agree, therefore, that the proposed bypassed reach flows in the revised application are an enhancement to existing interim bypassed flows.

The assimilative capacity of the river downstream of High Falls appears to be challenged during the low flow season. This condition has prevailed under daily peaking operation, and the agreement between NMPC and Missiquoi Associates was reached to provide a continuous flow of 250 cfs to increase assimilative capacity. While water quality downstream of High Falls would not benefit under rare conditions if HRBRRD does not provide additional water during low flows, we conclude that providing the 250 cfs flow should be an enhancement when compared to historical water quality conditions.

c. Cumulative impacts: Water quality studies indicated that increased flows are associated with low pH. Increased flows to the bypassed reaches, therefore, could result in lower pH than would be found under normal, unaltered stream flows.

d. Unavoidable adverse impacts: Lower pH values would continue to be distributed throughout the project area.

3. *Fisheries Resources*

a. Affected environment: The Beaver River fishery historically was a coldwater Adirondack brook trout community, but it is now transformed to a mixed warmwater and coldwater fishery. The resource appears to be adversely affected by acid precipitation, and to a lesser extent, warm summer water tempera-tures. DO levels are not a problem for the fishery resource.

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Based on fisheries investigations, dominant sport species that inhabit the impoundments of the Beaver River Project include yellow perch, rock bass, white sucker, brown bullhead, and pumpkinseed. Non-sport fish include the banded killifish, creek chub, lake chub, golden shiner, redbelly dace, and blacknose dace. Studies in the 1970's indicate that brook trout, chain pickerel, and lake and brown trout were also present in the impoundments. Poor water quality limits resident fish populations, resulting in a community that is low in diversity and abundance and composed primarily of acid tolerant and thermally tolerant species, except where there are small, isolated refugia. Stillwater Reservoir hosts populations of smallmouth bass and yellow perch.

Fish surveys have been conducted annually from 1985 through 1992 on the Beaver River in the bypassed reaches of the Moshier, Eagle, Soft Maple, and Taylorville Developments and in selected tributaries. Fourteen species of fish were collected, all of which have been previously reported in either the Black or Beaver Rivers, except for the northern redbelly dace. This species was first collected in 1988 (FWS, NYSDEC, 1994).

From 1985 to 1992, the most abundant sport species were brook trout and yellow perch. Wild brook trout dominated catches in the Beaver River tributaries, and yellow perch were most abundant in the bypassed reaches. Stocked brook trout were also collected in the bypassed reaches but in low numbers. Other species collected included white sucker, pumpkinseed, brown bullhead, rock bass, chain pickerel, and smallmouth bass.

Brook trout is the most popular game fish in the tributaries of the Beaver River. Yellow perch, white sucker, and brown bullhead are the dominant game species in the project area.

All species in the Beaver River, except brown bullhead, declined from 1988 to 1992. These declines are thought to be related to the increased bypass flows that decreased overall water quality in the project area. Although the minimum flows created additional habitat in the project area, the water was acidic during spring runoff and warm during late spring, summer, and early fall.

Prior to NMPC's entrainment and mortality study, rainbow smelt were not known to inhabit the project area. A large number of rainbow smelt were identified at Moshier during the study. Unconfirmed information indicates that the rainbow smelt were introduced when a consignment of smelt eggs, designated for stocking

elsewhere by a private fish and game club, was released in the Moshier impoundment. It is not known to what extent smelt have colonized or will colonize the Beaver River. Lentic habitat and water temperature are factors likely to limit their distribution to localized impoundments within the basin.

NYSDEC manages the Beaver River as a coolwater/warmwater fishery with selected riverine reach segments targeted for coldwater management (Kleinschmidt Associates, 1995). In compliance with the FERC order issued March 19, 1987, NMPC initiated a brook trout stocking and monitoring plan for the Beaver River. About 8,000 brook trout were put into the river by Ichthyological Associates between fall 1987 and spring 1989. Stocking was limited to the bypassed reaches of Moshier, Eagle, Soft Maple and Taylorville Developments. All fish were marked at the hatchery by fin removal to distinguish stocking location and time. The brook trout stocking programs were conducted to provide survival information so that a brook trout fishery could be improved.

A creel census was conducted for the Beaver River bypassed reaches (Moshier, Eagle, Soft Maple, and Taylorville) and Sunday Creek, a tributary of the Beaver River, in 1988 and 1989. The objective of the creel census was to determine angler use (number and length of trips), success (catch rate and composition), origin of trout (wild versus hatchery) and location. Of the total brook trout caught, 22 were native, and 1,990 were of hatchery origin. Most wild trout were caught in the Soft Maple bypassed reach, and most hatchery fish were caught in the Moshier bypassed reach.

On June 8, 1989, two bypassed reaches of the Beaver River (Moshier and Taylorville) were stocked with 2,000, low-pH tolerant brook trout. All fish were fin clipped to distinguish stocking locations. Stocked trout were recaptured during fish surveys in June, August, September and October of 1989. Clipped fish captured included 4 stocked in June 1988,, 28 stocked in October 1988 and 26 stocked in June 1989. No trout stocked in October 1987 were recaptured.

FWS, in their letter dated November 29, 1995, note that initial trout plantings probably died of thermal shock at the time of stocking. Also, it is noted that the poor recovery rate and establishment of the stocked trout in the bypassed reaches may be attributed to a number of factors in addition to water quality. As a result, any future trout stockings will use fish transplanted from local heritage streams.

The tiger muskellunge is not a native fish species but is an artificial, sterile, acid-tolerant hybrid stocked in the river for anglers. Tiger muskellunge collected during the entrainment and mortality study were 150 to 450 mm long. A nominal number of fish between 150 and 175 mm long were entrained at Moshier. Tiger muskellunge ranging from 150 to 450 mm long

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were also entrained at High Falls in late April and in June (Kleinschmidt Associates, 1995).

On January 10, 1995, NYSDEC indicated at the scoping meeting that a put and take stocking program of tiger muskellunge in the Moshier and Soft Maple impoundments had been implemented. The objective of this stocking program is mainly to establish a sport fishery and to control high populations of white suckers and yellow perch. No sampling or creel censuses have been conducted to date.

b. Environmental impacts:

Fish Passage

The revised application does not propose to provide upstream fish passage at any of the Beaver River developments. A fish screen is proposed at the Soft Maple Development at the upstream end of the diversion tunnel with no greater than 1/2-inch clear space openings. This screen is intended to prevent warmwater reservoir fish from passing into the coldwater bypassed reach habitat.

Interior (letter dated July 13, 1995) indicates that, at the Soft Maple Development, the desire to preclude the outmigration of warmwater fish into the coldwater-managed bypassed reach is an important objective of the Settlement. Interior lists this in its recommended license conditions pursuant to section 10(j) of the FPA. The proposed fish screen would prevent interspecific competition between the smallmouth bass inhabiting the impoundment and the brook trout inhabiting the bypassed reach. Interior indicates that the other seven developments would not significantly benefit from fishways. Because management objectives for the Beaver River are subject to change over the life of the project, Interior requests reserving its authority to prescribe fishways under section 18 of the FPA.

We reviewed the needs for upstream fish passage for the Beaver River Project area. Presently, there are numerous natural barriers, primarily in the bypassed reaches, and hydropower barriers to upstream migration of fishes in the Beaver River. The natural barriers are vertical falls, chutes, and steep rapids over extensive areas of exposed bedrock. Such barriers would have precluded upstream migration from the Black River even without hydropower development. Many Beaver River Project dams are on the crest of steep drops that would act as natural barriers to upstream migration if the dams were not present. The staff does not recommend any further upstream fishways.

Fish entrainment and mortality studies were conducted at the request of FERC as part of the relicensing of the Beaver River Project. A study was conducted from October 11, 1993, through September 30, 1994, to estimate the fishery resources lost to turbine entrainment and mortality at the eight developments of the Beaver River Project. The need for downstream fish passage was also assessed from this study.

To effectively exclude adult fish from being entrained in the intakes, NMPC proposes, in its revised application, to install new trashracks at each development with 1-inch clear bar spacing. It does not propose any further fish passage enhancements to the developments.

We reviewed the proposed fish protection potential provided by the installation of the trashrack overlays. This method appears to be sufficient for the structure and composition of the present fishery. NMPC did not identify the specific type of fish screen proposed for the Soft Maple Development in its revised application. We recommend that NMPC identify a fish screen and submit plans to resource agencies for review and to FERC for approval and that NMPC develop plans for installing the Soft Maple screen and trashracks at all locations. The design would be reviewed by the agencies and approved by FERC prior to construction.

Whitewater Releases

In the Settlement Offer, whitewater releases are defined for the Moshier, Eagle, and Taylorville bypassed reaches. These may have an adverse impact on fisheries resources. The flows are as follows:

Moshier - One 4-hour release of 400 cfs would be provided in September or October (prior to October 15) of each year, the exact timing of which is to be determined by NMPC and American Whitewater Affiliation (AWA), in consultation with the Beaver River Advisory Council (BRAC). Ramping flows would not exceed 200 cfs and will be made 2 hours before and after the boating flow release. The total volume of each release, including ramping flows, shall not exceed 2,400 cfs-hrs. The release at the Moshier Development would be coordinated, to the extent feasible, with the releases at the Eagle and Taylorville Developments.

Eagle - Five 4-hour releases of at least 200 cfs would be provided in September and October of each year, the exact timing of which is to be determined by NMPC and AWA, in consultation with BRAC. Ramping flows would not exceed 100 cfs and would be made for 1 hour before and after the boating flow releases. The total volume of each release, including ramping flows, shall not exceed 1,000 cfs-hrs. The releases at Eagle would be coordinated, to the extent feasible, with the releases at the Taylorville Development.

Taylorville - Five 4-hour releases not to exceed 400 cfs would be provided in September

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and October of each year, the exact timing of which is to be determined by NMPC and AWA, in consultation with BRAC. According to the Settlement, ramping flows would not exceed 200 cfs and will be made before and after boating flow releases for a total duration of time, not to exceed 3 hours. The total volume of each release, including ramping flows, shall not exceed 2,200 cfs-hrs. The releases at the Taylorville Development would be coordinated, to the extent feasible, with the releases at the Eagle Development.

NMPC's proposed whitewater releases (in its revised application) may have an adverse impact on fish refugia located within the Moshier bypassed reach. The high flows could adversely affect slow water current fish species by eliminating thermal or pH refugia or by sweeping resident species downstream of established habitats. Three game fish species were collected from 1987 through 1989 in the Moshier bypassed reach, smallmouth bass, brook trout, and chain pickerel. NYSDEC classifies the chain pickerel as a slow current fish and the smallmouth bass as a slow to moderate current fish. The periodic increased flow rates for boating and ramping (400 to 200 cfs), therefore, may impose high current stress on fish located in the refugia in the Moshier bypassed reach. The average water temperatures for the Moshier bypassed reach in September and October are approximately 55 and 47°F, respectively. Because the proposed whitewater

releases are scheduled for September through October 14 when water temperatures are already cooling, we conclude impacts should not result in warmwater inflows or loss of coldwater thermal refugia.

Aquatic habitat may be adversely affected at the Taylorville bypassed reach due to fluctuating water depths and juvenile fish may be stranded after whitewater releases end. The IFIM results indicate that a channel to the south of transects T12 and T13 contains a flow less than 1 cfs, except during whitewater releases and the spring runoff spill period. Fish displaced by the releases may be stranded in this section of the bypassed reach at the end of the boating and ramping flows. Another problem occurs at transect T11 where flows of 60 cfs and higher flood a large outcrop shelf area where displaced fish may become stranded and unable to return to the channel upon termination of the whitewater flows.

We reviewed the potential impacts on aquatic resources during whitewater releases. Given the limited resident community and the probability that fish would move downstream with high flows, significant losses are not expected.

Construction-Related Impacts

NMPC proposes in its revised application to construct the following structures:

Moshier -

• Slide gate structure.

• New trashracks (or equivalent) with 1-inch clear bar spacing.

Eagle -

• Minor channel modifications below the release gate.

• New trashracks (or equivalent) with 1-inch clear bar spacing.

Soft Maple -

• Diversion tunnel and release device.

• New trashracks (or equivalent), 1-inch clear bar spacing.

• Fish screen (or equivalent), less than or equal to 0.5-inch clear space openings.

Effley -

• New gate structure; gated orifice through dam (2 square feet in area).

• Plunging pools, piping, etc

• New trashracks (or equivalent) with 1-inch clear bar spacing.

Elmer -

• New release structure, 2 square feet in area.

• Plunging pools, piping, etc

• New trashracks (or equivalent) with 1-inch clear bar spacing.

Taylorville -

• Minor channel modifications below the release gate.

• New trashracks (or equivalent) with 1-inch clear bar spacing.

Belfort -

• New gate structure; gated orifice through the dam (2 square feet in area).

• Plunging pools, piping, etc

• New trashracks (or equivalent) with 1-inch clear bar spacing.

High Falls -

• New gate structure at the north side of the spillway; a gated orifice through the dam (2 square feet in area).

• Plunging pools, piping, etc

• New trashracks (or equivalent) with 1-inch clear bar spacing.

Flow Monitoring

• Installation and maintenance of USGS gaging station at each of the bypassed reaches and one downstream in Croghan.

• Permanent staff gages of headpond and tailwater elevations at all eight facilities.

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Based on our independent analysis, the staff determined that there would be minimal impacts related to construction activities for the installation of the new gate structures, trashracks, USGS gage stations, and for permanent staff gages. Neither coffer dams nor impoundment draw-downs would be required for these related construction activities. Construction-related impacts would be minimal. NMPC should develop a plan for the diversion tunnel at Soft Maple, for the modifications made for plunge pools, piping, and related construction activities after consultation with appropriate resource agencies, and then submit the plan to the Commission for approval.

Minimum Flows

In its revised application, NMPC proposes the following year-round minimum and “nominal” flows for the project’s bypassed reaches:

Moshier - A year-round minimum flow of 45 cfs would be provided in the bypassed reach through the existing minimum flow discharge pipe and orifice plate and through a new slide gate structure that would also accommodate whitewater releases and downstream fish passage.

Eagle - A year-round minimum flow of 45 cfs would be provided in the bypassed reach via the existing minimum flow slide gate. NMPC may seek to amend the minimum flow to as low as 30 cfs seasonally based on the results of bypassed reach site inspections and with the mutual agreement of NYSDEC and FWS after consultation with the BRAC. The seasonal minimum flow reduction would occur from October 1 to the end of spring runoff when uncontrolled spillage ceases or May 31, whichever comes first.

Soft Maple - A year-round minimum flow of 35 cfs would be provided in the bypassed reach. Both existing slide gates located at the spillway would be used to release 15 cfs to the southern channel. The remaining 20 cfs would be provided through a diversion tunnel to the northern channel.

Effley - A year-round nominal flow of 20 cfs would be provided in the bypassed reach via a new gate structure located on the north side of the spillway.

Elmer - A year-round nominal flow of 20 cfs would be provided in the bypassed reach via a new release structure that would be designed in the existing needle beam structure located in the middle of the spillway. NMPC, upon agreement with FWS and after consultation with the BRAC, may seek to amend the minimum flow to no less than 10 cfs within 1 year of license issuance.

Taylorville - A year-round minimum flow of 60 cfs would be provided in the bypassed reach via the existing minimum flow slide gate. NMPC may seek to amend the minimum flow to between 45 and 60 cfs based on the results of a site inspection and with mutual agreement of NYSDEC and FWS after consultation with the BRAC, within 1 year of license issuance.

Belfort - A year-round nominal flow of 20 cfs would be provided in the bypassed reach via a new gate structure located on the south side of the spillway.

High Falls - A year-round nominal flow of 30 cfs +/- 3 cfs, depending on head, would be provided in the bypassed reach. Ten cfs (+/- 1 cfs, depending on head) would be provided through the existing low-level slide gate structure located in the middle of the spillway and 20 cfs (+/- 2 cfs, depending on head) would be provided through a new gate structure located at the north side of the spillway.

A year-round base flow of at least 250 cfs would be provided through the existing units and a new minimum flow release structure at the High Falls Development. The target baseflow would be measured and monitored by NMPC with a USGS streamflow gage in Croghan.

On July 13, 1995, Interior responded to the Notice of Application Ready for Environmental Assessment. It indicated that the revised application’s proposals for instream flow releases would adequately maintain fish and wildlife resources and their habitats within the affected portions of the Beaver River.

We reviewed the proposed instream flows for the eight developments. All of the bypassed reaches, except for Soft Maple, would be managed for a mixed cold/coolwater fishery. The bypassed reach at Soft Maple would be managed for a coldwater fishery. The proposed flow releases for the developments are an overall enhancement of aquatic habitat to the existing instream flow releases. Table 4 presents the results of a review of the monthly flow duration curves (NMPC, 1992), which indicate the percentage of time that flows are projected to be less than 250 cfs for the months of May and June.

Table 4. Percentage of Time Flows Fall Below 250 cfs (Source: NMPC, 1992)

	May	June
Moshier	33	19.5
Soft Maple	24.2	14.8
Effley	23.5	15.5
High Falls	19.8	13.2

The HRBRRD has, in the past, supplemented water downstream during the low flow season. As long as the HRBRRD can ensure additional flow releases for the Beaver River

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Project during the low flow season to maintain a base flow of 250 cfs below High Falls, no significant impacts on fisheries would be expected. When sufficient flows are not available from HRBRRD, NMPC will be able to compensate, at least partially, by using storage capacity at Moshier, Soft Maple, Effley, and High Falls Developments. While there will be some times when flows will not be adequate to provide the base flow, the consequences of this rare occurrence should be acceptable, and we believe the public interest is not served by any further restrictions.

Flow Monitoring

NMPC proposes in its revised application to submit a streamflow monitoring plan to NYSDEC for approval within 3 months of FERC license issuance. This flow monitoring plan would provide for the installation and maintenance of a USGS gaging station, or equivalent. NMPC also proposes to monitor head pond elevations at each of the eight developments, which shall include all gages and/or equipment for the purposes of:

• determining the stage and/or flow of the stream on which the development is located;

• determining all other project flows including flow through the turbines and any other bypass/diversion flows; and

• determining project headpond and tailwater elevation.

NMPC proposes to have all gaging and ancillary equipment, including the headpond and tailwater gages, fully calibrated within 12 months of the license issuance. It also proposes a gage calibration plan to be submitted to NYSDEC for review and approval and permanent staff gages to be installed to allow for independent verification of headpond and tailwater elevations.

We reviewed NMPC's proposal for a monitoring plan and agree that the plan should be developed in consultation with appropriate agencies and submitted to the Commission for approval.

Reservoir Fluctuations

NMPC proposes in its revised application to fluctuate the reservoirs for each development as follows:

Moshier - From July 1 to April 30, the maximum daily reservoir fluctuation would be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1,639.5 and 1,641.0 feet with flashboards and elevations 1,637.5 and 1,639.0 without.

From May 1 to June 30, the maximum daily reservoir fluctuation would be limited to 1.0 foot from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1,640.0 and 1,641.0 with flashboards and elevations 1,638.0 and 1,639.0 without flashboards. If flashboards are down or fail during this period, the flashboards would not be replaced until July 1 or later.

Maximum seasonal reservoir fluctuation would be limited to 3.0 feet from the normal maximum headwater elevation. Further, during periods when the daily average inflow below High Falls is less than 250 cfs during the low flow season, additional storage at the Moshier Development may be used, in conjunction with storage at the downstream Soft Maple, Effley, and High Falls Developments. During low flow periods, the daily maximum reservoir fluctuation would be limited to 3.0 feet, corresponding to fluctuations between elevations 1,638.0 and 1,641.0 feet with flashboards. Flashboards are expected to remain in place during low flow conditions. Thus, no fluctuation without flashboards is specified. NMPC also proposes to contact the HRBRRD and seek its assistance in increasing flows, to address the low flow condition.

Eagle - The maximum daily and seasonal reservoir fluctuation would be limited to 1.0 foot from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1,425.2 and 1,426.2 feet with the flashboards and elevations 1,424.2 and 1,425.2 without flashboards. Flashboards would not be erected or replaced during the period May 1 to June 30 to protect nests of reservoir spawning fish and of waterfowl.

Soft Maple - The maximum daily reservoir fluctuation would be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1,288.4 and 1,289.9 feet with flashboards and elevations 1,286.9 and 1,288.4 without flashboards.

From May 1 to June 30, the maximum daily reservoir fluctuation would be limited to 1.0 foot from the normal maximum headwater elevation. If flashboards are down or fail during this period, they would not be replaced until July 1 or later.

During periods when the daily average inflow at High Falls is less than 250 cfs during low flow periods, additional storage at the Soft Maple Development may be used to supplement base flow requirements below High Falls. During such low flow periods, the daily maximum reservoir fluctuation would be limited to 3.0 feet, corresponding to fluctuations between elevations 1,286.9 and 1,289.9 feet with flashboards. Flashboards

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are expected to remain in place during low flows.

Effley - The maximum daily reservoir fluctuation would be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1,161.5 and 1,163.0 feet without flashboards, which are not present at Effley.

During the period from May 1 to June 30, fluctuations would be limited to 1.0 foot to protect reservoir spawning fish and nesting birds. This 1.0 foot fluctuation corresponds to fluctuations between elevations 1,162.0 and 1,163.0.

During periods when the daily average inflow at High Falls is less than 250 cfs during low flow periods, additional storage at the Effley Development may be used to supplement the base flow requirements below High Falls. During low flow periods, the daily maximum reservoir fluctuations would be limited to 3 feet, corresponding to fluctuations between elevations 1,160.0 and 1,163.0 feet.

Elmer - The maximum daily reservoir fluctuations would be limited to 1.0 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 1,107.0 and 1,108.0 feet without flashboards, which are not present.

Taylorville - The maximum daily and seasonal reservoir fluctuations would be limited to 1.0 foot from the normal and maximum headwater elevation. This corresponds to fluctuations between elevations 1,069.6 and 1,070.6 feet with flashboards and elevation 1,068.8 and 1,069.8 without flashboards. Flashboards would not be replaced during the May 1 through June 30 period.

Belfort - The maximum daily reservoir fluctuation would be limited to 1.0 foot from the normal maximum headwater elevation. This corresponds to fluctuations between elevation 965.0 and 966.0 feet with flashboards and 964.0 and 965.0 without flashboards. Flashboards would not be replaced during the May 1 through June 30 period.

High Falls - The maximum daily reservoir fluctuation would be limited to 1.5 feet from the normal maximum headwater elevation. This corresponds to fluctuations between elevations 913.5 and 915.0 feet without flashboards, which are not present.

During periods when the daily average inflow at High Falls is less than 250 cfs during the low flow period, additional storage at the High Falls Development may be used to supplement the base flow requirements below. During low flow periods, the daily maximum reservoir fluctuations would be limited to 3 feet, corresponding to fluctuations between elevations 912.0 and 915.0 feet.

On July 13, 1995, Interior responded to the Notice of Application Ready for Environmental Assessment. It indicated that the need to provide an adequate base flow from the project while limiting reservoir fluctuations was discussed extensively during the settlement negotiations. Interior stated that the revised application adequately reduces the amount and duration of reservoir fluctuations within the Beaver River Project area.

We reviewed the maximum daily and seasonal draw-down proposed in the revised application and concluded that they represent an overall enhancement compared to the existing conditions. Impacts on spawning fish habitat in the project's impoundment will be more limited in extent, although they may occur more frequently in May and June. More significantly, the storage capacity available at the Moshier, Soft Maple, Effley, and High Falls Developments can be used to reduce downstream water quality and fish habitat impacts due to low flows. This capacity would only be used if HRBRRD could not provide relief. Because potential impacts downstream of the project are considered more significant than the project-related impacts, flow maintenance is a worthwhile use of the existing storage capacity. That the capacity to be used can be provided while limiting local impacts to acceptable levels is an added benefit.

c. Cumulative impacts: If the HRBRRD provides additional flows to the project developments during the period of May 1 through June 30, cumulative impacts on fisheries resources would be avoided.

d. Unavoidable adverse impacts: None.

4. *Terrestrial Resources*

a. Affected environment:

Vegetation

The constructed facilities are in the counties of Herkimer and Lewis. The upstream portion of the project is within the Adirondack Park, bounded primarily by state-owned, heavily wooded land. As described in section V.A., the downstream part of the project becomes progressively more agricultural and developed, and the project area can be classified as rural with a distinctive change in cover type and land use just west of the Elmer Development. To the east, the cover is predominantly medium to heavy woods of spruce-fir-northern hardwoods association with a lack of agriculture. To the west of the Elmer Development, heavy woods transition to a mixture of woodlands, brushlands, and agriculture.

These vegetation differences reflect the underlying differences in soil characteristics, climate,

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and elevation. The eastern project area is at higher elevations, experiences colder temperatures, and in general has thinner soils. As a result, the higher elevations are dominated by spruce, fir, and birch, as well as white pine, hemlock, and northern white cedar. Northern hardwoods mixed with the spruce-fir forests are dominated by beech, sugar maple, with less frequent basswood, white ash, and black cherry. The northern hardwood forests are classified as mature in many portions of the project area and are likely to contain super-canopy trees.

Wetlands

Many wetlands in the project area are associated with impoundment shorelines. They are typically characterized as wooded wetlands and shrub wetlands. Within the wooded wetlands there are few dead, or

dying trees with cavities. This could be due to the steep impoundment shorelines that limit the flooding of trees.

The Adirondack Park Agency maps wetlands down to less than 1 acre within the Adirondack Park, which extends west into the project area as far as the channel connecting the east and west portions of the Soft Maple impoundment. The park agency identifies 24 designated wetlands within the project boundaries. There are about 959 acres of wetland made up of the impoundments of Moshier, Soft Maple, and Eagle, with an additional 111 acres of smaller wetlands found around the impoundments (Costanza and Homa, 1990).

NYSDEC maps wetlands that are at least 12.4 acres in size. In the area outside of the Adirondack Park, there are four NYSDEC-regulated wetlands, all occurring in the areas southwest and northwest of the Soft Maple impoundment, between the Soft Maple powerhouse, and the Adirondack Park boundary.

There are no federal National Wetland Inventory maps for this area, because FWS has not yet mapped this area.

In response to our August 21, 1992, request for additional information, NMPC evaluated the effects of impoundment fluctuation on fish spawning and waterfowl nesting throughout the project area. Included in this study were more detailed descriptions of the location and size of wetlands within each impoundment. Seven percent of the Moshier shoreline is composed of 7 acres of wetland habitat, including palustrine emergent, scrub-shrub, and forested wetlands. The Eagle impoundment has about 34 acres of wetland covering 45 percent of the shoreline. The Soft Maple impoundment is largely devoid of wetlands with less than 1 percent of the shoreline providing 1.9 acres of primarily palustrine emergent habitat. At Effley, only about 1 percent of the shoreline is wetland with less than 1 acre of emergent and scrub-shrub habitat. The Elmer impoundment has about 1 acre of emergent and scrub-shrub wetlands representing about 4 percent of the shoreline. The Taylorville impoundment has about 2 acres of wetlands corresponding to 8 percent of the shoreline. At Belfort, approximately 1 acre of emergent and scrub-shrub wetlands cover about 9 percent of the shoreline. At High Falls, wetlands dominate the shoreline with 30 acres covering 40 percent of the shoreline.

Wildlife

The eastern portion of the project area contains several areas of important wildlife habitat. Deer-wintering yards are found in low-lying areas typically with dense coniferous cover and ponds or streams nearby. Moshier impoundment is likely to have the best deer-wintering yards. There are areas of low-lying grasses, shrubs, and other herbaceous vegetation that provide good habitat for waterfowl within marshy, wetland areas. Eagle impoundment, with its numerous wetlands and lower sloped shorelines has a relatively large amount of good waterfowl habitat. Species requiring dense expansive tracts of forest and minimal human disturbances, such as marten, bobcat, black backed woodpeckers, or gray jay, are more likely to occur in the eastern project area.

In the western portion of the project area, there is a greater diversity of habitat with a mixture of forest, brushland, open agricultural areas, and residences. The High Falls impoundment has abundant wetlands that provide habitat for waterfowl and other wildlife. The variety of habitats creates edge effect, which provides additional habitat for species that include deer, black bear, and small game.

NMPC's field crews observed wildlife during environmental studies. They found snowshoe hare, white-tailed deer, raccoon, beaver, and red squirrel, and signs of mink, otter, and muskrat. Green, wood, and mink frogs; the American toad; salamanders; and a snapping turtle were also observed.

Bird species of note found within the Beaver River Project area include numerous Canada geese and sightings of the common loon. The loon is currently a state species of concern and has been seen on Beaver Lake, Soft Maple, Effley, Eagle, Taylorville, and Moshier impoundments. FWS, in their letter dated November 29, 1995, report sightings in the High Falls impoundment, and that extensive nesting studies have been conducted at the Stillwater Project. Breeding pairs have been documented on Soft Maple and Moshier impoundments, and good potential habitat for nesting loons exists within most of the impoundments. The islands provide particularly good loon habitat because

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they are more removed from human disturbance and mammalian predators than shorelines. Wood ducks, common merganser, hooded merganser, and common goldeneye are cavity nesters that exist in the project area. Surf scoter, mallards, great blue heron, belted kingfisher, and gulls have also been observed. Upland

species observed include the pileated woodpecker, ruffed grouse, scarlet tanager, black-capped chickadee, blue jay, white-throated sparrow, American robin, and thrushes. Broad-winged hawk and turkey vultures were the raptors observed. FWS, in their letter dated November 29, 1995, reported raven nesting in the Eagle Canyon area.

Threatened and Endangered Species

NYSDEC stated that no state-listed threatened or endangered fish, wildlife, or plants have been identified, or are known to exist within the project area (letter from L.J. Surprenant, NYSDEC, September 4, 1985). Additional correspondence stated that species of concern, especially raptors such as eagles and ospreys, follow river valleys during migration periods so that they could appear as transients.

NYSDEC also identified four locations as significant habitat. These include areas of the Soft Maple impoundment where a loon was reported nesting in 1985, and Beaver Lake where a loon was reported nesting in 1978 and an osprey nest was sighted in 1970. Other significant habitats are Moshier Flow where loons were reported to be nesting in 1978 and 1980, and the Beaver River Flow (Stillwater Reservoir) where an osprey was reported to be nesting 1 mile east of Moshier dam in 1970 (letter from J. Ozard, NYSDEC, Delmar, September 28, 1988).

During preparation of the application, NMPC consulted with FWS and was informed that there are no federally listed threatened or endangered species in the area, except for occasional transients (letter from Norman R. Chupp, FWS, Harrisburg Area Office, December 22, 1981 (Oswego River); and letter from Paul P. Hamilton, FWS, September 3, 1985 (Raquette River)). In response to our August 21, 1992, request for additional information, FWS confirmed that the status of federally listed threatened or endangered species within the project area has not changed since the initial consultation (letter from Leonard P. Corin, FWS, September 17, 1992).

b. Environmental impacts: The applicant's proposed actions may have several impacts on vegetation, wetlands, and wildlife.

The proposed recreational enhancements could result in an increase in human activities such as hiking, camping, picnicking, and whitewater and flatwater boating. These activities could increase the frequency and extent of disturbances adversely affecting habitats within bypassed reaches, along shorelines, and on impoundment islands. Disturbance of wildlife species may decrease foraging success, cause loss of habitat, and increase metabolic costs due to avoidance responses. As a result, growth and reproduction of waterfowl and furbearers who use these areas is diminished.

Impacts of Impoundment Fluctuations on Wetland and Wildlife Habitat

Impoundment fluctuations create an unstable environment for both plants and wildlife. Although the proposed impoundment fluctuations are, in general, improvements over previous levels, there is still the potential for 3-foot fluctuations in four of the impoundments during low flow periods (when 250 cfs cannot be passed at High Falls with the normal fluctuation restrictions at project impoundments). Depending upon season when the low flow condition occurs, these fluctuations could result in the loss of aquatic furbearer denning sites, increased mortality of bottom hibernating reptiles and amphibians, reduced reproductive success of nesting waterfowl, and altered plant species composition, growth, and water regime of important shoreline wetland and wildlife habitats.

The revised proposal, as stated in the Settlement, is to limit fluctuations as described in section V.C.2. These restrictions, however, could still result in large fluctuations. For example, at Moshier there is the potential to have seasonal or other short-term fluctuations between elevations 1,641 feet and 1,636 feet, resulting in a potential (albeit not highly probable) 5-foot fluctuation zone. Similarly, at Soft Maple the potential exists for fluctuations between elevations 1,289.9 and 1,285.4 feet, resulting in a 4.5-foot fluctuation zone. These numbers assume that flashboard failure extends the fluctuation. FWS (letter dated November 29, 1995) notes that flashboards on the Beaver River Project typically do not fail on an annual basis. Therefore, the frequency of extended reservoir fluctuations is expected to be small. The 5-foot fluctuation potential at Moshier is an improvement over past license conditions that allowed for up to a 24-foot fluctuation, and other additional improvements occur at the remaining project impoundments. Overall, nearly 40 acres of wetlands would be affected by the 3-foot fluctuation allowance, primarily at Moshier and High Falls.

Construction-Related Impacts

NMPC does not propose any major construction involving land clearing or earth moving activities that would result in the removal of much vegetation. In some instances, small areas

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of vegetation may be removed for the construction, improvement, or maintenance of recreation facilities. For example, NMPC agreed in the Settlement to keep certain trails brushed. Mechanized brushing and trail clearing equipment can result in nonselective and excessive vegetation removal and increased erosion problems along trails.

Our Analysis

Our analysis of the flow duration curves shows that low flow periods occur frequently during the critical waterfowl nesting season of May 1 through June 30. Historical data show that, in May, the four impoundments slated for 3.0-foot fluctuations have been in low flow periods 33 percent of the time at Moshier, 24.2 percent at Soft Maple, 23.5 percent at Effley, and 19.8 percent at High Falls. In June, the low flow figures are 19.5 percent at Moshier, 14.8 percent at Soft Maple, 15.5 percent at Effley, and 13.2 percent at High Falls. In addition, low flow periods occur at High Falls in all months of the year, ranging in monthly frequency from a low of 5.8 percent in January to the high of 20 percent in May, with a monthly average of 12 percent. These figures represent a significant number of days when the fluctuations in these impoundments could result in 3.0-foot draw-downs during the critical spring/early summer breeding season. During the waterfowl nesting season, fluctuations of this degree could have a severe impact on nesting success, especially at High Falls where there are numerous wetlands.

Based on the Settlement, the 3-foot fluctuation allowance under low flows has priority over the normal fluctuation restriction of 1 foot during May and June. This priority limits the value of the May 1 to June 30 1-foot fluctuation restriction. In addition, it is during this period that lost flashboards would not be replaced at projects with flashboards. To add a 3-foot draw-down on top of potential draw-down to the dam crest (flashboards out at Moshier and Soft Maple) could have an adverse impact on fisheries and wildlife habitats.

While the potential for impact exists, even the 3-foot draw-down represents an enhancement relative to present conditions. Furthermore, supplemental flow from Stillwater Reservoir sometimes can be used to compensate for low flows and to limit the extent or frequency of drawdowns. Since resulting conditions should be acceptable, we believe the public interest is not served by any further restrictions.

NMPC proposes to brush all trails. To prevent excess loss of vegetation, we suggest that the trail brushing be conducted by hand tools only (including chainsaws), to minimize the loss of vegetation and displacement of wildlife.

c. Unavoidable and cumulative adverse impacts: Fluctuations in water levels, although more limited than before, cause a reduction in plant species diversity and/or robustness of wetland vegetation. Loss or reduction of important wildlife food species could reduce foraging opportunities, thereby decreasing growth or preventing successful reproduction. These fluctuations could also limit the nesting success of waterfowl due to increased exposure to predators and loss of nesting habitat.

In addition, increased human recreational use may result in increased frequency of disturbances of nesting, foraging, or resting wildlife. As human use of natural areas increases, the number of locations acting as refuges for disturbance-sensitive species may be reduced.

5. *Cultural Resources*

a. Affected environment: The Belfort Hydroelectric Plant was originally developed in 1898 by Lafayette Wetmore. The powerhouse was enlarged in 1915 by the New York Power Corporation, and it retains three early turbine/generators installed in 1903, 1915, and 1918.

The Belfort Hydroelectric Plant meets Criteria A and C of the *National Register of Historic Places* (NRHP) as one of the earliest operating facilities of its type and period in the Black River Basin. The stone and concrete block powerhouse, steel penstock, and ogee dam retain integrity of design and materials and contribute to an understanding of localized small hydroelectric generating industries in the early 20th century (J. Stokes, SHPO, April 11, 1991). No other prehistoric or historic archeological sites eligible for listing in the NRHP have been recorded within the Belfort Development boundaries.

No historic properties or prehistoric or historic sites eligible for listing in the NRHP have been recorded within the boundaries of the Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, or High Falls Developments (letter from J. Stokes, SHPO, March 20, 1986.) The State Historic Preservation Office (SHPO) has requested that any changes in project operation or proposed construction activities at any development be submitted for review (letter from J. Stokes, March 20, 1986).

b. Environmental impacts: The general policy of the National Historic Preservation Act of 1966 (NHPA) is to encourage preservation of the nation's historic and cultural resources for future generations. NHPA section 106 requires federal agencies to consider the effects of their actions on historic properties.

Historic and Architectural Resources

Inasmuch as the Belfort Hydroelectric Plant is a Historic Property, issuing a license for the continued operation and maintenance of the

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Belfort Development under the protection afforded by section 106 of the NHPA, is generally to be considered a beneficial effect. Repairs or other activities to historic structures that are limited to in-kind replacement of historic fabric or features (i.e., replacement with new fabric that duplicates the old in terms of materials, design, size, color, and texture) would have no adverse effect upon the characteristics that qualify the Belfort Hydroelectric Plant for listing in the NRHP.

Activities requiring replacement other than in-kind, and activities involving new construction, partial demolition, or total demolition within the project boundaries could potentially have an adverse effect upon the characteristics that qualify the Belfort Hydroelectric Plant for listing in the NRHP. The potential impact would depend upon the nature and scope of the activity.

Archeological Resources

For all eight developments, there are no recorded prehistoric or historic archeological sites eligible for listing in the NRHP within the project boundaries. Nevertheless, there is still the possibility that there could be undiscovered properties in the project area that could be adversely affected by project construction or operation. If properties are found during project construction or operation, or if NMPC undertakes ground-disturbing activities other than those approved in any license issued for the project, the licensee should consult with the SHPO; based on consultations with the SHPO, prepare a plan describing the appropriate course of action and schedule for carrying it out; file the plan for Commission approval; and take the necessary steps to protect the discovered properties from further impact until notified by the Commission that all of these requirements have been satisfied.

Our Analysis

NMPC retained Duncan Hay to evaluate the history of hydroelectric facilities in New York State and to develop a Cultural Resources Management Plan (CRMP) for the developments that are in or eligible for listing in the NRHP. The study produced a 13 volume inventory of hydroelectric facilities in New York State, a historical context for hydroelectric facilities in New York State, and included Level 3 Historic American Building Survey/ Historic Architectural and Engineering Record (HABS/HAER) documentation [6] of these facilities.

CRMPs are required to conserve the existing historic fabric and features of National Register eligible projects to the greatest extent practicable within the framework of continued "use", i.e., operation. NMPC submitted and the SHPO approved a draft CRMP for all of its projects in New York State.

Programmatic Agreement

To ensure that the provisions of the system-wide CRMP are reviewed, refined, and enacted, we recommend that the Commission; Advisory Council on Historic Preservation (ACHP); and the SHPO, with NMPC as a concurring party, execute a Programmatic Agreement (PA) before a license is issued for the Beaver River Project. The PA should stipulate further review and refinement of the CRMP and require that the revised CRMP be filed with the Commission for approval within 2 years of license issuance.

NMPC prepared a draft PA in response to a request for additional information in August and September 1992 covering nine separate projects and the Moreau Manufacturing Company Feeder Dam Project in New

York State currently undergoing relicensing. The draft PA was submitted on September 14, 1993, following review and approval by the SHPO (David Gillespie, SHPO, August 31, 1993). We modified the draft PA to conform with the general format and stipulations for hydroelectric projects approved by the ACHP in 1993. We are circulating the revised draft with this EA to NMPC, the SHPO and the ACHP for their review and approval.

c. Unavoidable adverse impacts: None.

6. *Aesthetic Resources*

a. Affected environment: In this section, we discuss the project's overall aesthetic character and summarize the various minimum flows that have been considered at the Beaver River Project developments.

Overall Aesthetic Character

We describe the regional landscape and the landscape immediately surrounding the project area in section V.A. Although there are many similarities between the eight developments in landform, elevational changes, vegetative cover, and adjacent land uses, the project facilities themselves also influence the character of the aesthetic environment. For example, the existing penstocks are probably the biggest visual obtrusion for the Beaver River hydroelectric developments. They are large; usually divide access roads and public viewing from the bypassed reaches and river; and are painted bright, metallic, and with extremely noticeable colors. Each development has its own distinct visual features, and therefore, its

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own aesthetic issues and character. We discuss these in the following section by development.

Moshier - The landscape in the area of the Moshier Development has several aesthetic characters: a serene, tranquil, and relatively undeveloped impoundment; a rugged access road that is separated from the bypassed reach by the visually obtrusive penstock, which is buried on its upper end and is an exposed metallic, light blue steel pipe on its lower end; a bypassed reach that is naturally vegetated and follows the water through a series of plunge falls, small cascades, riffles and rapids; and a small, brick powerhouse and substation which, with the nearby parking area, overhead transmission lines, and surge tank, appears to have been cut into cleared areas in the woods.

Despite the man-made intrusions in the area, the overall landscape character is one of wilderness, especially in the bypassed reach and the impoundment. The bypassed reach and impoundment are of exceptional visual quality.

Eagle - The overriding character of the Eagle Development is of a remote area used for recreation: hiking, rock-climbing, boating, and cross-county skiing. Special scenic areas include the impoundment and the bypassed reach.

There are seasonal camps along the roads leading to the impoundment and along the southern side of the impoundment. Along the northern edge of the bypassed reach are cliffs that are used for rock-climbing. The above-ground penstock prevents views of the bypassed reach from the access road, which provides access to the Moshier impoundment, but it also prevents views of cars from the bypassed reach, thereby adding to the wilderness experience within the reach. The metallic light blue color of the penstock is visually intrusive within the rural character along the Eagle bypassed reach, where there are existing and proposed recreation activities. The concrete powerhouse and substation are located near the end of the portage route. Where it has not been cleared for hydroelectric facilities, access road, or seasonal camps, the Eagle Development is woodland.

Soft Maple - Because of the size and topography of the Soft Maple Development, there are many enclosed viewsheds. There are also many "subcharacters," although the overriding character is one of a large water body with gently rolling and wooded adjacent landforms, with a small amount of human activity visible in the seasonal camps, recreational areas, man-made landforms, fencing, and hydroelectric facilities. The bypassed reach seems remote and very rural, while the impoundment and its edges display the effects of human use. Conspicuous features include rather extensive fencing, gravel and sand pits, a large earthen embankment built to dam the impoundment (the terminal dam), and the brick powerhouse structure. It is a large and relatively accessible development, and there are formal and informal trails throughout the area.

The eastern part of the Soft Maple impoundment is within the Adirondack Park, and the park's southern limit is downstream of the spillway. The land on both sides of the river is privately owned, and it is classified by the APA as "Resource Management." There are many privately owned camps and summer homes along the shores, providing for recreational use of project lands and waters.

There are many recreational opportunities at this development because it is accessible by vehicle and there is a large amount of land between the impoundment and intake and the bypassed reach. Because of the changing landforms, vegetation, and water's edges, there is a great variety of views.

Effley - The land surrounding the Effley Development is heavily forested with a mixture of hardwoods and evergreens. Summer homes on the southern shore of the impoundment provide for recreational use, and the impoundment area is serene and wooded, with a remote/rural character. When viewing the development from downstream, the concrete dam is overwhelming in its size and width, although the bypassed reach itself is an attractive, rolling, rock plain, with a small waterfall leading to the tailrace. The powerhouse is an attractive brick structure, nestled into the wooded slope adjacent to the dam. The character of this development is a rural, wooded waterway, with hydroelectric development and summer homes as evidence of human presence.

There is an area of erosion at the north end of the dam, and there are several small piles of construction and maintenance debris near the powerhouse and intake canal. Special scenic areas include the entire impoundment, and the bypassed reach to a small extent, although it is very small and relatively inaccessible to the public, even from the portage trail. The existing portage trail is on the north side of the bypassed reach, but it is not visually connected to it.

Elmer - The Elmer Development is surrounded by heavily forested land, and it has a character of remote/ rural forest. The only access to the area is via a gravel road owned by NMPC. There is no current public or private use of the immediate area other than by NMPC.

The existing canoe portage traverses the northern side of the bypassed reach, opposite the powerhouse but well away from the water's edge, and it is not visually connected with the development except at the put-ins and take-outs.

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Downstream of the Elmer Development, land use, vegetation, and population density changes.

Taylorville - Taylorville and Belfort are the two developments most visible to the public, Taylorville because of its high level (relative to the other developments) of existing and proposed recreation, and Belfort because it is visible from an adjacent state road. Because of this public visibility, aesthetic issues at these two developments are significant.

Other than a few camps on the southern shore and one on the northern shore, there is very little development on the Taylorville impoundment. Most of the surrounding landscape remains heavily wooded. A small area located approximately 0.25 mile upstream of Taylorville dam along the north shore is presently being used for agricultural purposes, and cultivation of the soil occurs to within several feet of the water's edge. A parking and picnic area provides access to the impoundment and bypassed reach in conjunction with the canoe route. The parking area is among the trees, and it is of an appropriate character for a recreational site in a rural setting. There is an adjacent picnic area and another existing and proposed picnic area on a broad expanse of rocks at the upper end of the bypassed reach. The bypassed reach itself meanders for approximately 1 mile, varying between rapids; riffles; small falls; a large pond area; and, at its lower end, a broad expanse of gently falling riffles. An existing swimming area is located one-third of the way down the reach, near the "falls" and pond. Although NMPC does not encourage public use of the lower bypassed reach, many visitors picnic, swim, and view the river here.

Hydroelectric structures affect the aesthetic resources of this development. The dam itself is unremarkable, except for graffiti and other indications of public use and abuse, on the dam and throughout the development. The picnic area in the bypassed reach is gated to prevent vehicular access. The penstock, which parallels the access road (which is the proposed portage trail at its upper end), is painted a metallic light blue-green and is visible through the vegetation from many areas of the development, detracting from its rural character. The powerhouse is an attractive stone structure, but it is overwhelmed by the adjacent wood surge tank and enormous transmission line substation. Several high and low transmission lines cross

the river from the substation. Several residences owned by NMPC are located behind the substation, along the access road.

Special scenic areas and viewing areas include the picnic area overlooking the impoundment and the entire upper end of the bypassed reach, which is removed visually from the powerhouse, substation, and transmission lines.

Belfort - The Belfort impoundment and dam are visible from Erie Canal Road, which bisects the impoundment and dam on one side and the powerhouse on the other, crossing the intake canal. It is a state road, and traffic on it travels at about 40 mph. Although population density is relatively low in this area, because of its high visibility from the road, aesthetics at Belfort are of special concern.

The impoundment is primarily forested, with several islands and several permanent homes on its western end near the roads. A small parking area along the road near the dam allows public viewing of the impoundment, but it is somewhat separated from the impoundment by a low concrete wall and vegetation. The historic powerhouse is not readily visible from the public road or pedestrian areas. Although a substation and transmission line on Erie Canal Road, opposite the dam, appear utilitarian, they do not necessarily detract from the aesthetic environment, which displays many man-made structures.

The bypassed reach is particularly attractive, being cut into a steep gorge with vegetation on the southern side, and tall concrete and stone retaining walls on the northern side. The view of it is, however, not accessed by any designated public paths. Below the powerhouse, in the area designated for the portage route, the steeply sloping hillside is forested with trees and underbrush.

The special scenic area at this development is the impoundment and dam, as viewed from the road and areas designated to receive pedestrian improvements.

High Falls - The area along the southern side of the High Falls impoundment is forestland. Along the northern side there is brushland from abandoned agricultural activities. There is very little development in the area around the impoundment. Public access to the area is limited to the northern shore where Old State Road crosses over the mouth of the Balsam Creek. There are several summer homes on the southern shore, near the dam and powerhouse.

The impoundment is very scenic, with the same rural (not wilderness) character that is seen at several of the other developments. Islands dot the impoundment, and NMPC proposes primitive campsites there. While the dam itself is an enormously tall and overwhelming structure when seen from below, in the bypassed reach, the reach itself is a winding and falling rocky stream bed with steeply sloped, vegetated banks on both sides. Because the proposed canoe portage route is distant from the bypassed reach, and not visually accessible to it, the public will see the dam and bypassed

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reach only if they choose to walk down the steep slope to it. A small number of people do use the reach for wading in the summer months. The brick powerhouse and substation are inaccessible to and not readily visible by the public. The blue-painted penstocks, while not in character with the rural landscape, do not necessarily detract from it because they are not easily seen by the law-abiding public.

This development is most frequently viewed from the public road at the northern edge of the impoundment mentioned above, a location from which the hydroelectric facilities are not apparent. The most scenic area of this development is the impoundment itself.

Minimum Flows

Under the existing license, minimum flows are provided at four of the eight developments: Moshier, Eagle, Soft Maple, and Taylorville. Table 5 summarizes the existing minimum flows. It also summarizes the study flows released by NMPC and viewed at the site visit or recorded on videotape on September 13, 14, and 15, 1993.

Table 5. Table of MinimumFlows in Bypassed Reaches (cfs).

Site

Development	Existing Flow	Visit/Videotape Flows	Settlement Flow
Moshier	30	30, 90/35, 58	45/12 mos
Eagle	30	150 2 /37, 58	45/12 mos
Soft Maple	20	30/26, 44	35/12 mos
(south channel)			
Effley	0	10, 20, 60, 90	20/12 mos
Elmer	0	10, 20, 60, 90	20/12 mos
Taylorville	30	90, 120/30, 65	60/12 mos
Belfort	0	10, 20, 60, 90	20/12 mos
High Falls 1 ...	0	10, 30, 60	30/12 mos

1 250 cfs base flow required from powerhouse for downstream treatment plant.

2 Uncontrolled flow at the time of the site visit.

b. Environmental impacts: Because NMPC does not propose any new structures that affect aesthetic resources, aesthetic assessment of the Settlement focuses on three areas: the visual impact of proposed recreational enhancements on the overall aesthetic character of the developments; minimum flows in the bypassed reaches; and reservoir fluctuations.

Overall Aesthetic Character

NMPC proposes recreation enhancements that include downriver boating, whitewater boating, camping, picnicking, and access to project bypassed reach and reservoirs for boating, fishing, hiking, swimming, and scenic viewing. The amount, size, and type of materials proposed for enhanced recreational resources would greatly affect the visual experience at each of the developments. New canoe portage trails and access trails for hiking and scenic viewing would involve new trail construction; new signage, kiosks, and trail markers proposed throughout the project boundaries would be very evident visual elements; picnic tables, grills, trash receptacles, and rest room facilities at the Soft Maple and Taylorville Developments would be new visual elements in the landscape; new parking facilities and parking barriers at Moshier and Soft Maple would have a visual impact; campsites, both primitive and tent/RV sites would affect the aesthetic character of the High Falls and Soft Maple Developments; and boat launches at Taylorville and Soft Maple would be visible from the impoundments.

NMPC exhibits describing the proposed recreation enhancements in response to a request for additional information from the Commission indicate design solutions for recreational enhancements made of those materials most appropriate for the environment of each development. The materials vary between the developments for added interest and appropriateness, but the design solutions maintain consistencies in path widths and signage typeface and logos, for example, so as to make the recreational system apparent.

Our Analysis

We generally concur with NMPC's proposed approaches to the design solutions for the recreational enhancements proposed and their overall effect on aesthetic resources. Implementation of the solutions proposed would satisfactorily blend with existing conditions to maintain current aesthetic character.

Because of whitewater boating releases, the project areas would receive significant and increasing visitation. Aesthetic issues relative to whitewater boating include both those for the days of the events, and those following the events. To maintain and promote a maximum aesthetic and overall experience, on the days of whitewater releases NMPC should control parking, vandalism, and safe use of the sites. Following the events, NMPC should clean the areas, repair any damage to structures and vegetation, and return the areas to their original condition.

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Primitive campsites should be maintained by NMPC in a pristine condition. Picnic facilities should be supplied with an adequate number of acceptable-looking trash receptacles, which could be reduced in number during months of lower visitation to increase the wilderness experience. Grills and picnic tables should be maintained in an acceptable condition. Because of the potential for trash receptacles to attract bears, this provision should not be considered mandatory. If trash receptacles are not provided, the area should be regulatory policed for trash and litter.

Many aesthetics issues pertain to maintenance, which is an essential and critical component of the visual quality of all of these developments. The public should perceive that NMPC is generously opening these lands to the public, cares about the lands, and is willing to maintain them, despite their remoteness. It has been shown in other areas and parks that this attitude can be perceived by the public, and will be reciprocated by the majority of the people using the areas. Through maintenance, vandalism should be kept to a minimum, and each development's offered experience, be it wilderness, remote, or rural, would be maximized.

As described in the previous section, the existing penstocks are probably the biggest visual intrusion for the Beaver River hydroelectric developments. While they cannot be hidden from view, they should be made as visually unobtrusive as possible. We recommend, therefore, that the colors of the penstocks should be revised during the next scheduled maintenance painting. Plans for repainting should be submitted to the Commission for approval.

Minimum Flows

The Settlement includes proposed minimum flows at all eight developments. We summarize these flows in Table 5 and present our assessment in the following section.

Moshier - The minimum flow offered in the Settlement is 45 cfs. at 30 cfs, the reach appears as a natural mountain stream with alternating riffles, rapids, open water, and waterfalls. The noise level is pleasant and mostly calm. at 56 cfs, the increased flow adds noise, covers more of the reach width, and adds excitement with increased rapids, riffles, and falls. Based on assessments of these flows, 45 cfs appears as a briskly moving mountain stream and would offer a pleasant noise level with a flow that highlights the rapids, riffles, and falls that are visible in this reach.

Eagle - The minimum flow offered in the Settlement is 45 cfs. at 37 cfs, the bypassed reach appears as a calm stream, with enough flow to maintain interest through the small falls, riffles, and rapids. Because of the very wide and deep channel in some areas, the flow provides only approximately 10 to 20 percent coverage of stream width with many exposed boulders and stones in the channel. Fifty-eight cfs adds interest, especially at the falls. Coverage increases only marginally in the wide channel areas. There is no significant increase in noise except at the falls. Based on the assessment of these flows, at the proposed 45 cfs the river in the bypassed reach would appear calm, with some visual and auditory interest generated at the falls.

Soft Maple - The minimum flow offered in the Settlement is 35 cfs. at 26 cfs, the bypassed reach appears as a meandering stream, with shallow pools, riffles, rapids, and two waterfalls. It is pleasant and calm, with an adequate noise level. at 44 cfs, the channel carries perceptibly more water, yet the character is mostly unchanged from 26 cfs, except at the waterfall, where volume, noise, and visual interest increased. Based

on the assessment of these two flows, the character of the reach at 35 cfs would be a meandering stream with particular visual and auditory interest generated by the flow over the waterfalls.

Effley - The minimum flow offered in the Settlement is 20 cfs. Aesthetic assessment of minimum flows in the Effley bypassed reach must take into account several site-specific factors: the reach is very short, it is very broad and rocky at its upper end and channelized into a small waterfall at its lower end, and it is not very visible to the public, even from the canoe portage route. at 10 cfs, the flow appears only as a trickle in the enormous channel. A small waterfall at the powerhouse is somewhat interesting. At the proposed flow of 20 cfs, there is perceptibly more water than at 10 cfs, but the character is unchanged.

Elmer - The minimum flow offered in the Settlement is 20 cfs. As discussed at Effley, aesthetic assessment of minimum flows in the Elmer bypassed reach must take into account several site-specific factors: the reach is very short (shorter than Effley); it maintains a broad and rocky constant width for its entire length; it is straight (less visually interesting); and it is not very visible to the public, even from the canoe portage route. at 10 cfs, the flow appears only as a trickle, and it is not interesting. At the proposed 20 cfs, the flow is somewhat interesting, but provides very little coverage in the channel.

Taylorville - The minimum flow offered in the Settlement is 60 cfs. Relevant observations were made at 65 cfs and the difference between the flows is not considered significant. at 65 cfs the bypassed reach appears as a rushing stream, and in the rapids and falls areas there is an air of excitement due to whitewater,

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spray, and noise. The flow is visually appealing.

Belfort - The minimum flow offered in the Settlement is 20 cfs. The flow is released from the southern end of the dam and is visible primarily to south-traveling vehicles and pedestrians. The proposed flow of 20 cfs is interesting and provides some coverage of the dam and channel.

High Falls - The minimum flow offered in the Settlement is 30 cfs. There are several site-specific issues to consider when discussing minimum flows at High Falls: the size of the dam is visually overwhelming in the bypassed reach; the width of reach near the dam is very wide; visibility within the reach is poor due to extensive vegetation; and the public does not access the reach, except for an occasional wader (the canoe portage is well removed from the reach). The proposed flow of 30 cfs has marginally more water, interest, and noise, especially at the downstream end where the channel narrows, than 10 cfs, which is best described as a “trickle.”

Our Analysis

Minimum flow levels in each of the bypassed reaches are largely responsible for defining the reach’s character in terms of magnitude, sound, and spray. Variations in flow alter these characteristics. Lower flows may expose rock formations or vegetation that is submerged at higher flows. At higher flows, the character may be explosive and powerful, or there may be only a negligible difference in character if the reach is very broad and flat, and it takes a great deal of water to change the percentage of the reach under water. Sound and spray levels can generally be expected to increase with flow level.

In general, all flows proposed in the Settlement would be acceptable for visual resources and enhancements over the minimum flows in the existing license. At Moshier, because of its wilderness designation and isolated location, the proposed flow of 45 cfs would be a level of water expected by the average visitor, and in conformance with its surroundings. The 45 cfs proposed for the Eagle Development is acceptable due to its relatively isolated location, and limited recreational interest (canoeing and rock-climbing).

At Soft Maple, the proposed 35 cfs would be between the two flow levels discussed, both of which show the Beaver River in this reach as a relatively calm stream. This level is acceptable, and would provide an enjoyable experience for visitors.

A particular consideration relative to the analysis of both the Effley and Elmer bypassed reaches is the private nature of the developments. At Effley, it would take very high flows to have any visual impact in this reach, and then it would be questionable as to how many people would see it. The higher flows studied at Elmer were aesthetically more appealing, but also would not be viewed by many people. We agree that the proposed 20 cfs at each development would be acceptable.

At Taylorville, we concur with the 60 cfs as the appropriate minimum flow. At Belfort, which is the most visible bypassed reach, the flow over the dam is visible primarily to south-traveling vehicles and pedestrians. Based on our assessment of the aesthetic values of minimum flows, 90 cfs is the best alternative, and even higher may be better. It provides greater coverage of dam, and therefore some visibility of dam for north-traveling vehicles. Given the development's size and the relatively low population density of the area, however, the proposed 20 cfs is acceptable. At High Falls, 30 cfs seems acceptable to allow the Beaver River to maintain a watered appearance with some visual interest.

In terms of visual resources, we support the creation of the BRAC proposed in the Settlement. Aesthetic issues that may arise during the 30-year license that are currently nonexistent may be addressed by the Committee. Increased population density and/or recreational visitation may have a great impact on the aesthetic resources within the eight developments.

Reservoir Fluctuations

The Settlement states that reservoir fluctuation would be limited to from 1 foot to a maximum of 3 feet, the fluctuation limits being defined for each development, and varying with low flow periods and nesting seasons.

Our Analysis

The reservoir fluctuation limitations as outlined in the Settlement attempt to minimize fluctuations. Minimizing fluctuation is also a goal for the protection of visual resources, as vegetation along the water's edge can remain stable. If the water requirements of the project are met during low flows, the benefits of the 1- to 1.5-foot fluctuation can be realized. If HRBRRD can not supply sufficient water, fewer benefits will result. However, even the 3-foot maximum drawdown represents an enhancement compared to present conditions, as discussed previously in section V.C.2.

c. Unavoidable adverse impacts: There would not be any unavoidable adverse impacts on aesthetic resources. There would, however, be a cumulative beneficial impact as a result of implementation of the agreements in the Settlement.

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7. *Recreation Resources*

a. Affected environment: We identified downriver boating, whitewater boating, camping, picnicking, and access to project reservoirs and bypassed reaches for fishing, boating, hiking, swimming, and scenic viewing as recreation resources that can be affected in a cumulative manner by the Beaver River Project. A sign-in log maintained by NMPC at Moshier Development for the years 1984 and 1986 through 1989 indicated that hiking was the most highly recorded activity. It was followed in descending order of use by camping, fishing, swimming, canoeing, and sight-seeing.

Downriver Boating - The Beaver River Canoe Route

The Beaver River Canoe Route extends along 12 miles of the Beaver River. The route begins at the head of the Moshier impoundment and ends at the western end of the Taylorville dam impoundment. The flatwater paddling route meanders through the series of five water impoundment areas created by the power development sites. There are four portages around dams and bypassed reaches at the Eagle, Soft Maple, Effley, and Elmer Developments. Canoe put-ins and portage routes are identified by brown signs with yellow letters. Portage routes are also blazed on trees with green paint.

Whitewater Boating

Currently, there is no whitewater boating within the boundaries of the Beaver River Project. In 1991, however, NMPC published the "System-wide Whitewater Recreation Plan" assessing the potential whitewater recreation at all the NMPC-owned hydroelectric projects. The plan was developed in consultation with representatives of organizations interested in whitewater recreation in New York. The Moshier and Taylorville Developments were identified as 2 of 16 sites with potential for whitewater recreation. For whitewater boating to occur in the bypassed reaches of these developments, NMPC would have to provide a scheduled release of sufficient flows.

Specific studies addressing whitewater recreation use were conducted on the bypassed reaches of the Taylorville and Moshier Developments to assess the feasibility of using these reaches for whitewater boating. A whitewater feasibility study for 0.8-mile in the Taylorville bypassed reach was conducted on October 14,

1989. Eleven paddlers of intermediate, advanced, and expert skills and two to sixteen years experience participated in the study. Whitewater features within the reach include four chutes and one 8- to 10-foot waterfall.

Study releases at Taylorville were provided at 230, 320, and 420 cfs. at 230 cfs, the participants rated the reach as Class III to IV for intermediate to advanced skill levels. They found this level to be a good intermediate training run, but tough on low volume boats and hazardous at many of the drops. At the 320 cfs level, the paddlers rated the whitewater as Class III to V for skill levels of intermediate, advanced, and expert. They found the run to be challenging for novice boaters, but the water levels were too shallow for low volume boats and there was a potential to cause injury in a flip. at 420 cfs, they rated the whitewater as Class IV to V for skill levels of intermediate, advanced, and expert. The consensus of the paddlers was that the 420 cfs flow creates the safest conditions. The overall evaluation of the reach was that it provides good quality, fun water for advanced paddlers and that the reach offers a unique combination of low risk and high drops with big pools for easy recovery in case of a swim (NMPC, 1991).

A paddling feasibility study for the 2.1-mile Moshier bypassed reach was done on June 11 through 12, 1993. The reach includes two 15-foot waterfalls, two 3-foot waterfalls, and three chutes through narrow gorges of 30-, 450-, and 500-foot-length. The average gradient of the reach is 54 feet per mile. Ten paddlers participated, and they concluded that at flows of 250 and 400 cfs the Moshier bypassed reach is rated Class III to V for intermediate to expert paddlers.

Camping

The Soft Maple Development provides the only camping sites within the Beaver River Project boundaries. Seven primitive campsites are located on a peninsula of land on the west shore with access from Eagle Falls Road, just south of the channel that diverts water to the lower reservoir. These sites are principally for canoeists paddling on the Beaver River Canoe Route, though there is easy access to the campsites by vehicle from Eagle Falls Road. Islands within the Soft Maple and High Falls impoundments are used informally as campsites, but NMPC does not maintain or manage them.

Picnicking

There are formal picnic areas located at the High Falls and Taylorville Developments. At High Falls, NMPC and Lewis County jointly operate a day-use area on the north end of the impoundment. There is parking for 10 cars and a stone dust path down to a car-top boat launch. There is also a picnic area with two picnic tables, grills, and trash receptacles. At Taylorville, there is a small picnic area adjacent to the north end of Taylorville, dam on the west shore of the impoundment with parking for 8 to 10 vehicles.

Informal picnicking at undeveloped areas occurs at several places within the project boundaries, especially in areas where there are scenic

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amenities, good trail or footpath access, and/or ease of access from local roads. The bypassed reach of the Soft Maple Development and an area adjacent to the Soft Maple canoe campsites are popular spots.

Access to Recreation Resources

In addition to downriver and whitewater boating, camping, and picnicking, there are several other recreation activities that we identified that use the project's recreation resources. These include fishing, swimming, hiking, and snowmobiling. These activities are affected by the access provided to project reservoirs and bypassed reach via parking areas, boat launches, and trails or footpaths.

At Moshier, facilities that support these recreational activities are centered near the powerhouse and the Sunday Creek parking lot. NMPC (which maintains a trail register) and NYSDEC jointly operate the lot. It provides parking for 15 to 20 vehicles, and anglers use the lot for access to Sunday Creek and the Beaver River. The lot also provides parking for hikers to access trail connections and footbridges over the Beaver River and Sunday Creek to access hiking trails in the Pepperbox Wilderness north of the site. There is also access to a hiking trail that originates at the lot and runs along 3/4 of the length of the south bank of the bypassed reach.

At Soft Maple Development, there are several trails that provide access to the 8,340-foot bypassed reach from Soft Maple Road for fishing, hiking, and scenic viewing. The bypass begins at a spillway at the west

end of the upper reservoir adjacent to the head of the diversion canal and continues to the tailrace of the powerhouse. Minimum flow in the bypassed reach is 34 cfs. One trail to the bypass results from a heavily used snowmobile trail that passes through the area and crosses the bypassed reach on a crude log bridge. Other informal trails provide access to the bypassed reach for picnicking, swimming, fishing, and scenic viewing.

Fishing takes place in bypassed reaches and project reservoirs. Overall fishing in the bypassed reaches within the project boundaries is rated poor to fair. Creel censuses for the bypassed reaches indicate that the fish caught include yellow perch, brook trout, brown bullhead, chain pickerel, pumpkinseed, white suckers, and rock bass.

At the Taylorville Development, access to the impoundment reservoir for boating and fishing is provided by a car-top boat launch adjacent to the north end of Taylorville dam on the west shore of the impoundment. There is parking for 8 to 10 vehicles. Several trails also provide access to the bypassed reach from the north. Fishing occurs in both the impoundment and the bypassed reach. Smallmouth bass, bluegill, pickerel, and perch are caught in the impoundment. Brook trout are caught in the bypassed reach. Swimming in the bypassed reach takes place in pools below the dam.

At Belfort, the principal recreational use of the development is for boating and fishing. Access to the impoundment for boating and fishing is provided from Erie Canal Road at the south end of the dam. There is parking for 6 to 8 vehicles and a canoe launch at the bottom of a steep bank to the shore of the impoundment. The bottom drops off abruptly at the shore to a depth of 3 to 5 feet.

Access to the High Falls impoundment for boating and fishing is provided from the north shore via a car-top boat launch on Old State Road. The boat launch was cooperatively developed by NMPC, Iroquois pipeline, and Lewis County.

Access for Persons with Disabilities

Persons with disabilities have access to trails at High Falls and access to the water below the powerhouse at Soft Maple.

b. Environmental impacts: We identified opportunities for enhancing downriver and whitewater boating, camping, picnicking, and improving access to recreation resources at project facilities for fishing, hiking, swimming, and scenic viewing. NMPC has proposed several recreation enhancements. These proposed enhancements were modified and supplemented by the Settlement.

Downriver Boating - Beaver River Canoe Route

NMPC proposes several enhancements to the Beaver River Canoe Route, including extension of the route beyond Taylorville to High Falls and thus encompassing the full 18-mile reach of the Beaver River Project. As part of the extension and enhancement of the canoe route, NMPC proposes new portage trails and associated access points for put-ins and take-outs at Taylorville, Belfort, and High Falls. New canoe access points are also proposed at Moshier, Soft Maple (with access to the upper impoundment at Effley), Taylorville, Belfort, and High Falls adjacent to Old State Road.

Our Analysis

The addition of new portages at Moshier, Taylorville, Belfort, and High Falls would allow extension of the route for the full 18-mile reach of the Beaver River within the project boundary and its further extension downriver and upriver to more of the Beaver River and beyond. Provision of benches and canoe rests along the longer portages at Taylorville and Eagle would enhance use of these portages. Creation of primitive campsites on islands and isolated peninsulas within the Soft Maple and

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High Falls impoundments would enhance the wilderness recreation experience some canoeist may seek by providing camping sites away from other human activity.

At the Belfort Development, the Erie Canal Road runs in a north and south direction through the site connecting Old State Road to the north with Belfort and Effley Falls Road to the south. It has a significant influence on recreational use of the development by improving access to the development and causing a significant obstacle to canoeists who portage downriver. Traffic in this area could be particularly hazardous to a person portaging a canoe across the road. We recommend that NMPC be required to consult with

the appropriate highway safety officials to determine the proper road crossing precautions that should be installed in this location and that any recommended warning and safety measures be installed prior to any measures that would publicize the portage or encourage its use.

The expanded Beaver River Canoe Route probably would generate increased use by canoeists. Canoe put-ins and take-outs are particularly sensitive to erosion from increased traffic. NMPC should monitor the canoe put-ins and take-outs for signs of erosion and take corrective actions when necessary to prevent such erosion. Particular attention should be paid to the take-out at the Effley Development, where there is evidence of bank slumping in the vicinity of the canoe take-out.

Whitewater Boating

Based on the whitewater paddling feasibility studies, the Settlement includes proposed whitewater releases at the Moshier, Taylorville, and Eagle Developments (see NMPC's proposed flows in section V.3.b). Releases would be coordinated among the three developments, and the release schedule could be altered after consultation with BRAC. The total of all releases, however the schedule is structured, would not exceed the equivalent of 96,600 kilowatt-hours (kWh).

In addition to the flows at these developments, at Moshier, to provide access to the upriver end of the bypassed reach for whitewater boaters, NMPC would develop a new car-top boat launch with a gravel parking lot for four vehicles below the impoundment. The gated, limited access road beginning adjacent to the Sunday Creek Brook parking lot would be opened to allow vehicle access to the upper reach.

Our Analysis

The proposed whitewater releases for the Moshier, Taylorville, and Eagle Developments open up a recreational resource previously not available within project boundaries. Both the Moshier and Taylorville sites were identified in NMPC's 1991 "System-wide Whitewater Recreation Plan" as having potential for whitewater boating. At Moshier, releases in September and October would provide water at a time of year when water was previously unavailable.

The feasibility studies showed that the reaches and flow levels are most appropriate for advanced to expert paddlers, which would preclude use of the resource by paddlers of lower skill level. Nearby releases downriver on the Black River at Watertown, however, are rated Class II and III and provide opportunities for beginning and intermediate paddlers.

A whitewater paddling feasibility study was not done for the Eagle bypassed reach, so it is difficult to assess whether the proposed release of 200 cfs is adequate. The bypassed reach is 3,855 feet long (0.7 mile). It includes an 8- to-10-foot waterfall. AWA and other representatives of whitewater interests familiar with the feasibility studies for both the Taylorville and Moshier bypassed reaches, however, based their recommendation of 200 cfs on first-hand observations of the reach and their experience of paddling similar flows in the other two reaches.

The Settlement does not give the exact timing of the releases at the three developments, but indicates that NMPC and AWA, in consultation with BRAC, would determine the schedule. This allows for flexibility in coordinating the releases, thus allowing adjustments to flow and changes in the release schedule to create optimum conditions and timing of releases. This is important for new whitewater runs where there is no user history. The Settlement provides for consultation with BRAC to make any necessary adjustments.

Too much flexibility, especially at a new site, may also be detrimental if schedule changes are not publicized well in advance. Many paddlers probably would be traveling at least 1 to 2 hours to the site. We recommend that NMPC make public the release schedule (including dates, flows, and level of difficulty according to the International Scale of Difficulty) as early as possible in the paddling season and provide a mechanism for potential paddlers to check the schedule and make travel arrangements in advance of the scheduled releases.

Camping

NMPC proposes to enhance camping opportunities by adding new campsites at the Soft Maple and High Falls Developments. At Soft Maple, 10 new campsites would be developed on the peninsula of land presently used for primitive canoe camping. The new sites would have running water and accommodate tents, trailer campers, and recreational vehicles. A new 1,000 square foot caretaker's cabin and

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500-square-foot garage would be built adjacent to the campsites. The canoe campsites presently in this area would be relocated to seven new primitive campsites on the islands and remote peninsulas of the upper reservoir. An 800-foot gravel road would provide vehicular access to the new sites. Five new primitive canoe campsites are also proposed for two of the islands in the High Falls impoundment.

Our Analysis

NMPC's proposal would increase the total number of campsites available within the project boundaries from 7 to 22, thus enhancing camping opportunities in the project area. The addition of tent camping and recreational vehicle sites creates camping opportunities not previously available at the Beaver River Project. The creation of primitive campsites on islands and isolated peninsulas in the Soft Maple and High Falls impoundment would enhance the quality of the wilderness recreation experience some canoeists may seek in paddling the Beaver River Canoe Route. The addition of sites in the High Falls reservoir complement the proposed extension of the Beaver River Canoe Route by creating campsites at what would become the furthest downriver location for camping within the Beaver River Project boundaries and anticipates use by canoeists who intend to continue downriver outside the project boundaries.

Picnicking

NMPC proposes new and improved picnic facilities for the Soft Maple and Taylorville Developments. NMPC proposes to develop a picnic area for Soft Maple with parking for about 20 cars and a 200-foot trail that would extend south of the parking lot to a picnic area with 15 picnic tables, grills, and trash receptacles. Four restrooms would also be built in the picnic area. At Taylorville, a new picnic area with four picnic tables, grills, trash receptacles, and two restrooms would be developed. Both facilities would be in areas adjacent to a proposed car-top boat launch facility.

Our Analysis

Proposed new facilities would encourage more day use of both areas and would provide site amenities that allow for better management of the areas. Human activity detrimental to the scenic quality of the natural environmental, such as vandalism and unsightly debris, is evident at both sites but should decrease with increased usage and the presence of a staffed caretaker's cottage at the Soft Maple Development. Construction of the new facilities would also probably include an overall cleanup of debris in the general area where the new facilities would be installed.

Access to Recreation Resources

NMPC proposed several new facilities that would enhance access to recreation resources within the project boundaries for fishing, hiking, swimming, and scenic viewing. These include new trails, parking areas, and boat launches at Moshier, Eagle, Soft Maple, Effley, Taylorville, Belfort and High Falls Developments. New signs identifying the facilities would also be provided at all sites, except at Effley and Elmer. New sign-in registers would be provided at Moshier and Belfort. An information kiosk would be constructed at Moshier that would describe the Beaver River Canoe Route and other foot trails in the area.

To enhance hiking conditions in the area, NMPC proposes to install a new footbridge to the Moshier bypass trail. The bridge would be constructed south of the powerhouse to avoid the penstock that blocks other routes.

At Eagle, a new scenic access trail to the bypassed reach for fishing and scenic viewing would be added by constructing a new 150-foot trail to the bypassed reach. The entrance would be midway along the reach under penstock pier #57, where a person can easily walk under the penstock. The area of the reach accessed would provide scenic views upstream to a gorge and "Eagle Canyon" and good fishing in a pool at the foot of the gorge. Signs would mark the access point. Minor road widening would accommodate a parking area for 2 to 4 vehicles.

NMPC proposes several enhancements for the Soft Maple Development that would improve access to the impoundment and the bypassed reach including a new car-top boat launch on the south shore of Soft Maple's upper reservoir. The new boat launch would be in the same vicinity of the proposed new picnic area, campsites, and caretaker's cabin. There are 20 new parking spaces proposed for the area.

NMPC also proposes recreational enhancements for access to the Soft Maple bypassed reach for hiking, swimming, picnicking, and scenic viewing. A new parking lot for 10 to 14 cars is proposed in the location of an existing gravel pit off Soft Maple Road to provide parking for existing trails with access to the bypassed reach. It would be plowed in the winter to accommodate snowmobile trailers and other winter uses. The entrance to the parking lot from Soft Maple Road would be marked. Signs in the lot would direct people to trails that access the bypassed reach. Further east on Soft Maple Road, signage and roadside parking would be developed to provide access to a 150-foot trail to a scenic overlook of a fall on the bypassed reach. Extension of the formal trail would be limited to preserve the area's wild character.

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Access to the Effley impoundment already has been provided by a new parking lot and car-top boat launch at the tailrace of the Soft Maple Development. This was constructed as a joint venture between Lewis County, NMPC, and the Iroquois Gas Transmission System.

Access to the Taylorville impoundment would be improved by the construction of a new car-top boat launch north of the impoundment dam. A 250-foot gravel access road would be extended to the site with roadside parking. New trails to the bypassed reach are also proposed, including 2,800 feet of barrier-free cement and stonedust trails. These would enhance access along the north bank of the bypassed reach.

Access to the Belfort impoundment would be enhanced by a 600-square-foot barrier-free fishing deck proposed for the west shore north of the dam. There would be parking for six cars in a parking lot between the impoundment and Erie Canal Road. Trash receptacles, signs marking the site, and a sign-in register would also be provided.

Access to the High Falls impoundment already has been provided as a joint venture of Lewis County, NMPC and the Iroquois Gas Transmission System.

Our Analysis

NMPC's proposal enhances access to recreation resources. New and improved parking facilities at Moshier, Taylorville, High Falls, and Soft Maple would better accommodate anglers, hikers, swimmers, scenic viewers, and other recreational users of facilities within or abutting the project boundaries. New and improved footpaths and hiking trails would provide better access to the bypassed reaches at Moshier, Eagle, Soft Maple, and Taylorville Developments for hiking, fishing, and scenic viewing.

NMPC also proposes information kiosks at the Moshier and Taylorville Developments that would be used to provide information about the Beaver River Canoe Route. These would be helpful at developments where recreation opportunities would be expanded.

Access for Persons with Disabilities

In addition to specific enhancements described above for the Belfort and Taylorville Development to provide barrier-free access for persons with disabilities, NMPC proposes to address access for persons with disabilities project-wide. This includes designating reserved parking spaces for persons with disabilities at all parking lots, designing all accessible foot paths to be 5 feet wide to allow passage of two wheelchairs, surfacing paths with rolled crushed stone/stone dust to provide stable, firm, and slip-resistance surfaces, maintaining trail slopes at a maximum grade of 8.3 percent, and providing level rest areas every 200 feet. Paths and trailheads would be posted to indicate the level of difficulty for users with disabilities. Picnic areas would include picnic tables and grills that are designed for use by persons with disabilities. NMPC also proposes to publish brochures that indicate which facilities in the project boundaries are accessible or have special features, such as braille signage, barrier-free tables, or barrier-free rest rooms.

Our Analysis

NMPC's proposal includes specific facilities that would enhance access to recreation resources for persons with disabilities. The descriptions of the proposed new restroom facilities, however, do not specifically state that they would be barrier-free. NMPC has stated that it would enhance access for persons with disabilities. Therefore, we assume that it intends to make the new restrooms accessible for persons with disabilities and will require it in the project license. In addition, NMPC should include as a component of its recreation plan a description of barrier-free facilities within the project boundaries. We recommend that this plan include input from groups representing persons with disabilities.

The Beaver River Fund

The Settlement establishes the Beaver River Fund and Advisory Council. The fund would be administratively managed by NMPC, and used according to the recommendation of the Council. The Council will be chaired by NYSDEC. The membership will include representatives of several federal, state, and local agencies and nongovernmental organizations with interests in the river basin.

NMPC's initial contribution of $80,000 to the Fund would be used exclusively to purchase a 25-foot-wide conservation easement around the Moshier Impoundment, reserve sand and gravel rights along the Moshier bypassed reach and fee title to the abutting acreage to the south, and to obtain fee title to "Eagle Canyon." Subsequent contributions by NMPC to the fund, which may vary depending on events during the term of the license, would be used within the Beaver River basin for as yet unidentified. . .

projects and services designated by majority vote of the Council for purposes or ecosystem protection, natural resource stewardship, public education, facility maintenance, and applied research necessary to accomplish these projects and provide these services and additional public access to outdoor recreational resources. . .

The Settlement states that the fund is not intended for any of the parties [presumably to

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the Settlement] to carry out any obligations under the license or amendments thereto.

Our Analysis

We do not recommend that the provisions of the Settlement establishing the Beaver River Fund and Advisory Council be included in the license. As discussed elsewhere in this document, we find that other terms of NMPC's proposal and the Settlement provide appropriate enhancement of identified project impacts and, as appropriate, will require NMPC to submit for Commission approval all necessary plans to implement the Settlement, apart from this provision. We are able to discern no direct link between enhancement pertaining to the Beaver River Project and the broadly defined projects and services that would be supported by the Fund, with the possible exception of the specifically identified enhancements related to the initial contribution. Moreover, it would be impractical for the Commission to attempt to oversee NMPC's participation in a fund carrying out future projects and services that may or may not relate to the project and, therefore, may or may not be within our jurisdiction. Thus, we will recommend that the Commission exclude the fund entirely from the license. We note as well that Settlement specifically states that it is not intended to be viewed as a license obligation.

While we will not recommend these provisions of the Settlement be adopted, we recognize that they will provide a benefit to the public and for that reason commend NMPC for its agreement to provide funds and administrative services.

c. Unavoidable adverse impacts: There would be no unavoidable adverse impacts on recreation resources. There would, however, be a cumulative beneficial effect from providing whitewater boaters with improved access to the bypassed reaches at the Moshier, Eagle, and Taylorville Developments and enhanced recreational flows on a scheduled basis at all three developments. Cumulative beneficial effects would also accrue to downriver boaters by extending the Beaver River Canoe Route 6 miles with improved portages at the Moshier, Taylorville, Belfort, and High Falls Developments.

D. *No-Action Alternative*

Under the no-action alternative the project would continue to operate under the current mode of operation, and no new environmental protection, mitigation, or enhancement measures would be implemented.

VI. Developmental Analysis

In this section, we analyze the project's use of the Beaver River's water resources to generate hydropower, estimate the economic benefits of the project as defined by the Settlement, and address the economic effects on the project of various measures considered in the EA for the protection or enhancement of environmental and recreational resources.

We base our independent economic studies on current electric power conditions. We do not consider future inflation or escalation of prices. For our economic analysis of the alternatives, we used a total annual operation and maintenance (O&M) expense of $1,102,658 as provided by NMPC in its license application. We include a cost of $1,000,000 for NMPC to prepare the application. NMPC's net investment of $9,450,614 was included in our analysis, as were its recent miscellaneous repair costs of $6,080,000.

We based our estimate of the cost of alternative capacity on an assumed capacity value of $109/kW-year (at a fixed charge rate of 14 percent), which is based on a combined-cycle combustion turbine plant fueled by natural gas (the cheapest, most reasonable capacity addition available). The cost of alternative energy generation is based on natural gas-fueled electric plants in the Middle Atlantic Division of the country. We base our estimate of the amount of fuel that would be displaced on fuel consumption at a heat rate of 6,200 Btu/kWh. We estimated the 1995 cost of fuel based on the Energy Information Administration's 1995 publication: *Supplemental to the Annual Energy Outlook*, End-Use Energy Prices: Reference Case, Source: Electric Utilities - Natural Gas Combined-Cycle, page 124, Table 12. Using these assumptions, we estimate the annual cost of alternative power would be about $8,196,300 (42 mills/kWh).

A. *No-Action Alternative*

This alternative represents the existing project. Under this alternative, there would be no change in current operation or facilities. The project would continue to operate in conformance with the requirements of the original license. No enhancement measures would be provided, and the existing environment would not change.

Because there are no enhancements under this alternative, there are no associated construction costs. The annual cost of the existing project, including carrying charges on the net investment, would be about $3,505,600 (18 mills/kWh) for the existing generation of about 197 GWh of energy annually. Therefore, the existing project produces power at an annual cost of about $4,690,700 (24 mills/kWh) less than currently available alternative power.

[61,901]

B. *Project as Proposed in the Settlement*

This alternative is based on the Settlement between NMPC, agencies, and others, dated February 7, 1995, and amended March 8, 1995. It consists of the continued operation of the Beaver River Project, but with numerous enhancements as agreed upon in the Settlement. Based on current electric power conditions, the net annual benefit of the proposed project would be $4,116,200 in 1995 dollars. In Table 6, we present a summary of the proposed enhancements and of the cost and impact of these enhancements on project benefits.

Table 6. Summary of Project Enhancements as Proposed in Settlement and Related Costs (Source: Staff)

Enhancement	Generation (GWh)	Capital Cost of Enhancements (1995 $)	Current Net Annual Benefit (1995 $)
Existing Project	197.285		$4,690,700
Down River Boating		$32,900	-$4,800
Whitewater Boating	-.097		-$1,700

Camping		$140,700	-$20,500
Picnicking		$44,900	-$6,500
Access to Recreational Resources		$78,200	-$11,400
Access for Persons with Disabilities		$47,800	-$7,000
Reservoir Fluctuation Limits *			-$60,100
Minimum Flows in Bypassed Reach	-7.943		-$142,400
New Gate Structures		$295,000	-$42,900
Fish Protection and Conveyance Measures		$235,000	-$34,200
Replacement of Trashracks .		$688,000	-$100,000
Minor Channel Modifications		$12,000	-$1,700
Native Brook Trout Transplant Program		$10,000	-$1,500
Streamflow Monitoring			-$111,300
Capital cost:		$160,000	
Annual O&M cost:		$88,000	
Beaver River Fund*			-$28,600
Capital cost:		$80,000	
Annual O&M cost:		$17,000	
Totals	189.245		$4,116,200

Capital cost: $1,824,500

Annual O&M cost: $105,000

* Results in an estimated loss of dependable capacity of 0.55 MW.

* Not part of the project license but included to provide more complete cost information.

C. *Comparison of Alternatives to Existing Project*

In Table 7, we present a summary of the annual costs for the various alternatives.

The project would be economically beneficial so long as its projected levelized cost is less than the levelized cost of alternative energy and capacity. Based on a 30-year license term, our estimate shows that power from the Beaver River Project would cost about $4,116,200 less than the probable cost of alternative power. While cost estimates over a 30-year license term are necessarily uncertain, we think it reasonable to conclude that the economic benefit to NMPC and the public of issuing a new license would be substantial.

Table 7. Comparison of Economic Analyses of Beaver River Project

Alternatives

	Existing Project	NMPC's Proposal (Settlement)
Installed capacity (MW)	45.122	45.122
Annual generation (GWh)	197.285	189.245
Annual power value:		
(thousands $)	$8,196.3	$7,992.0
(mills/kWh)	41.5	42.2
Annual cost		
(thousands $)	$3,505.6	$3,875.8
(mills/kWh)	17.7	20.4
Net annual benefit		
(thousands $)	$4,690.7	$4,116.2
(mills/kWh)	23.8	21.8

In our view, continued operation of the project consistent with the terms of the Settlement would allow NMPC to continue to provide a reasonably priced source of power from a renewable

[61,902]

energy resource while also providing substantial benefits for nondevelopmental resources. For this reason, we find the Settlement [other than the Beaver River Fund and Advisory Council provisions, which we do not recommend be included in the license] fair, equitable, and not inconsistent with the public interest. We further find that the project, if operated under a license consistent with the terms of the Settlement, would be best adapted to a comprehensive plan for the Beaver River Basin.

VII. Comprehensive Development and Recommended Alternative

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a hydropower project, the recreation, fish and wildlife, and other nondevelopmental values of the waterway are considered equally with its electric energy and other developmental values. In deciding whether and under what conditions, to issue a hydropower license, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

A. *Recommended Action*

We evaluated in detail the Settlement and the no-action alternative. As a result, we selected issuance of a new license consistent with the terms of the Settlement [other than the Beaver River Fund and Advisory Council provisions, which we do not recommend be included in the license] as the preferred option. We recommend this option because the public interest is best served by adoption of the Settlement.

The issuance of a new license for the Beaver River Project with the enhancement measures provided in the Settlement would allow NMPC to continue to operate the project as an economically beneficial, dependable, and inexpensive source of electric energy for its customers. The associated environmental benefits that would occur with this relicensing would also benefit the existing natural resource values in the vicinity of the project (aquatic and terrestrial resources), and other aspects of the existing human environment, including soil conservation, cultural resources, recreation, and aesthetics.

The beneficial effects on the environment associated with relicensing the Beaver River Project would result from the enhancement measures proposed in the Settlement and summarized in section III.A. The nondevelopment benefits of these measures include the following:

• improved habitat and production conditions for resident fish;

• improved wildlife habitat in the basin;

• improved recreational facilities;

• higher visual quality and lower erosion potential in project impoundments;

• increased knowledge, protection, and educational value of archaeologic and historic resources; and

• improved fish protection at intakes.

Our analysis of the proposed Settlement indicates that NMPC and the resource agencies and other parties have formulated a plan for relicensing that strikes a generally reasonable balance between the developmental values of the project and the associated nondevelopmental resource values. In addition to the benefits of continued hydroelectric generation (section VI), the provisions of the Settlement would provide the major environmental enhancements described in section III.A.3. Thus, we conclude that the benefits of the measures proposed in the Settlement justify the costs outlined in section VI.

We also evaluated the no-action alternative, defined as the continued operation of the project under the terms and conditions of the existing license without implementing any new environmental protection or enhancement measures. This option would provide the same developmental benefits as the recommended option, would provide lower or no minimum flows at all eight developments, and would eliminate numerous nondevelopmental benefits. Costs of the measures proposed in the Settlement for nonflow enhancement of fisheries, and for enhancement of wildlife, recreation, aesthetics, and cultural resources, would be foregone. Although this option has not been proposed, its comparison with the Settlement assists in making our

evaluation of the extent of the changes that would occur with relicensing the project as proposed in the Settlement. Consideration of this alternative is also prescribed by the Council on Environmental Quality.

B. *Developmental and Nondevelopmental Uses of the Waterway*

We analyzed the economic effects of providing the various environmental enhancements included in the provisions of the Settlement (section VI). We conclude that the project remains economically beneficial with the recommended enhancement measures and that significant beneficial environmental effects would result from their implementation. Although continued operation of the project

[61,903]

would result in some minor unavoidable adverse environmental impacts (*e.g.*, shoreline erosion), these impacts would be offset by the level of other developmental and nondevelopmental benefits that would accrue with relicensing the project as recommended.

Based on a review of the agency comments filed in this proceeding and on our independent analysis, pursuant to sections 4(e), 10(a)(1), and 10(a)(2) of the FPA, we conclude that issuing a new license for the Beaver River Project consistent with the terms of the Settlement, other than the above noted exception concerning the Beaver River Fund and Advisory Council, would permit the best comprehensive development of the Beaver River.

VIII. Recommendations of Fish and Wildlife Agencies

Under the provisions of the FPA, as amended by the Electric Consumers Protection Act of 1986, each hydroelectric license issued by the Commission must include conditions based on recommendations of federal and state fish and wildlife agencies for the protection and enhancement of fish and wildlife and their habitat affected by the project.

Section 10(j) of the FPA states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of each agency.

The recommendations of the fish and wildlife agencies (outlined in section III.A.3 herein) were finalized, after a period of negotiation with NMPC, in the Settlement; therefore, the option recommended in this EA, to relicense the Beaver River Project with the provisions of the Settlement, is consistent with recommendations of federal and state fish and wildlife agencies. [7] This determination is based on the fact that the FWS and NYSDEC are parties to the Settlement.

IX. Consistency with Comprehensive Plans

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Under section 10(a)(2), federal and state agencies filed a total of 27 qualifying comprehensive plans of which we identified 7 New York and 3 United States comprehensive plans to be applicable. We did not find any conflicts. We list comprehensive plans relevant to this project in section XI.

X. Finding of no Significant Impact

We conclude that none of the resources that we studied--including geologic, water quantity and quality, fisheries, terrestrial, aesthetic, cultural, and recreation resources--would experience significant adverse effects under the proposed action.

On the basis of the record and this EA, issuing a new license for the project as proposed by NMPC, and documented in the Settlement, would not constitute a major federal action significantly affecting the quality of the human environment. For this reason and pursuant to Commission regulations, no Environmental Impact Statement is required.

XI. Literature Cited

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Federal Energy Regulatory Commission (FERC). 1994b. Policy statement: Project decommissioning at relicensing. Docket No. RM93-23-000 , issued December 14, 1994.

Fish & Wildlife Service. New York State Department of Environmental Conservation. 1994. Fisheries Enhancement Plan for the Black River, New York. Department of the Interior, Amherst, New York. March 1994. 76 pp.

Kleinschmidt Associates. 1995. Beaver River Project FERC Project No. 2645, Fish Entrainment and Mortality Study Final Report.

Niagara Mohawk Power Corporation (NMPC). 1991. Systemwide Whitewater Recreation Plan, appendix 5. Report on Taylorville Whitewater Evaluation.

NMPC. 1993. Annual and Monthly Flow Duration Curves. Additional Information Request

[61,904]

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NMPC. 1992. Beaver River Project, FERC Project No. 2645. Response to Schedule B Additional Information Request, dated August 21, 1992. Volumes 1 and 2.

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United States Department of Interior. 1993. National Park Service, Nationwide rivers inventory, 1993 update.

Comprehensive Plans

(1) National Park Service. 1982. Nationwide Rivers Inventory. U.S. Department of the Interior. Washington, DC January 1982. 432 pp.

(2) Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American Waterfowl Management Plan: A Strategy for Cooperation. U.S. Department of the Interior and Environment Canada. Washington, DC May 1986. 19 pp.

(3) Fish and Wildlife Service. Undated. Fisheries USA: the Recreational Fisheries Policy of the U.S. Fish and Wildlife Service. Washington, DC 11 pp.

(4) Adirondack Park Agency. 1989. Adirondack Park state land master plan. Ray Brook, New York. January 1985. 78 pp.

(5) Adirondack Park Agency. Undated. New York State wild, scenic, and recreational rivers system field investigation summaries. Albany, New York, 21 reports.

(6) Fish & Wildlife Service. New York State Department of Environmental Conservation. 1994. Fisheries enhancement plan for the Black River, New York. Department of the Interior, Amherst, New York. March 1994. 76 pp.

(7) New York State Department of Environmental Conservation. 1985. New York state wild, scenic, and recreational river system act. Albany, New York. March 1985. 22 pp.

(8) New York State Executive Law. 1981. Article 27 Adirondack Park Agency Act. Albany, New York. July 15, 1981. 65 pp.

(9) New York State Department of Environmental Conservation. 1986. Regulation for administration and management of the wild, scenic, and recreational rivers systems in New York State excepting the Adirondack Park. Albany, New York. March 26, 1986. 27 pp.

(10) New York State Parks, Recreation, and Historic Preservation. State Comprehensive Outdoor Recreation Plan. 1994.

XII. List of Preparers

FERC

Tom Camp--Task Monitor--M.S., Landscape Architecture - 31 years experience

Stone & Webster

Tom Biffar--Deputy Project Manager--Purpose and Need, EA Coordinator (Ph.D. Biology--23 years experience)

John Downing--Water Quality and Fisheries (Fisheries Biologist; M.S. Biometrics--18 years experience)

Bryce Mochrie--Project Description and Economics (Civil Engineer; M.S. Civil Engineering, 23 years experience)

Paul Martin--Terrestrial Ecology (Terrestrial Biologist; M.S. Zoology--10 years experience)

Steve Conant--Recreation Resources (Recreation Planer; M.A. Urban and Environmental Policy - 12 years experience)

Patricia Weslowski - Cultural Resources (Preservation Planner; M.P.A. Public Administration - 15 years experience)

Pamela Shadley - Aesthetic Resources (Landscape Architect; Masters in Landscape Architecture - 10 years experience)

-- Footnotes --

[61,828]

Footnotes

1 Niagara Mohawk was issued an original license for the project in 1978, 4 FERC ¶61,009 , effective April 1, 1962, and expiring December 31, 1993. The application for a new license was filed on November 29, 1991. Since expiration of the original license, Niagara Mohawk has been operating the project under annual license. See section 15(a)(1) of the FPA, 16 U.S.C. §808 (a)(1).

2 16 U.S.C. §§797 (e), 808.

3 The Beaver River is a navigable waterway of the United States. *See* 40 FPC 364 (1968). Therefore, section 23(b)(1) of the FPA, 16 U.S.C. §817(1), requires the project to be licensed.

4 58 Fed. Reg. 13477 (March 11, 1993).

5 The signatories are Niagara Mohawk, NYSDEC, the Adirondack Council, Interior's Fish and Wildlife Service, American Whitewater, the Park Agency, the New York State Council of Trout Unlimited, New York Rivers, National Audubon Society, New York State Conservation Council, American Canoe Association, Association for the Protection of the Adirondacks, Adirondack Mountain Club, American Rivers, and the National Park Service.

[61,829]

6 The Commission staff also prepared a Safety and Design Assessment (February 16, 1996), which is available in the Commission's public file for this project.

7 On March 16, 1984, Hudson-Black was granted an exemption from licensing under Part I of the FPA for the 1.2-MW Stillwater Reservoir Project No. 6743. *See* 26 FERC ¶62,247. Hudson-Black's lessee, Stillwater Associates, regulates the headpond levels for flood control in the Hudson River and Black River Basins and to provide headwater benefits in terms of guaranteed minimum water releases to downstream users.

[61,830]

8 *See* n.7, *supra.*

9 The “efficient gate” is that gate setting (opening) that provides the greatest power production for the water used. It corresponds to approximately 85 percent of the hydraulic capacity of the turbines.

10 “Full gate” is when the gate is open as far as possible, at the maximum hydraulic capacity of the turbine. This is not necessarily the most efficient setting.

11 These proposals were supplemented by Niagara Mohawk’s additional information submittals of August 21, October 13, and November 24, 1992; November 20 and December 21, 1993; January 3 and 24, 1994; and April 3, 1995.

12 Settlement section X.K.1. A copy of the Settlement is included as appendix A of the attached Final EA.

The Settlement provides that it “shall be enforceable by any party to the extent that the [Settlement] is accepted and approved by NYSDEC and/or FERC and incorporated into the terms and conditions of any §401 water quality certificate issued by NYSDEC or any new license issued by FERC.” Settlement section X.C. The Settlement also provides that if either NYSDEC or the Commission modifies any settlement provision when issuing (respectively) the project water quality certification or a license, the Settlement Offer shall be considered modified accordingly, unless any signatory to the Settlement notifies the other signatories within 60 days of the pertinent issuance that it objects to the modification.

[61,831]

13 Ramping means gradually increasing or decreasing outflows following project shut-down or unusually high-volume releases.

14 *See* the Settlement, sections X.A. and B. and Attachments 1 and 2.

[61,832]

15 33 U.S.C. §1341(a)(1).

16 Section 401(a)(1) requires an applicant for a federal license or permit to conduct any activity which may result in any discharge into navigable waters of the United States to obtain from the state in which the discharge originates certification that any such discharge will comply with applicable state water quality standards.

17 On November 25, 1991, Niagara Mohawk submitted a request for water quality certification to NYSDEC. On November 19, 1992, NYSDEC denied the request without prejudice. On December 23, 1992, Niagara Mohawk submitted a request for a NYSDEC hearing on the certification denial. Subsequent negotiations led to the Settlement Offer, which was filed in both the certification and licensing proceedings.

The certification (at 2) states that NYSDEC reserves its “right to reconsider the entire certification if there is a significant change in the scope of the proposal or the project license, or in the event the referenced application or Settlement Agreement are further amended.” To the extent this reservation deals with pre-relicensing amendments to the project proposal, the need for reconsideration of the certification is governed by 18 C.F.R. §4.38 (f)(7)(iii) (new certification request required if amendment would have a material adverse effect on the water quality in the project discharge). To the extent the reservation purports to reserve NYSDEC’s right to revise the certification after the license is issued and final, we reject such condition as outside the scope of CWA section 401. *See Tunbridge Mill Corp.*, 68 FERC ¶61,078 (1994), *reh’g denied*, 75 FERC ¶61,175 (1996)

18 *See Tunbridge Mill*, *supra.*

[61,833]

19 In 1987 and 1991, the Commission required minimum flows in the bypassed reaches at the Moshier, Eagle, Soft Maple, and Taylorville Developments. *See* 38 FERC ¶62,266 (1987) and 57 FERC ¶62,182 (1991).

20 Accordingly, our approval of this Settlement does not create a precedent on any specific matters thereunder.

21 *Seee.g.*, *Consumers Power Co.*, 68 FERC ¶61,077 (1994) (order accepting comprehensive settlement involving 11 relicense proceedings).

22 *See Consumers Power Co.*, *supra*, at pp. 61,372, 61,374.

23 *See* the Beaver River Fund discussion, *supra.*

24 *See*, *e.g.*, *Consumers Power Co.*, 73 FERC ¶61,093 (1995). Niagara Mohawk is required, under the terms of Articles 5 and 418 of the license we issue today, to obtain prior Commission approval for the conveyance of certain interests in project property. Thus, prior to making the conveyances required by the Settlement, Niagara Mohawk must obtain Commission approval of the transfer instruments. This requirement is consistent with the Settlement, which notes, in section X.F., that its terms do not preclude Niagara Mohawk from complying with its obligations under, *inter alia*, the Federal Power Act.

25 *See Wisconsin Public Service Corporation*, 62 FERC ¶61,095 (1993); *aff'd*, *Wisconsin Public Service Corporation v. FERC*, 32 F.3d 1165 (1994).

26 16 U.S.C. §803 (j)(1).

27 16 U.S.C. §661 *et seq.*

[61,834]

28 16 U.S.C. §803 (a)(2).

29 Comprehensive plans are defined at 18 C.F.R. §2.19 (1995).

30 (1) National Park Service, National Rivers Inventory, U.S. Department of the Interior, Washington, D.C., January 1982; (2) Fish and Wildlife and Canadian Wildlife Service, North American Waterfowl Management Plan: A Strategy for Cooperation, U.S. Department of the Interior and Environment Canada, Washington, DC 1986; (3) Fish and Wildlife, Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish and Wildlife Service, Washington D.C., undated; (4) Adirondack Park Agency, Adirondack Park State Land Master Plan, Ray Brook, New York, January 1985; (5) Adirondack Park Agency, New York State wild, scenic, and recreational rivers system field investigation summaries, Albany, New York, 21 reports, undated; (6) FWS, New York State Department of Environmental Conservation, Fisheries Enhancement Plan for the Black River, New York, Department of the Interior, Amherst, New York, March 1994; (7) New York Department, New York State Wild, Scenic, and Recreational River System Act, Albany, New York, March 1985; (8) New York State Executive Law, Article 27- Adirondack Park Agency Act, Albany, New York, July 15, 1981; (9) New York Department, Regulation for administration and management of the wild, scenic, and recreational rivers systems in New York State excepting the Adirondack Park, Albany, New York, March 26, 1986; (10) New York State Parks, Recreation, and Historic Preservation, State Comprehensive Outdoor recreation Plan, 1994.

31 16 U.S.C. §§803 and 808 .

[61,835]

32 *See*18 C.F.R. Part 12 (1995), "Safety of Water Power Projects and Project Works."

[61,836]

33 16 U.S.C. §§797 (e) and 803(a)(1).

34 16 U.S.C. §808 (e).

[61,852]

* The settlement (appendix A) and the Comment letters (appendix B) are available in the Commission's public file for this project.

[61,869]

1 Section 18 of the FPA provides: "The Commission shall require the construction, maintenance and operation by a licensee at its own expense of . . . such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate." See 16 U.S.C. §811 .

[61,870]

2 Unless otherwise indicated, the source of our information is NMPC's application filed on November 29, 1991, and its responses to requests for additional information filed on October 6, 1992, November 16, 1992 and March 20, 1995.

[61,877]

3 pH is measure of acidity with 7 being neutral. Measurements below 7 are increasingly acidic; measurements above 7 are increasingly basic.

4 Primary contact recreation involves activities where you expect to get wet, *e.g.*, swimming, wading, and water-skiing.

5 Secondary contact recreation involves activities where getting wet is possible but not necessary, *e.g.*, fishing and sailing.

[61,889]

6 Level 3 HABS/HAER documentation includes field notes and photographs.

[61,903]

7 The provisions of the Settlement pertaining to the Beaver River Fund cannot be properly characterized as direct measures to protect fish and wildlife resources and consequently are outside the scope of section 10(j). Therefore, we have considered the River Fund pursuant to FPA section 10(a).

New York State Department of Environmental Conservation
Division of Regulatory Services - Room 514
50 Wolf Road, Albany, New York 12233-1750
Telephone: (518) 457-2224
Fax: (518) 457-5965

Michael D. Zagata
Commissioner

August 24, 1995

Mr. Michael W. Murphy
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, NY 13202

Re: Beaver River Project
DEC No. 6-9906-00004/00001-9
FERC No. 2645
Water Quality Certificate

Dear Mr. Murphy:

The Department of Environmental Conservation (the Department) hereby certifies that, based on our review of all pertinent information presented by Niagara Mohawk Power Corporation (NMPC) in its application for a federal license for the Beaver River Hydroelectric Project and the Settlement Agreement dated February 7, 1995 as amended on March 8, 1995 and on May 19, 1995, NMPC has provided reasonable assurance that the subject Project will comply with all applicable effluent standards, standards of performance and other state statutes, regulations and criteria applicable to the affected waterbody as required by the State regulatory provisions implementing Section 401 of the Federal Water Pollution Conrol Act.

This certification is issued pursuant to Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. 1341. The Department makes this certification provided that the attached standard conditions as well as the terms and conditions of the attached Settlement Agreement, signed by the Department, NMPC, the Adirondack Park Agency, New York Rivers United, The National Park Service, the Adirondack Mountain Club, the Adirondack Council, the Association for the Protection of the Adirondacks, the National Audubon Society, the American White Water Affiliation, the American Canoe Association, American Rivers, the New York State Conservation Council, the New York State Council of Trout Unlimited, and the United States Fish and Wildlife Service are met. The terms and conditions of this Settlement describe the operations of the eight developments comprising the Beaver River Project located in the towns of Croghan and Watson in Lewis County and in the town of Webb in Herkimer County.

The Department reserves the right to reconsider the entire Certification if there is a significant change in the scope of the proposal or the project license, or in the event the referenced application or Settlement Agreement are further amended.

Sincerely,

Jeffrey J. Sama
Deputy Chief Permit Administrator

JJS/gk
Enclosures
cc: Service List

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STANDARD WATER QUALITY CONDITIONS

A. OVERSIGHT AND ADMINISTRATION

1. Inspections: The project, including relevant records, is subject to inspection at reasonable hours and intervals, upon reasonable notice to the certificate holder, by an authorized representative of the Department to determine whether the certificate holder is complying with this certification. A copy of this certification, including all referenced maps, drawings, and special conditions, must be available for inspection by the Department during such inspections at the project.

B. PROJECT MAINTENANCE AND CONSTRUCTION

2. Maintenance Dredging: The certificate holder shall curtail generation and install stoplogs or otherwise shut off flow through the turbine(s) prior to commencing any maintenance dredging activities in the intake/forebay area.

3. Sediment Analysis and Disposal: The certificate holder must sample any sediments to be disturbed or removed from the project waters and test them for contaminants. Sampling and testing shall be accomplished according to a protocol submitted to and approved by the Department beforehand. Prior to dredging or other excavation, the certificate holder must secure Department approval for all disposal locations for any contaminated sediments to be removed from the project waters.

4. Erosion and Sediment Control: Prior to commencing activities which could adversely affect water quality, the certificate holder must receive Department approval of an Erosion and Sediment Control Plan. This plan must be submitted at least 60 days before the intended date for commencing work. Actions undertaken in response to an emergency and governed by the procedures contained in 6 NYCRR Section 621.12 are exempt from this condition. At minimum, the certificate holder must:

    a. Isolate instream work from the flow of water and prevent discolored (turbid) discharges and sediments from entering the waters of the river due to excavation, dewatering and construction activities.

    b. avoid using heavy construction equipment below the mean high water line of the river until the work area is protected by an approved structure and dewatered.

    c. stabilize any disturbed banks by grading to an appropriate slope, followed by armoring or vegetating as appropriate, to prevent erosion and sedimentation into the waterbody.

d. minimize soil disturbance, provide appropriate grading and temporary and permanent revegetation of stockpiles and other disturbed areas to minimize erosion/sedimentation potential.

e. install and maintain, in a fully functional condition, effective erosion control measures on the downslope of all disturbed areas before commencing any other soil disturbing activities.

f. protect all waters from contamination by deleterious materials such as wet concrete, gasoline, solvents, epoxy resins or other materials used in construction, maintenance and operation of the project.

g. ensure complete removal of all dredged and excavated material, debris, or excess materials from construction from the bed and banks of all water areas to an approved upland disposal site.

h. ensure that all temporary fill and other materials placed in the waters of the river are completely removed promptly upon completion of construction unless otherwise directed by the Department.

5. Placement of cofferdams, construction of temporary access roads or ramps, or other temporary structures which encroach upon the bed or banks of the river: The design of all such structures will be developed in accordance with Condition #4 (above).

6. Maintenance of River Flow: During all periods of construction, the certificate holder shall maintain adequate flows immediately downstream of worksites to ensure that the water quality standards established for the water body are met.

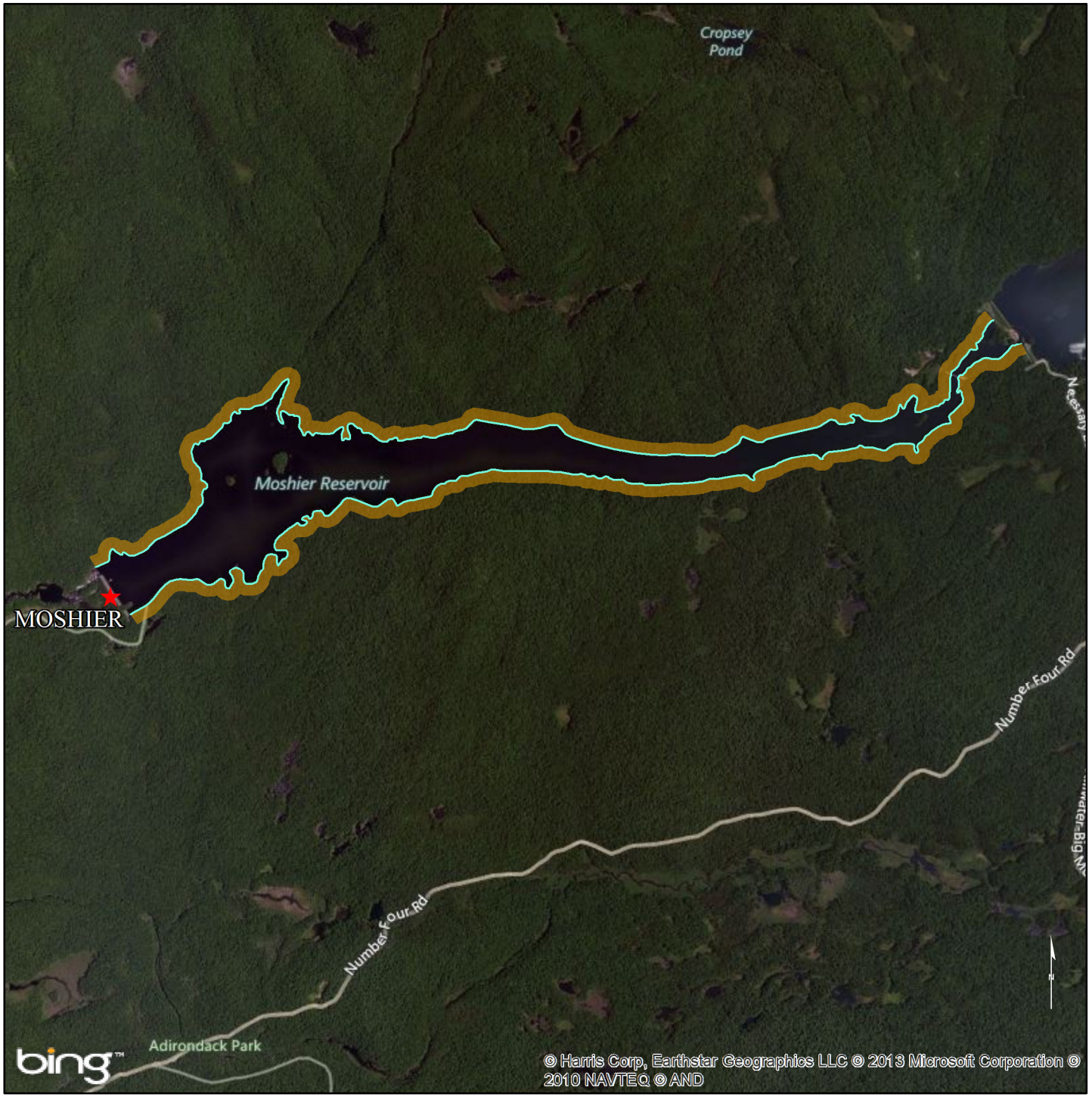
7. Turbidity Monitoring: During all periods of construction, the certificate holder will monitor the waters of the river at a point immediately upstream of project activities and at a point no more than 100 feet downstream from any discharge point or other potential source of turbidity, to the extent practicable; and if not practicable, then at the nearest point beyond 100 feet downstream, but in no event beyond 200 feet downstream from the turbidity source. If at any time, turbidity measurements from the downstream locations exceed the measurements from the locations upstream of the work areas, certificate holder specifically agrees to immediately take all action necessary to identify the activities causing the turbidity and to correct the situation.

8. Notifications: The Department contact specified in this certificate must be notified in writing at least two (2) weeks prior to commencing any work subject to conditions 2 through 7 of this certificate.

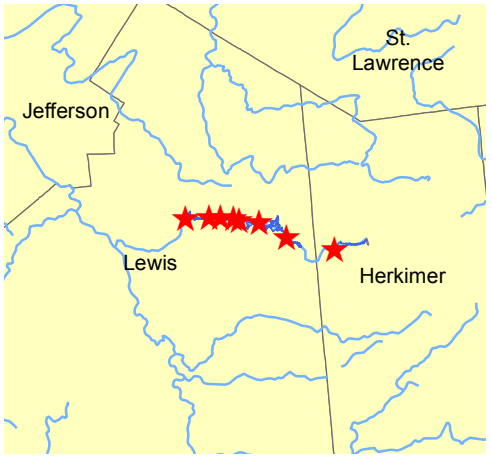
ATTACHMENT C

QUESTION 10:

MAP SHOWING 200 FT ZONE AROUND RESERVOIR



Herkimer & Lewis Counties, New York



PROJECT LOCATION MAP

Beaver River Hydroelectric Project FERC No. 2645

Legend

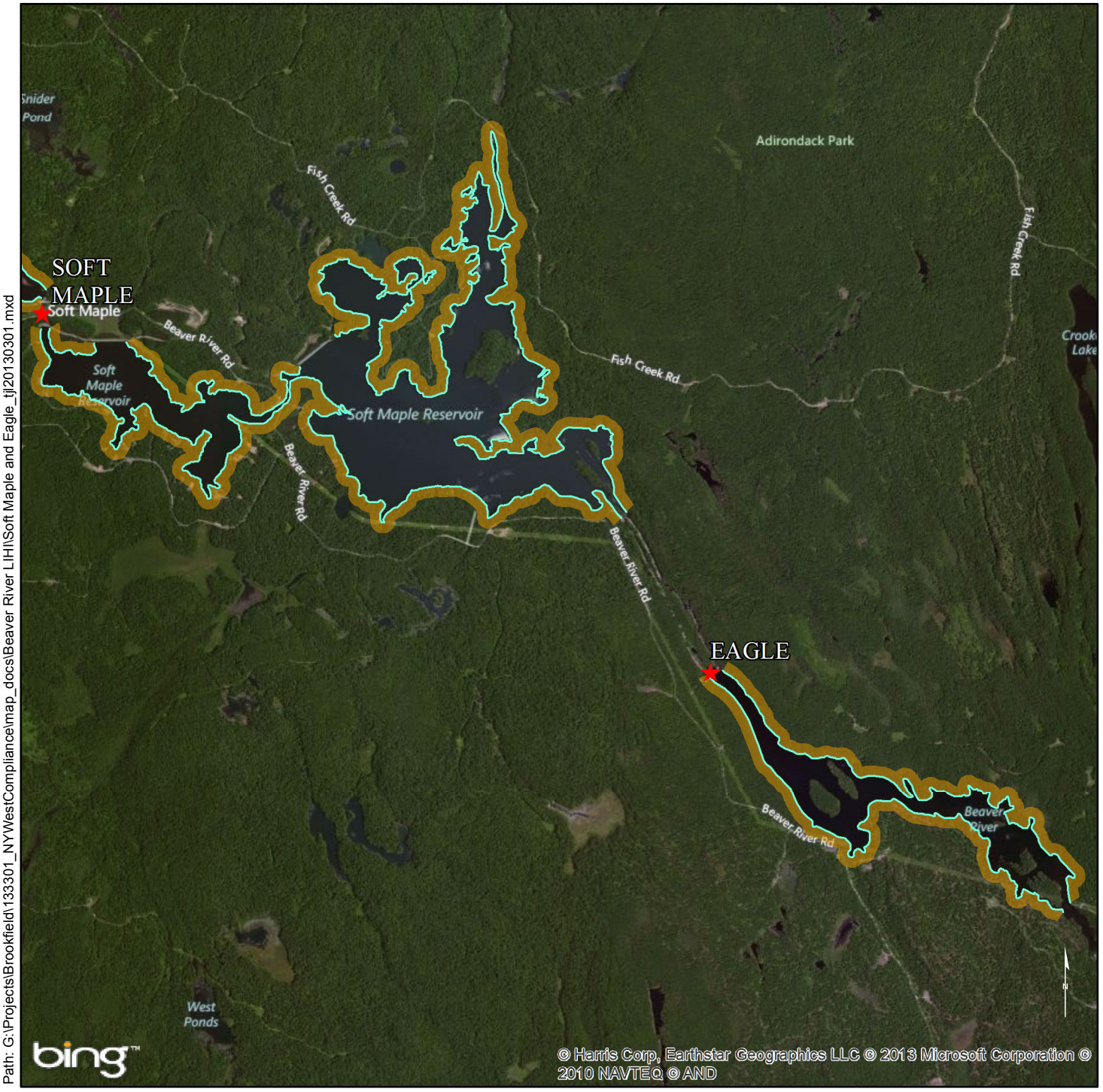
- Beaver River Development
- Shoreline
- 200 Foot Buffer

Moshier Development

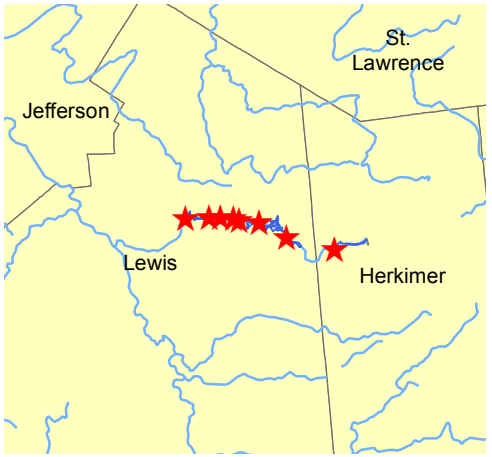
0 2,000 4,000 Feet

Brookfield

Path: G:\Projects\Brookfield\133301_NYWestCompliance\map_docs\Beaver River LIHI\Mosher_tjl20130301.mxd



Herkimer & Lewis Counties, New York



PROJECT LOCATION MAP

Beaver River Hydroelectric Project FERC No. 2645

Legend

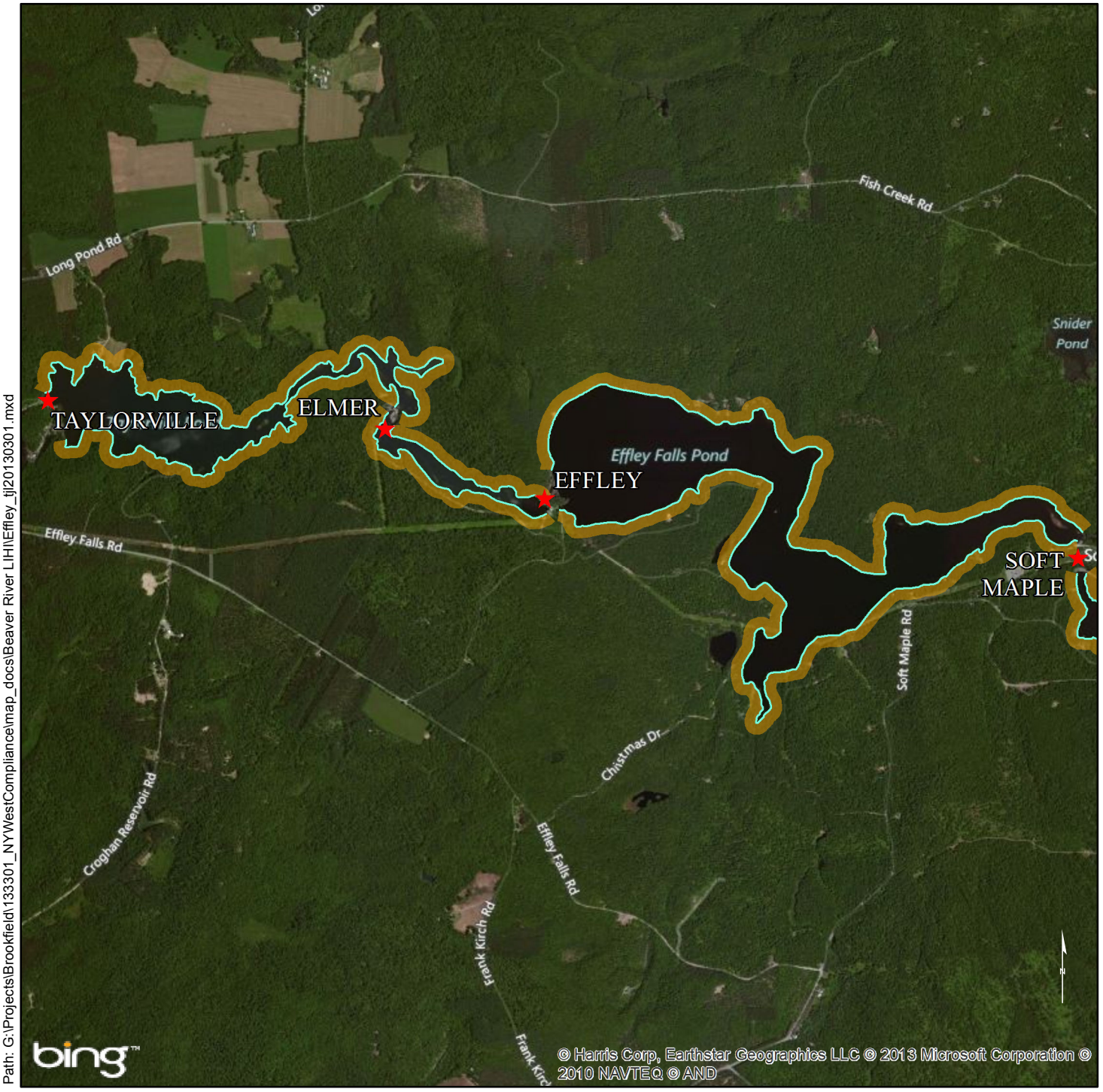
- Beaver River Development
- Shoreline
- 200 Foot Buffer

Eagle & Soft Maple Developments

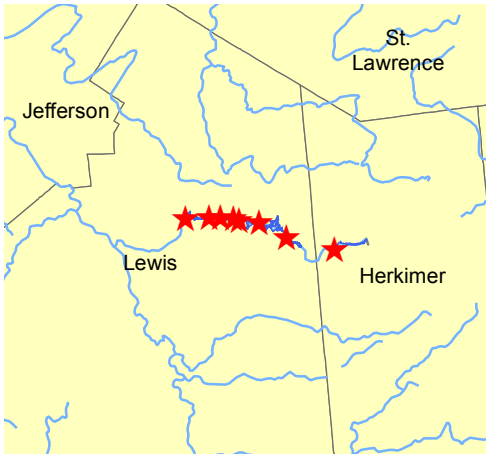
0 2,000 4,000 Feet

Brookfield

Path: G:\Projects\Brookfield\133301_NYWestCompliance\map_docs\Beaver River LIHI\Soft Maple and Eagle_tjl20130301.mxd



Herkimer & Lewis Counties, New York



PROJECT LOCATION MAP

Beaver River Hydroelectric Project FERC No. 2645

Legend

- Beaver River Development
- Shoreline
- 200 Foot Buffer

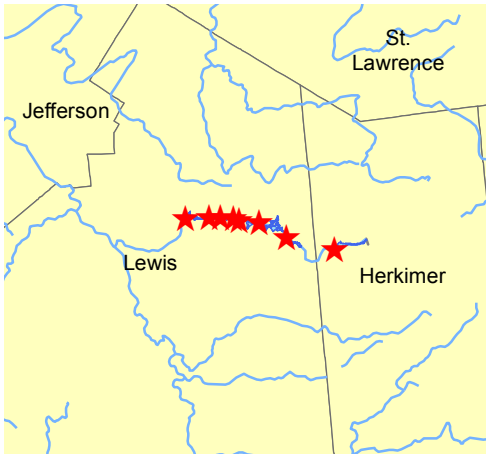
Effley, Elmer & Taylorville Developments

0 2,000 4,000 Feet

Brookfield

Path: G:\Projects\Brookfield\133301_NYWestCompliance\map_docs\Beaver River LIHI\Effley_tjl20130301.mxd

Herkimer & Lewis Counties, New York



PROJECT LOCATION MAP

Beaver River Hydroelectric Project FERC No. 2645

Legend

- Beaver River Development
- Shoreline
- 200 Foot Buffer

Belfort & High Falls Developments

0 2,000 4,000 Feet

Brookfield

Path: G:\Projects\Brookfield\133301_NYWestCompliance\map_docs\Beaver River LIHI\Belfort High Falls tjl20130301.mxd

ATTACHMENT D

QUESTION 11:

LIST OF KEY AGENCY/STAKEHOLDER CONTACTS

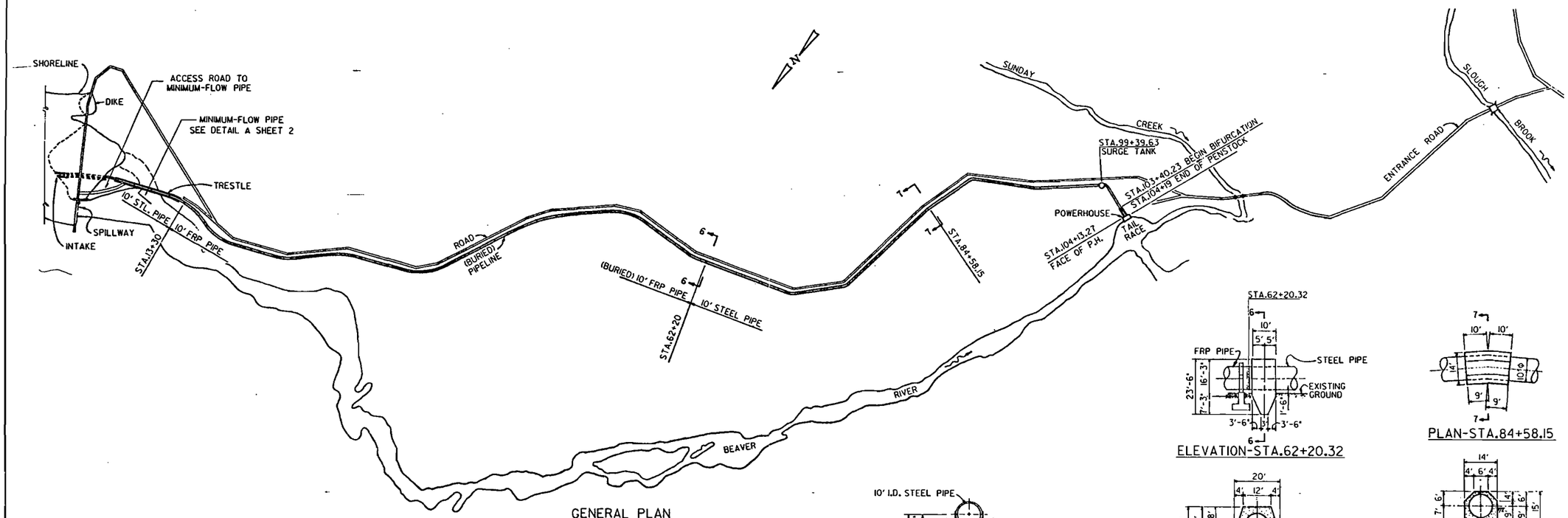
Alice Richardson
New York State Department of Environmental Conservation
Dulles State Office Building
317 Washington Street
Watertown, NY 13601
Phone No. (315) 785-2267
Email: aprichar@gw.dec.state.ny.us

Steve Patch
U.S. Fish and Wildlife Service
3817 Luker Road
Cortland, NY 13045
Phone No. (607) 753-9334
Email: stephen_patch@fws.gov

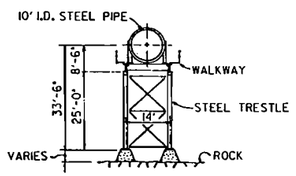
ATTACHMENT E

QUESTION 12:

EXHIBIT F & G DRAWINGS (P-2645)



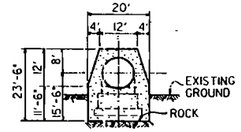
GENERAL PLAN
SCALE: 1" = 400'



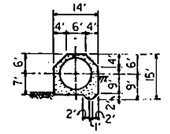
SECTION 1-1
SCALE: 1" = 20'

ELEVATION-STA.62+20.32

PLAN-STA.84+58.15

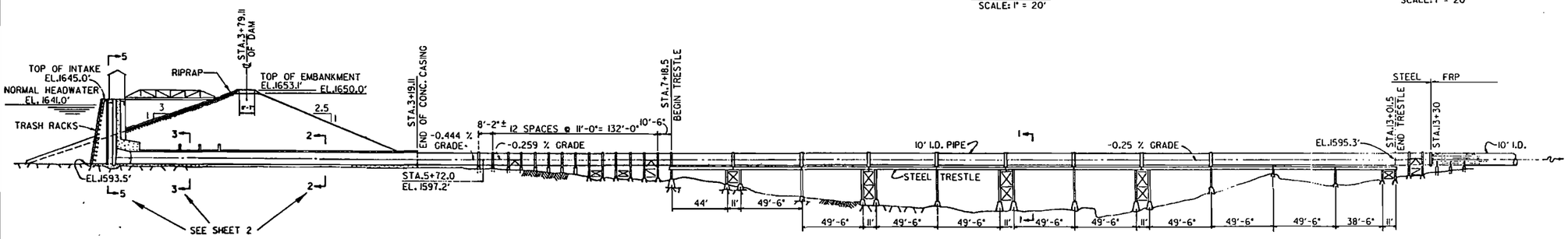


SECTION 6-6



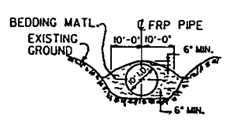
SECTION 7-7

TYPICAL ANCHORS PIERS
SCALE: 1" = 20'

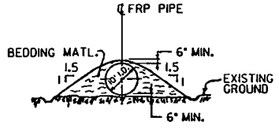


PIPELINE - ELEVATION TO STA. 13+30
SCALE: 1" = 40'

SCALE: 1" = 40'
40 20 0 40 80 120 160 200



TYP. PIPE LINE BEDDING DETAIL
(PIPE PLACED IN TRENCH)
SCALE: 1" = 20'



TYP. PIPE LINE BEDDING DETAIL
SCALE: 1" = 20'
(PIPE PLACED ON EXIST. GRD.)

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	PRW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER

NIAGARA MOHAWK

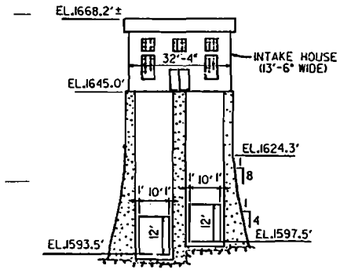
BEAVER RIVER PROJECT

MOSHIER DEVELOPMENT

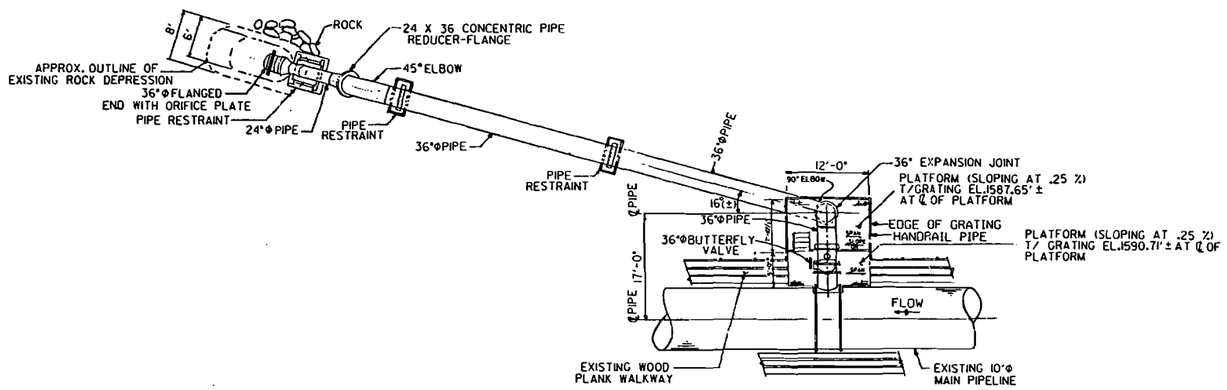
GENERAL PLAN AND DETAILS OF PIPELINE

EXHIBIT F — SCALE: 1" = 20' — SHEET NO. 1

20 0 20 40 60 80 100

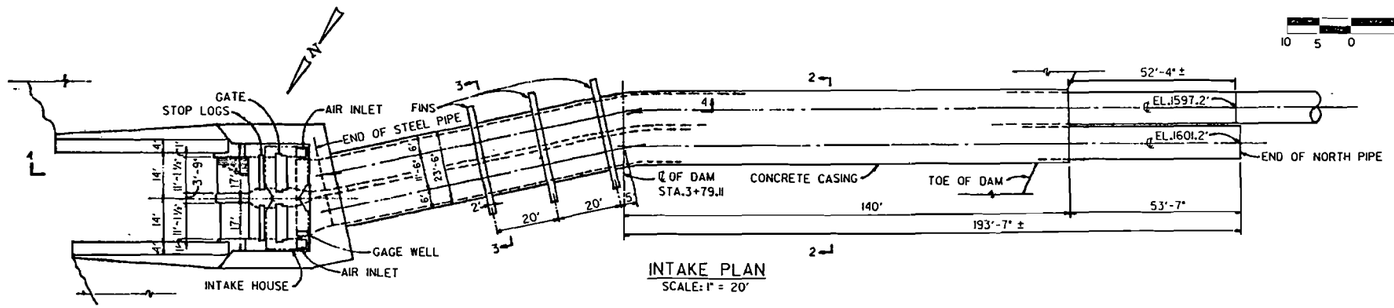


SECTION 5-5
SCALE: 1" = 20'

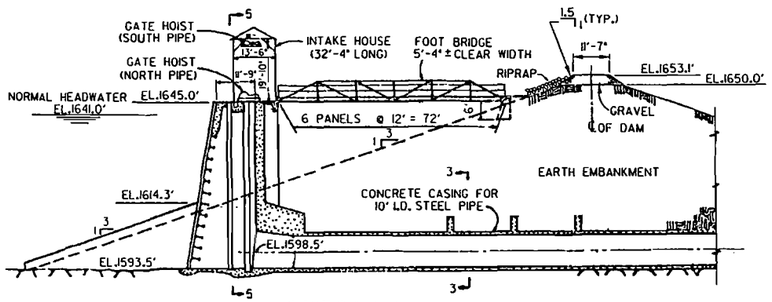


MINIMUM-FLOW PIPE DETAIL
SCALE: 1" = 10'

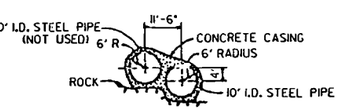
10 5 0 10 20 30 40 50



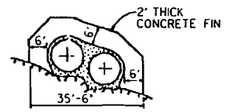
INTAKE PLAN
SCALE: 1" = 20'



SECTION 4-4
SCALE: 1" = 20'



SECTION 2-2
SCALE: 1" = 20'



SECTION 3-3
SCALE 1" = 20'

NIAGARA MOHAWK

BEAVER RIVER PROJECT

MOSHIER DEVELOPMENT

DETAILS OF INTAKE AND MINIMUM-FLOW PIPE

EXHIBIT F — SCALE: 1" = 20' — SHEET NO. 2

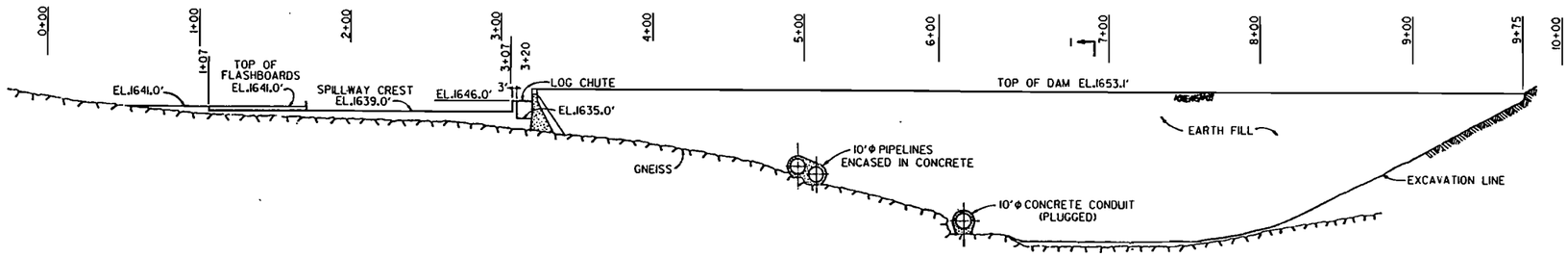
20 0 20 40 60 80 100

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

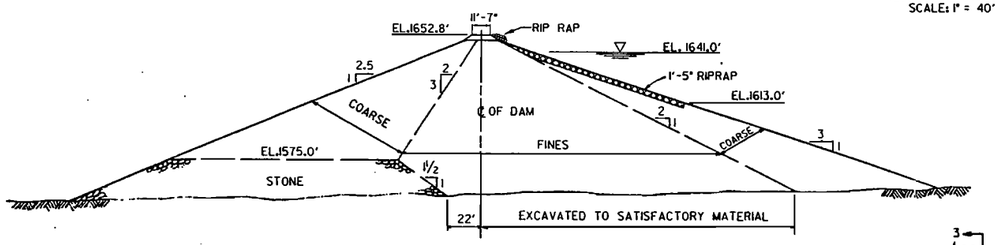
ORIGINAL ISSUE DATE

FILE INDEX

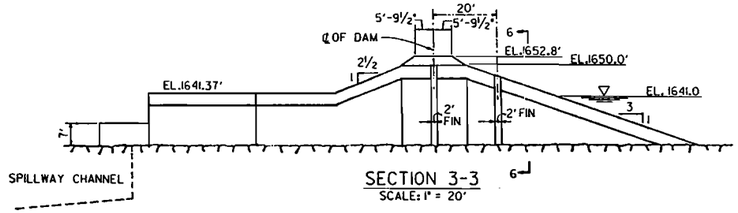
DRAWING NUMBER



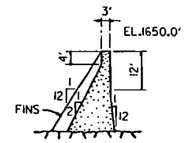
PROFILE ALONG ℄ OF DAM
(LOOKING UPSTREAM)
SCALE: 1" = 40'



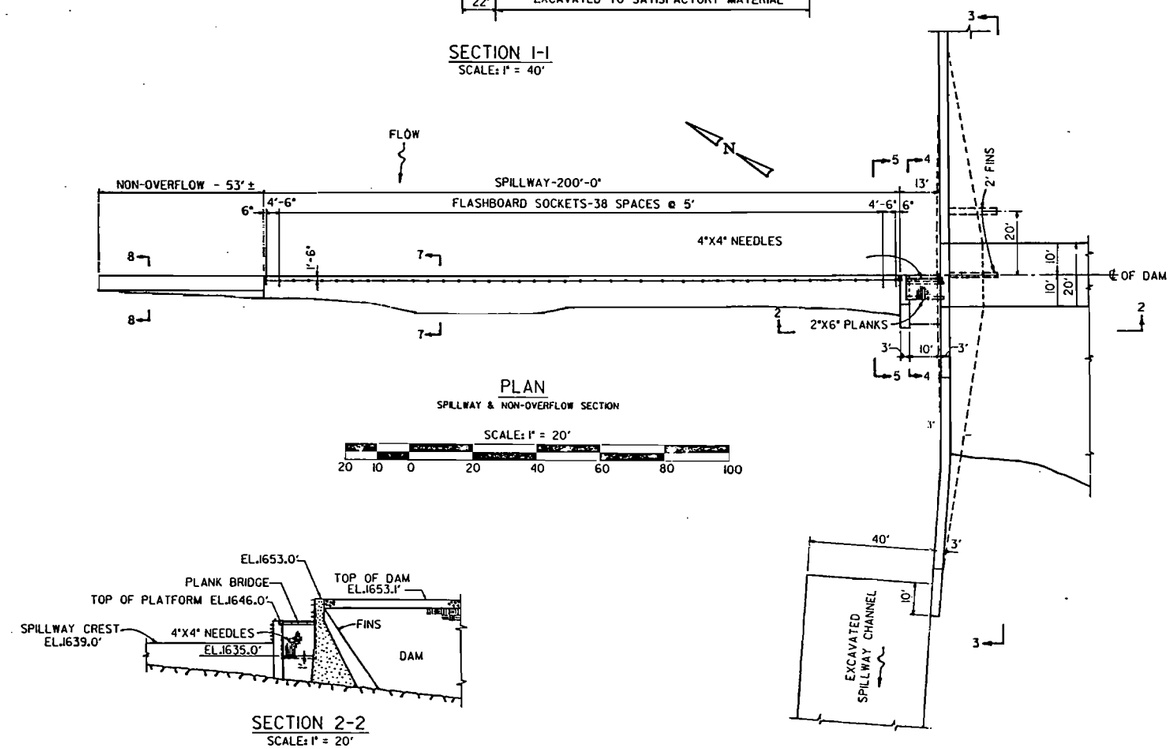
SECTION 1-1
SCALE: 1" = 40'



SECTION 3-3
SCALE: 1" = 20'

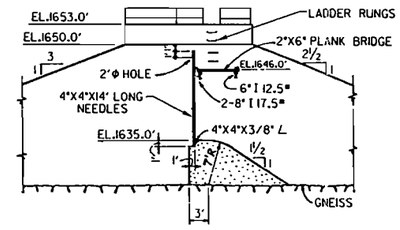


SECTION 6-6
SCALE: 1" = 20'

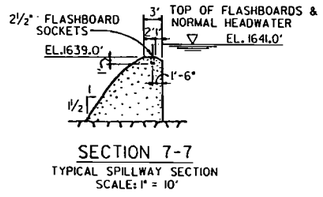


PLAN
SPILLWAY & NON-OVERFLOW SECTION
SCALE: 1" = 20'
20 10 0 20 40 60 80 100

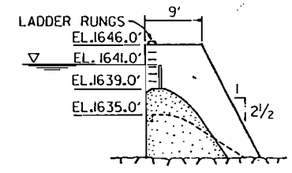
SECTION 2-2
SCALE: 1" = 20'



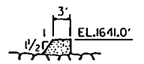
SECTION 4-4
SCALE: 1" = 10'



SECTION 7-7
TYPICAL SPILLWAY SECTION
SCALE: 1" = 10'



SECTION 5-5
SCALE: 1" = 10'



SECTION 8-8
TYPICAL NON-OVERFLOW SECTION
SCALE: 1" = 10'

10 5 0 10 20 30 40 50

NIAGARA MOHAWK
BEAVER RIVER PROJECT

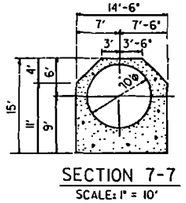
MOSHIER DEVELOPMENT

DAM AND SPILLWAY
PLAN, ELEVATION AND SECTIONS

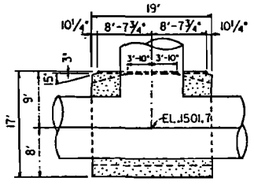
EXHIBIT F
SCALE: 1" = 40'
SHEET NO. 3
40 0 40 80 120 160 200

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	PRW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

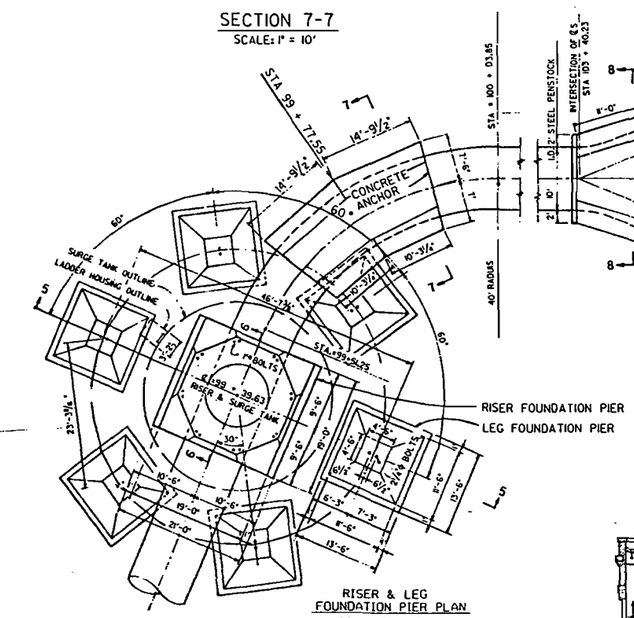
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



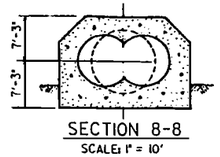
SECTION 7-7
SCALE: 1" = 10'



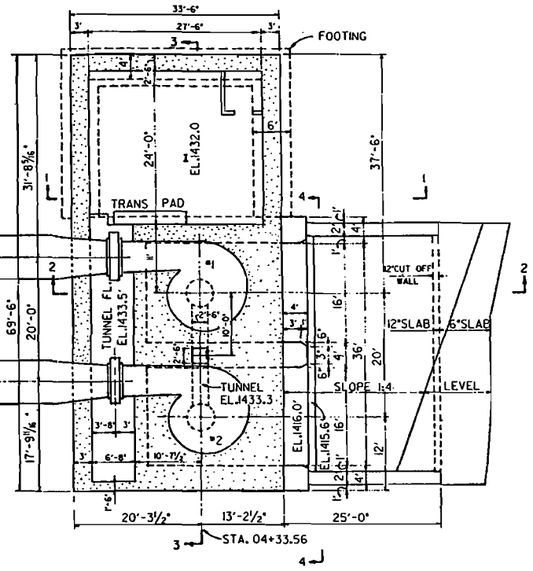
SECTION 6-6
SCALE: 1" = 10'



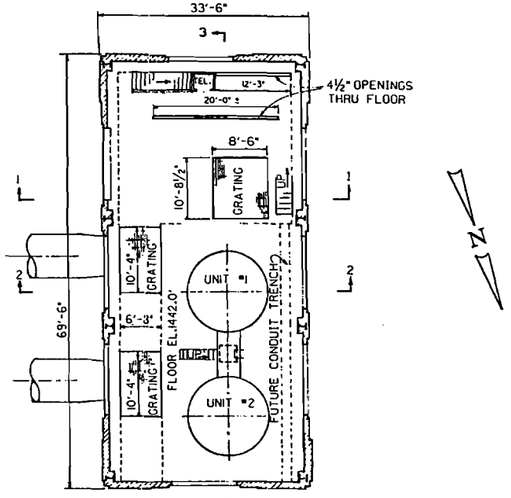
RISER & LEG
FOUNDATION PIER PLAN
SCALE: 1" = 10'



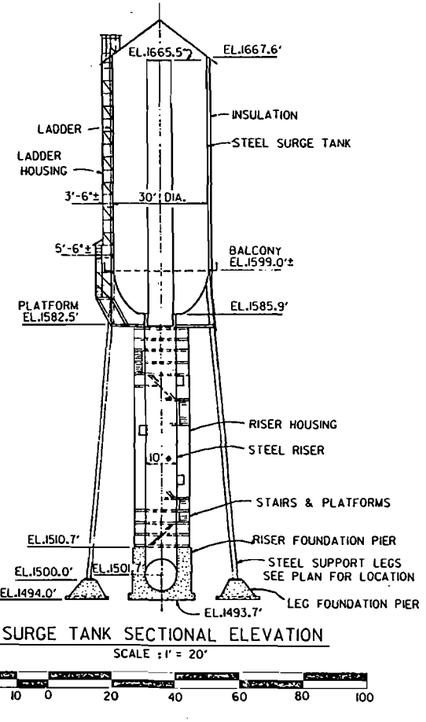
SECTION 8-8
SCALE: 1" = 10'



POWERHOUSE PLAN EL. 1438.0'
SCALE: 1" = 10'



POWERHOUSE PLAN EL.1442.0'
SCALE: 1" = 10'



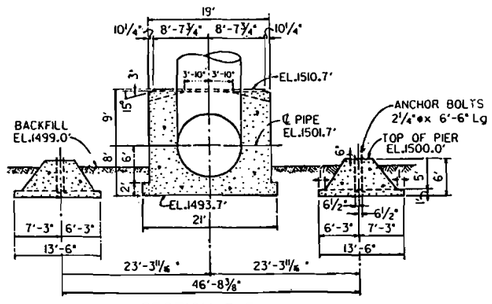
SURGE TANK SECTIONAL ELEVATION
SCALE : 1" = 20'

20 10 0 20 40 60 80 100

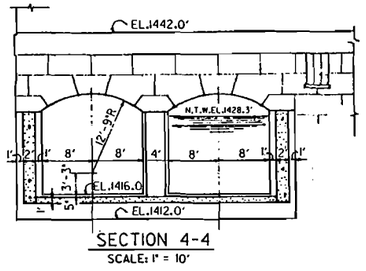
SECTION 1-1
SCALE: 1" = 10'

SECTION 2-2
SCALE: 1" = 10'

SECTION 3-3
SCALE: 1" = 10'



SECTION 5-5
SCALE: 1" = 10'



SECTION 4-4
SCALE: 1" = 10'

NIAGARA MOHAWK

BEAVER RIVER PROJECT

MOSHIER DEVELOPMENT

SURGE TANK, PENSTOCK AND POWERHOUSE
PLAN AND SECTIONS

EXHIBIT F SCALE: 1" = 10' SHEET NO. 4

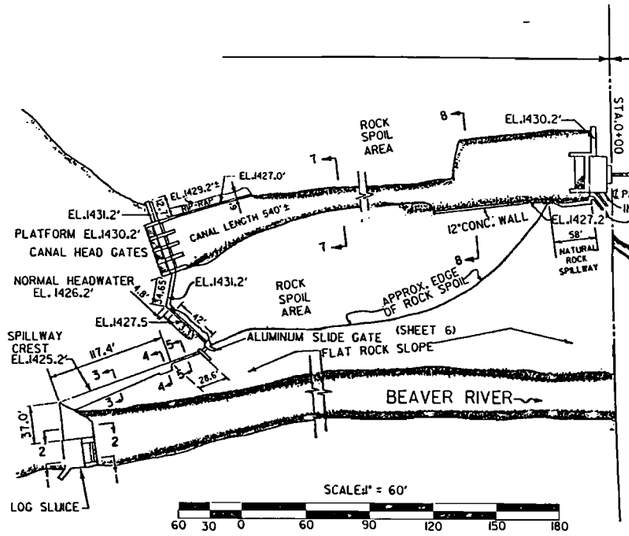
10 5 0 10 20 30 40 50

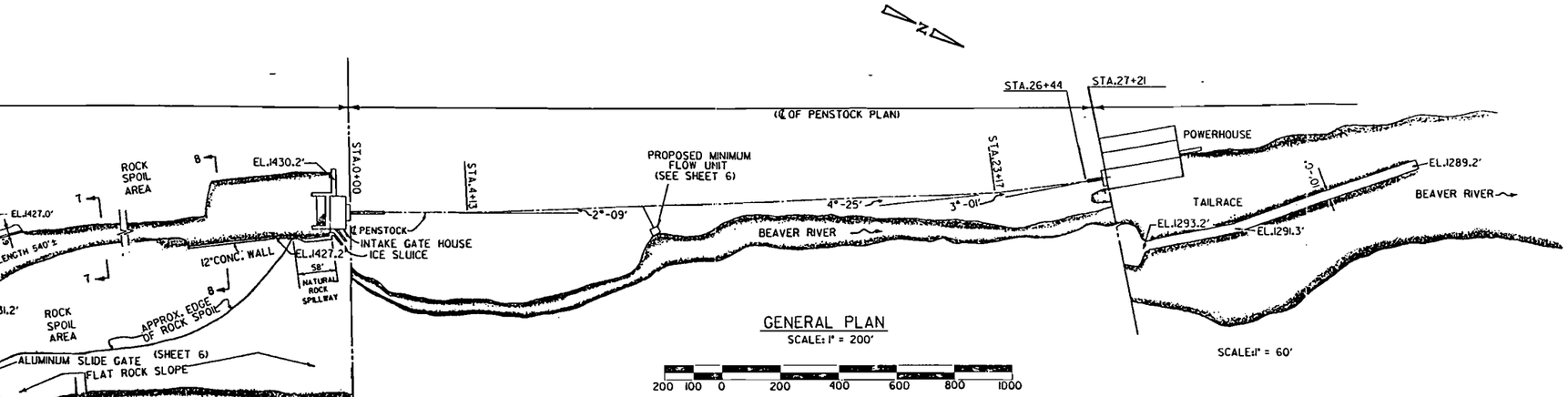
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

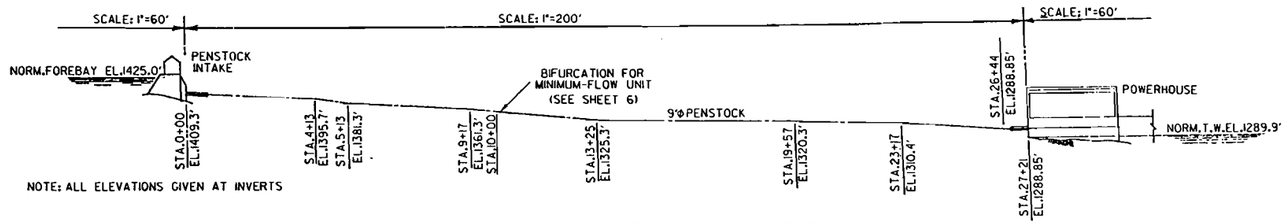
ORIGINAL ISSUE DATE

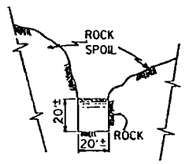
FILE INDEX

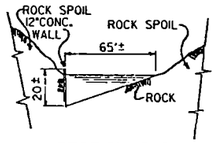
DRAWING NUMBER

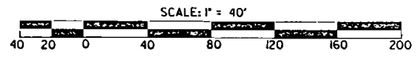


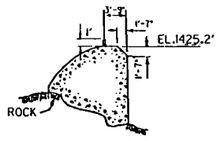


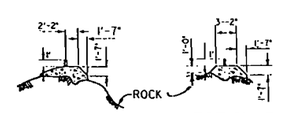


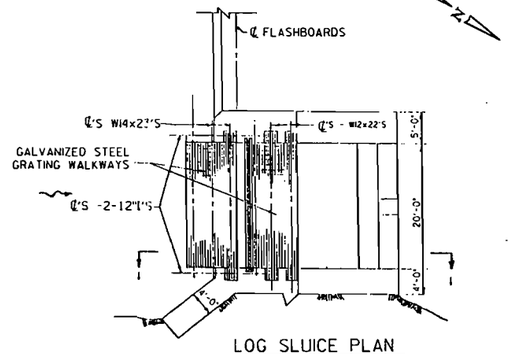


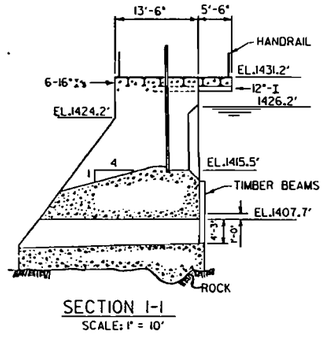


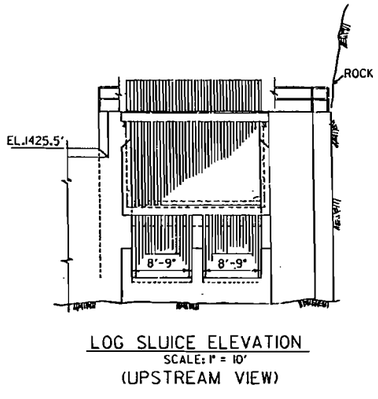


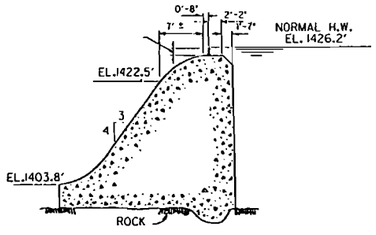












NIAGARA MOHAWK

BEAVER RIVER PROJECT

EAGLE DEVELOPMENT

GENERAL PLAN AND DETAILS OF DAM AND PENSTOCK

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 5

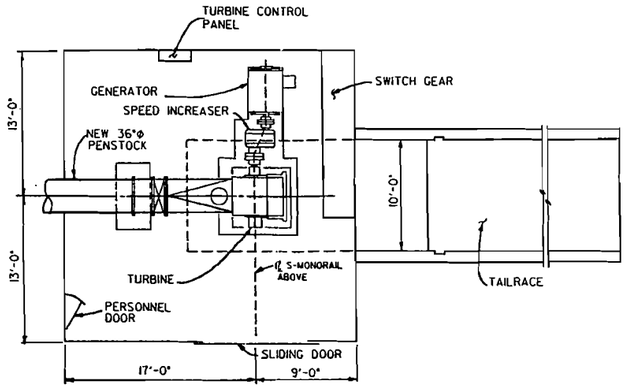
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	8-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

FILE INDEX

DRAWING NUMBER

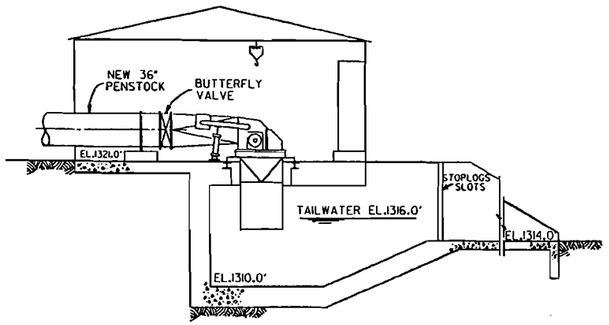


PLAN

MINIMUM - FLOW UNIT (PROPOSED)
SCALE: 1" = 5'

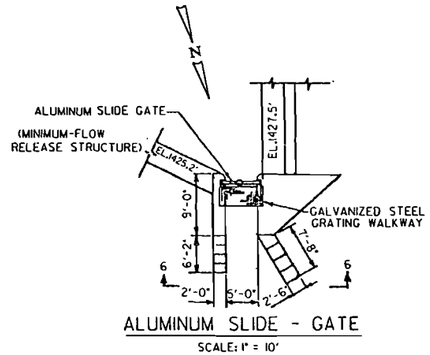
SCALE: 1" = 5'

5 2.5 0 5 10 15 20 25



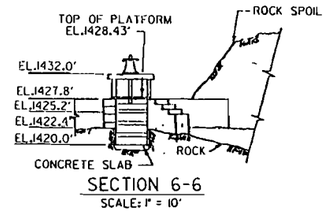
ELEVATION

MINIMUM - FLOW UNIT (PROPOSED)
SCALE: 1" = 5'



ALUMINUM SLIDE - GATE

SCALE: 1" = 10'



SECTION 6-6

SCALE: 1" = 10'

NIAGARA MOHAWK

BEAVER RIVER PROJECT

EAGLE DEVELOPMENT

GENERAL PLAN AND DETAILS
MINIMUM-FLOW UNIT &
MINIMUM-FLOW GATE

EXHIBIT F

SCALE: 1" = 10'

10 5 0 10 20 30 40 50

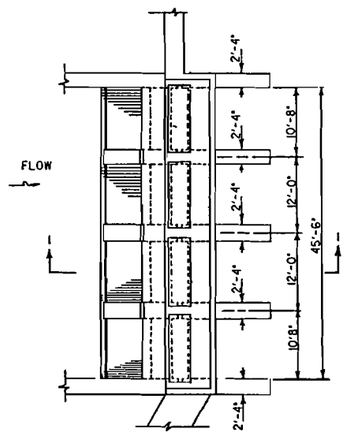
SHEET NO. 6

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	8-12-90	DRAFT LICENSE APPLICATION	KIW	GEC	JLS

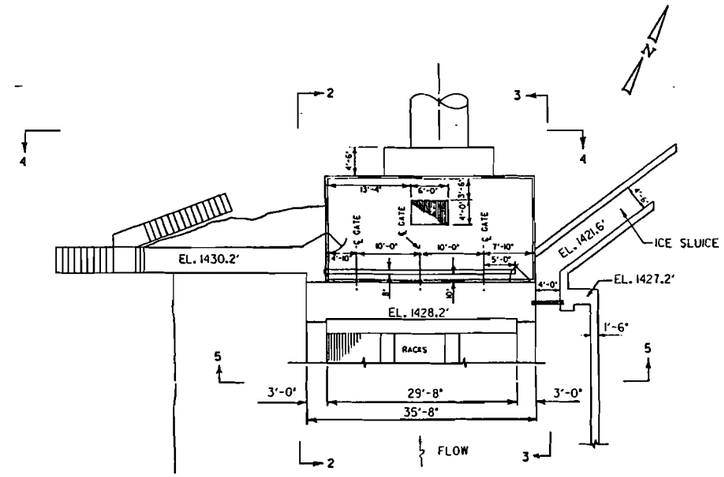
ORIGINAL ISSUE DATE

FILE INDEX

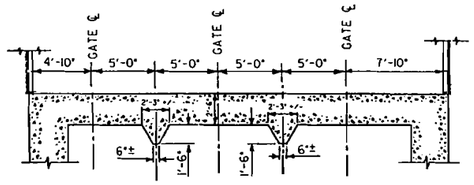
DRAWING NUMBER



CANAL HEAD GATE PLAN
SCALE 1" = 10'

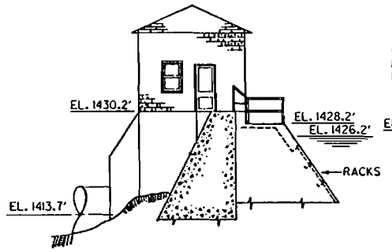


INTAKE GATEHOUSE PLAN
SCALE: 1" = 10'

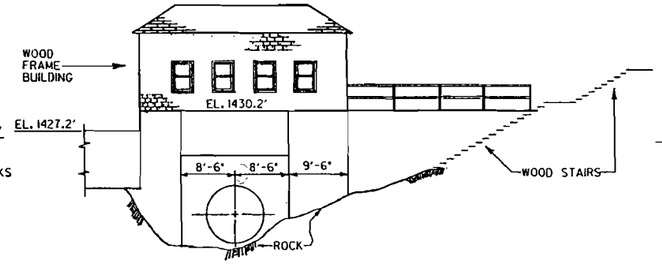


TYPICAL GATEHOUSE FLOOR SECTION
SCALE: 1" = 5'

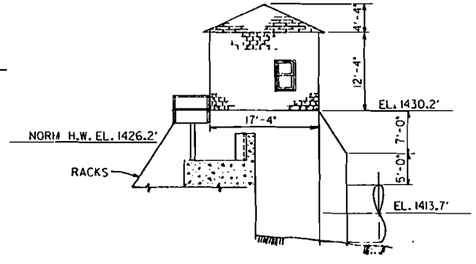
SCALE: 1" = 5'
5 2.5 0 5 10 15 20 25



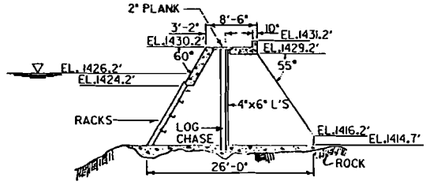
SECTION 2-2
SCALE: 1" = 10'



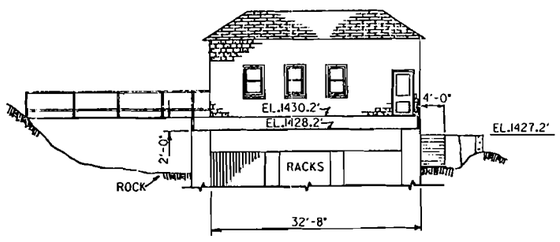
SECTION 4-4
SCALE: 1" = 10'



SECTION 3-3
SCALE: 1" = 10'



SECTION 1-1
SCALE: 1" = 10'



SECTION 5-5
SCALE: 1" = 10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT
EAGLE DEVELOPMENT
INTAKE CANAL AND GATEHOUSE
PLANS AND SECTIONS

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 7

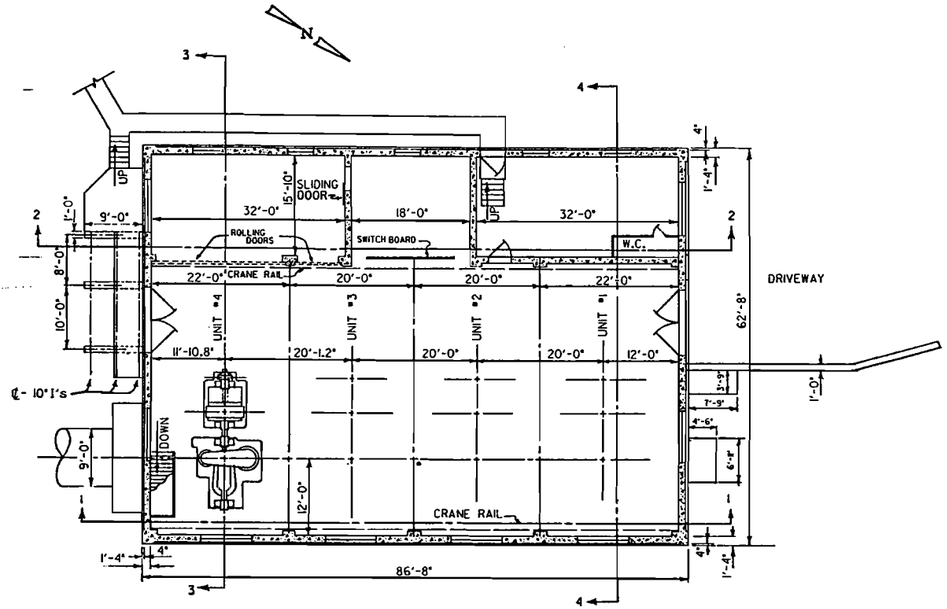
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	JLS
1	6-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

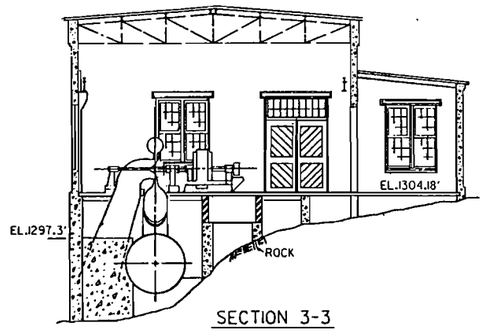
ORIGINAL ISSUE DATE

FILE INDEX

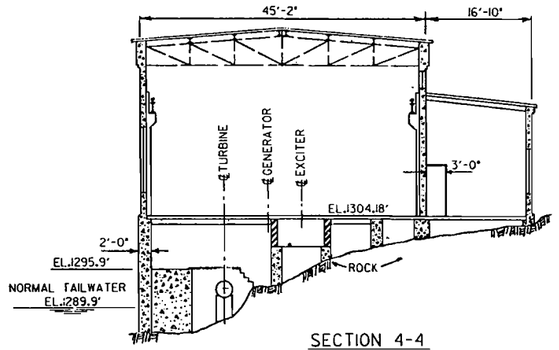
DRAWING NUMBER



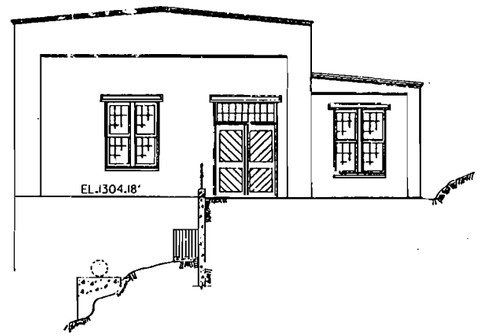
GENERATOR FLOOR PLAN (EL.1304.18')
SCALE: 1" = 10'



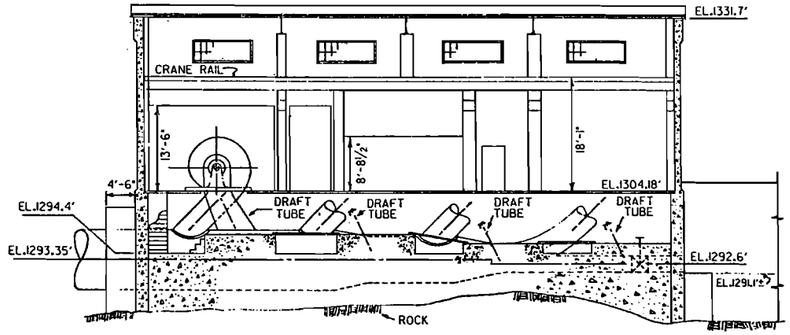
SECTION 3-3
SCALE: 1"-10'



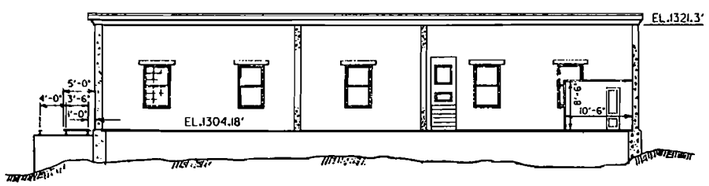
SECTION 4-4
SCALE: 1"-10'



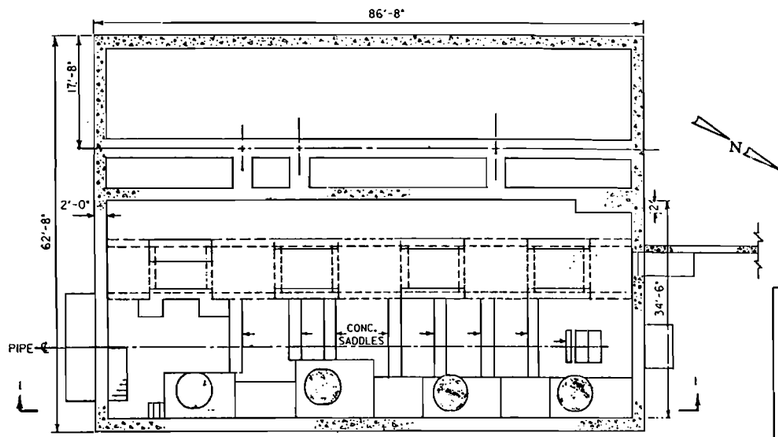
DOWNSTREAM ELEVATION
SCALE: 1"-10'



SECTION 1-1
SCALE: 1"-10'



SECTION 2-2
SCALE: 1"-10'



BASEMENT FLOOR PLAN
SCALE: 1"-10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT
EAGLE DEVELOPMENT
POWERHOUSE
PLANS AND SECTIONS

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 8

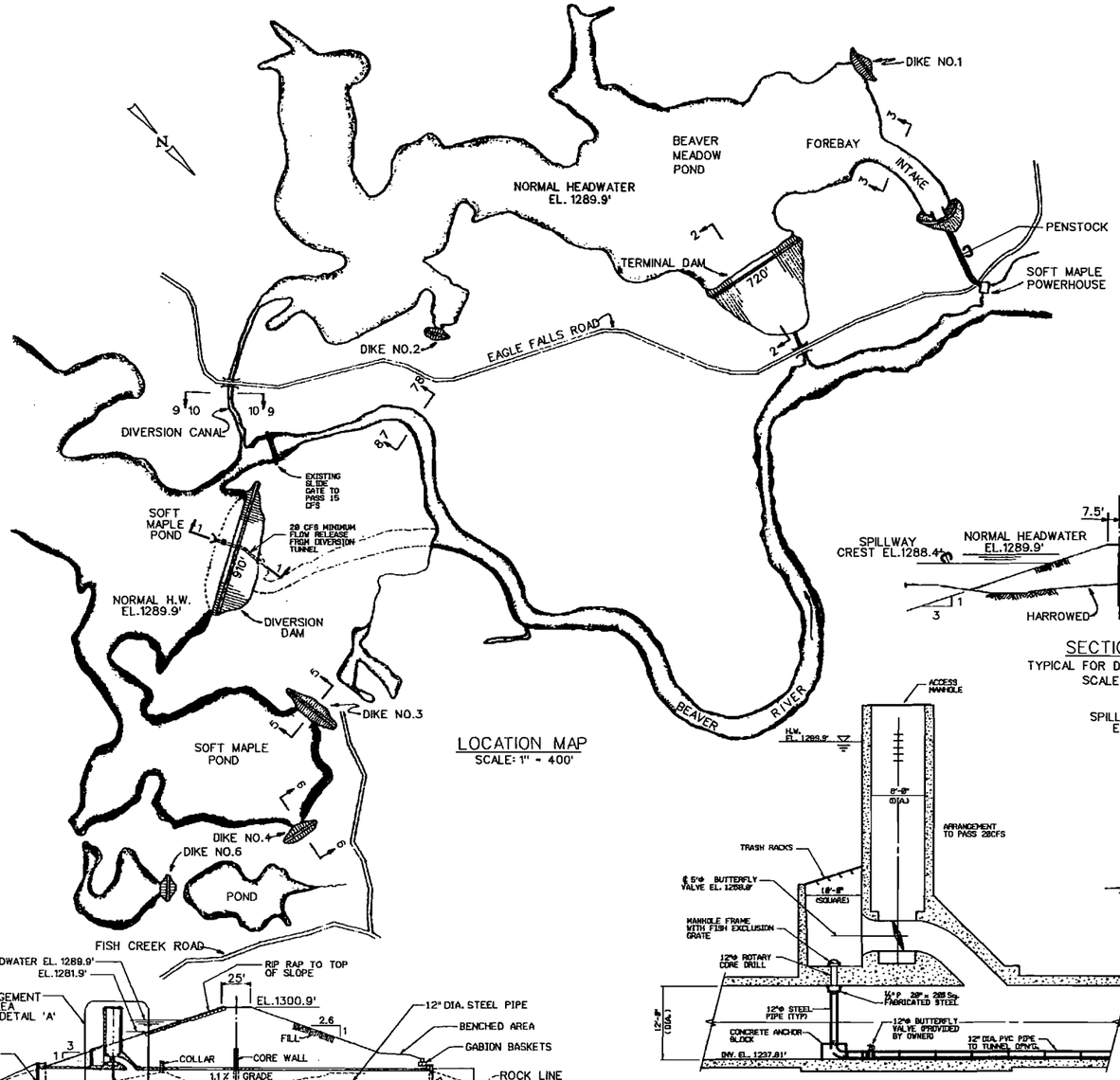
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

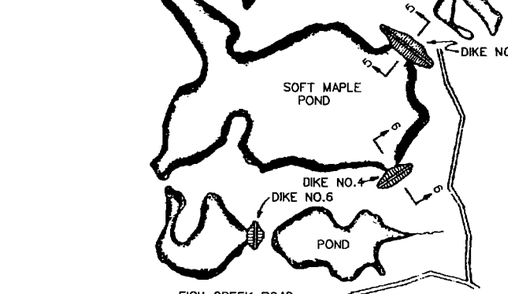
ORIGINAL ISSUE DATE

FILE INDEX

DRAWING NUMBER

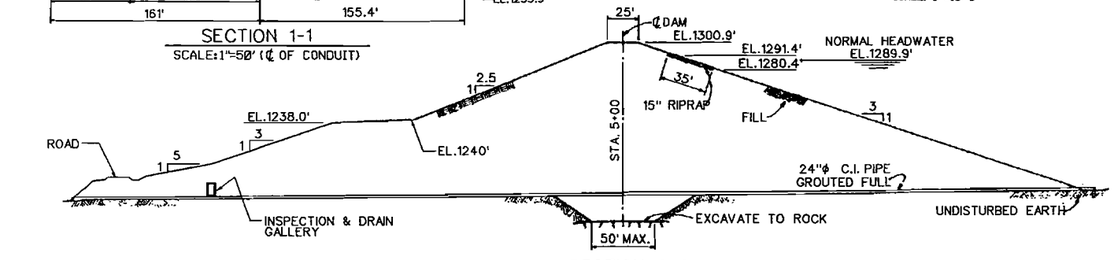


LOCATION MAP
SCALE: 1" = 400'

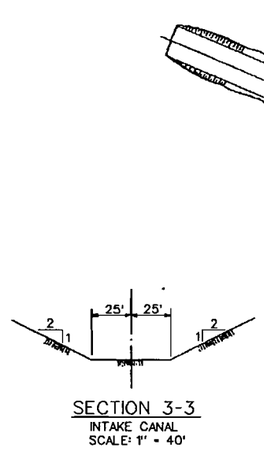


SECTION 1-1
SCALE: 1"=50' (℄ OF CONDUIT)

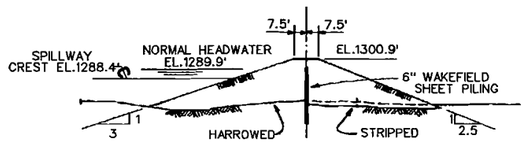
DETAIL 'A' - MINIMUM FLOW & DIVERSION TUNNEL
SCALE: 1"=10'-0"



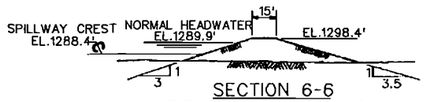
SECTION 2-2
TERMINAL DAM
SCALE: 1" = 50'



SECTION 3-3
INTAKE CANAL
SCALE: 1" = 40'

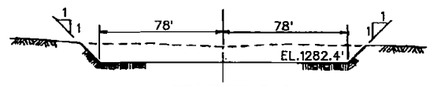


SECTION 5-5
TYPICAL FOR DIKES NO. 1,2&3
SCALE: 1" = 40'

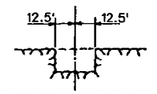


SECTION 6-6
TYPICAL FOR DIKES NO. 4 & 6
SCALE: 1" = 40'

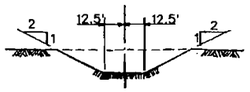
SECTION 7-7
SPILLWAY CHANNEL (EARTH & ROCK)
SCALE: 1" = 40'



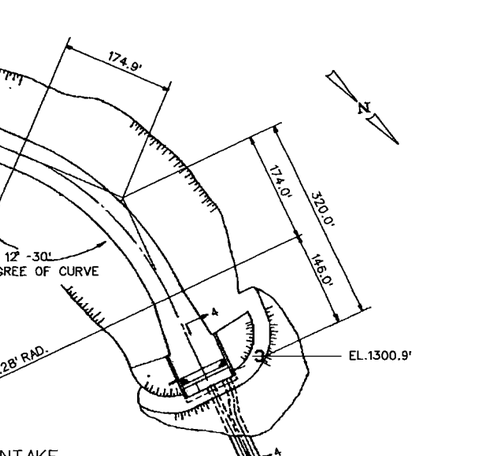
SECTION 8-8
SPILLWAY CHANNEL (EARTH)
SCALE: 1" = 40'

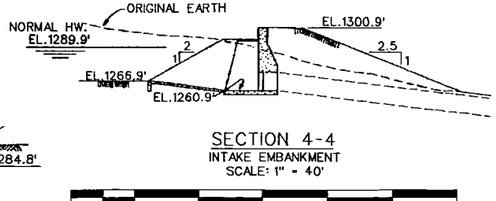


SECTION 9-9
DIVERSION CANAL (ROCK)
SCALE: 1" = 40'



SECTION 10-10
DIVERSION CANAL (EARTH)
SCALE: 1" = 40'





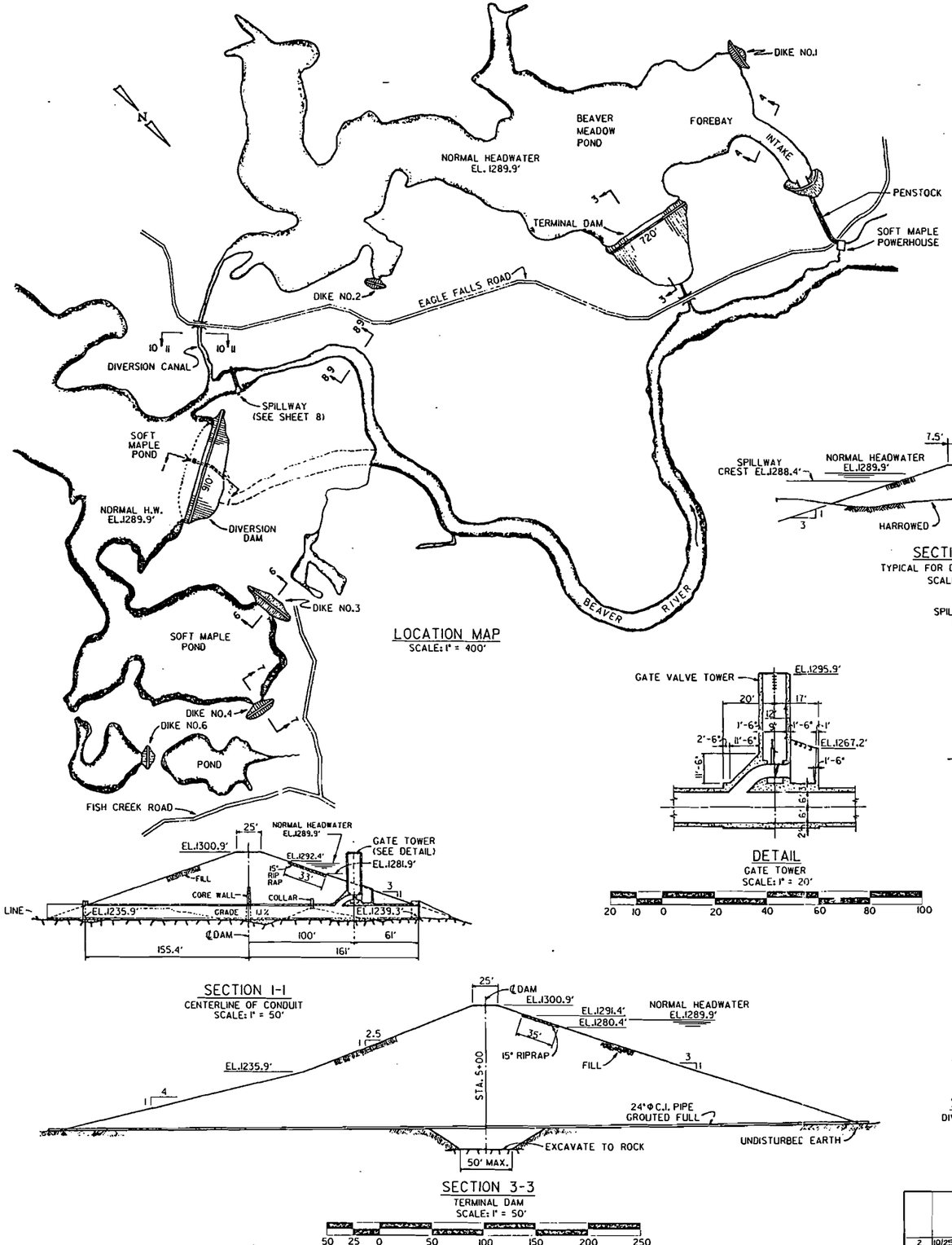
SECTION 4-4
INTAKE EMBANKMENT
SCALE: 1" = 40'

50 25 0 50 100 150 200 250

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
6	2/24/03	AS-BUILT CONDITIONS FROM DIVERSION/TERMINAL DAM EARTH WORK	PJM	JEB	SPM
5	10/31/01	MINIMUM FLOW PIPING AT DIVERSION DAM	BAB	SPM	TMS
4	8/2/96	ORDER APPROVING SETTLEMENT AGREEMENT AND ISSUING NEW LICENSE (NO APPTR. CARDS REQ'D.)	DJM	DWM	JSN
3	1/13/93	LIC. APP. ACCEPTED FOR FILING	—	DWM	—
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE 8/2/96
FILE NAME F92645.DGN F92645.CIT
FERC NO. 2645

ERIE BOULEVARD HYDROPOWER, LP
LIVERPOOL, N.Y.
BEAVER RIVER PROJECT
SOFT MAPLE DEVELOPMENT
GENERAL PLAN AND DETAILS
DAMS, DIKES AND CANALS
EXHIBIT F SCALE: 1" = 400' SHEET NO. 9
400 200 0 400 800 1200 1600 2000

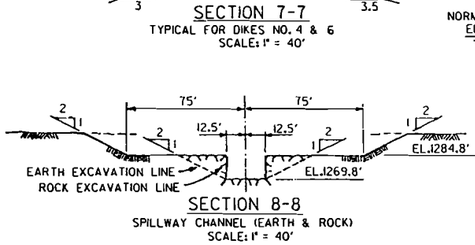


LOCATION MAP
SCALE: 1" = 400'

SECTION 1-1
CENTERLINE OF CONDUIT
SCALE: 1" = 50'

SECTION 3-3
TERMINAL DAM
SCALE: 1" = 50'

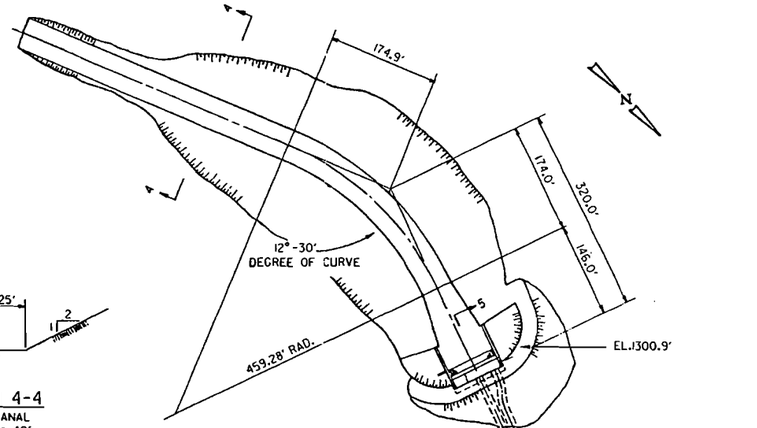
DETAIL
GATE TOWER
SCALE: 1" = 20'



SECTION 4-4
INTAKE CANAL
SCALE: 1" = 40'

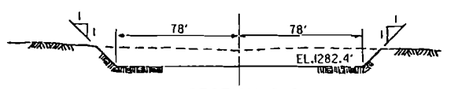
SECTION 6-6
TYPICAL FOR DIKES NO. 1,2 & 3
SCALE: 1" = 40'

SECTION 7-7
TYPICAL FOR DIKES NO. 4 & 6
SCALE: 1" = 40'

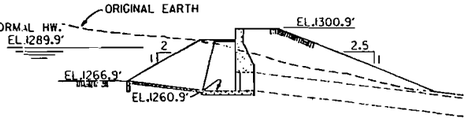


INTAKE
SCALE: 1" = 100'
100 50 0 100 200 300 400 500

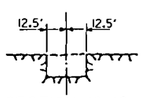
SECTION 8-8
SPILLWAY CHANNEL (EARTH & ROCK)
SCALE: 1" = 40'



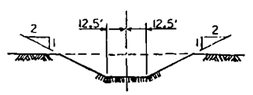
SECTION 9-9
SPILLWAY CHANNEL (EARTH)
SCALE: 1" = 40'



SECTION 5-5
INTAKE EMBANKMENT
SCALE: 1" = 40'
40 20 0 40 80 120 160 200



SECTION 10-10
DIVERSION CANAL (ROCK)
SCALE: 1" = 40'



SECTION 11-11
DIVERSION CANAL (EARTH)
SCALE: 1" = 40'

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	J.S
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	J.S

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER

NIAGARA MOHAWK

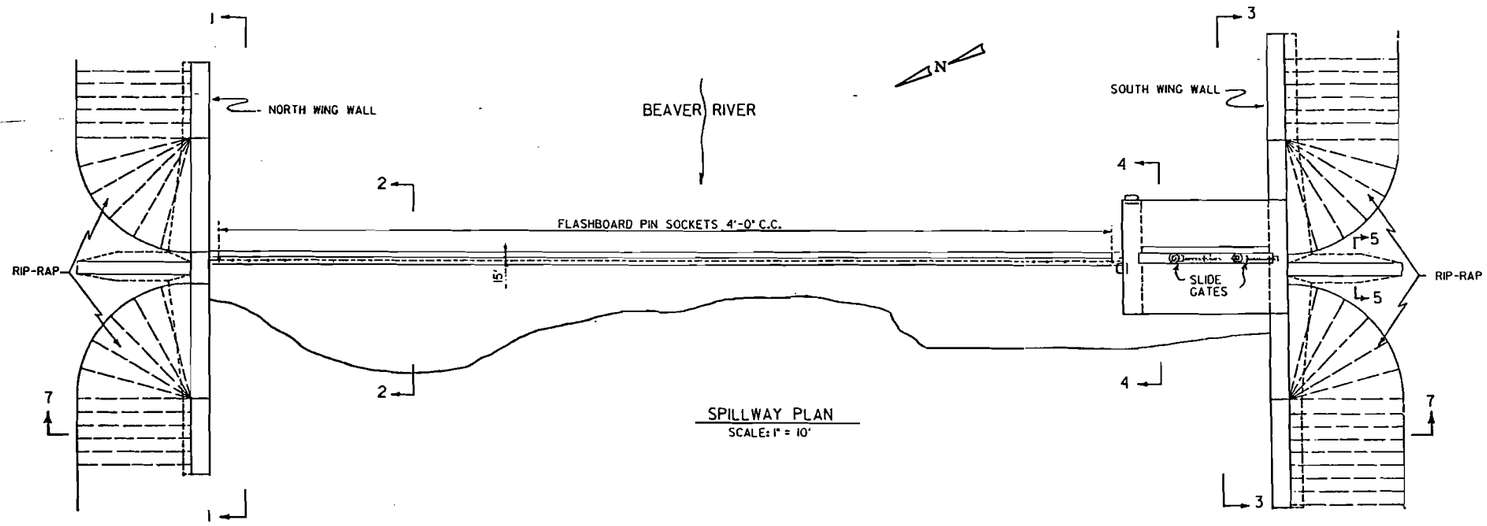
BEAVER RIVER PROJECT

SOFT MAPLE DEVELOPMENT

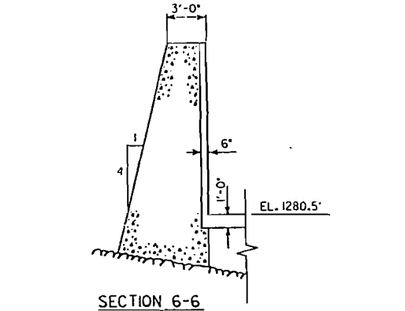
GENERAL PLAN AND DETAILS
DAMS, DIKES AND CANALS

EXHIBIT F — SHEET NO. 9

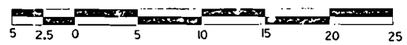
SCALE: 1" = 400'
400 200 0 400 800 1200 1600 2000

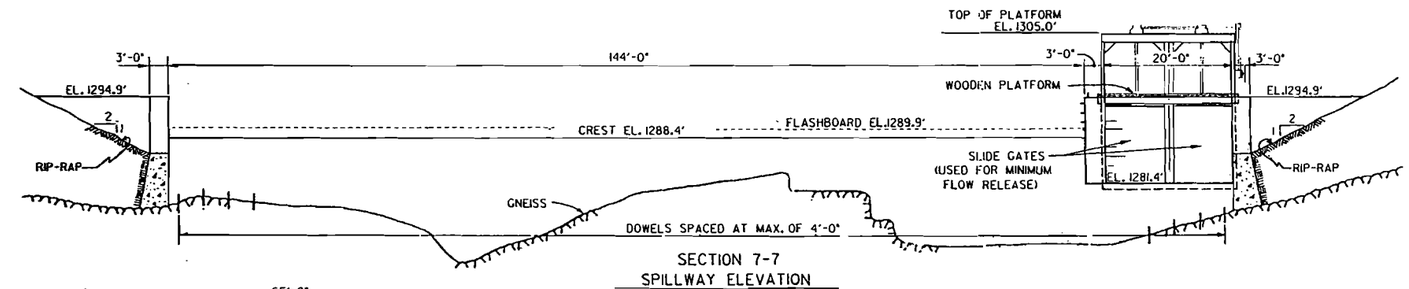


SPILLWAY PLAN
SCALE: 1" = 10'

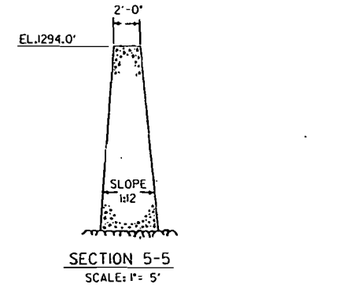


SECTION 6-6
SCALE: 1" = 5'

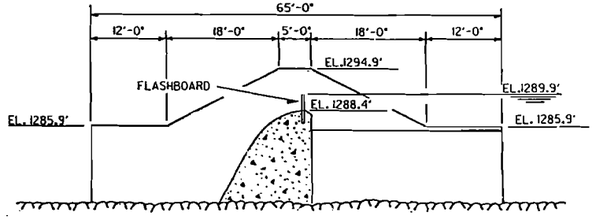




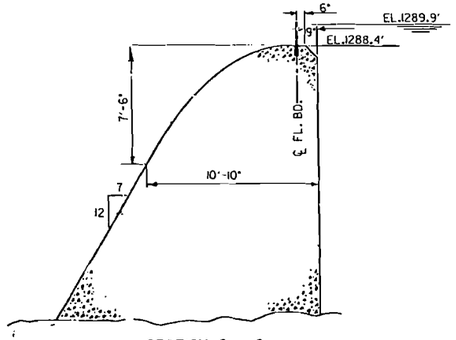
SECTION 7-7
SPILLWAY ELEVATION
SCALE: 1" - 10'



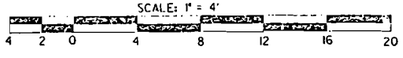
SECTION 5-5
SCALE: 1" = 5'

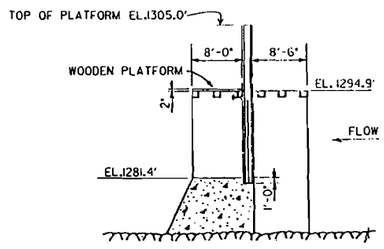


SECTION 1-1
NORTH WING WALL
SCALE: 1" = 10'

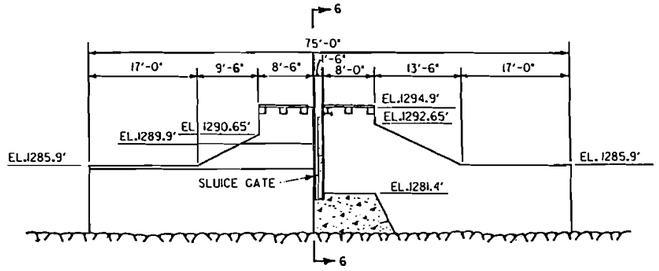


SECTION 2 - 2
SPILLWAY
SCALE: 1" = 4'





SECTION 4-4
SLIDE GATE
SCALE: 1" = 10'



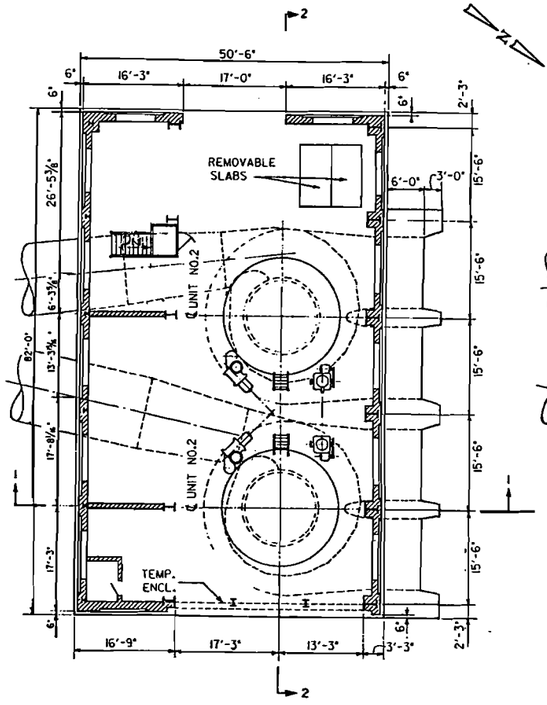
SECTION 3-3
SOUTH WING WALL
SCALE: 1" = 10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT
SOFT MAPLE DEVELOPMENT
SPILLWAY DAM
PLAN AND SECTIONS
EXHIBIT F
SCALE: 1" = 10'
SHEET NO. 10

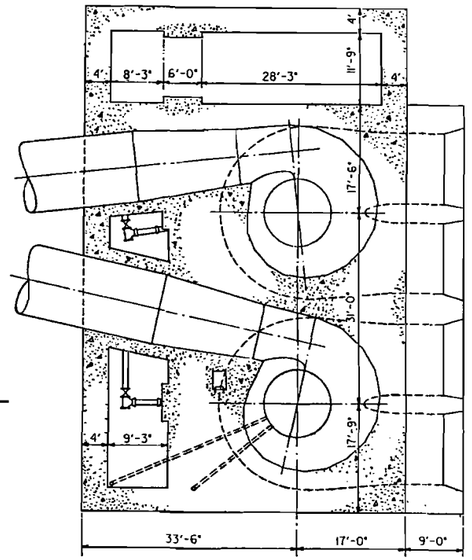
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

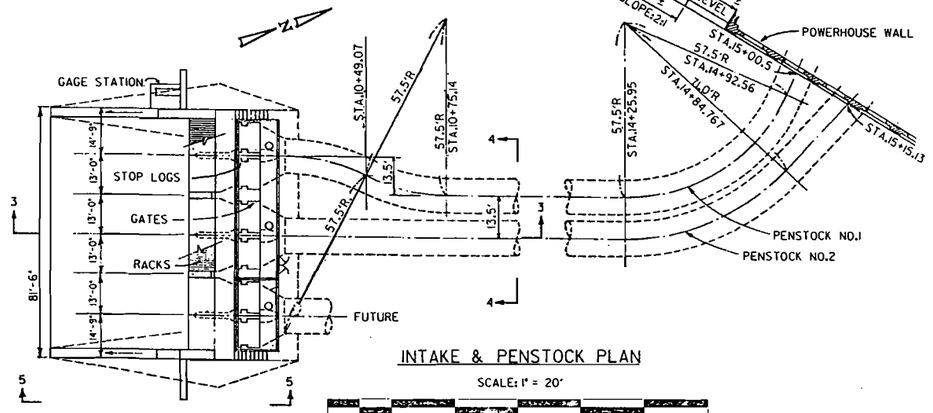
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



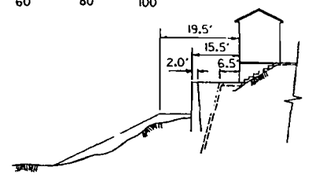
POWERHOUSE PLAN
SCALE: 1" = 10'
EL.1185.4'



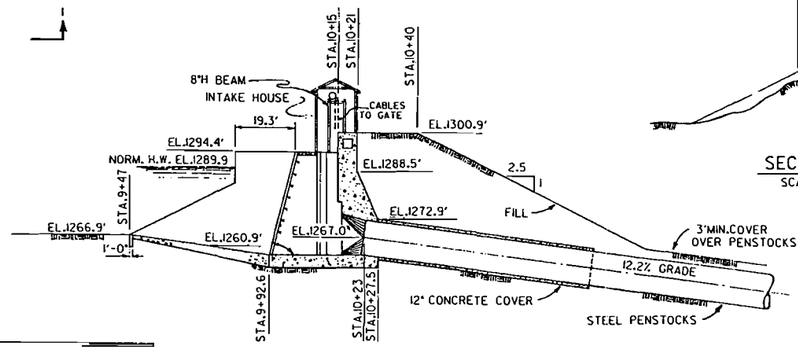
PLAN
ELEVATION 1170.9' & 1175.9'
SCALE: 1" = 10'



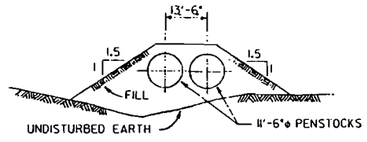
INTAKE & PENSTOCK PLAN
SCALE: 1" = 20'



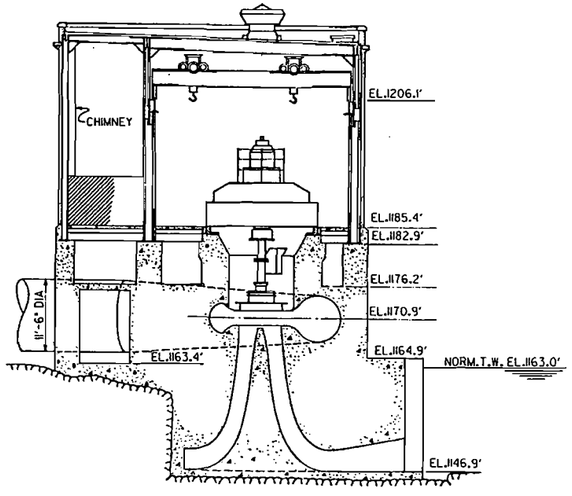
SECTION 5-5
SCALE: 1" = 20'



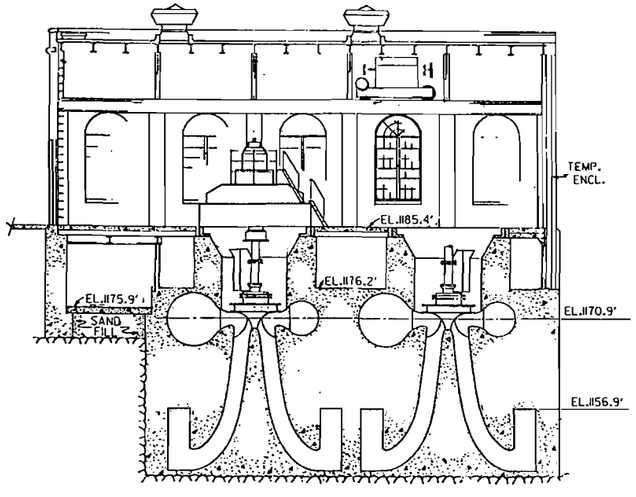
SECTION 3-3
HEADWORKS
SCALE: 1" = 20'



SECTION 4-4
TYPICAL PENSTOCK SECTION
SCALE: 1" = 20'



SECTION 1-1
SCALE: 1" = 10'



SECTION 2-2
SCALE: 1" = 10'

NIAGARA MOHAWK

BEAVER RIVER PROJECT

SOFT MAPLE DEVELOPMENT

POWERHOUSE AND PENSTOCK
PLANS AND SECTIONS

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 11

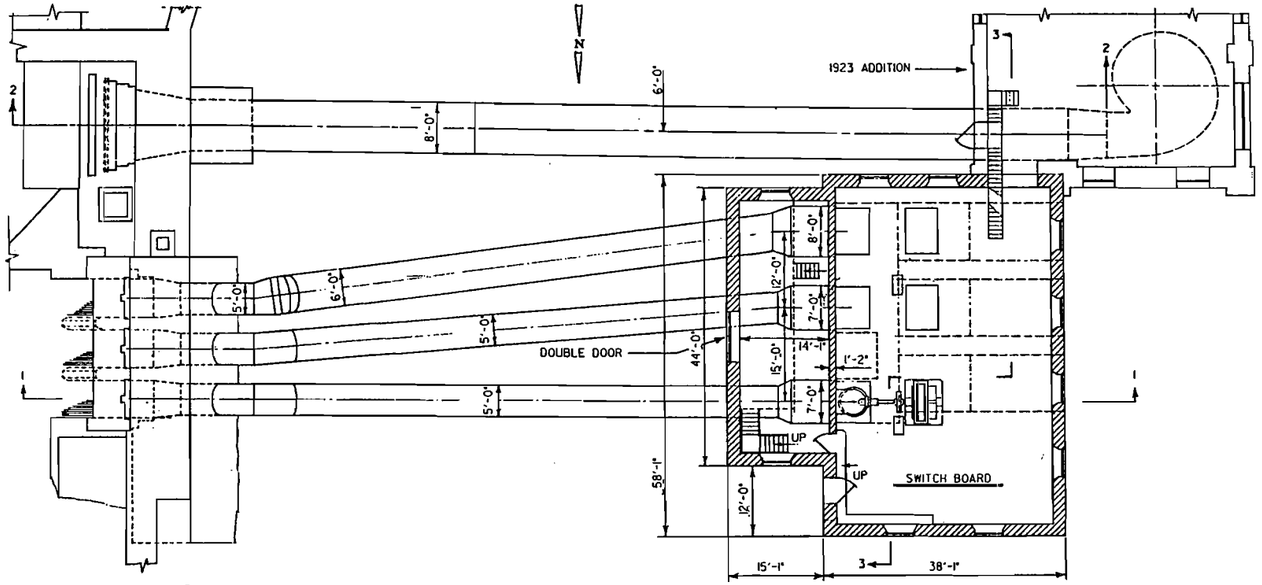
10 5 0 10 30 40 50 60

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

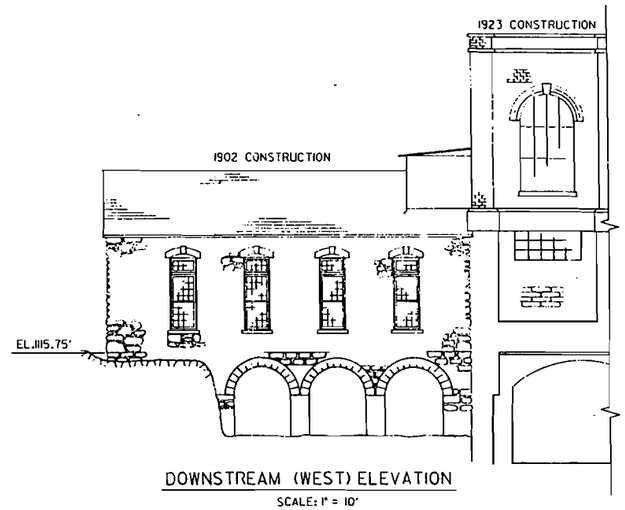
ORIGINAL ISSUE DATE

FILE INDEX

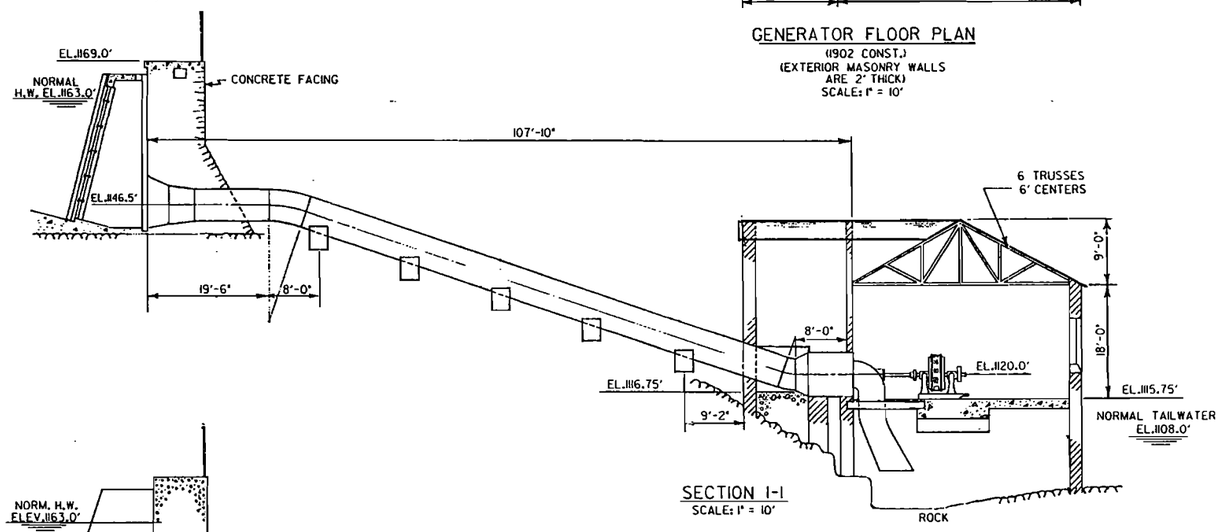
DRAWING NUMBER



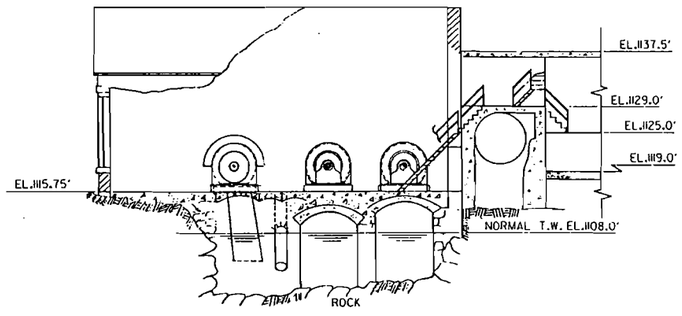
GENERATOR FLOOR PLAN
(1902 CONST.)
(EXTERIOR MASONRY WALLS ARE 2' THICK)
SCALE: 1" = 10'



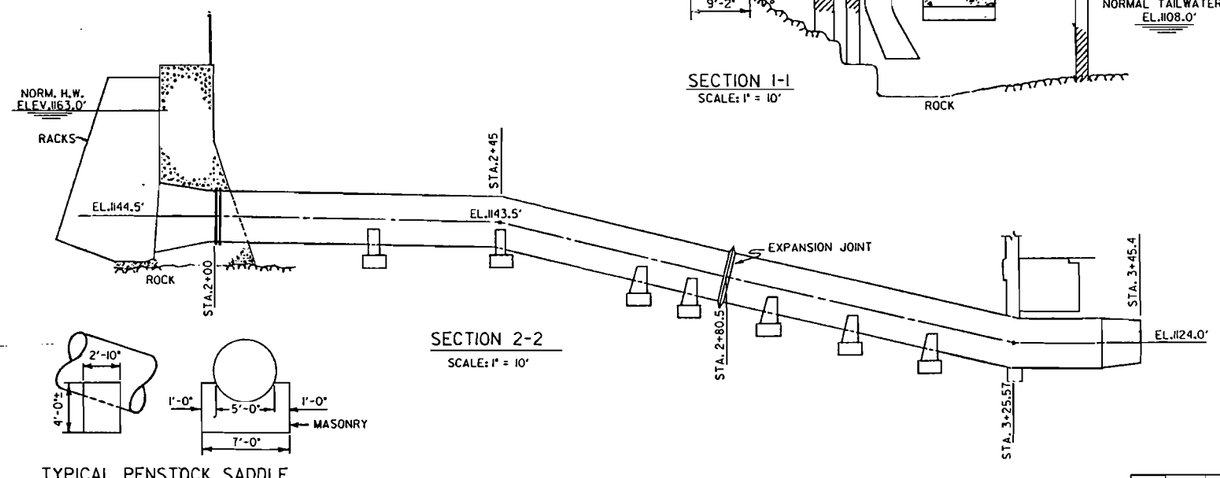
DOWNSTREAM (WEST) ELEVATION
SCALE: 1" = 10'



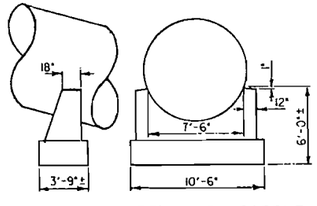
SECTION 1-1
SCALE: 1" = 10'



SECTION 3-3
SCALE: 1" = 10'



SECTION 2-2
SCALE: 1" = 10'



TYPICAL PENSTOCK SADDLE
SCALE: 1" = 5'

TYPICAL PENSTOCK SADDLE
SCALE: 1" = 5'

5 2.5 0 5 10 15 20 25

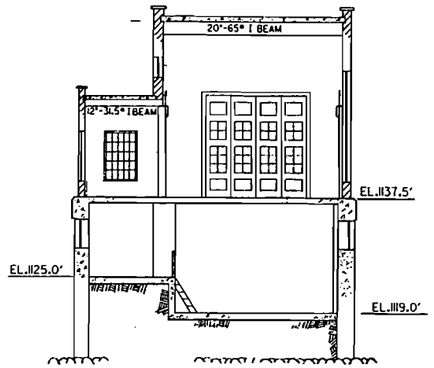
NIAGARA MOHAWK
BEAVER RIVER PROJECT
EFFLEY DEVELOPMENT
POWERHOUSE AND PENSTOCK
PLAN, PROFILE AND SECTIONS

EXHIBIT F
SCALE: 1" = 10'
SHEET NO. 13

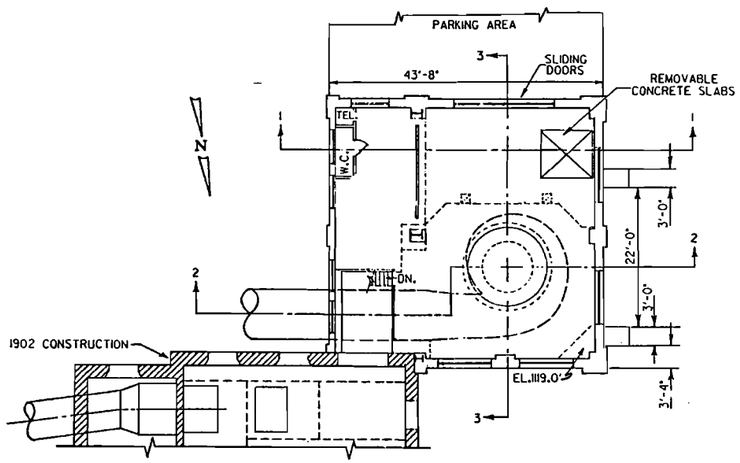
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

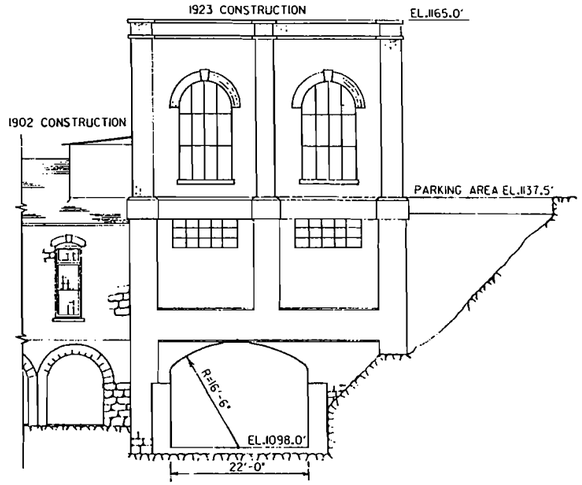
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



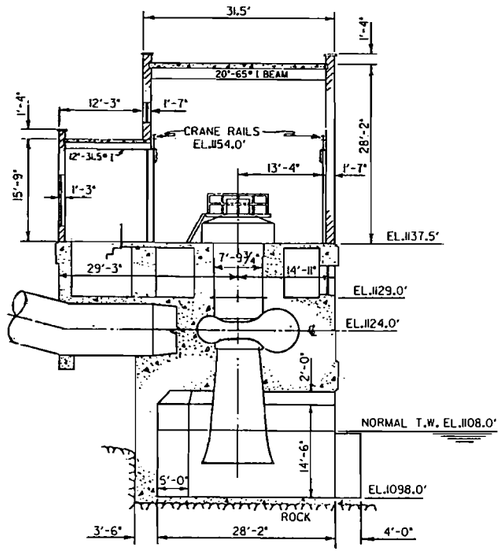
SECTION 1-1
SCALE: 1" = 10'



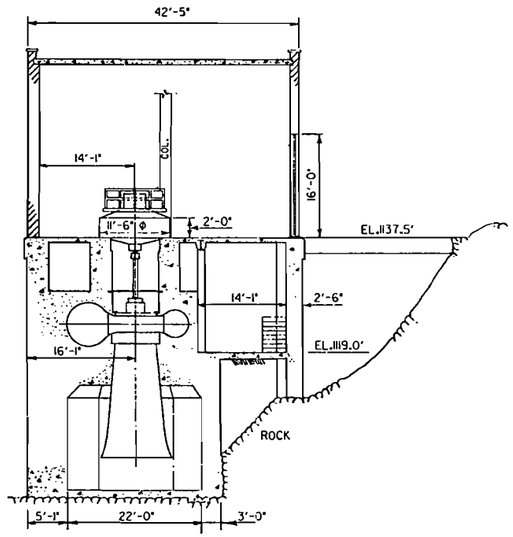
GENERATOR FLOOR PLAN
EL.1137.5'
(1923 ADDITION)
SCALE: 1" = 10'



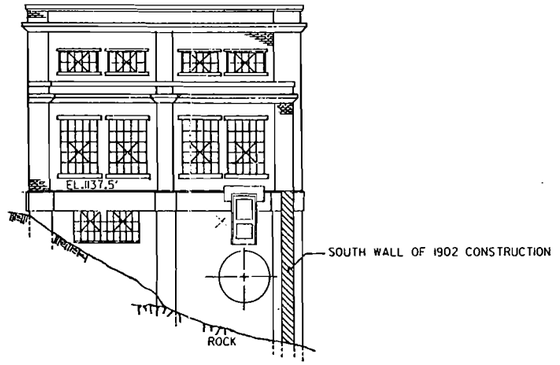
DOWNSTREAM (WEST) ELEVATION
SCALE: 1" = 10'



SECTION 2-2
SCALE: 1" = 10'



SECTION 3-3
SCALE: 1" = 10'



UPSTREAM (EAST) ELEVATION
(1923 CONSTRUCTION)
SCALE: 1" = 10'

NIAGARA MOHAWK

BEAVER RIVER PROJECT

EFFLEY DEVELOPMENT

POWERHOUSE

PLAN ELEVATIONS AND SECTIONS

EXHIBIT F — SHEET NO.14

SCALE: 1" = 10'

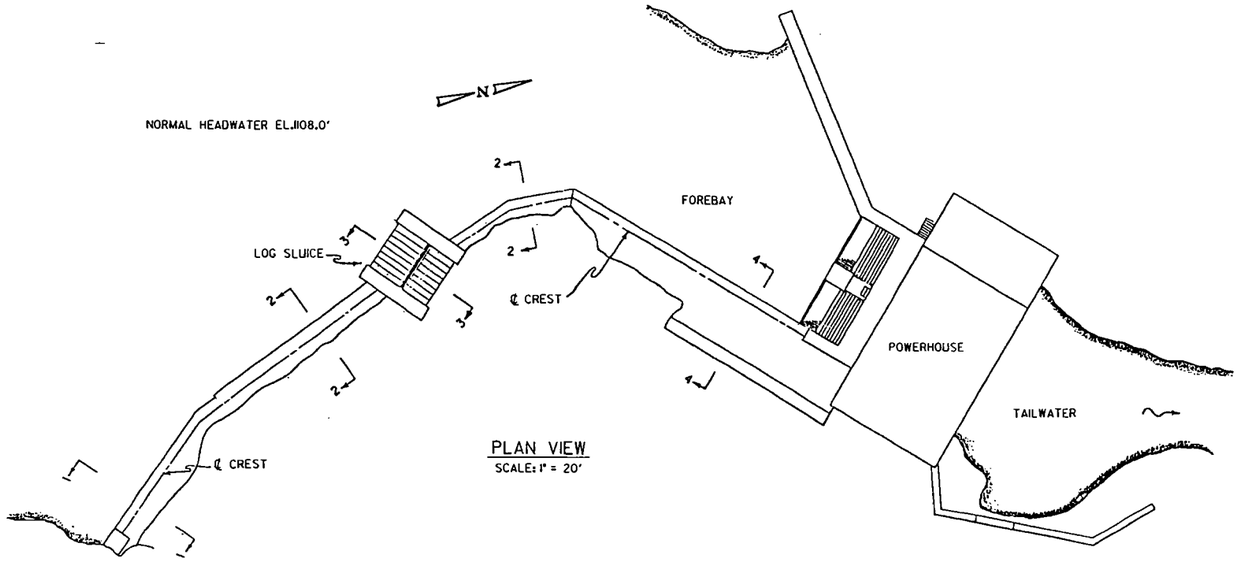
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KLW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

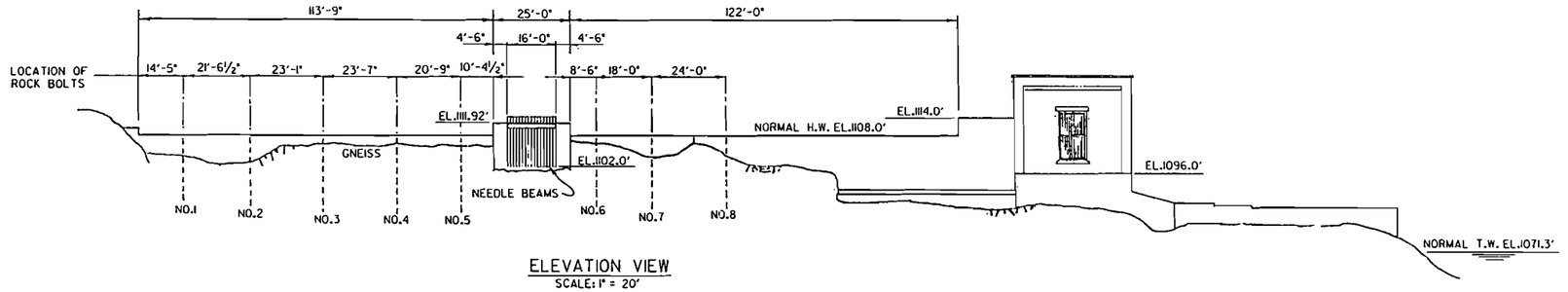
ORIGINAL ISSUE DATE

FILE INDEX

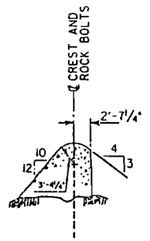
DRAWING NUMBER



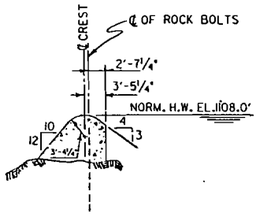
PLAN VIEW
SCALE: 1" = 20'



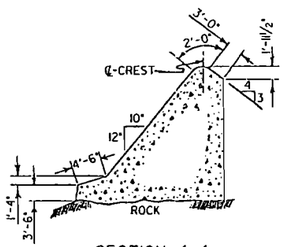
ELEVATION VIEW
SCALE: 1" = 20'



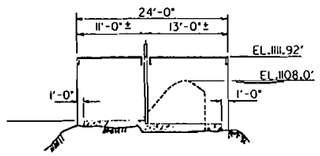
SECTION 1-1
SCALE: 1" = 10'



SECTION 2-2
SCALE: 1" = 10'



SECTION 4-4
SCALE: 1" = 10'



SECTION 3-3
SCALE: 1" = 10'

SCALE: 1" = 10'
10 5 0 10 20 30 40 50

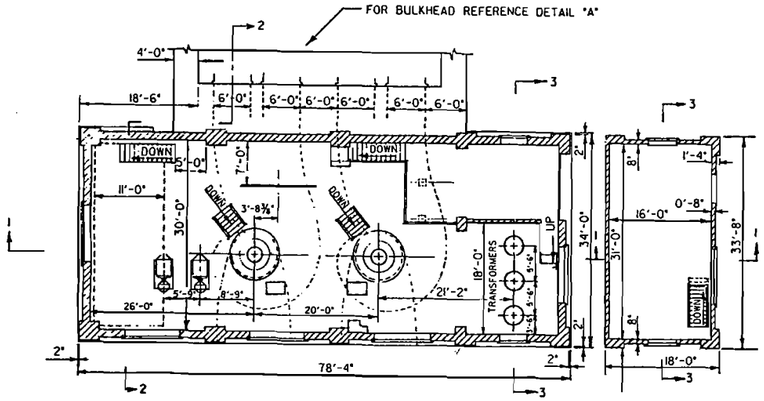
NIAGARA MOHAWK
BEAVER RIVER PROJECT
ELMER DEVELOPMENT
GENERAL PLAN AND SECTIONS
OF DAM AND SLUICE

EXHIBIT F SHEET NO.15

SCALE: 1" = 20'
20 10 0 20 40 60 80 100

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM	GEC	JLS
1	8/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

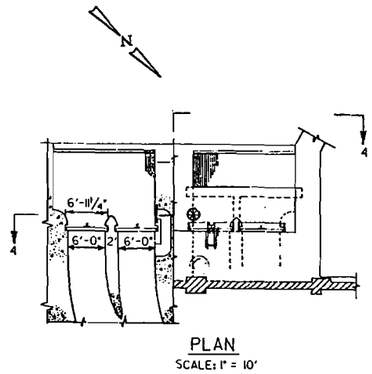
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



POWERHOUSE PLAN

SCALE: 1" = 10'

SECOND FLOOR



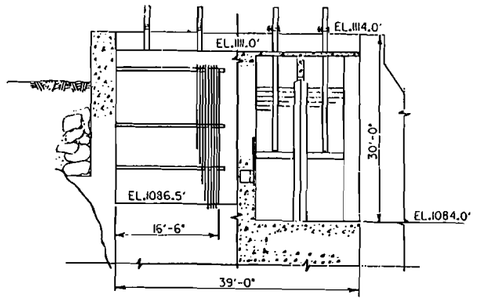
PLAN

SCALE: 1" = 10'

DETAIL "A"

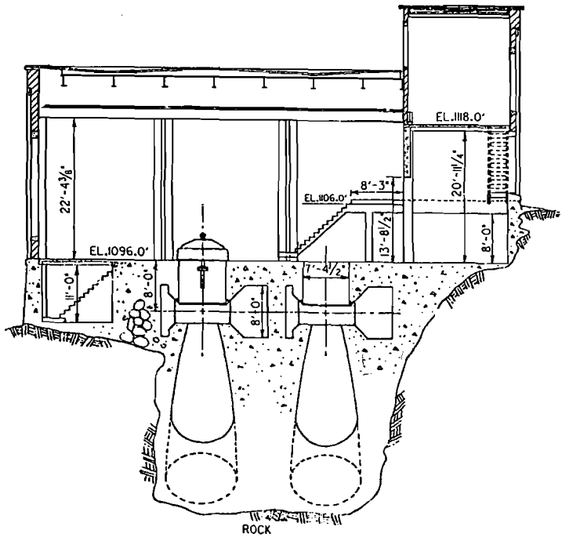
TRASH RACK AND BULKHEAD DETAIL

SCALE: 1" = 10'



SECTION 4-4

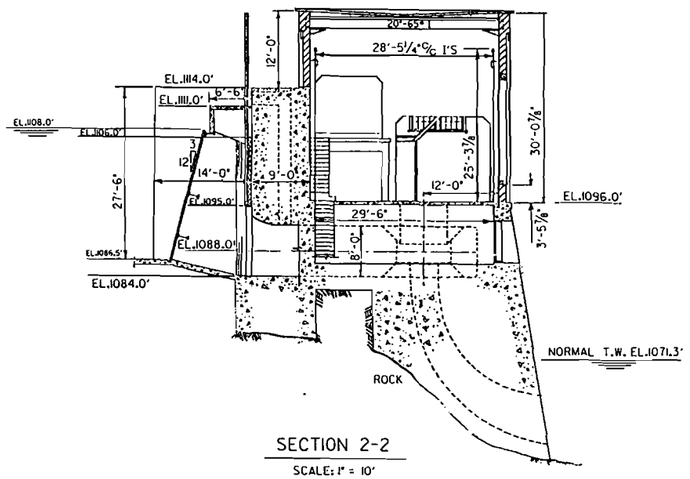
SCALE: 1" = 10'



ROCK

SECTION 1-1

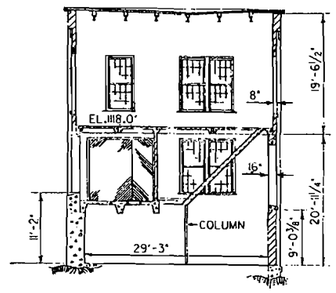
SCALE: 1" = 10'



ROCK

SECTION 2-2

SCALE: 1" = 10'



SECTION 3-3

SCALE: 1" = 10'

NIAGARA MOHAWK

BEAVER RIVER PROJECT

ELMER DEVELOPMENT

POWERHOUSE AND RACKS
PLANS AND SECTIONS

EXHIBIT F

SCALE: 1" = 10'

SHEET NO. 16

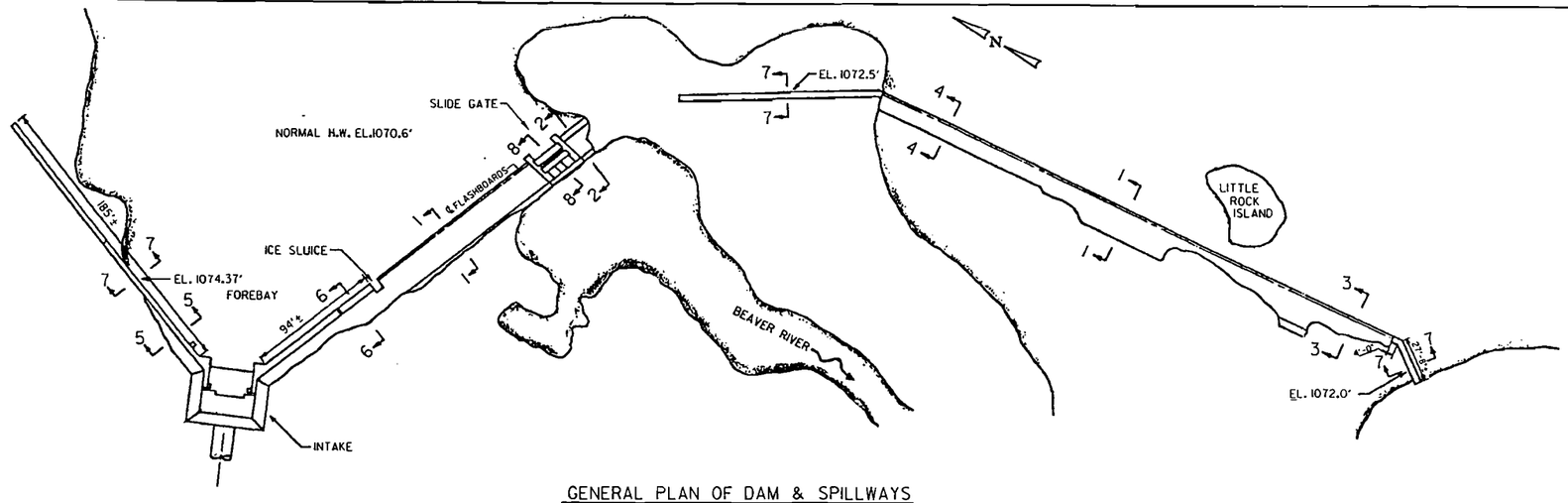
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

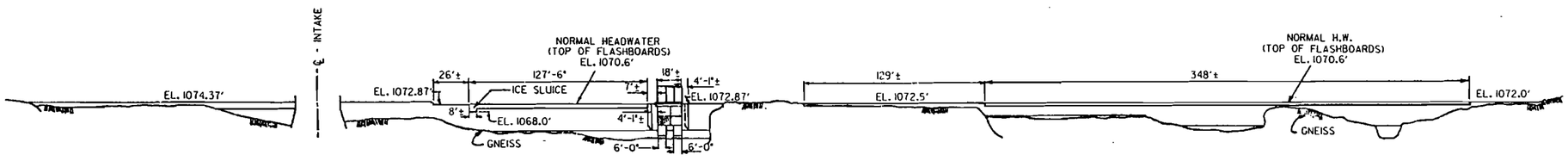
ORIGINAL ISSUE DATE

FILE INDEX

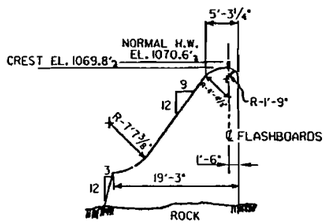
DRAWING NUMBER



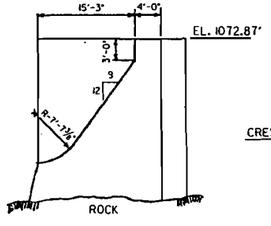
GENERAL PLAN OF DAM & SPILLWAYS
SCALE: 1" =40'



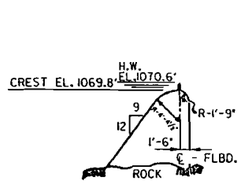
PROFILE OF DAM & SPILLWAY
SCALE: 1" =40'



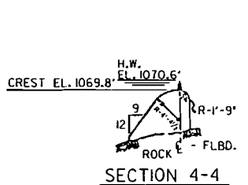
SECTION 1-1
SCALE: 1" =10'



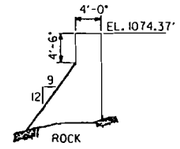
SECTION 2-2
SCALE: 1" =10'



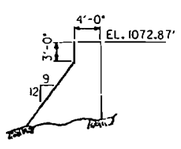
SECTION 3-3
SCALE: 1" =10'



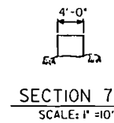
SECTION 4-4
SCALE: 1" =10'



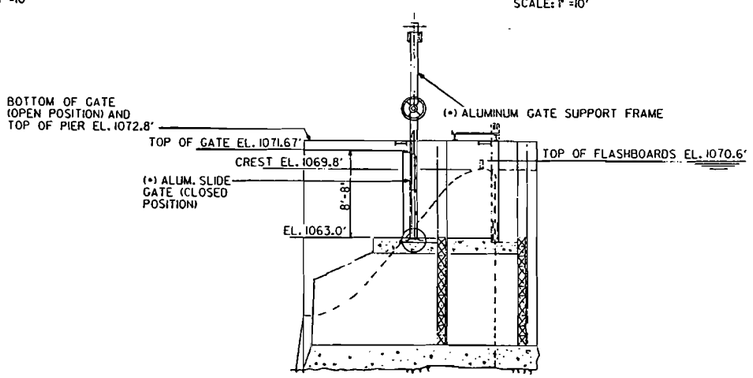
SECTION 5-5
SCALE: 1" =10'



SECTION 6-6
SCALE: 1" =10'



SECTION 7-7
SCALE: 1" =10'



SECTION 8-8
SCALE: 1" =10'
MINIMUM FLOW GATE

SCALE: 1" =10'
10 5 0 10 20 30 40 50

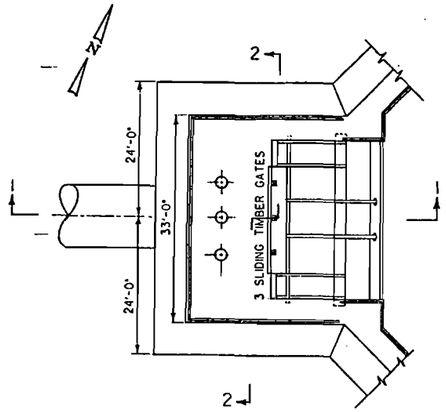
NIAGARA MOHAWK
BEAVER RIVER
TAYLORVILLE DEVELOPMENT
GENERAL PLAN
DAM AND SECTIONS

EXHIBIT F — SCALE: 1" = 40' — SHEET NO. 17

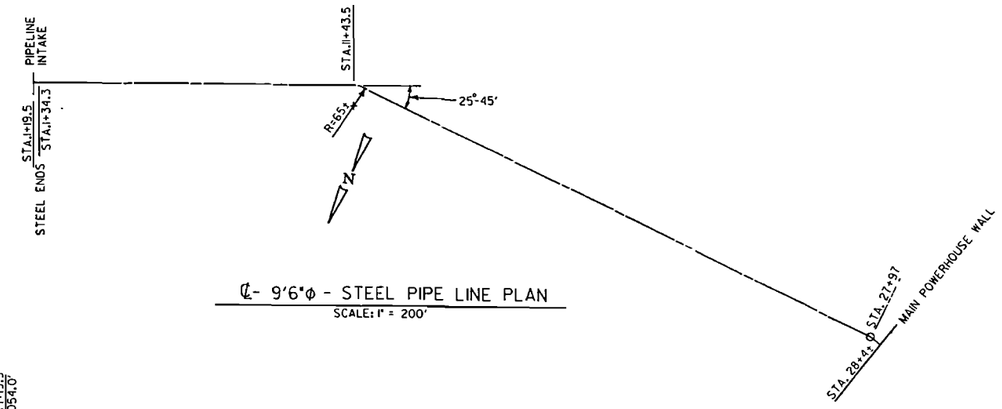
40 20 0 40 80 120 160 200

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

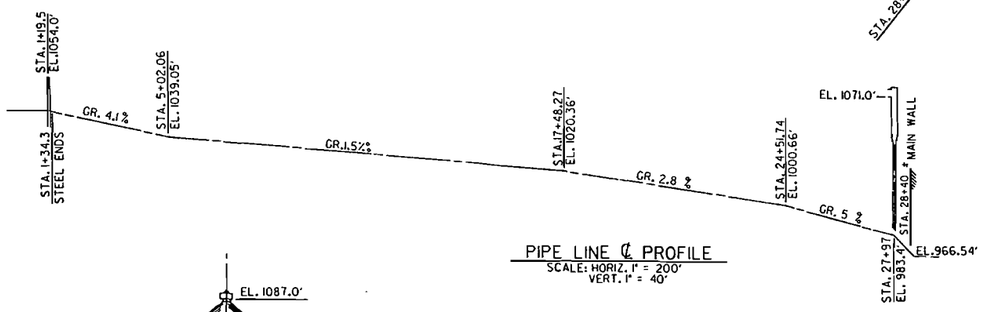
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



INTAKE PLAN
SCALE: 1" = 10'

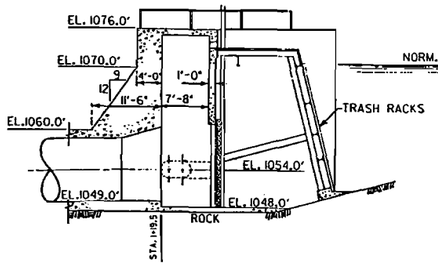


℄- 9'6"ϕ - STEEL PIPE LINE PLAN
SCALE: 1" = 200'

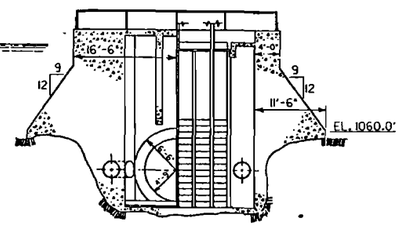


PIPE LINE ℄ PROFILE
SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

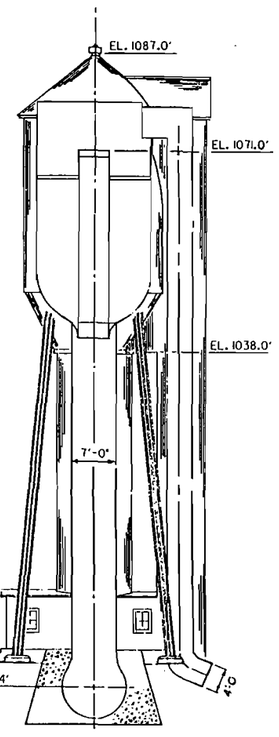
SCALE: 1" = 40'
40 20 0 40 80 120 160 200



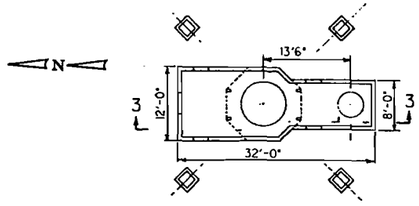
SECTION 1-1
SCALE: 1" = 10'



SECTION 2-2
SCALE: 1" = 10'



SECTION 3-3
SCALE: 1" = 10'



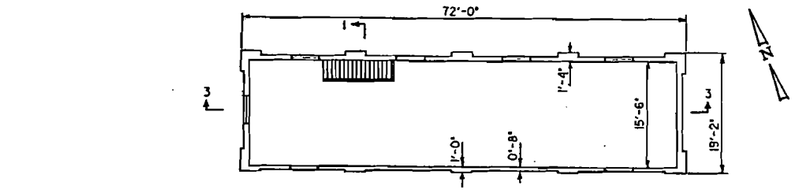
SURGE TANK PLAN
SCALE: 1" = 10'

SCALE: 1" = 10'
10 5 0 10 20 30 40 50

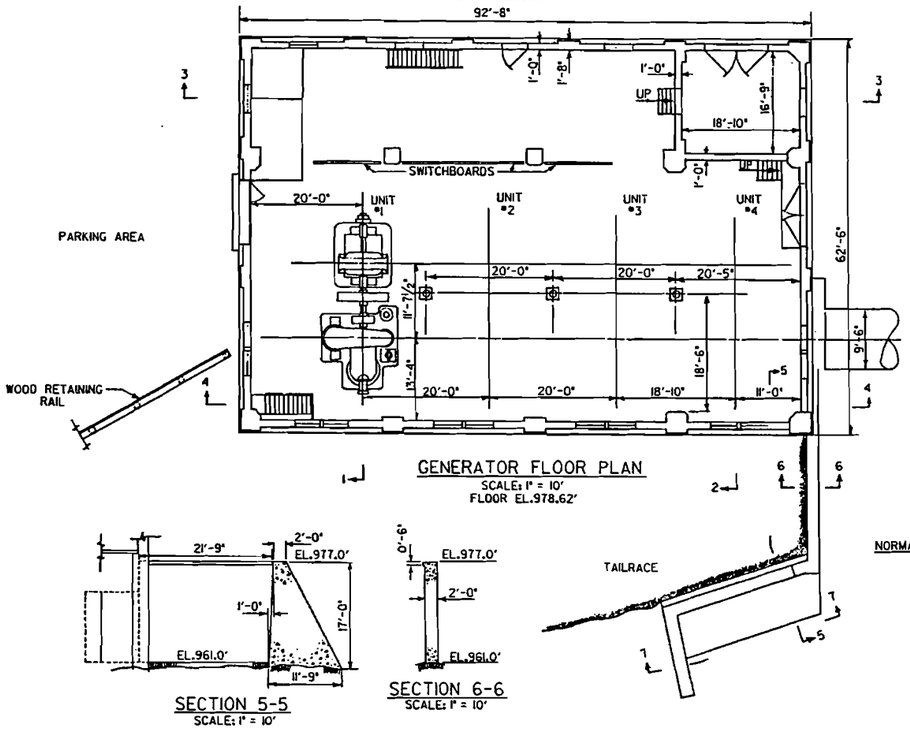
NIAGARA MOHAWK
BEAVER RIVER PROJECT
TAYLORVILLE DEVELOPMENT
INTAKE, PIPELINE AND SURGE TANK
PLANS AND SECTIONS
EXHIBIT F
SCALE: 1" = 200'
SHEET NO. 18
200 100 0 200 400 600 800 1000

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	JLS
1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

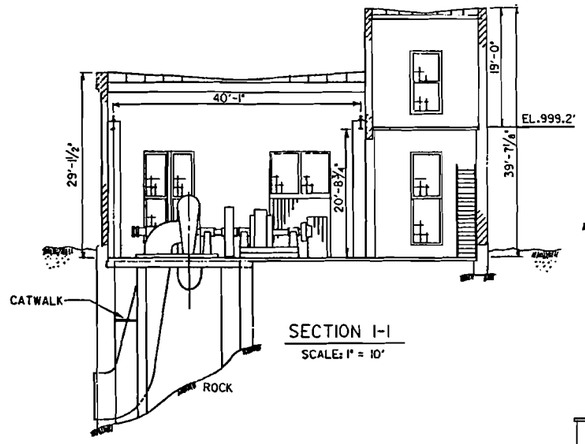
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



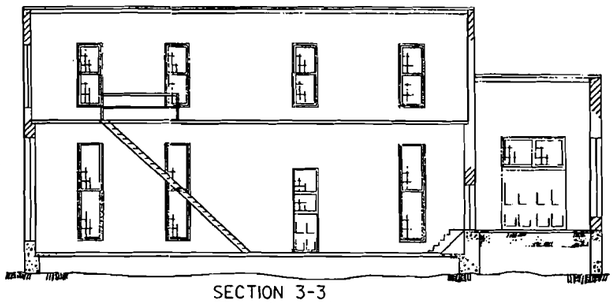
SECOND FLOOR PLAN
SCALE: 1" = 10'
FLOOR EL.999.2'



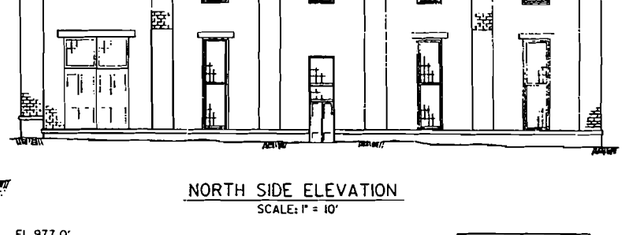
GENERATOR FLOOR PLAN
SCALE: 1" = 10'
FLOOR EL.978.62'



SECTION 1-1
SCALE: 1" = 10'



SECTION 3-3
SCALE: 1" = 10'

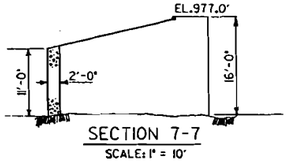


SECTION 2-2
SCALE: 1" = 10'

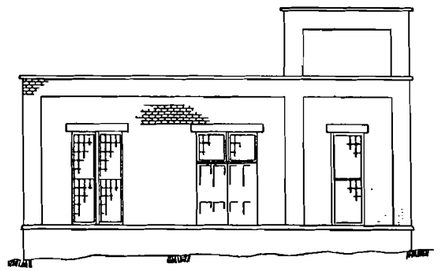
NORTH SIDE ELEVATION
SCALE: 1" = 10'

SECTION 5-5
SCALE: 1" = 10'

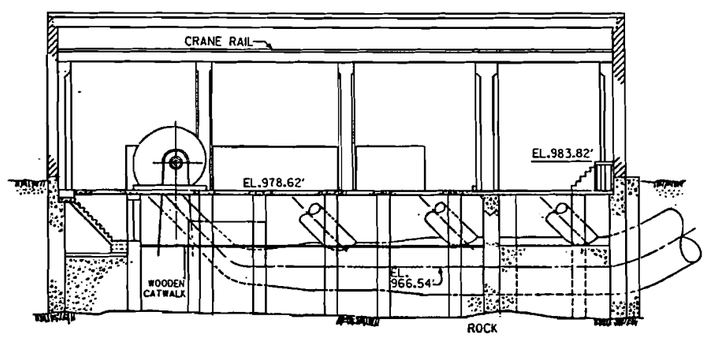
SECTION 6-6
SCALE: 1" = 10'



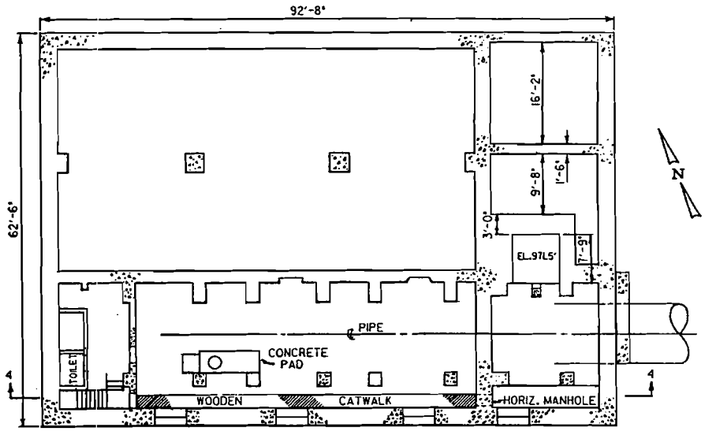
SECTION 7-7
SCALE: 1" = 10'



EAST SIDE ELEVATION
SCALE: 1" = 10'



SECTION 4-4
SCALE: 1" = 10'



BASEMENT FLOOR PLAN
SCALE: 1" = 10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT
TAYLORVILLE DEVELOPMENT
POWERHOUSE
PLANS AND SECTIONS

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 19

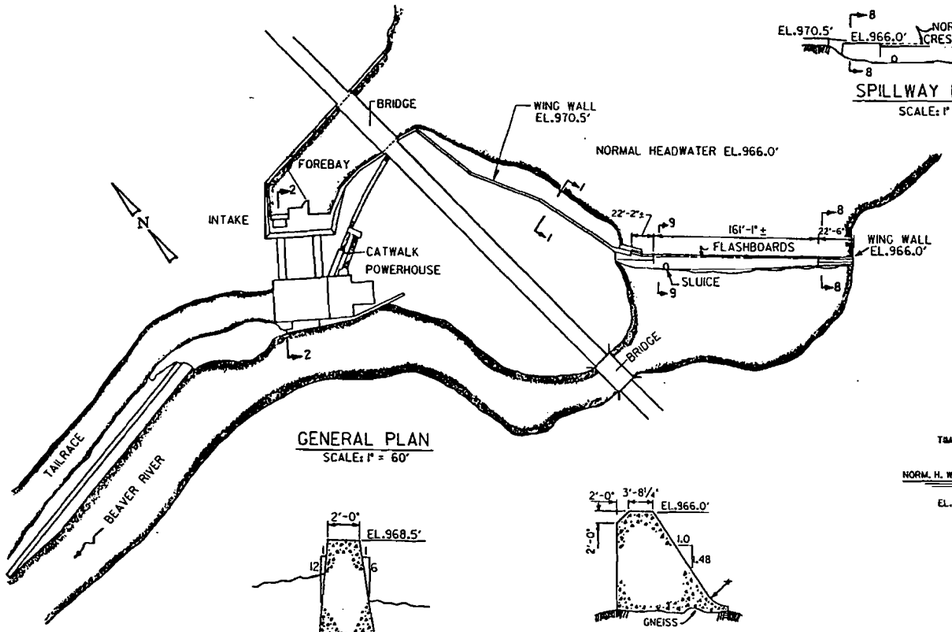
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW		
1	11/12/91	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

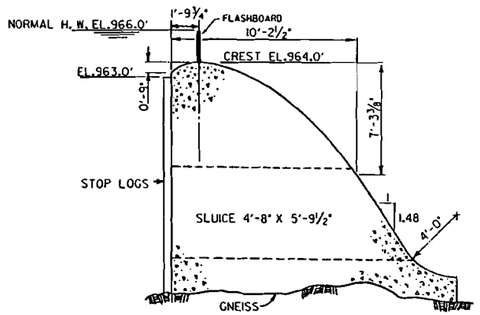
FILE INDEX

DRAWING NUMBER

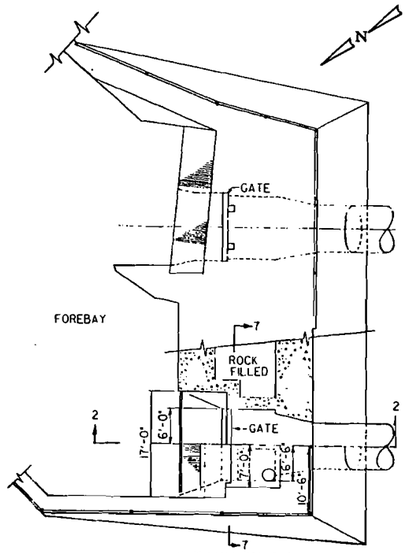


GENERAL PLAN
SCALE: 1" = 60'

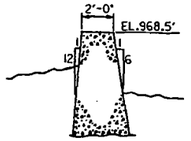
SPILLWAY ELEVATION
SCALE: 1" = 60'



SECTION 9-9
SCALE: 1" = 4'

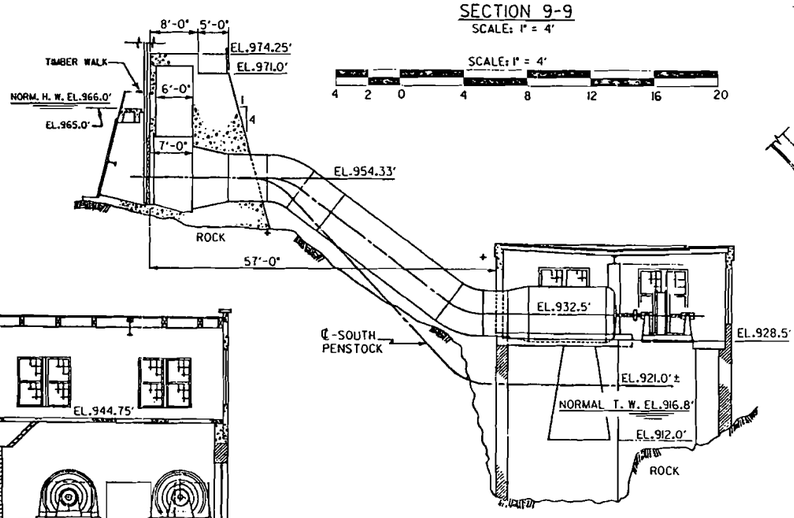


INTAKE PLAN
SCALE: 1" = 10'

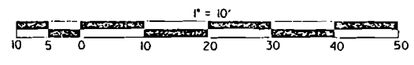


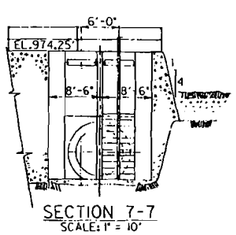
SECTION 1-1
SCALE: ¼" = 1'

SECTION 8-8
SCALE: 1" = 10'

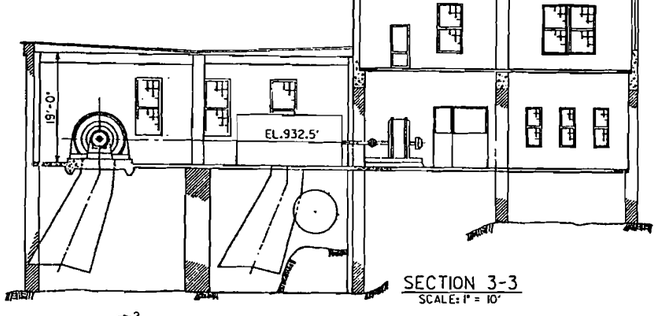


SECTION 2-2
SCALE: 1" = 10'

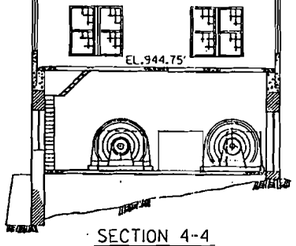




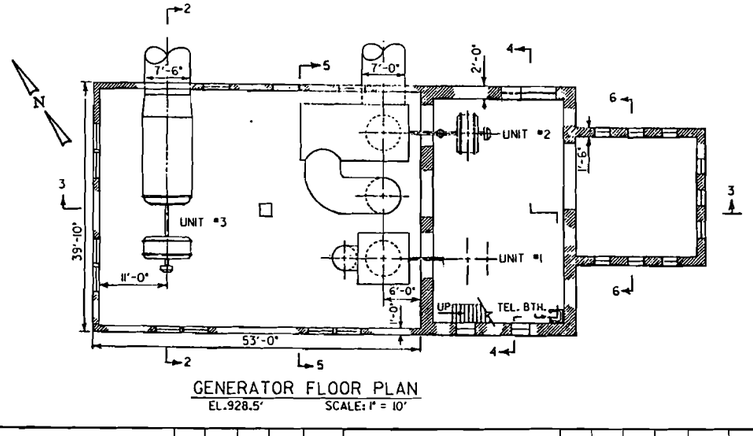
SECTION 7-7
SCALE: 1" = 10'



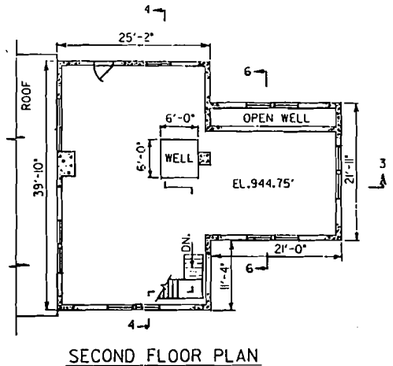
SECTION 3-3
SCALE: 1" = 10'



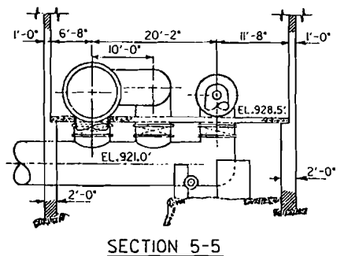
SECTION 4-4
SCALE: 1" = 10'



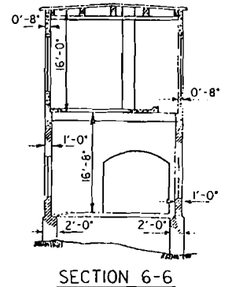
GENERATOR FLOOR PLAN
EL.928.5' SCALE: 1" = 10'



SECOND FLOOR PLAN
SCALE: 1" = 10'



SECTION 5-5
SCALE: 1" = 10'



SECTION 6-6
SCALE: 1" = 10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT

BELFORT DEVELOPMENT (EXISTING)

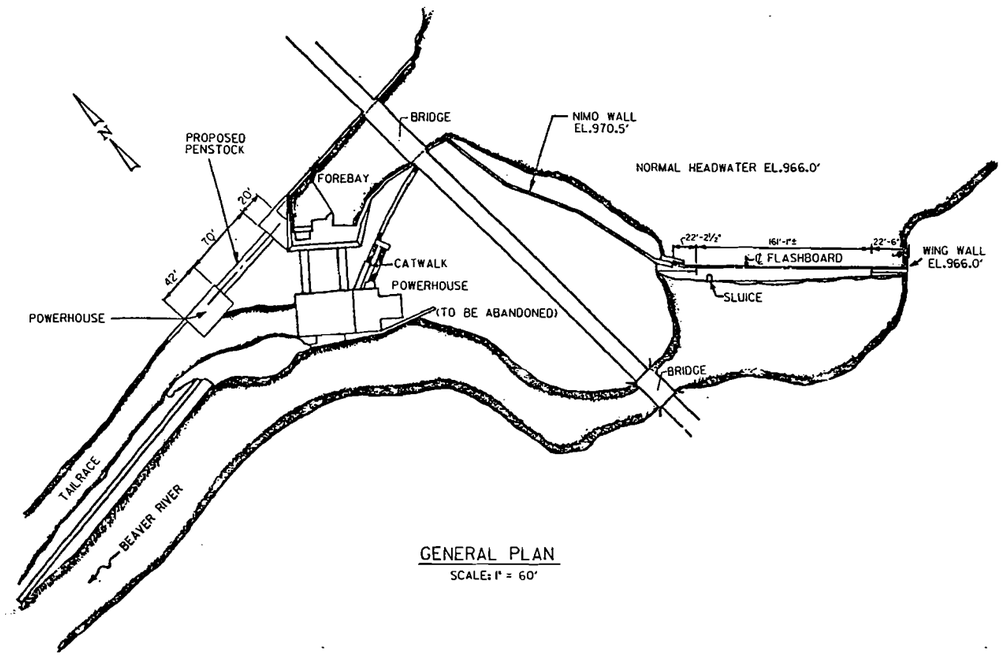
GENERAL PLAN AND DETAILS
DAM, INTAKE AND POWERHOUSE

EXHIBIT F — SHEET NO. 20

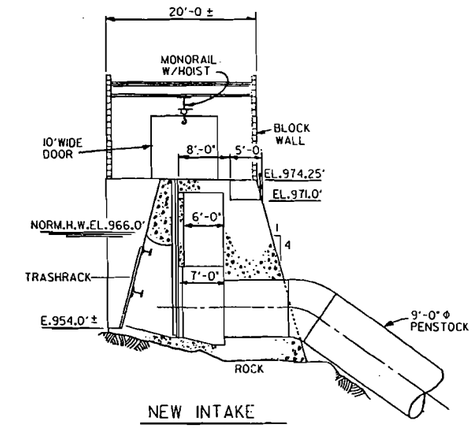
SCALE: 1" = 60'
60 30 0 60 120 180 240 300

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM		
1	9/12/91	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

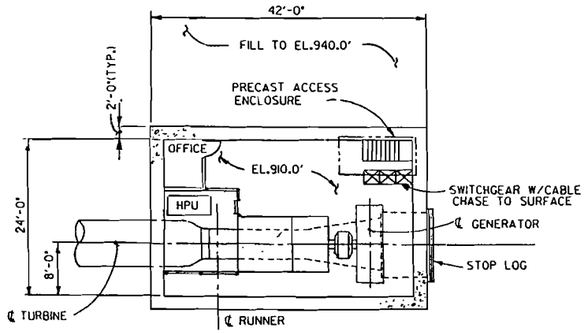
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



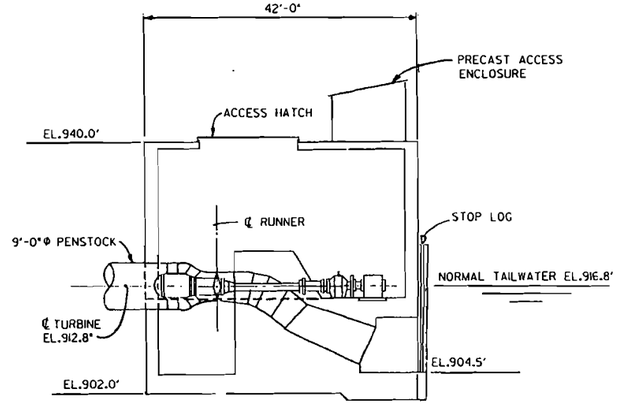
GENERAL PLAN
SCALE: 1" = 60'



NEW INTAKE
SCALE: 1"= 10'



PLAN
SCALE: 1" = 10'



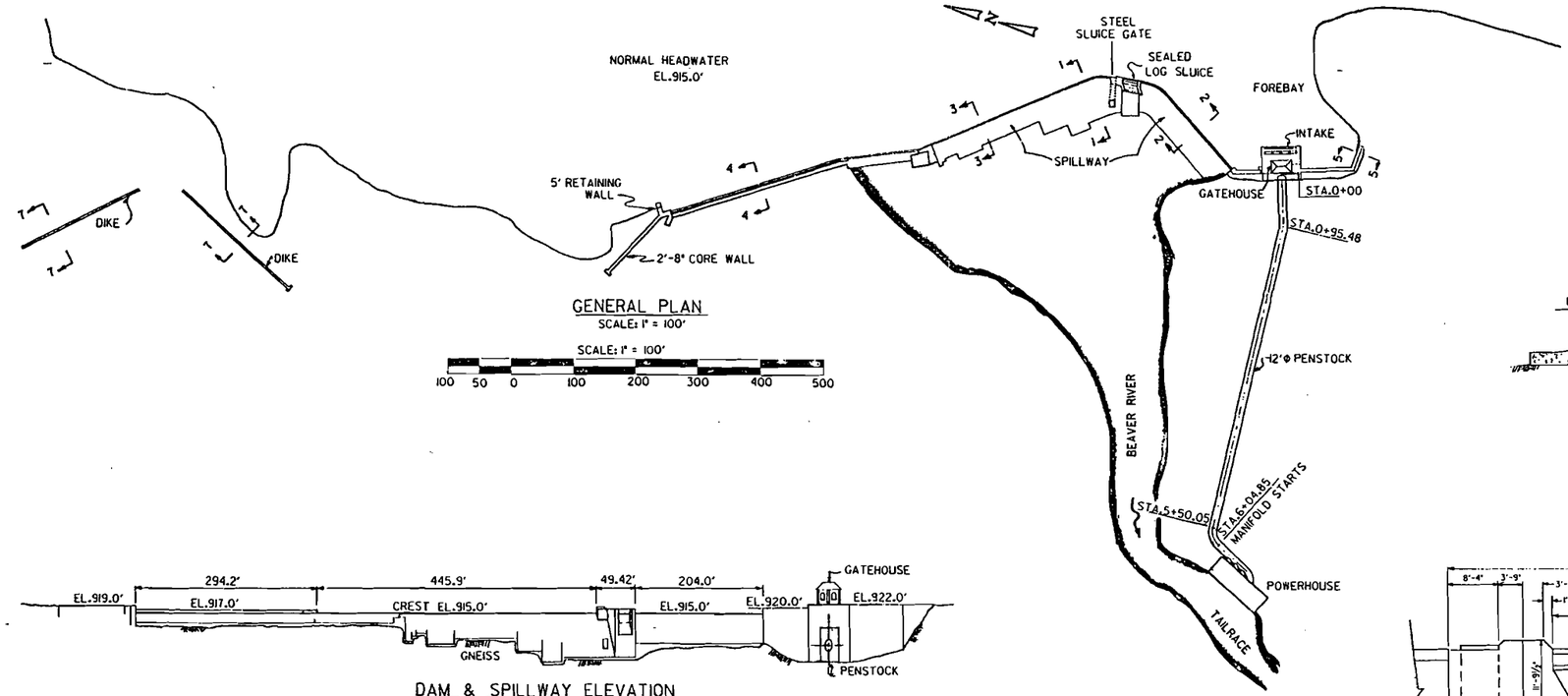
SECTION
SCALE: 1" = 10'

SCALE: 1" = 10'
10 5 0 10 20 30 40 50

NIAGARA MOHAWK
BEAVER RIVER PROJECT
BELFORT DEVELOPMENT (PROPOSED)
GENERAL PLAN AND DETAILS
DAM, INTAKE AND POWERHOUSE
EXHIBIT F
SCALE: 1" = 60'
SHEET NO. 21
60 30 0 60 120 180 240 300

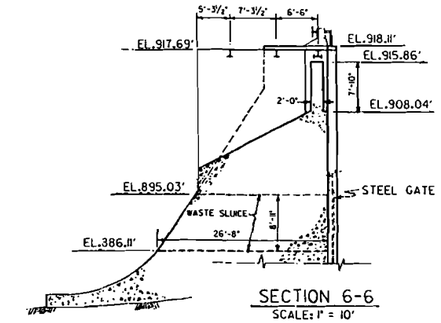
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	8-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



GENERAL PLAN
SCALE: 1" = 100'

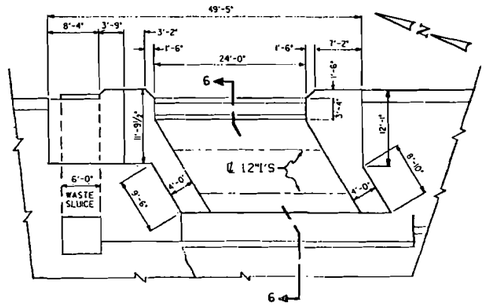
SCALE: 1" = 100'
100 50 0 100 200 300 400 500



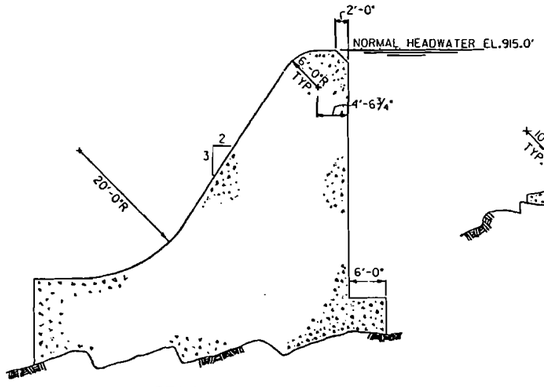
SECTION 6-6
SCALE: 1" = 10'

DAM & SPILLWAY ELEVATION
VERTICAL SCALE: 1" = 50'
HORIZONTAL SCALE: 1" = 100'

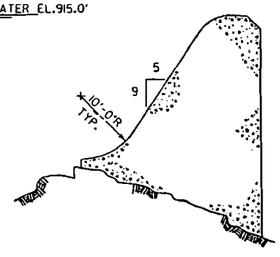
SCALE: 1" = 50'
50 25 0 50 100 150 200 250



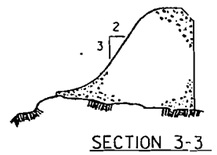
SEALED LOG SLUICE - PLAN
SCALE: 1" = 10'



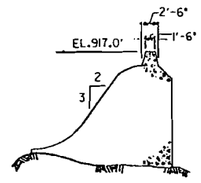
SECTION 1-1
SCALE: 1" = 10'



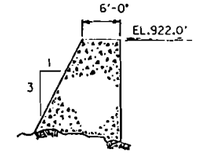
SECTION 2-2
SCALE: 1" = 10'



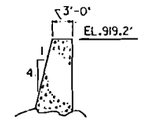
SECTION 3-3
SCALE: 1" = 10'



SECTION 4-4
SCALE: 1" = 10'



SECTION 5-5
SCALE: 1" = 10'



SECTION 7-7
SCALE: 1" = 10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT

HIGH FALLS DEVELOPMENT

GENERAL PLAN - DAM AND SECTIONS

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 22

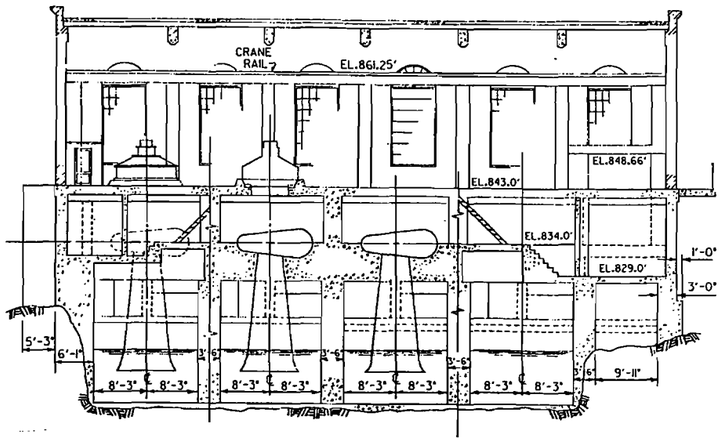
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	8-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

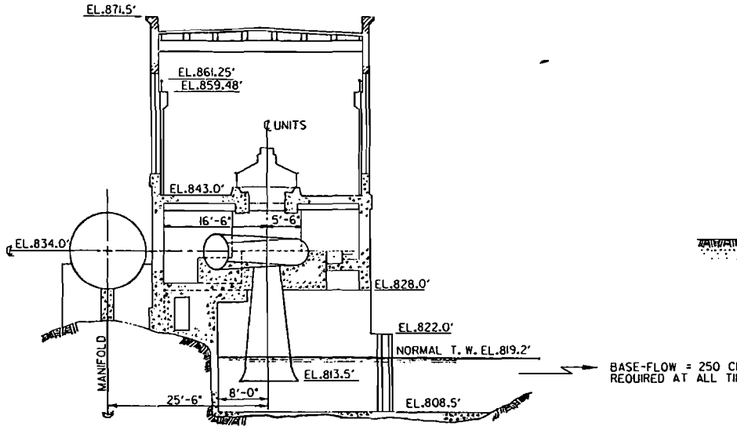
ORIGINAL ISSUE DATE

FILE INDEX

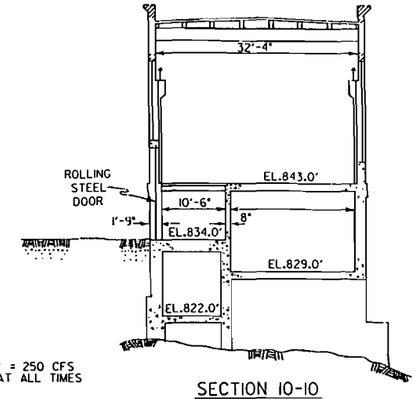
DRAWING NUMBER



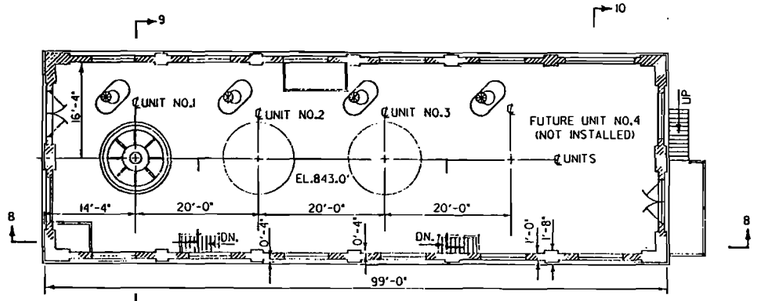
SECTION 8-8
SCALE: 1" = 10'



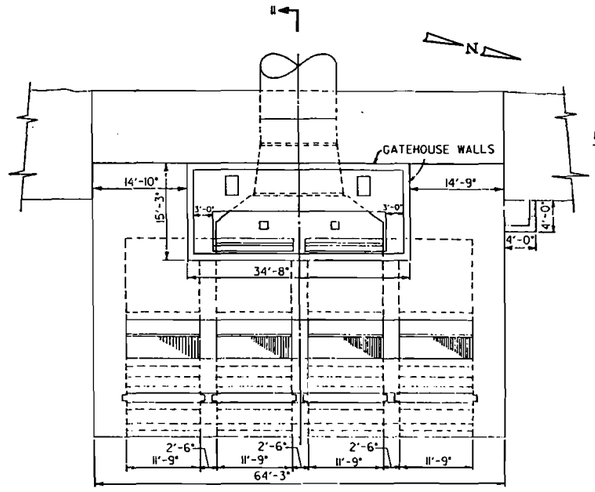
SECTION 9-9
SCALE: 1" = 10'



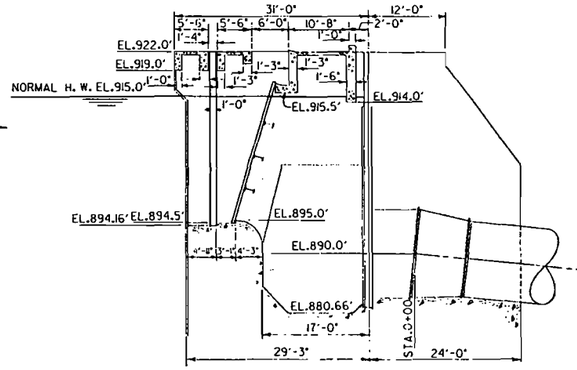
SECTION 10-10
SCALE: 1" = 10'



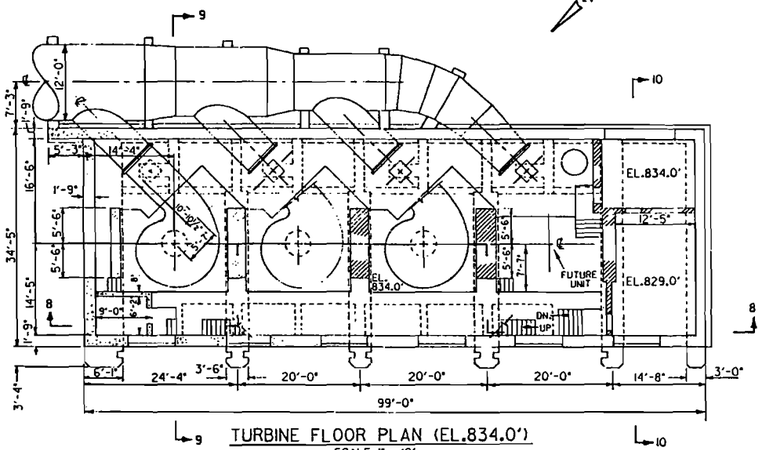
GENERATOR FLOOR PLAN
SCALE: 1" = 10'



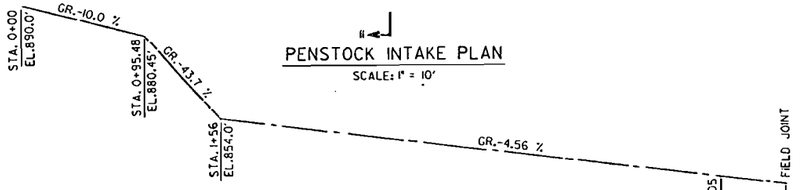
PENSTOCK INTAKE PLAN
SCALE: 1" = 10'



SECTION 11-11
SCALE: 1" = 10'



TURBINE FLOOR PLAN (EL.834.0')
SCALE: 1" = 10'

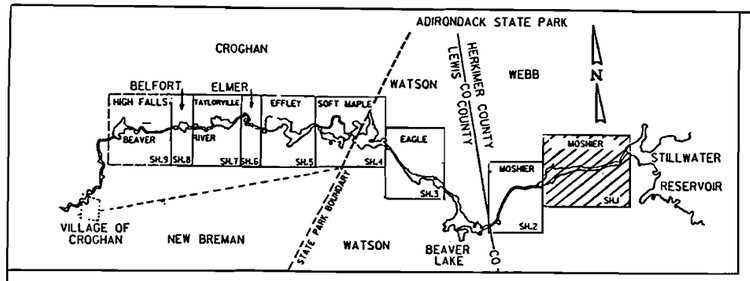


STEEL PENSTOCK - PROFILE OF ℄
SCALE: 1" = 50' HORIZONTAL
50 25 0 50 100 150 200 250
SCALE: 1" = 20' VERTICLE
20 10 0 20 40 60 80 100

NY NIAGARA MOHAWK
BEAVER RIVER PROJECT
HIGH FALLS DEVELOPMENT
POWERHOUSE AND PENSTOCK - PLANS AND SECTIONS
EXHIBIT F SCALE: 1" = 10' SHEET NO. 23
10 5 0 10 20 30 40 50

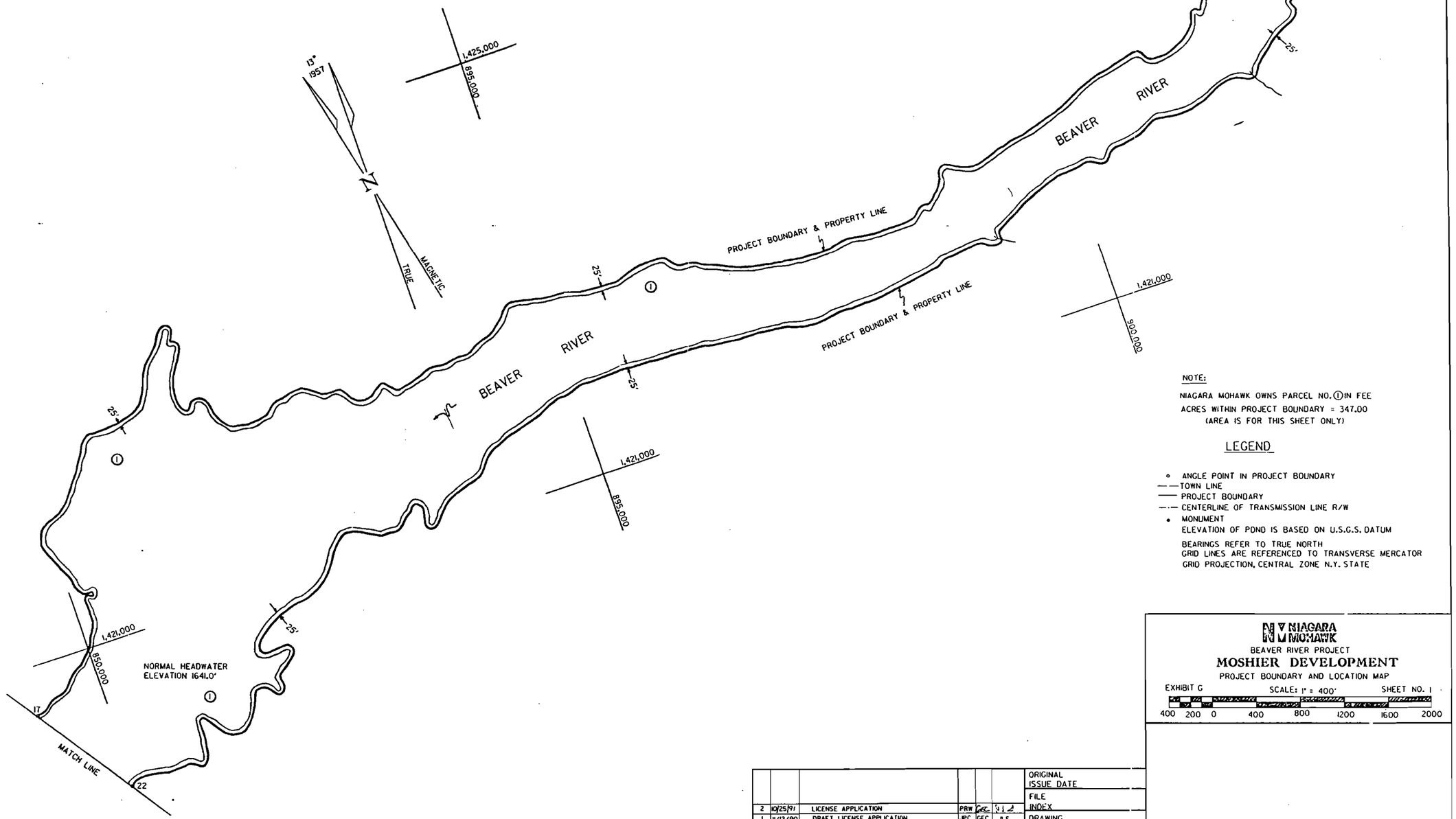
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	JLS
1	4/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



INDEX MAP

HERKIMER COUNTY/STATE OF NEW YORK



NOTE:

NIAGARA MOHAWK OWNS PARCEL NO. (1) IN FEE

ACRES WITHIN PROJECT BOUNDARY = 347.00
(AREA IS FOR THIS SHEET ONLY)

LEGEND

- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

NIAGARA MOHAWK

BEAVER RIVER PROJECT

MOSHIER DEVELOPMENT

PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G — SCALE: 1" = 400' — SHEET NO. 1

400 200 0 400 800 1200 1600 2000

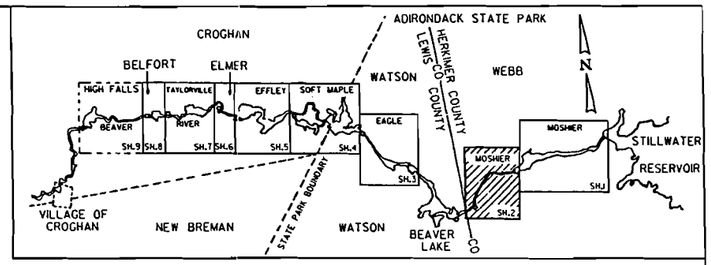
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	PRW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

FILE

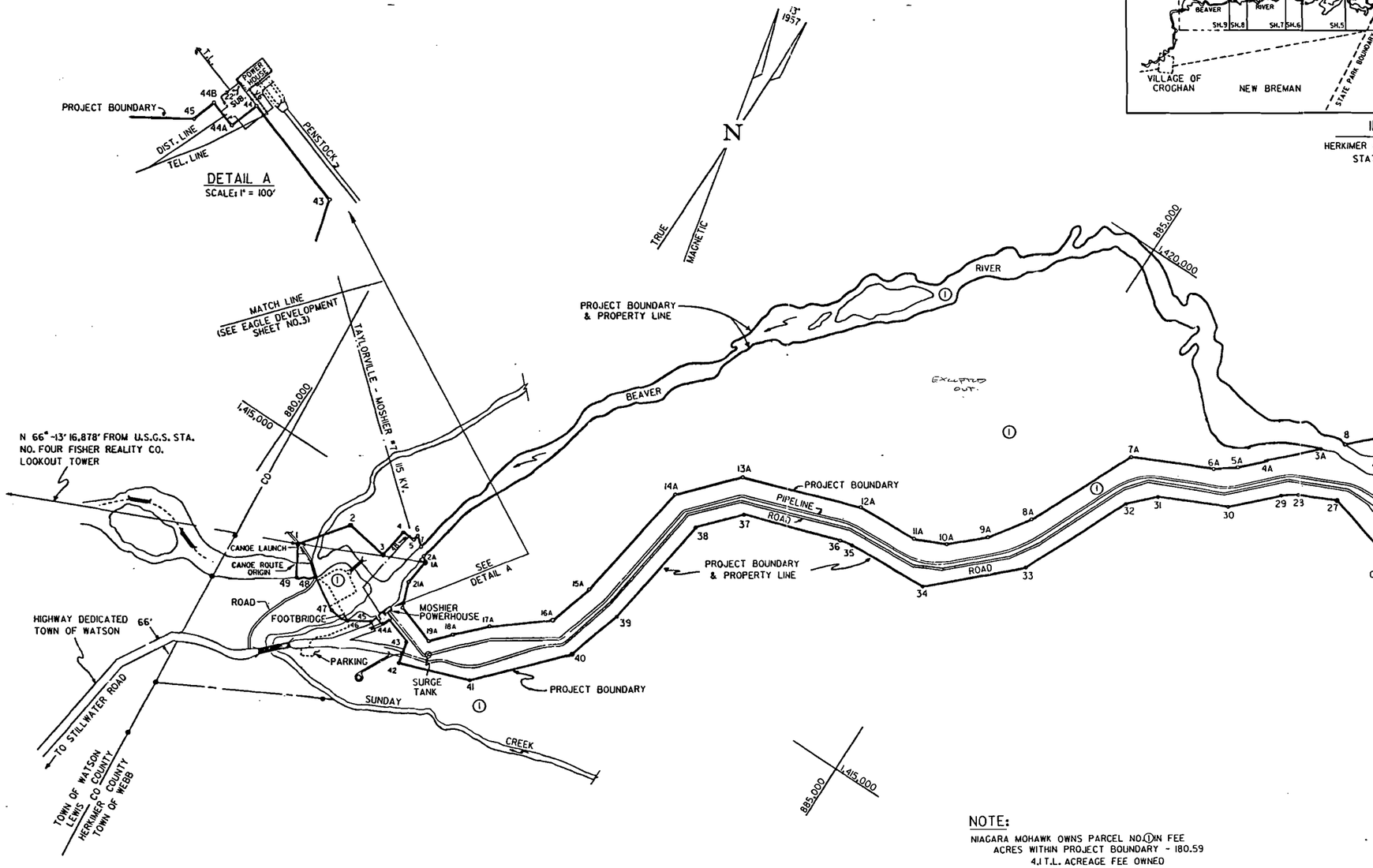
INDEX

DRAWING NUMBER



INDEX MAP

HERKIMER COUNTY/LEWIS COUNTY
STATE OF NEW YORK



NOTE:

NIAGARA MOHAWK OWNS PARCEL NO.(1) IN FEE
ACRES WITHIN PROJECT BOUNDARY - 180.59
4.1 T.L. ACREAGE FEE OWNED

LEGEND

- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

NIAGARA MOHAWK

BEAVER RIVER PROJECT

MOSHIER DEVELOPMENT

PROJECT BOUNDARY & LOCATION MAP

EXHIBIT G — SHEET NO.2

SCALE: 1" = 400'

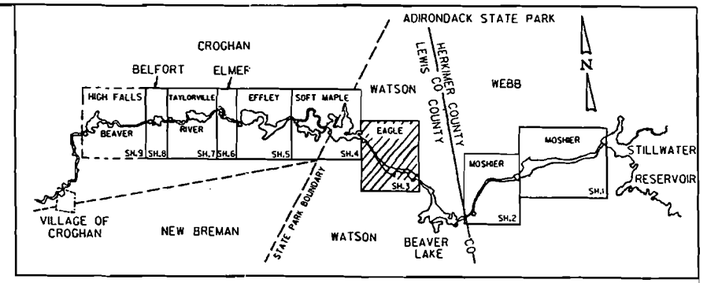
400 200 0 400 800 1200 1600 2000

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	PRW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

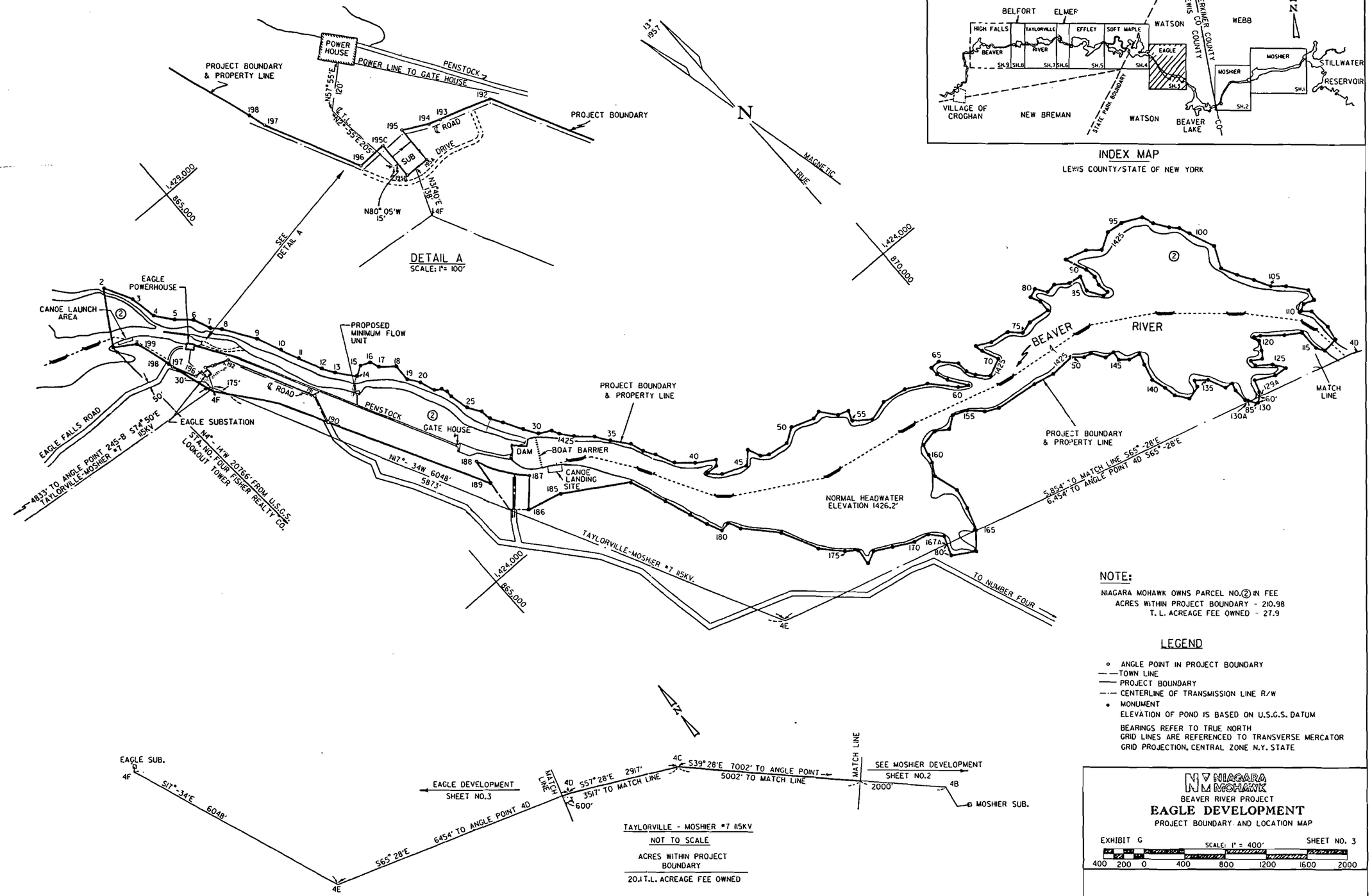
FILE INDEX

DRAWING NUMBER



INDEX MAP

LEWIS COUNTY/STATE OF NEW YORK



NOTE:

NIAGARA MOHAWK OWNS PARCEL NO.② IN FEE
ACRES WITHIN PROJECT BOUNDARY - 210.98
T. L. ACREAGE FEE OWNED - 27.9

LEGEND

- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

NIAGARA MOHAWK

BEAVER RIVER PROJECT

EAGLE DEVELOPMENT

PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G — SCALE: 1" = 400' — SHEET NO. 3

400 200 0 400 800 1200 1600 2000

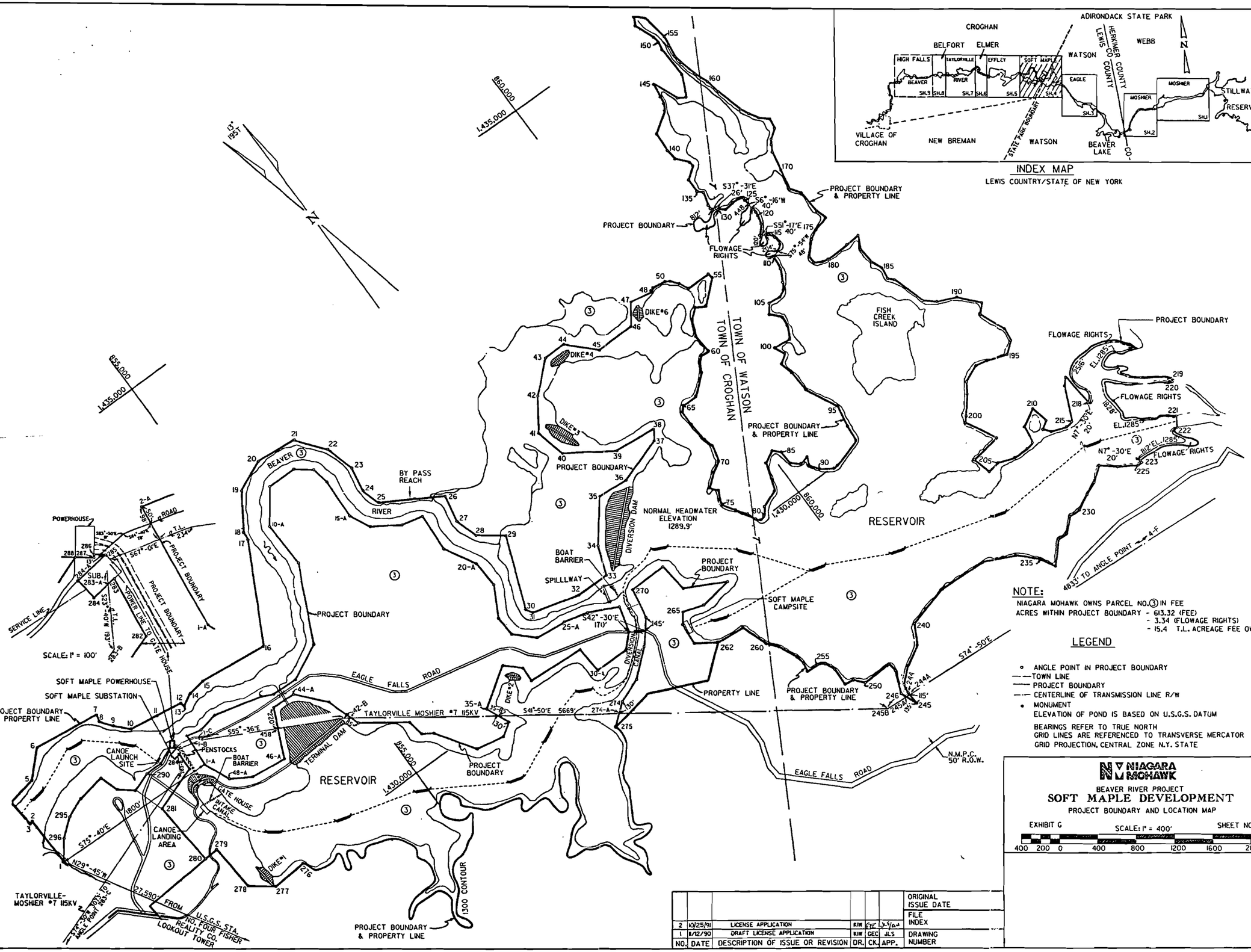
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KW	GEC	
1	8/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

FILE INDEX

DRAWING NUMBER

INDEX MAP
LEWIS COUNTRY/STATE OF NEW YORK



NOTE:
NIAGARA MOHAWK OWNS PARCEL NO. ③ IN FEE
ACRES WITHIN PROJECT BOUNDARY - 613.32 (FEE)
- 3.34 (FLOWAGE RIGHTS)
- 15.4 T.L. ACREAGE FEE OWNED

LEGEND

- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM	GEC	JLS
1	8/12/90	DRAFT LICENSE APPLICATION	KIM	GEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER

NIAGARA MOHAWK

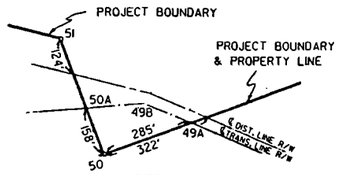
BEAVER RIVER PROJECT

SOFT MAPLE DEVELOPMENT

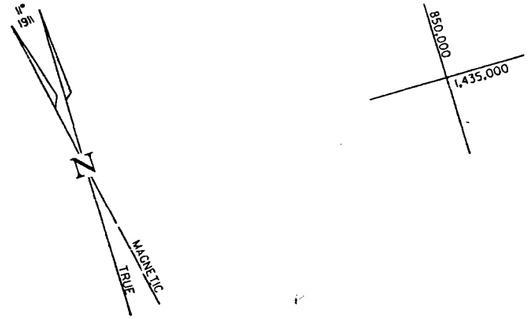
PROJECT BOUNDARY AND LOCATION MAP

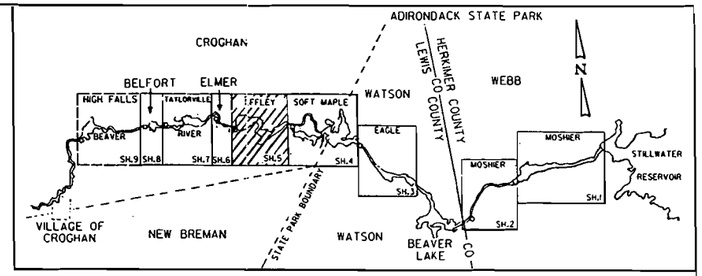
EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 4

400 200 0 400 800 1200 1600 2000

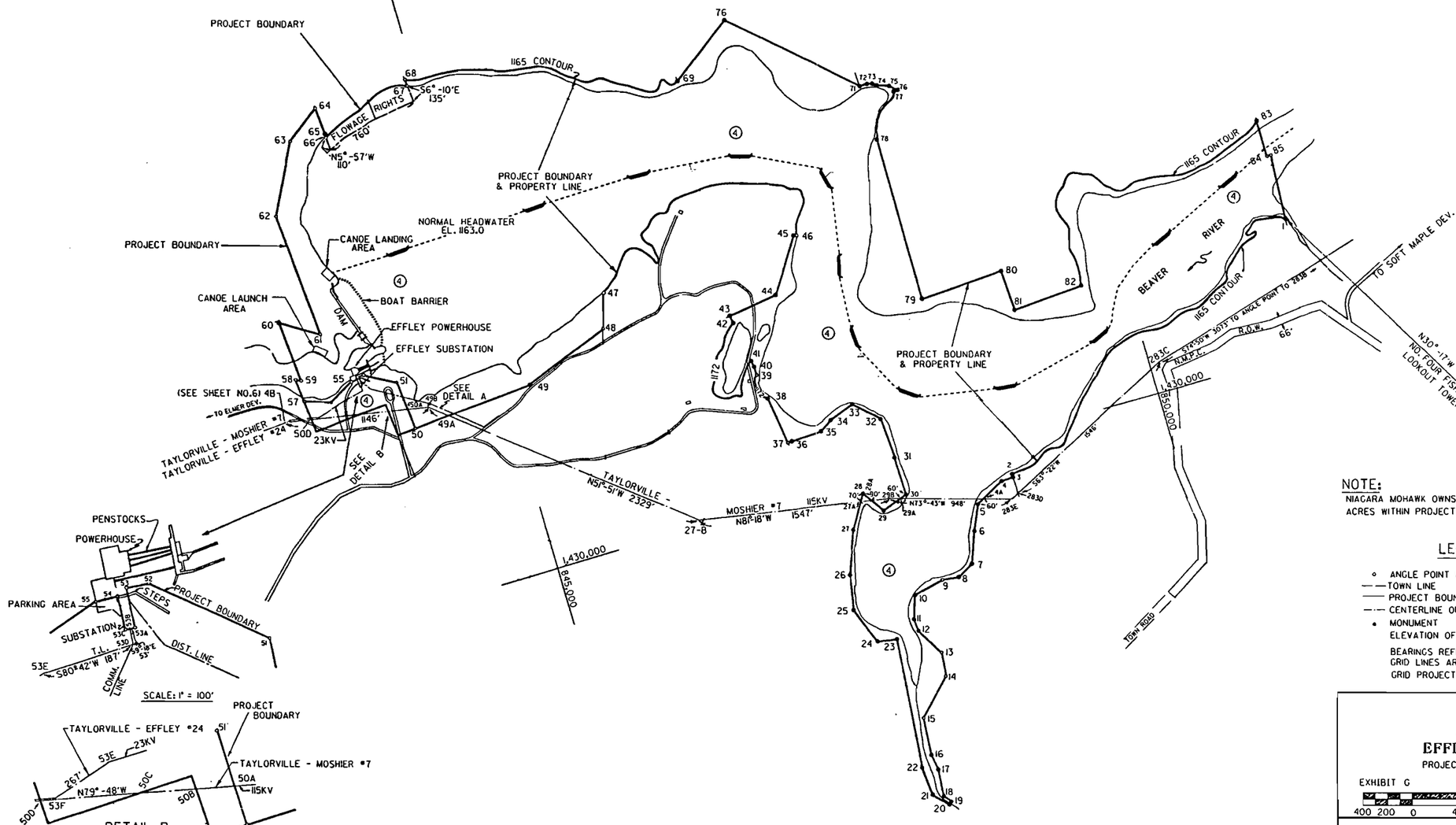


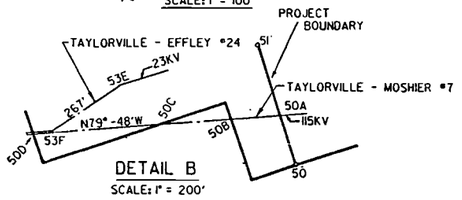
DETAIL A
SCALE: 1" = 200'





INDEX MAP
LEWIS COUNTY / STATE OF NEW YORK





DETAIL B
SCALE: 1" = 200'

NOTE:
NIAGARA MOHAWK OWNS PARCEL NO. ④ IN FEE
ACRES WITHIN PROJECT BOUNDARY - 358.56 (FEE)
- 8.94 T.L. ACREAGE FEE OWNED
- 2.53 (FLOWAGE RIGHTS)

LEGEND
- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

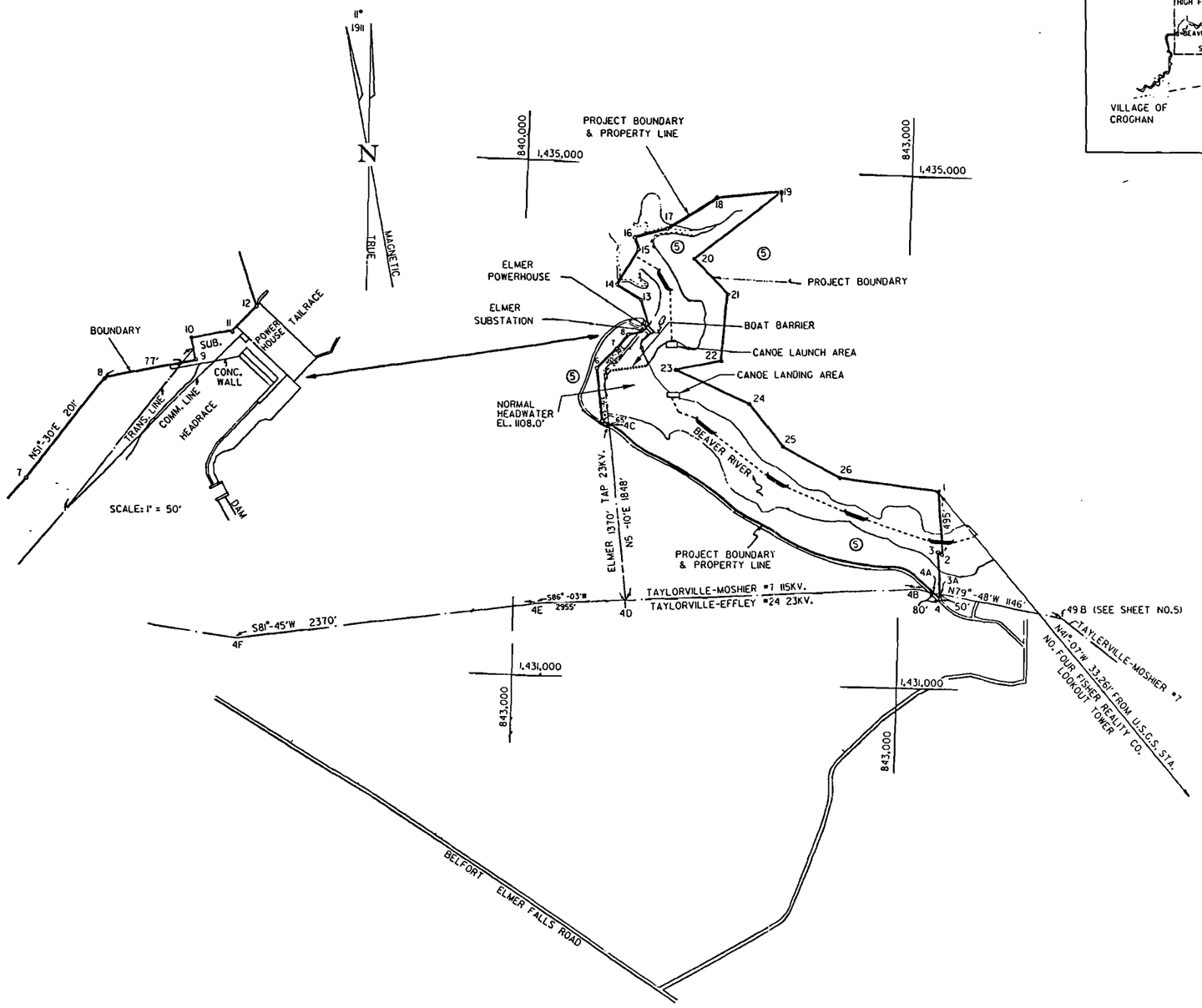
NIAGARA MOHAWK
BEAVER RIVER PROJECT
EFFLEY DEVELOPMENT
PROJECT BOUNDARY AND LOCATION MAP

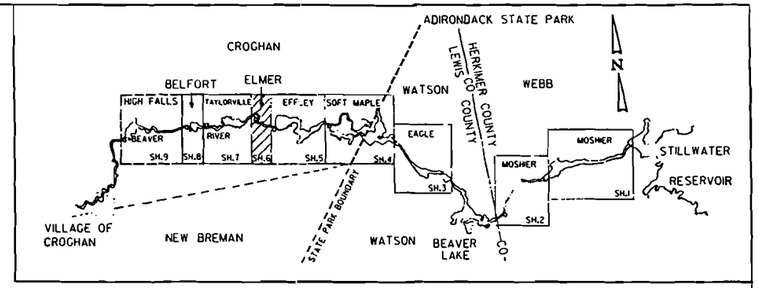
EXHIBIT G — SCALE: 1" = 400' — SHEET NO. 5

400 200 0 400 800 1200 1600 2000

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	11/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER





INDEX MAP

LEWIS COUNTRY/STATE OF NEW YORK

NOTE:

1. NIAGARA MOHAWK OWNS PARCEL NO.⑤ IN FEE ACRES WITHIN PROJECT BOUNDARY - 62.75
2. POINT 3A SHEET NO.6 CORRESPONDS TO POINT 50D SHEET NO.5
3. TAYLORVILLE-MOSHIER #7 & TAYLORVILLE-EFFLEY #24 COMBINE AT POINT 4B

LEGEND

- ∘ ANGLE POINT IN PROJECT BOUNDARY
- —— TOWN LINE
- —— PROJECT BOUNDARY
- —·— CENTERLINE OF TRANSMISSION LINE R/W
- • MONUMENT

ELEVATION OF PONO IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

NIAGARA MOHAWK

BEAVER RIVER PROJECT

ELMER DEVELOPMENT

PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G — SCALE: 1" = 400' — SHEET NO. 6

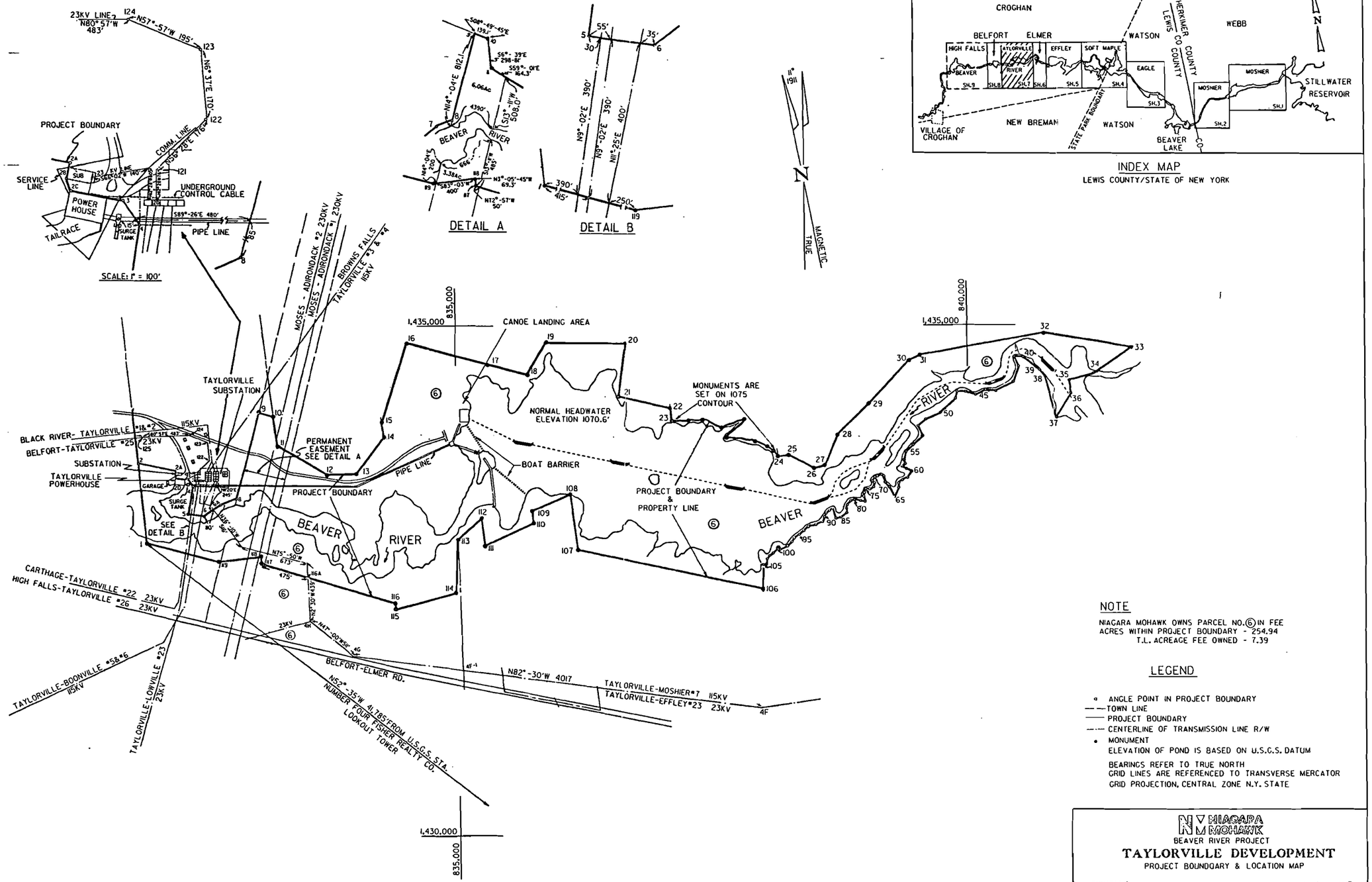
400 200 0 400 800 1200 1600 2000

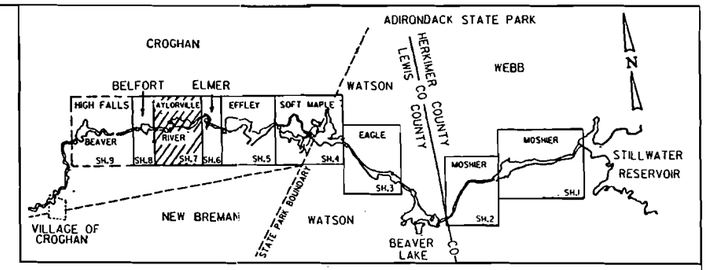
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIM	GEC	JLS
1	8/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

FILE INDEX

DRAWING NUMBER





INDEX MAP
LEWIS COUNTY/STATE OF NEW YORK

NOTE

NIAGARA MOHAWK OWNS PARCEL NO. ⑥ IN FEE
ACRES WITHIN PROJECT BOUNDARY - 254.94
T.L. ACREAGE FEE OWNED - 7.39

LEGEND

- ◦ ANGLE POINT IN PROJECT BOUNDARY
- — — TOWN LINE
- —— PROJECT BOUNDARY
- —·— CENTERLINE OF TRANSMISSION LINE R/W
- • MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

NIAGARA MOHAWK

BEAVER RIVER PROJECT

TAYLORVILLE DEVELOPMENT

PROJECT BOUNDARY & LOCATION MAP

EXHIBIT G — SCALE: 1" = 400' — SHEET NO. 7

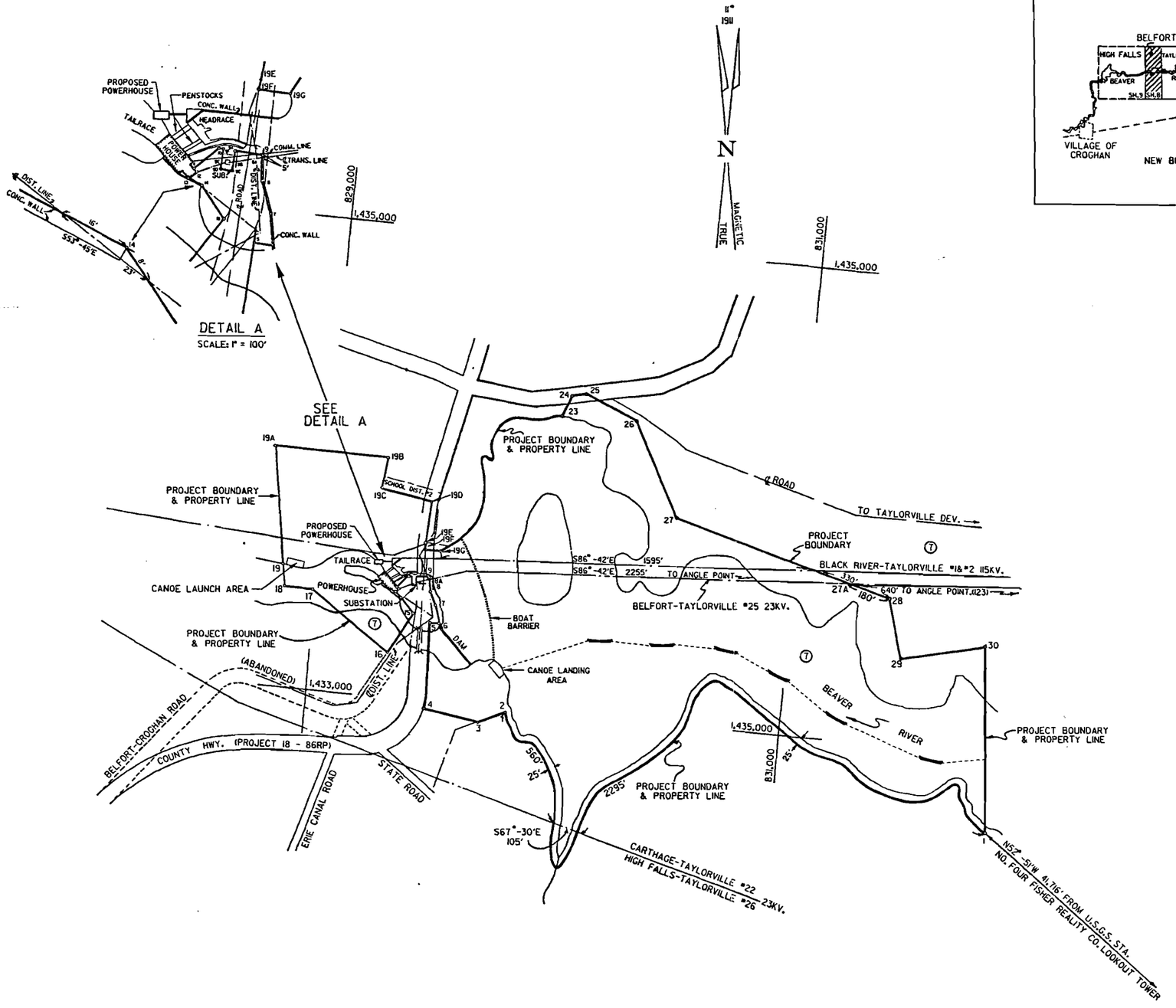
400 200 0 400 800 1200 1600 2000

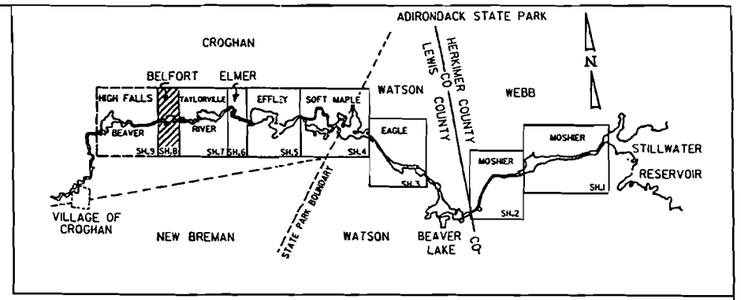
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	KIW	GEC	JLS
1	8/12/90	DRAFT LICENSE APPLICATION	KIW	GEC	JLS

ORIGINAL ISSUE DATE

FILE INDEX

DRAWING NUMBER





INDEX MAP
LEWIS COUNTY/ STATE OF NEW YORK

NOTE:
NIAGARA MOHAWK OWNS PARCEL NO. (T) IN FEE
ACRES WITHIN PROJECT BOUNDARY - 6L77

LEGEND

- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM

BEARINGS REFER TO TRUE NORTH
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, CENTRAL ZONE N.Y. STATE

NIAGARA MOHAWK
BEAVER RIVER PROJECT

BELFORT DEVELOPMENT

PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G | SCALE: 1" = 200' | SHEET NO. 8

400 200 0 400 800 1200 1600 2000

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
2	10/25/91	LICENSE APPLICATION	PRW	GEC	JLS
1	8/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER

ERIE/LEWIS COUNTY COOPERATIVE DAY USE AREA

CAR TOP BOAT LAUNCH

BARRIER-FREE ACCESS TRAIL

PICNIC AREA (2 TABLES & 2 GRILLS)

PARKING AREA (6-8 CARS)

FERC SECTION 8 SIGN

INFORMAL CAR TOP BOAT LAUNCH

TRANSMISSION LINE R.O.W.

TRANSMISSION LINE R.O.W.

OLD STATE ROAD

TRANSMISSION LINE R.O.W.

TRANSMISSION LINE R.O.W.

CANOE ROUTE PORTAGE TRAIL

HIGH FALLS POND
NORMAL POND ELEVATION = 815.0

PORTAGE ROUTE

CANOE ROUTE FROM BELFORT

CAMPSITES

PRIMITIVE CAMPSITES ON ISLANDS
(ASSOCIATED WITH CANOE ROUTE)

DAM

BYPASS REACH

SUBSTATION

CANOE ROUTE TO CROGHAN

PRIVATE ESTATES

POSITIVE BOAT BARRIER AND SIGNAGE

825

8215

822

820

830

825

LEGEND

CANOE ROUTE

PORTAGE ROUTE

FOOT TRAIL

BARRIER FREE

CAMPSITES

PROPERTY LINE

ERIE BOULEVARD HYDROPOWER, LP
LIVERPOOL, N.Y.

BEAVER RIVER RECREATIONAL ENHANCEMENTS
HIGH FALLS DEVELOPMENT

EXHIBIT R SCALE: 1" = 298' SHEET NO. 8

200 100 0 200 400 600 800 1000

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
1	10/25/89	ORDER APPROVING AS-BUILT EXHIBIT R-8 2645-18 ISSUED 9/14/90	PA	TMS	TMS
0	6/15/89	AS BUILT	PA	TMS	TMS

ORIGINAL ISSUE DATE

DRAWING NUMBER 2645R8.DGN
2645R8.CIT

FERC NO. 2645-48

ATTACHMENT F

QUESTION A – FLOW:

2012 ANNUAL MINIMUM FLOW COMPLIANCE REPORT (P-2645)

HYDRO OPERATING PROCEDURE 202

Brookfield

New York West Operations
Erie Boulevard Hydropower, LP
33 West 1st Street South
Fulton, NY 13069

Tel. (315) 593-3118
Fax (315) 598-4831
www.brookfieldpower.com

January 28, 2013

Mr. Gerald Cross, Regional Engineer
FEDERAL ENERGY REGULATORY COMMISSION
New York Regional Office
19 West 34th Street - Suite 400
New York, New York 10001

Subject: Minimum Flow and Pond Level Compliance for 2012

Project No. 2330 Lower Raquette River
Project No. 2474 Oswego River
Project No. 2498 Hewittville
Project No. 2499 Unionville
Project No. 2538 Beebee Island
Project No. 2569 Black River
Project No. 2645 Beaver River
Project No. 2713 Oswegatchie River
Project No. 2837 Granby
Project No. 4402 Talcville
Project No. 4472 Franklin Falls
Project No. 5984 Oswego Falls
Project No. 7000 Newton Falls
Project No. 7320 Chasm
Project No. 7321 Macomb
Project No. 7387 Piercefield
Project No. 7518 Hogansburg
Project No. 9222 Yaleville
Project No. 10461 W. Branch St. Regis River

Dear Mr. Cross:

Erie Boulevard Hydropower, L. P. (Erie) submits, for the above referenced projects, that it has complied with minimum flow releases, headpond levels, and special water releases and similar requirements in calendar years 2012, except for those deviations and pre-arranged variances from license requirements previously reported to the Commission per the respective Project license.

Should you have any questions, please contact the undersigned at (315) 598-6130.

Very truly yours,

Steven P. Murphy
New York West Operations

xc: J. Elmer
D. Daoust

1. General

a. This Hydro Operating Procedure (HOP) establishes the necessary requirements and responsibilities for the planning, timely notification, reporting, steps and follow through actions that must be implemented when performing a drawdown or dewatering operation (drawdown).

b. This HOP shall apply when it is determined that water storage facilities such as reservoirs, impoundments, ponds, canals, forebays, or other water containment and retaining structures must be dewatered or lowered beyond the lowest normal or licensed operating elevation for the purposes of inspection, repairs, maintenance, construction, dredging, or other activities.

c. To ensure timely notification, General Managers or their designee must submit an **Anticipated Drawdown Schedule** (*page 7*) to the Hydro Control Center (HCC) by March 15 each year, and revise the schedule if additional drawdowns are anticipated. The HCC will maintain a master list identifying all anticipated and approved drawdowns. Except for emergencies, a drawdown shall not be performed unless it is on the master list and a **Site-Specific Drawdown Plan** (*pages 4-6*) has been properly completed and approved.

d. The Anticipated Drawdown Schedule shall also be used by General Managers to report anticipated **pipeline** dewatering operations. HOP 202 does not apply to pipeline dewaterings that do not require a drawdown.

e. A drawdown shall not be conducted when an acceptable cost-effective alternative method can be developed to accomplish the work required. The General Manager or designee shall be responsible for making the determination of whether such an alternative is available. For any given structure, the frequency of drawdowns should be minimized and intervals between drawdowns maximized.

f. HOP 202 does not address obtaining permits and approvals that may be required from the NYSDEC or other regulatory agencies. The General Manager or designee shall coordinate with compliance & environmental staff in preparing the **Site-Specific Drawdown Plan** and to ensure all necessary regulatory permits, notifications and approvals are obtained prior to the drawdown.

g. HOP-203 entitled "Sediment Disturbance/Disposal and Erosion Control Plan" shall be reviewed, and if applicable, applied in conjunction with HOP 202.

h. The General Manager or designee shall be responsible for directly supervising any drawdown and ensuring that plant generation is used to accomplish the drawdown to the extent practicable.

2. *Drawdown Planning*

a. Prior to approving a drawdown, the General Manager or designee must complete a **Site-Specific Drawdown Plan** (*pages 4-6*) that addresses:

1. The location, purpose, duration and magnitude of drawdown;
2. A drawdown rate that considers shoreline gradients, bathymetry, impacts to shallow areas, time of year and other biological or regulatory constraints (**drawdown rates should generally not exceed one foot per hour however, site specific conditions may require that drawdown rates vary at specific elevations to accommodate changes in bathymetry**);
3. Measures to reduce fish stranding or recover/transport fish;
4. Measures to reduce the opportunity for channel/pond bed erosion and the suspension and transport of sediments causing turbidity;
5. Measures to maintain water flow (if appropriate) through the facility that is drawndown;
6. Measures to maintain required minimum or baseflows or variances to same if the full requirement cannot be achieved;
7. Means by which water levels will be controlled and maintained through coordinated turbine and/or gate operations (levels to be maintained as high as practicable);
8. Measures to monitor water levels, minimum or base flow requirements;
9. Measures to maintain a downstream flow during re-filling; and
10. Discussions held with NYSDEC with respect to items above.

3. *Notification*

a. Prior to the commencement of a drawdown, the General Manager or designee shall be responsible for providing notification to all appropriate State & Federal agencies, government officials, local agencies & entities and outside persons.

b. The General Manager or designee must also prepare and issue local newspaper press releases and local radio/TV station announcements.

4. *Steps For Drawdown*

STEP 1 The General Manager or designee shall complete a **Site-Specific Drawdown Plan** (*pages 4-6*). The preparer should first determine if historical plans exist for past drawdowns at the site, and use same as appropriate. As part of completing the plan, the preparer will be required to document coordination with the NYSDEC. Once complete, the preparer shall transmit the plan to the HCC for review and concurrence.

STEP 2 The HCC will review and indicate concurrence with the plan, and then transmit the plan to the General Manager for review and approval. Once approved, the General Manager or designee will distribute the completed plan to all persons and departments listed at the bottom of the plan.

STEP 3 Prior to starting the drawdown, the General Manager or designee shall:

a. Notify appropriate State and Federal agencies, government officials, local agencies and entities, lake associations or individuals of the date, time and estimated duration of the drawdown (such notifications must be documented). *Note, by completing the **Site-Specific Drawdown Plan,** the NYSDEC will have already been notified.*

b. Prepare and issue local newspaper press releases, and local radio/TV station announcements (and distribute same to compliance/environmental staff and to the HCC).

c. Coordinate with Area staff and the HCC to ensure that all involved personnel are prepared to proceed and proper communication contacts and channels have been established.

STEP 4 Upon completion of Step 3, the General Manager shall be notified, who in-turn, will issue final authorization to proceed. **Area staff shall not begin the drawdown until authorized by the General Manager.** For the duration of the drawdown, the General Manager or designee shall:

Steps For Drawdown *(continued)*

a. Ensure that Area staff maintain communication with the HCC at regularly specified time intervals to verify actual water elevations correlate to readings at the HCC and to coordinate changes in gate operation. Such communications will be maintained until the drawdown and refill operation is complete, or as otherwise established and directed by the HCC.

b. Confirm that adequate field supervision has been established for the duration of the project, including extended drawdown operations that occur beyond normal shift hours such as weekends and overnight periods.

c. Establish special coverage arrangements such that specified inspection time intervals and continuous communication are maintained between the project site and the HCC.

d. Confirm that Area staff maintain a clear and detailed written record of the drawdown in the on-site log books for all drawdowns, scheduled or otherwise.

STEP 5 Once the drawdown and refilling is complete, the General Manager or designee shall prepare and retain a file containing the Site-Specific Drawdown Plan, press releases, correspondence, and any other pertinent information for use in planning future drawdowns.

5. Unscheduled Drawdowns

If an inadvertent or unscheduled drawdown were to occur, the General Manager or designee will contact the Vice President New York Operations, the HCC and appropriate NYSDEC representative(s) immediately. Unless prior arrangements were made, coordination and follow-up with the NYSDEC will be the responsibility of the General Manager or designee, and the Vice President and HCC kept informed of any status changes.

HOP 202
SITE-SPECIFIC DRAWDOWN PLAN

1. GENERAL INFORMATION	
Date Form Completed	
Form Completed By	
Operating Area	
River	
Project	
Development	
Facility/Structure	
Purpose of Drawdown	
Duration of Drawdown	
Magnitude of Drawdown	
2. DRAWDOWN RATE	
Describe Drawdown Rate(s) to be Employed	
3. FISH STRANDING	
Describe Measures to Reduce Fish Stranding	
Describe Measures to Recover and Transport Fish	

HOP 202
SITE-SPECIFIC DRAWDOWN PLAN

4. EROSION & TURBIDITY	
Describe Measures to Reduce Opportunity for Erosion and Turbidity	
5. WATER FLOW-THROUGH	
Describe Measures to Provide Water Flow Through Waterbody During the Drawdown	
6. MINIMUM & BASE FLOWS	
Describe Measures to Maintain Minimum or Base Flows	
Describe Variances if Minimum or Base Flow Requirements Cannot be Fully Maintained	
7. WATER LEVEL CONTROL	
Describe How Water Levels Will be Controlled and Maintained (Turbine/Gate Operations)	
8. MONITORING	
Describe How Water Levels Will be Monitored	

HOP 202
SITE-SPECIFIC DRAWDOWN PLAN

9. RE-FILLING	
Describe Measures to Maintain Downstream Flows During Re-filling	
10. AGENCY COORDINATION	
Summarize Coordination with NYSDEC Regarding Items 1-9 (dates, staff, recommendations)	

Drawdown Plan Form Completed By: _____ Date: _____

Hydro Control Center Review & Concurrence By: _____ Date: _____

General Manager Review & Approval By: _____ Date: _____

Copies to be distributed to:

- Vice President New York Operations
- General Manager
- HCC
- Area Superintendent
- Compliance/Environmental Staff

ERIE BOULEVARD HYDROPOWER, L.P.

HOF 202

AREA

Date Submitted:

Anticipated Drawdown Schedule

This form shall be used for: Scheduling of pond & canal drawdowns & canal, forebay and pipeline dewatering operations

Plant	Reason	Month	Duration	Draw Depth	Field Contact

Notes:

XC: Vice President New York Operations

ATTACHMENT G

QUESTION C – FISH PASSAGE AND PROTECTION:

APRIL 29, 1997 MINIMUM FLOW RELEASE STRUCTURES (ARTICLE 401, 405, 407 & 408)

MAY 22, 1997 MINIMUM FLOW RELEASE STRUCTURES (ARTICLE 403)

JULY 21, 1997 ORDER MODIFYING AND APPROVING MINIMUM FLOW RELEASE STRUCTURE PLANS (ARTICLE 401, 405, 407 & 408)

AUGUST 4, 1997 ORDER MODIFYING AND APPROVING MINIMUM FLOW RELEASE STRUCTURE PLANS (ARTICLE 403)

ORIGINAL

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

OVERNIGHT COURIER

97 APR 30 PM 1:54

April 29, 1997

Ms. Lois D. Cashell, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, N.E.
Washington, DC 20426

057

Subject: Beaver River Project LP 2645-029 NY
License Articles 401, 405, 407 and 408
Minimum Flow Release Structures

Dear Secretary Cashell:

In accordance with the ORDER APPROVING SETTLEMENT AGREEMENT AND ISSUING NEW LICENSE issued on August 2, 1996, Niagara Mohawk is herein filing an original and eight copies of the detailed design drawings of the minimum flow release structures for the above referenced license articles. Niagara Mohawk submitted drawings in draft form for consultation purposes with agencies as required by License Articles 401, 405, 407 and 408 on February 21, 1997. Agency correspondence addressing the specific license article is included herein. Following is a summary of agencies in receipt of the consultation documents, agencies providing comments, and Niagara Mohawk's position on the comments received.

LICENSE ARTICLES 401, 405, 407 AND 408
MINIMUM FLOW RELEASE STRUCTURES

Agencies in receipt of draft plans:

New York State Department of Environmental Conservation (DEC)
U.S. Fish and Wildlife Service (USFWS)

Agencies providing comments:

New York State Department of Environmental Conservation (DEC)
U.S. Fish and Wildlife Service (USFWS)

TMSL119A.7DB

FERC DOCKETED
APR 30 1997

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Niagara Mohawk's position on agency comments:

New York State Department of Environmental Conservation comment letter of April 2, 1997

DEC Comment 2nd paragraph: A general comment noting that the minimum flow release value at emergency flow augmentation be included in the discharge tables along with the full pool and 1" drawdown release values. (A clarification letter was issued on April 9, 1997 and is mentioned below).

Licensee Response: Niagara Mohawk has incorporated DEC's suggestion and has noted the discharge at 3.0' below flashboard crest and dam crest on the minimum flow gate data sheets included in Attachment 1.

DEC Comment on License Article 401 (Moshier Development): The ability of this release structure to safely convey fish into the bypass needs to be evaluated after the structure is built.

Licensee Response: Niagara Mohawk will assess the need for any fish protection and conveyance measures in accordance with the field meeting summary dated July 25, 1995, referencing our correspondence of February 21, 1997.

DEC Comment on License Article 405 (Elmer Development): The path of the released water and adequacy of the receiving pool should be assessed after the release structure is constructed.

Licensee Response: See above response to License Article 401.

DEC Comment on License Article 407 (Belfort Development): The location of the gate structure should be chosen to best utilize existing channel conditions for safe fish passage downstream.

Licensee Response: Niagara Mohawk has shown the location of the minimum flow release structure to be at the southerly end of the spillway. This location was discussed in the field during the July 1995 site visits and it is Niagara Mohawk's understanding this concern has already been addressed. Without specific alternate recommendations, Niagara Mohawk will proceed as proposed and address conveyance concerns as noted in the response above.

DEC Comment on License Article 408 (High Falls Development): DEC notes that the proposed release structures are acceptable provided that the release from the low level gate (existing) does not result in any turbidity problems.

Licensee Response: Niagara Mohawk agrees that the low level gate release could initially contribute to a turbidity release. However, the size of the 10 cfs release requirement may limit the amount of sediments released downstream after the initial release. Other release alternatives will have to be investigated if turbidity continues to be a problem after an initial period of operation.

United States Fish & Wildlife Service comment letter of April 4, 1997

USFWS Comment 1st paragraph: One concern the USFWS has is that release structures using bottom orifices increase the risk of plugging.

Licensee Response: After installation of these release structures, Niagara Mohawk's traveling operators will be inspecting these facilities for plugging occurrences as part of the normal routine and scheduling activities to clear the water paths at these structures when necessary.

USFWS Comment - Moshier Development: The USFWS notes that a chute located downstream of the release point may be needed to convey flow and fish or some other conveyance measures may be required.

Licensee Response: Niagara Mohawk will assess the need for any fish protection and conveyance measures in accordance with the field meeting summary dated July 25, 1995 referencing our correspondence of February 21, 1997.

USFWS Comment - Elmer Development: The USFWS notes that a plunge pool shall be constructed immediately downstream of the release structure and additionally, that curbs were to be installed to divert flow into existing channels in the bedrock and toward a plunge pool at the base of the rock outcrop.

Licensee Response: See above response to Moshier Development.

USFWS Comment - Belfort Development: The USFWS notes that no channel modifications were deemed as necessary in the field inspection.

Licensee Response: Niagara Mohawk agrees with the USFWS but will assess the need for any further fish conveyance measures as per above under DEC Comments on License Article 407.

USFWS Comment - High Falls Development: The USFWS notes that the low level outlet works has an opening of 0.05 feet or six-tenths of an inch which is small and highly susceptible to plugging.

Licensee Response: See response to USFWS Comment 1st paragraph above.

USFWS Comment - High Falls Development: The USFWS states that a flow demonstration was discussed in the field to determine the areas of wetted channel and the path of the flow from both release points; this demonstration has not been scheduled.

Licensee Response: As per the Settlement Offer, a site visit was conducted during July 1995 and a flow demonstration was discussed. Also per the Settlement Offer and other informal discussions, it was agreed that the 20 cfs release point would be located at the farthest point north within the spillway. However, due to site constraints and the inability to reasonably provide the discussed flows, Niagara Mohawk feels that this flow demonstration is impractical. However, as an alternative, Niagara Mohawk proposes to construct the new 20 cfs release structure to provide for the total required minimum flow of 30 cfs into the bypassed reach. After installation of this structure, a flow demonstration can be performed utilizing the release from this structure in conjunction with the 10 cfs release from the low level gate to determine the appropriate flow split between the structures. This is a possible means to resolve the USFWS questions and satisfy DEC concerns regarding turbidity.

USFWS Comment - Conclusions and Recommendations: The USFWS recommends that the flow in each of the bypassed reaches be gaged to verify compliance with the minimum instream flow requirements after installation of the minimum flow release structures.

Licensee Response: As proposed in Niagara Mohawk's Plan for Streamflow and Headpond Elevation Monitoring in response to License Article 412 requirements Item (2), the Gage Calibration Plan discusses the methodology for calibrating the flow releases from the minimum flow release structures.

New York State Department of Environmental Conservation comment letter of April 9, 1997 Clarification Letter

DEC Comment 2nd paragraph: A general comment noting that the minimum flow release value at emergency flow augmentation minimum reservoir elevations be included in the discharge tables along with the full pool and normal drawdown release values.

Licensee Response: Niagara Mohawk has incorporated DEC's suggestion and has noted the discharge at 3.0' below flashboard crest and dam crest on the minimum flow gate data sheets included in Attachment 1.

If you have any further questions regarding this submittal, please contact Jacob S. Niziol at (315) 428-5556.

Sincerely,

Sam S. Hirschey, P.E.
Manager,
Hydro Licensing & Regulatory Compliance

Enclosures:
xc: J. Sama, NYSDEC, Albany
L. Ollivett, NYSDEC, Watertown
S. Morgan, USFWS, Cortland
A. Sidoti, FERC, New York
B. Carpenter, New York Rivers United
J. Mark Robinson, FERC, Washington, DC
J. S. Niziol

LICENSE ARTICLES 401, 405, 407 & 408

MINIMUM FLOW RELEASE STRUCTURES (DETAILED DESIGN DRAWINGS)

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

February 21, 1997

Mr. Len Ollivett
NYS Dept. of Environmental Conservation
State Office Building
317 Washington Street
Watertown, NY 13601

SAMPLE LETTER TO ACCOMPANY DESIGN DRAWINGS AS PER DRAFT CONSULTATION DOCUMENTS

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Hon. Sama:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above referenced project, issued on August 2, 1996, enclosed are Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license articles:

License Article 401	Moshier Development, new slide gate structure;
License Article 405	Elmer Development, new release structure contained within the existing needle beam structure;
License Article 407	Belfort Development, new gate structure; and
License Article 408*	High Falls Development, existing low level slide gate structure and new gate structure.

* In a January 8, 1997 letter to FERC, Niagara Mohawk requested FERC's concurrence of Niagara Mohawk's understanding of License Articles 408 and 409 requirements dealing with the same physical structure. Consequently, License Article 409 is not specifically addressed herein.

The enclosed draft drawings have been marked up to denote the proposed locations of the minimum flow release structures and to provide some detail of the release structure mechanism.

Following are brief descriptions of the minimum flow release structures at each of the above noted developments and appropriate comments:

LICENSE ARTICLE 401 - MOSHIER DEVELOPMENT

The license requires that the release be made through two points; the existing tap at the pipeline and the new slidegate structure. Per field discussions with resource agencies on July 6 and 7, 1995, Niagara Mohawk is proposing, as an alternate, that the total (45 cfs) minimum flow release will be made through the new slide gate structure (See field meeting summary July 25, 1995).

The existing needle beam structure is being replaced with a new slidegate to provide the minimum flow release. The new slidegate will be 10.0 feet wide and will be raised 0.416 feet from its closed position to provide the nominal 45 cfs minimum flow release. The minimum flow release will vary from 42.3 cfs to 50.0 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1641.0 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

LICENSE ARTICLE 405 - ELMER DEVELOPMENT

The existing needle beam structure will be modified to include the new minimum flow release structure. Four needle beams, having a width of 1.83 feet, will be raised 1.0 feet to provide the nominal 20 cfs minimum flow release. The minimum flow release will vary from 20.25 cfs to 22.39 cfs over the reservoir fluctuation range of 1.0 feet as measured from the normal maximum headwater elevation (spillway crest elevation 1108.0 feet). The nominal 20 cfs minimum flow release could be reduced to 10 cfs (See Settlement Offer pg. 9 and License Article 405).

LICENSE ARTICLE 407 - BELFORT DEVELOPMENT

A new gate structure located on the south side of the spillway will provide the minimum flow release. The gated opening, 1.0 feet high by 1.71 feet wide, will provide the nominal 20 cfs minimum flow release. The minimum flow release will vary from 18.73 cfs to 21.63 cfs over the reservoir fluctuation range of 1.0 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 966.0 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

LICENSE ARTICLE 408 - HIGH FALLS DEVELOPMENT

The existing low-level slidegate structure located in the middle of the spillway will provide the nominal 10 cfs minimum flow release. The minimum flow release will vary from 9.9 cfs to 10.1 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (spillway crest elevation 915.0 feet).

A new gate structure located at the north side of the spillway will provide the nominal 20 cfs minimum flow release. The minimum flow release will vary from 18.29 cfs to 22.41 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (spillway crest elevation 915.0 feet).

SCHEDULE

License Article/Development	Minimum Flow Release Structure Construction Period
Article 401/Moshier	August 25 through December 15, 1997
Article 405/Elmer	June 9 through December 15, 1997
Article 407/Belfort	June 9 through December 15, 1997
Article 408/High Falls	June 9 through December 15, 1997

After installation of the minimum flow release structures, Niagara Mohawk will assess the need for any fish protection and conveyance measures in accordance with the field meeting summary dated July 25, 1995.

DISCHARGE CURVES AND TABLES FOR MINIMUM FLOW RELEASE STRUCTURES

Niagara Mohawk has developed discharge curves and tables using orifice equations for the minimum flow release structures, based upon varying reservoir elevations as stated in the Settlement Offer and with maximum fluctuations as allowed by License Article 410. These discharge curves and tables for the above noted developments, which also appear in the draft License Article 412, can be found under Attachment 1.

Niagara Mohawk would appreciate receiving your comments in 30 days from the date of this letter. Upon receipt of agency comments, Niagara Mohawk will incorporate agency comments as appropriate in the detailed design drawings, and submit to FERC.

If you have any questions, please contact me at (315) 428-5556.

Sincerely,

Jacob S. Niziol, P. E.
Dam Safety & Regulatory Compliance Coordinator

Enclosures:
xc: Ms. Sherry Morgan, USFWS, Cortland
Hon. Jeffrey J. Sama, NYSDEC, Albany
Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. S. S. Hirschey

ATTACHMENT 1

DISCHARGE CURVES AND TABLES FOR MINIMUM FLOW RELEASE STRUCTURES

MOSHIER HYDRO DEVELOPMENT
MINIMUM FLOW GATE

Discharge Area (A)	4.16 ft^2	(See Note 2)
Minimum Flow	45 cfs	
Gravity (g)	32.2 ft/sec^2	
Top of Flashboards	1641.0 ft	
Dam Crest Elevation	1639.0 ft	
Needle Beam Crest	1635.0 ft	
Maximum draw down below top of flashboards	1.5 ft	
Centerline of Gate Opening Elevation	1635.21 ft	

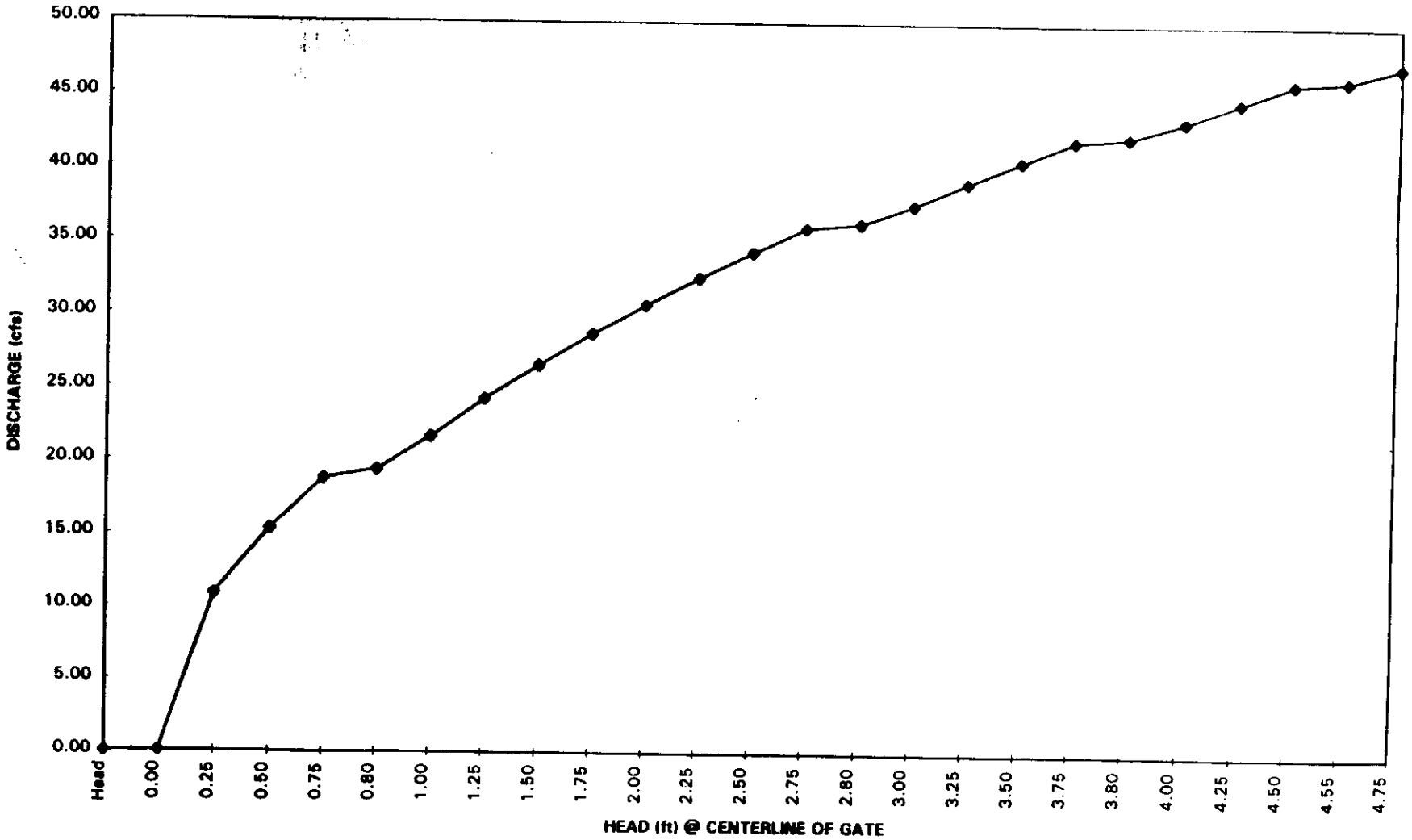
Head	Discharge	
0.00	0.0	
0.25	10.9	
0.50	15.4	
0.75	18.8	
0.80	19.4	Discharge @El. 1636.0 (3.0' below dam crest)
1.00	21.7	
1.25	24.3	
1.50	26.6	
1.75	28.7	
2.00	30.7	
2.25	32.6	
2.50	34.3	
2.75	36.0	
2.80	36.3	Discharge @El. 1638.0 (3.0' below top of flashboards)
3.00	37.6	
3.25	39.2	
3.50	40.6	
3.75	42.1	
3.80	42.3	Discharge @El. 1639.5 (1.5' below top of flashboards)
4.00	43.4	
4.25	44.8	
4.50	46.1	
4.55	46.3	Nominal Discharge
4.75	47.3	
5.00	48.6	
5.25	49.8	
5.30	50.0	Discharge @El. 1641.0 (top of flashboards)

Notes:

1) As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation. Pond elevation versus time curve will verify the level of compliance meeting the nominal discharge over time.

2) Discharge through 10'-0" wide gate at 0.416' open.

MOSHIER HYDRO DEVELOPMENT
MINIMUM FLOW GATE



ELMER HYDRO DEVELOPMENT
MINIMUM FLOW RELEASE

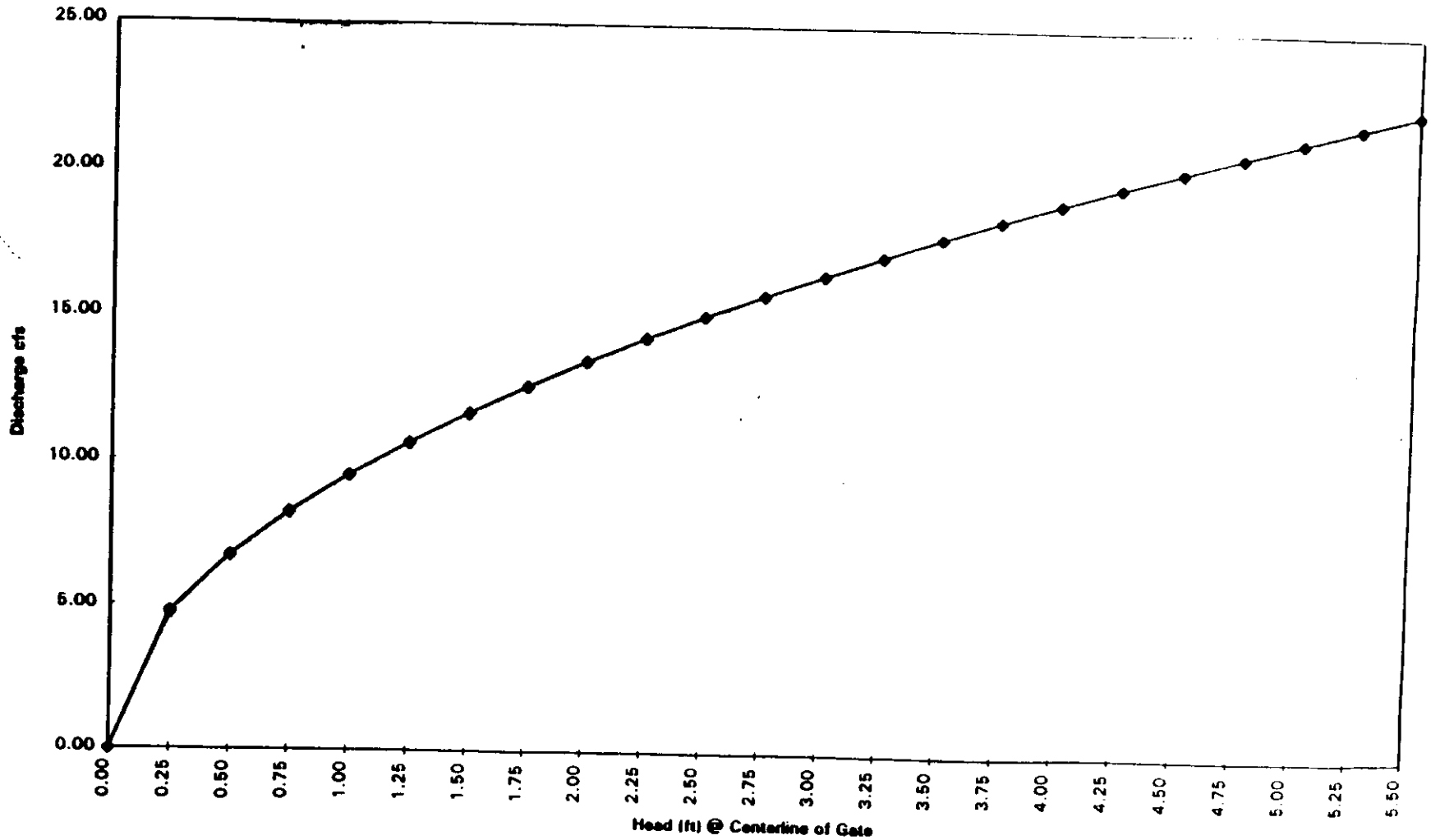
Discharge area (A)	1.83 ft^2	(4 - 6"x 6" timbers raised 1'-0", 1'-10" wide by 1'-0" high)
Gravity (g)	32.2 ft/sec^2	
Minimum Flow	20 cfs	(See Note 1)
Dam Crest Elevation	1108.0 ft	
Needle Beam Crest	1102.0 ft	
Maximum draw down below crest	1 ft	
Centerline of Opening Elevation	1103.0 ft	

Head	Discharge	
0.00	0.00	
0.25	4.77	
0.50	6.75	
0.75	8.27	
1.00	9.55	
1.25	10.67	
1.50	11.69	
1.75	12.63	
2.00	13.50	
2.25	14.32	
2.50	15.09	
2.75	15.83	
3.00	16.53	
3.25	17.21	
3.50	17.86	
3.75	18.49	
4.00	19.09	
4.25	19.68	
4.50	20.25	**Discharge @ El. 1107' (1'-0" below crest)**
4.75	20.80	
5.00	21.34	**Nominal Discharge**
5.25	21.87	
5.50	22.39	**Discharge @ El. 1108' (dam crest)**

Notes:

1) **Minimum flow could be reduced to 10 cfs.**

ELMER HYDRO DEVELOPMENT
MINIMUM FLOW RELEASE



BELFORT HYDRO DEVELOPMENT
MINIMUM FLOW GATE

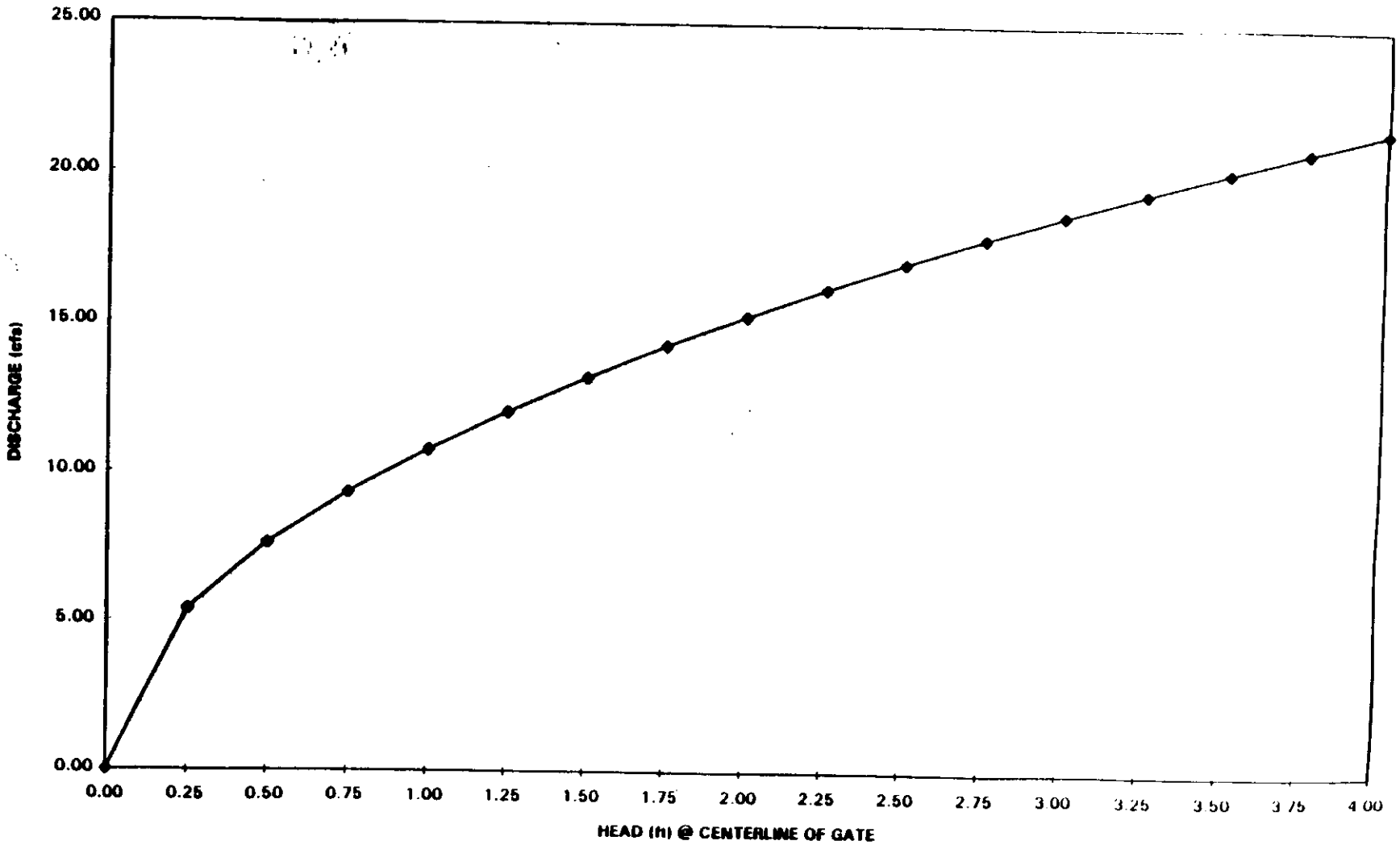
Discharge area (A)	1.71 ft^2	1.0' high by 1.71' wide
Gravity (g)	32.2 ft/sec^2	
Top of Flashboards	966.0 ft	
Dam Crest Elevation	964.0 ft	
Centerline of Gate Opening Elevation	962.0 ft	
Invert Elevation of Gate Opening	961.5 ft	
Maximum draw down below top of flashboard	1.0 ft	

Head (ft)	Discharge (cfs)	
0.00	0.00	
0.25	5.41	
0.50	7.65	
0.75	9.37	
1.00	10.81	
1.25	12.09	
1.50	13.25	
1.75	14.31	
2.00	15.29	
2.25	16.22	
2.50	17.10	
2.75	17.93	
3.00	18.73	**Discharge @ EL. 965.0' (1'-0" below top of flashboards)**
3.25	19.50	
3.50	20.23	**Nominal Discharge 20 cfs**
3.75	20.94	
4.00	21.63	**Discharge @ EL. 966.0' (top of flashboards)**

Notes:

1) **As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation. Pond elevation versus time curve will verify the level of compliance meeting the nominal discharge over time.**

BELFORT HYDRO DEVELOPMENT
MINIMUM FLOW GATE

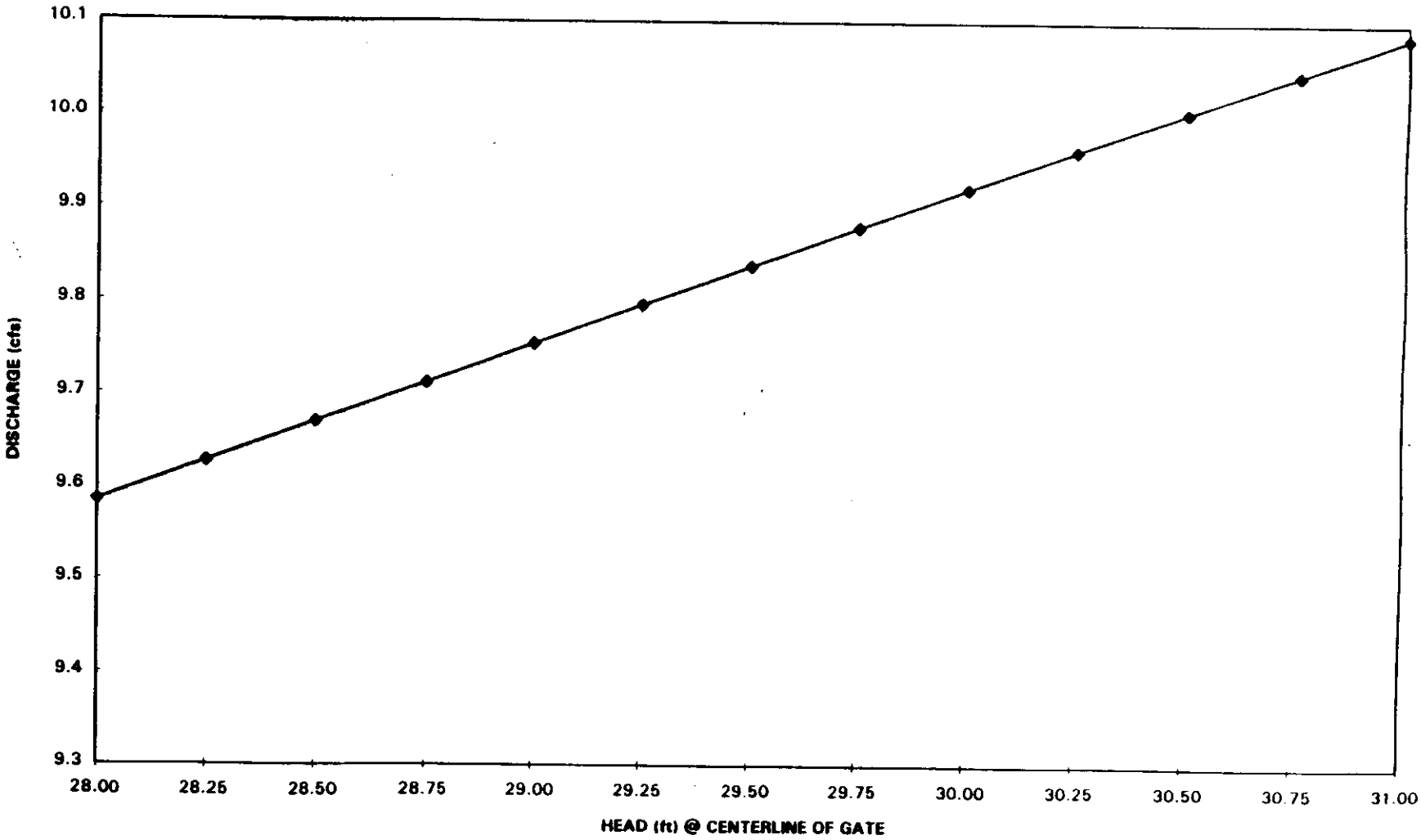


HIGH FALLS HYDRO DEVELOPMENT
10 CFS MINIMUM FLOW GATE

Discharge Area (A)	0.35 ft^2	6.67 ft wide by 0.05 ft high
Gate Width	6.67 ft	
Minimum Flow	10 cfs	
Gravity (g)	32.2 ft/sec^2	
Dam Crest Elevation	915.0 ft	
Gate Sill Elevation	884.0 ft	
Centerline of Gate Opening Elevation		
Maximum draw down below crest	1 ft	

Head	Discharge	
28.00	9.6	Discharge @El. 912.0 (3.0' below dam crest)
28.25	9.6	
28.50	9.7	
28.75	9.7	
29.00	9.8	
29.25	9.8	
29.50	9.8	
29.75	9.9	
30.00	9.9	Discharge @El. 913.5 (1.5' below dam crest)
30.25	10.0	
30.50	10.0	Nominal Discharge
30.75	10.0	
31.00	10.1	Discharge @El. 915.0 (dam crest)

HIGH FALLS HYDRO DEVELOPMENT
10 CFS MINIMUM FLOW GATE

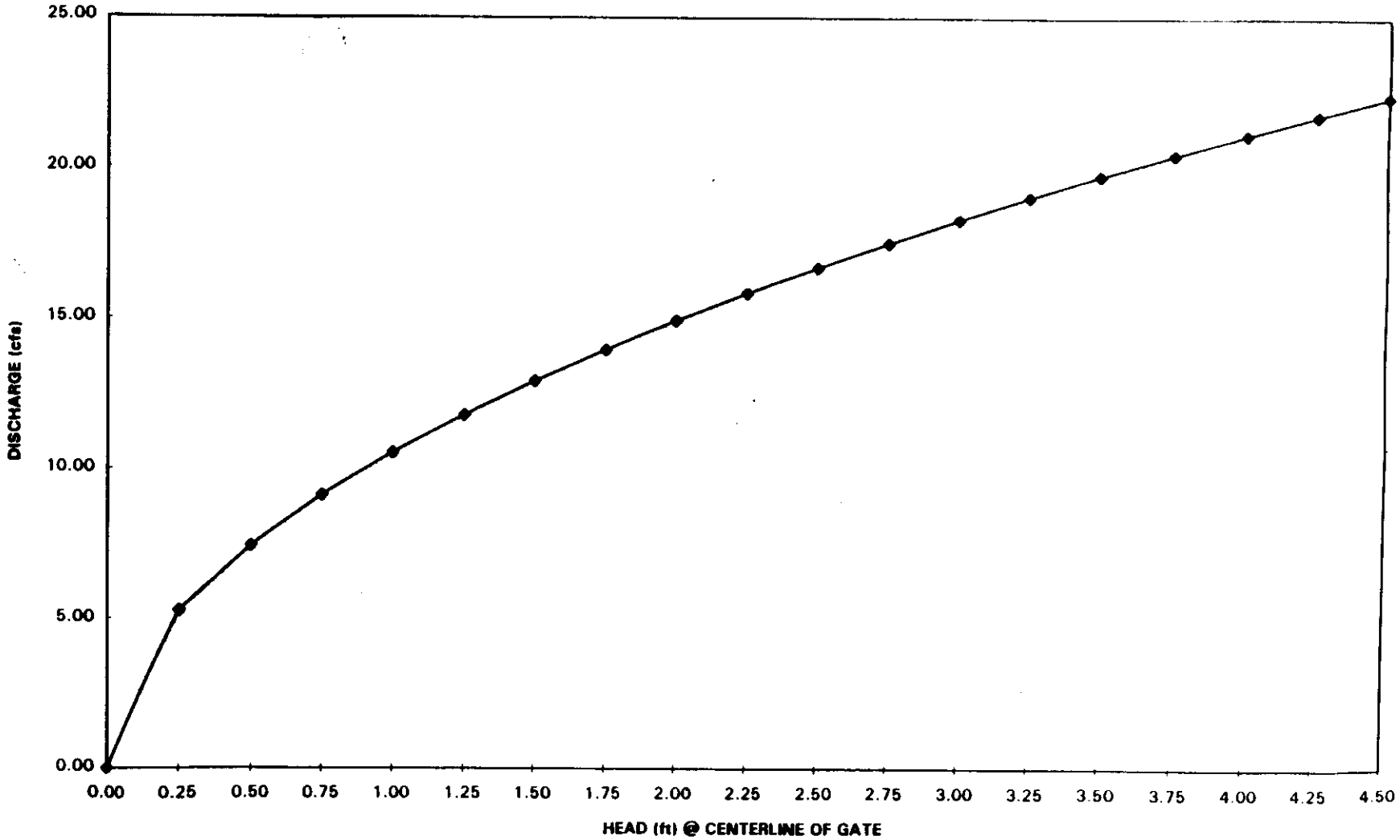


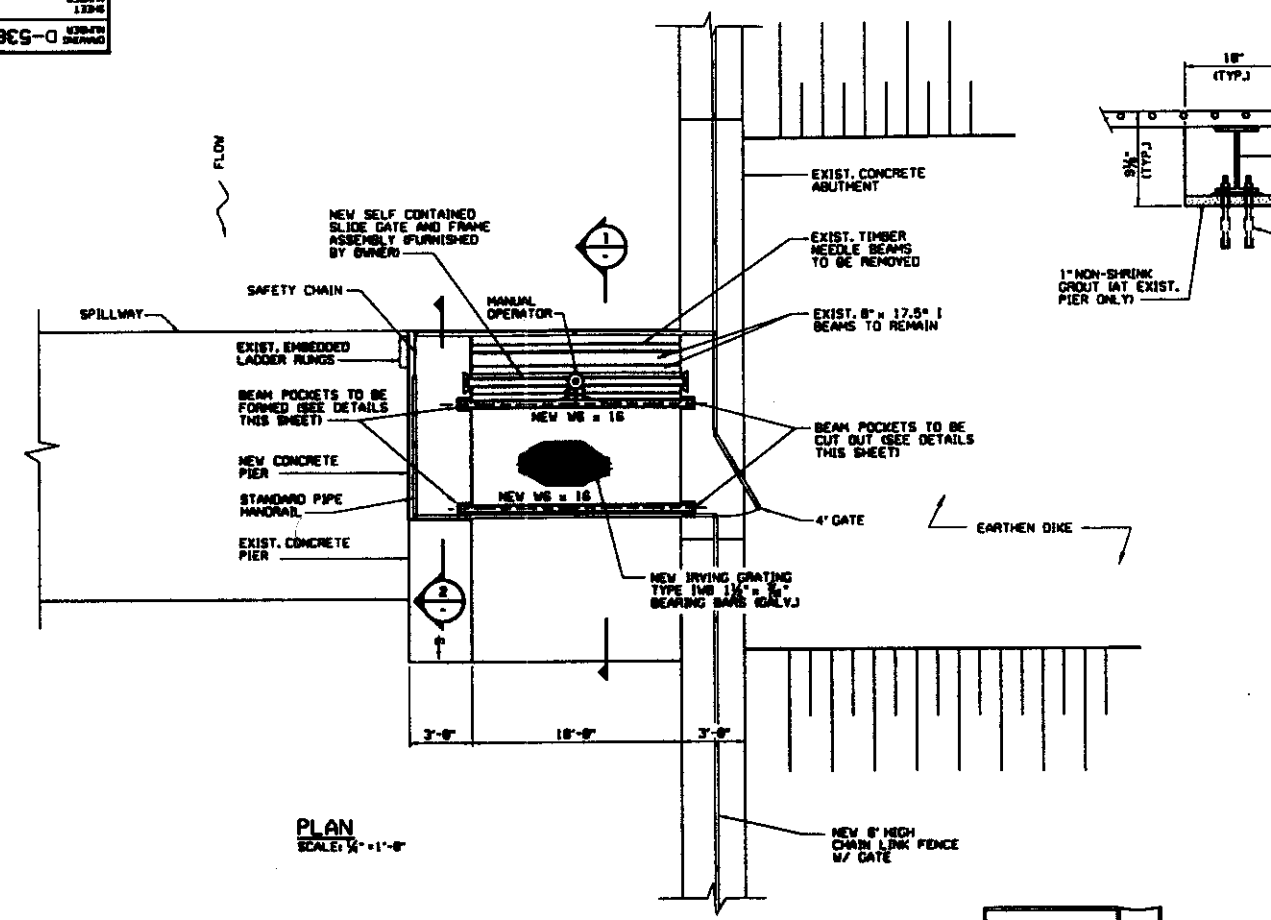
HIGH FALLS HYDRO DEVELOPMENT
20 CFS MINIMUM FLOW GATE

Discharge area (A)	1.67 ft^2	1.0' high by 1.67' wide
Gravity (g)	32.2 ft/sec^2	
Dam Crest Elevation	915.0 ft	
Centerline of Gate Opening Elevation	910.5 ft	
Invert Elevation of Gate Opening	910.0 ft	
Maximum draw down below crest	1.5 ft	

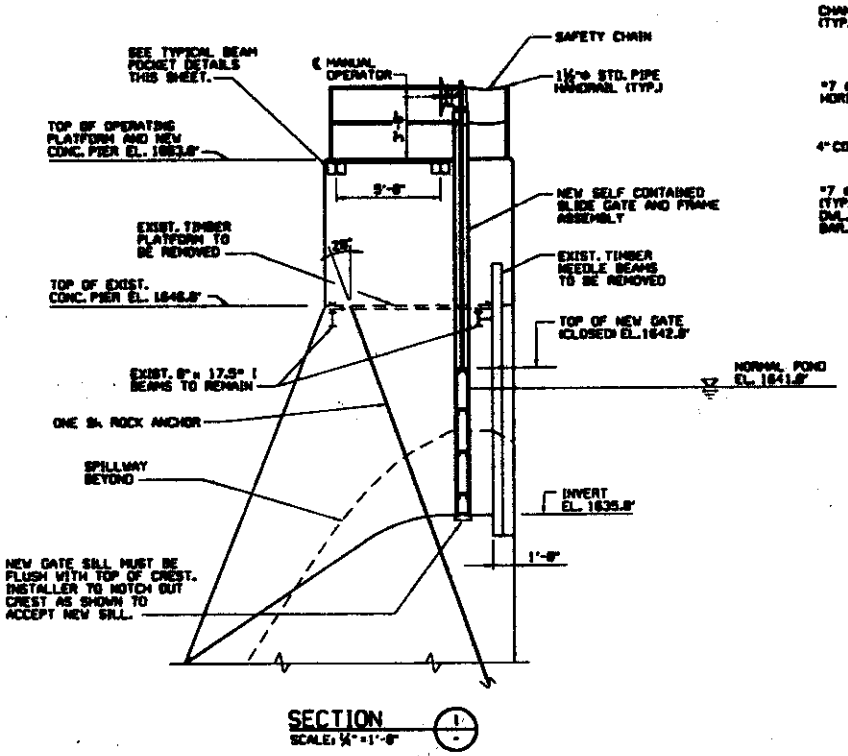
Head	Discharge	
0.00	0.00	
0.25	5.28	
0.50	7.47	
0.75	9.15	
1.00	10.56	
1.25	11.81	
1.50	12.94	Discharge @ EL. 912.0' (3.0' below dam crest)
1.75	13.97	
2.00	14.94	
2.25	15.84	
2.50	16.70	
2.75	17.52	
3.00	18.29	Discharge @ EL. 913.5' (1.5' below dam crest)
3.25	19.04	
3.50	19.76	
3.75	20.45	Nominal Discharge
4.00	21.12	
4.25	21.77	
4.50	22.41	Discharge @ EL. 915.0' (dam crest)

HIGH FALLS HYDRO DEVELOPMENT
20 CFS MINIMUM FLOW GATE





PLAN
SCALE: ¼" = 1'-0"



SECTION (1/-)
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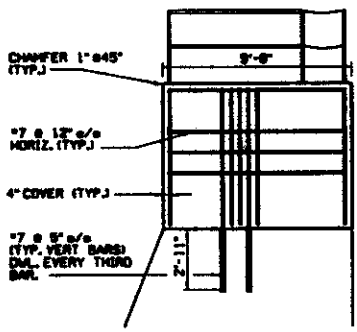
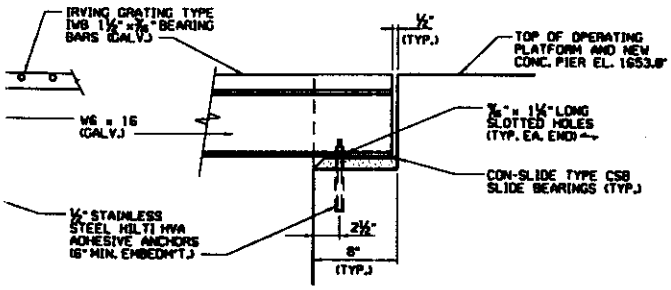


SECTION (2/-)
SCALE: ¼" = 1'-0"

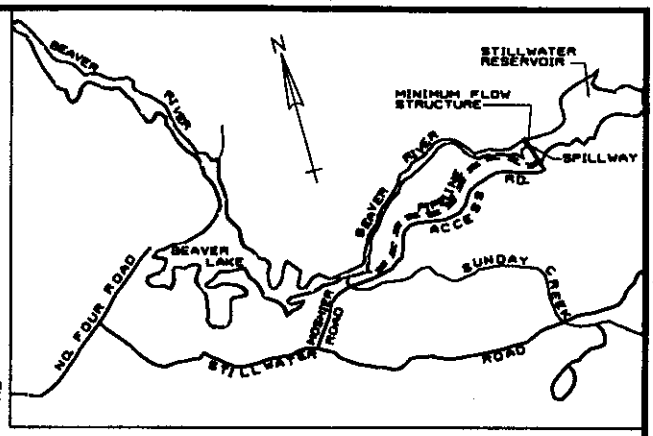


TYPICAL BEAM POCKET DETAILS

SCALE: 1½" = 1'-0"

NG
KEW
653.8'

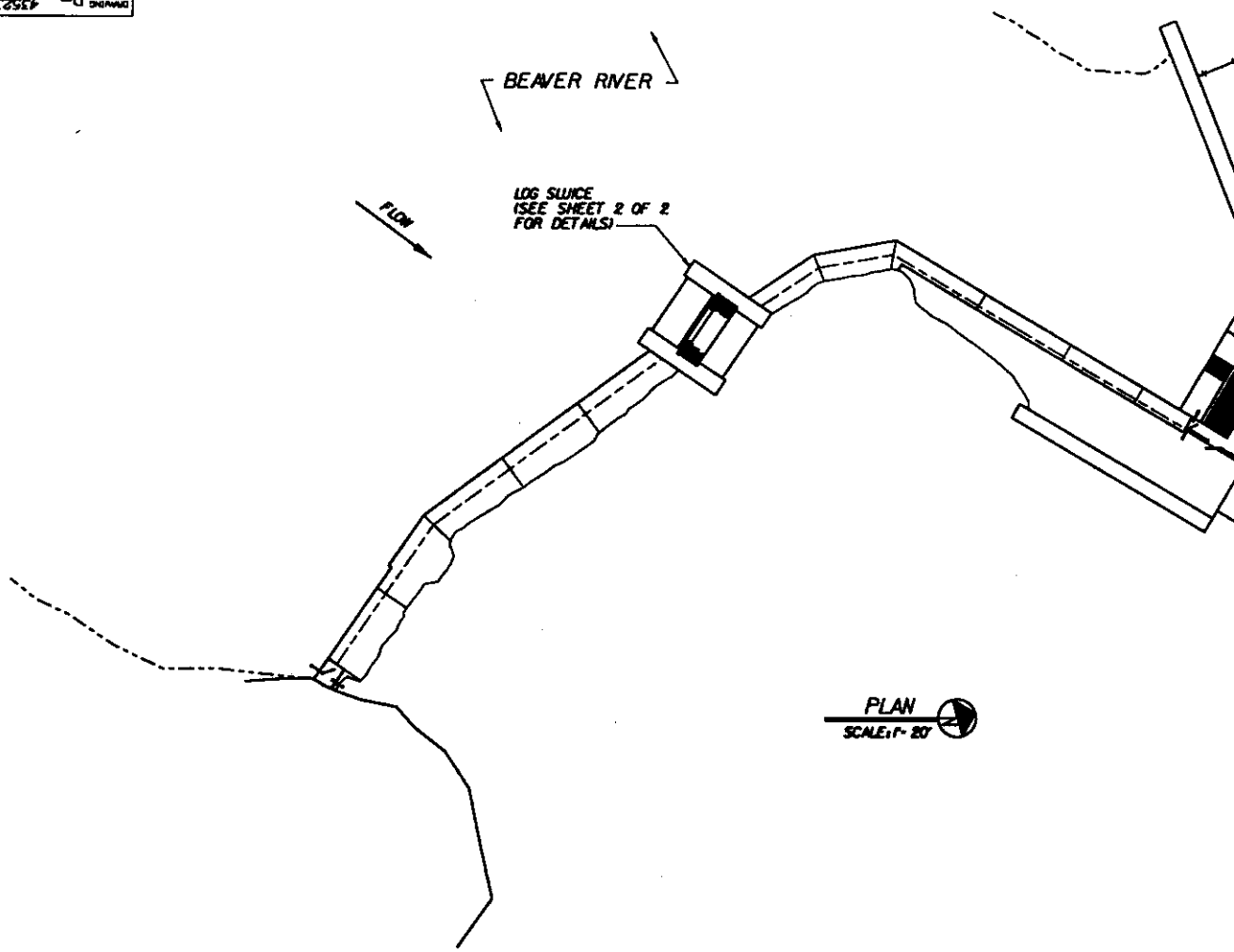
646.8'



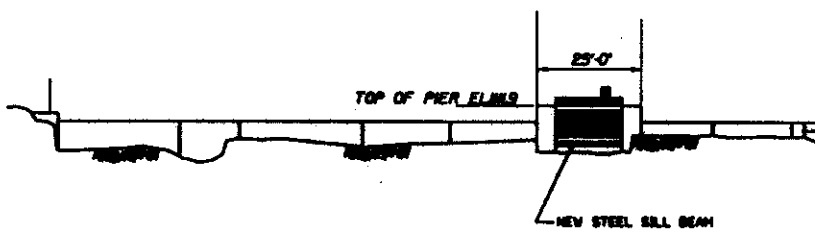
LOCATION MAP

U.S.G.S. NUMBER FOUR, NEW YORK
LAT. 43°51'30" LONG. 75°11'30"
NOT TO SCALE

RHS DES.	APPROVED	NIAGARA MOHAWK	MOSHIER HYDRO DEVELOPMENT
DJH DR.	APPROVED		MINIMUM FLOW GATE
CK.	APPROVED		PLAN, SECTIONS AND DETAILS
	APPROVED		DWG. 2-M9-H2
			D- 53649-D

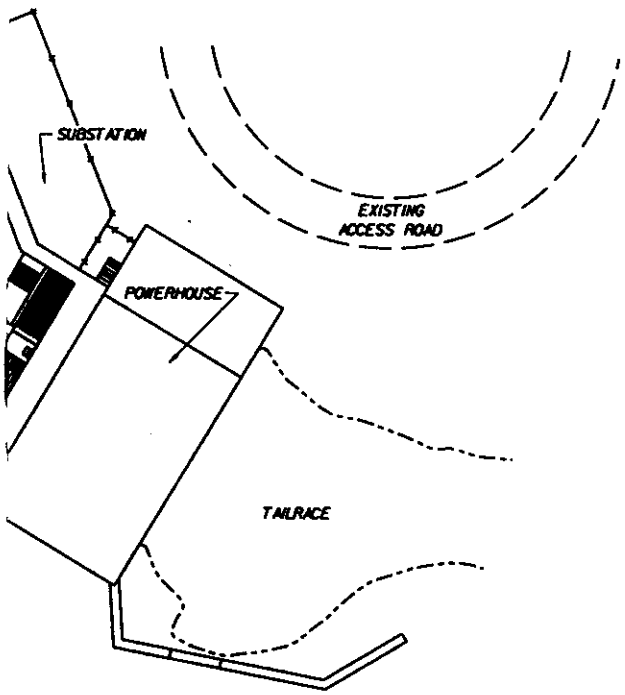


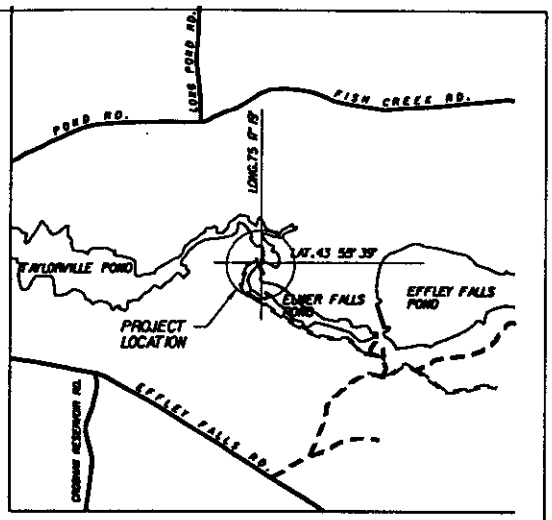
PLAN
SCALE: 1" = 20'



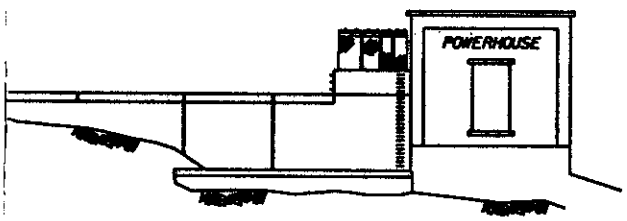
ELEVATION- LOOKING UPSTREAM
SCALE: 1" = 20'

REFERENCE DESCRIPTION	DRAWING NUMBER	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	DE.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION





PROJECT LOCATION
SCALE: 1" = 2000'
BELFORT QUADRANGLE
N

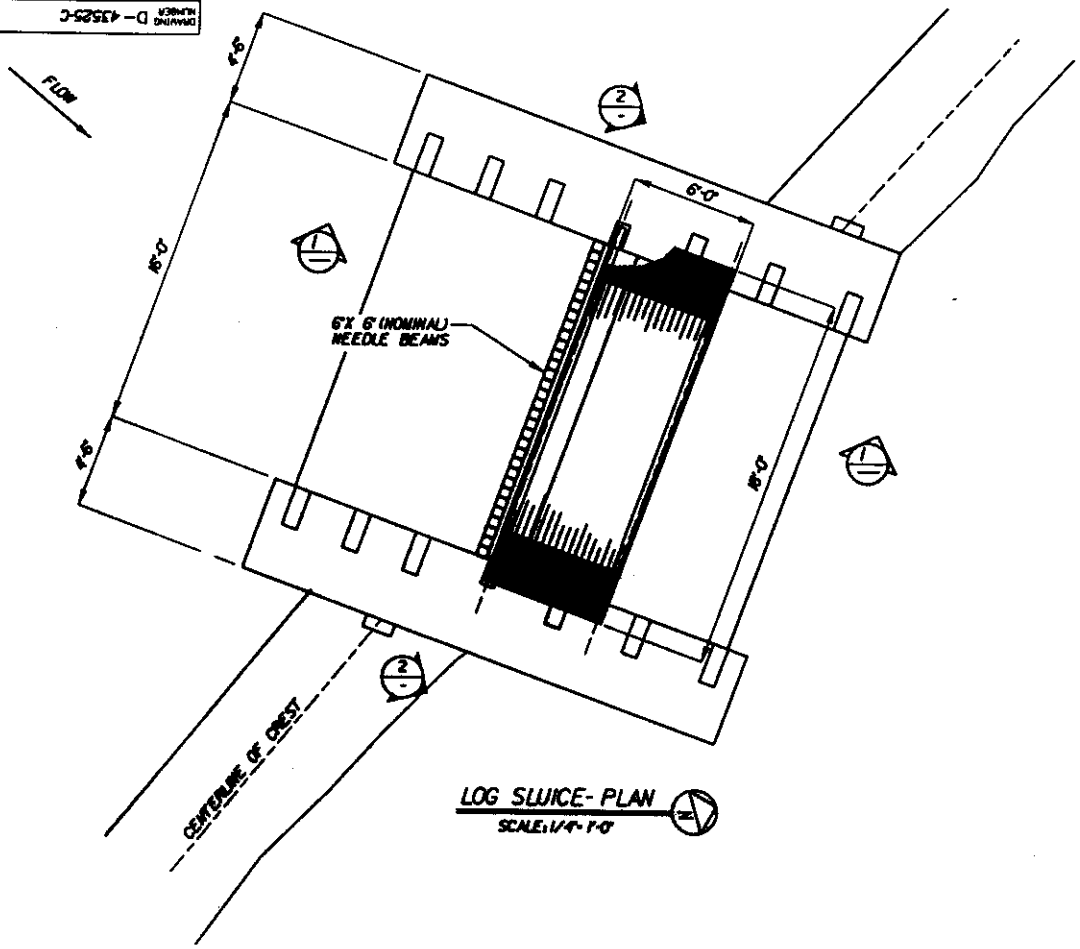


DRAWING SEQUENCE NO. 1 OF 2

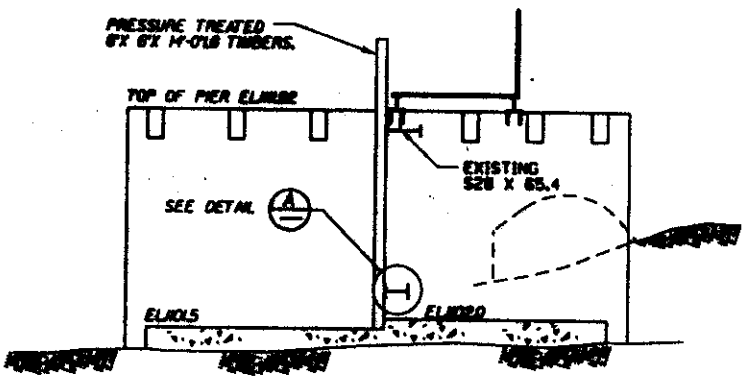
			DES.	APPROVED	NIAGARA MOHAWK
			DR.	APPROVED	
			CK.	APPROVED	
DR.	CK.	APP.		APPROVED	ACCOUNT NUMBER

ELMER HYDRO DEVELOPMENT	
	FILE 2-E4-H2
	DRAWING D-43523-C
PROJECT LOCATION MAP	

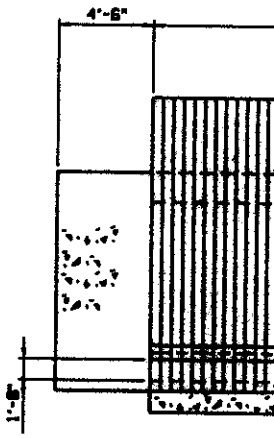
DRAWING NUMBER D-43525-C
SHEET NUMBER



LOG SLUICE- PLAN
SCALE: 1/4"= 1'-0"

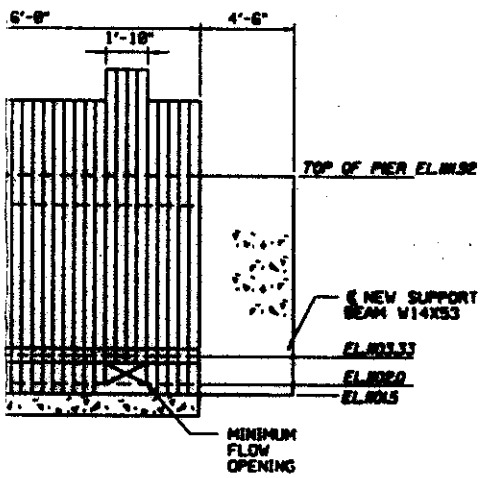


SHOWING NORTH PIER OF LOG SLUICE
SCALE: 1/4"= 1'-0"



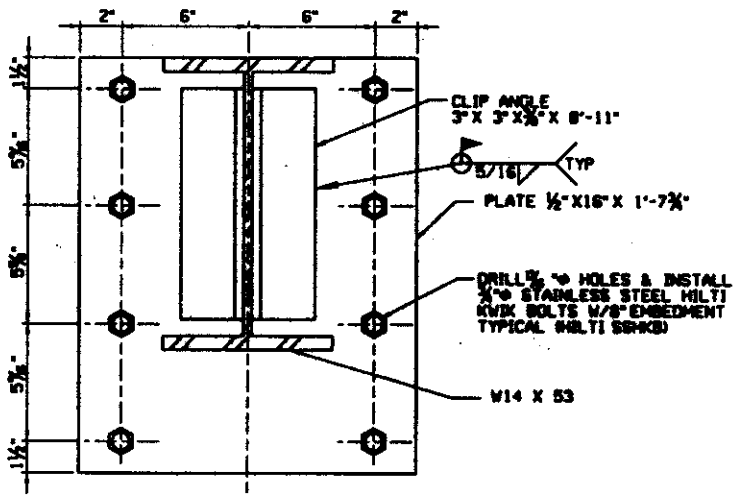
SHOWING LOG

REFERENCE DESCRIPTION	DRAWING NUMBER	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CH.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION



SLUICE MINIMUM FLOW

SCALE: 1/4"-1'-0"



A DETAIL SHOWING END CONNECTIONS

SCALE: 3"-1'-0"

DRAWING SEQUENCE NO.2 OF 2

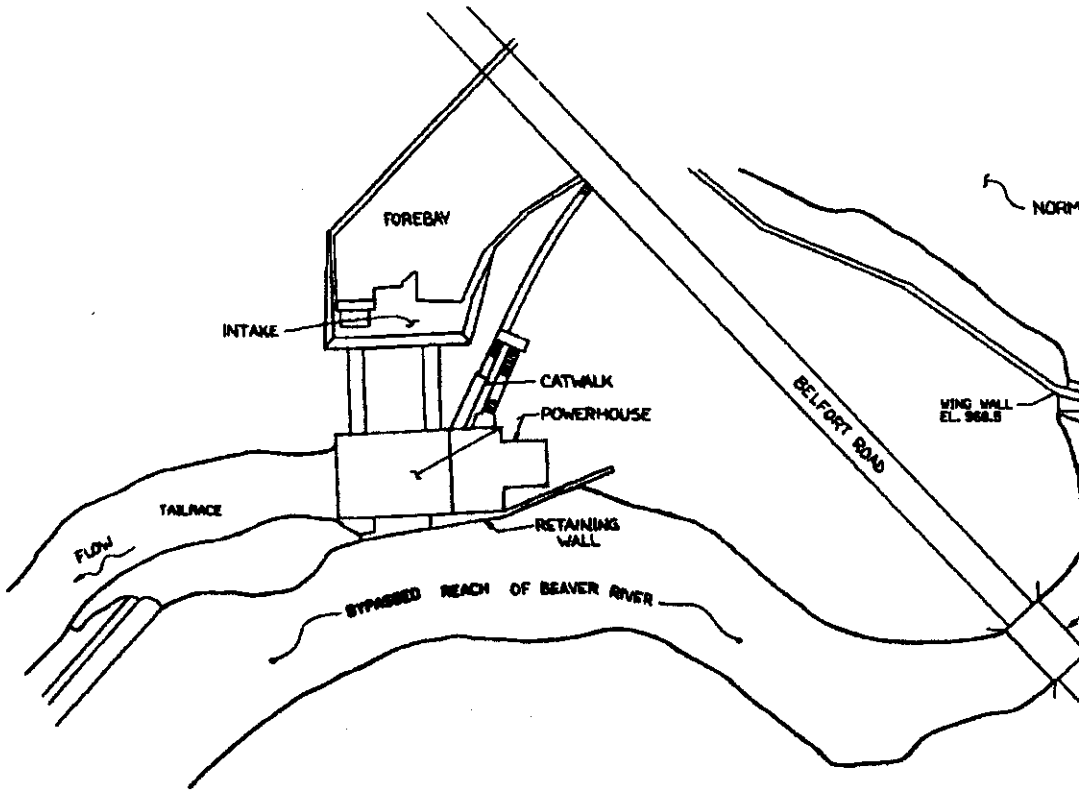
			DES.	APPROVED	NIAGARA MOHAWK
			DR.	APPROVED	ELMER HYDRO DEVELOPMENT
			CK.	APPROVED	LOG SLUICE
DR.	CK.	APP.		APPROVED	PLAN, SECTIONS, AND DETAILS

ACCOUNT NUMBER

DRAWING NO. 2-E4-H2

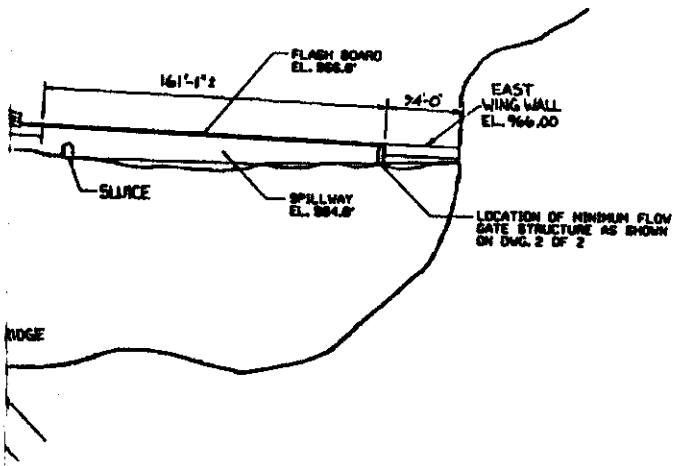
SHEET NO. D-43525-C

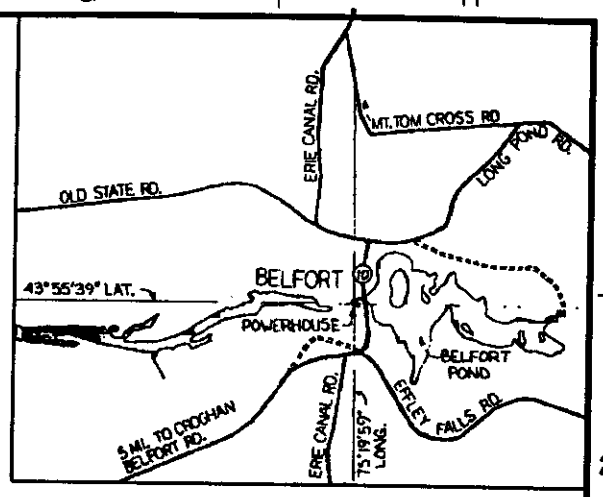
REVISION



GENERAL PLAN
SCALE: 1"=40'-0

REFERENCE DESCRIPTION	DRAWING NUMBER	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	DES.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION





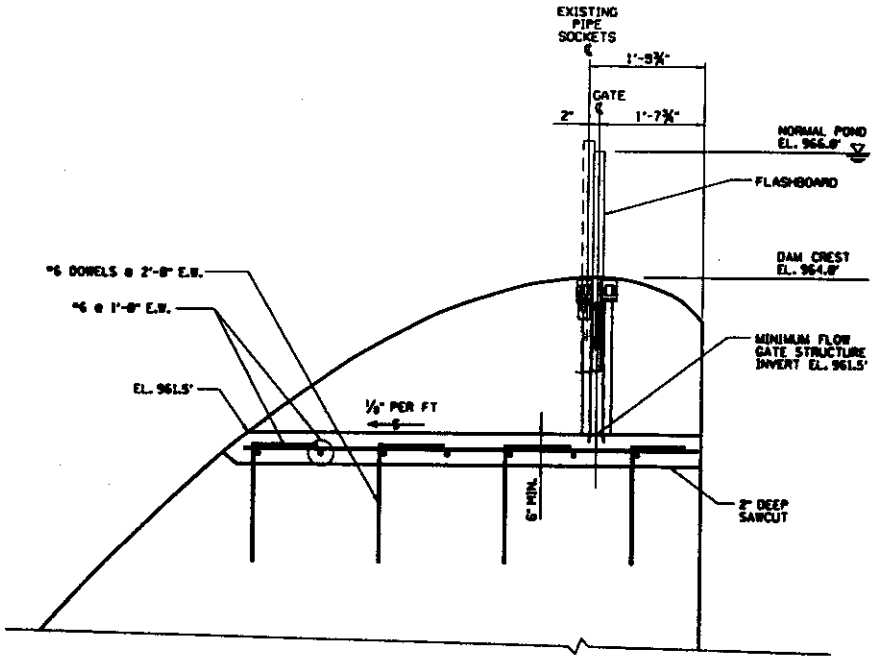
LOCATION MAP
FROM U.S.G.S. QUAD. SHEET
BELFORT, N.Y.
SCALE: 1:40,000'

DRAWING SEQUENCE 1 OF 2

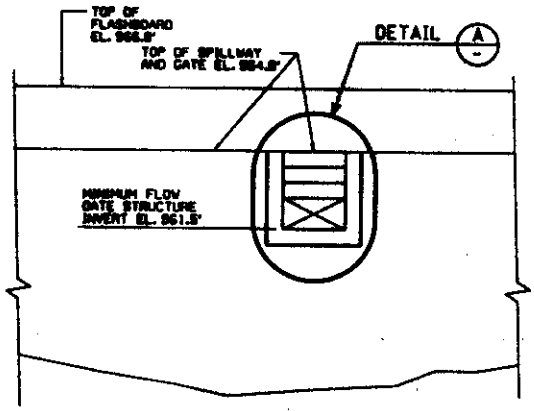
NIAGARA MOHAWK

BELFORT HYDRO DEVELOPMENT
MINIMUM FLOW GATE STRUCTURE
GENERAL PLAN, LOCATION MAP

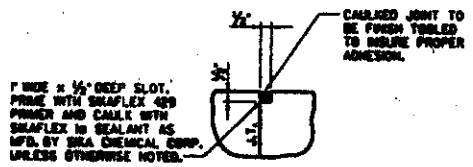
DWG. 2-89-H2
D- 53781-C



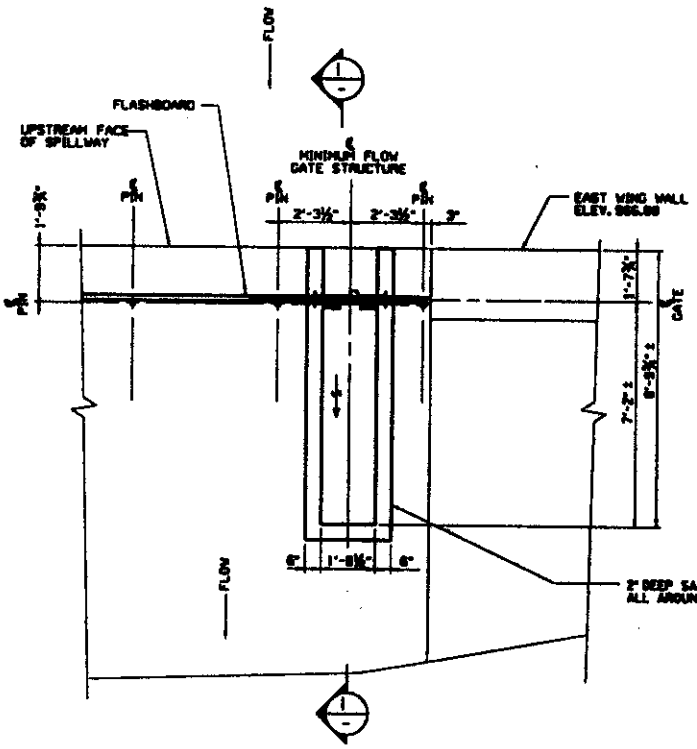
SECTION 1
SCALE: ¾" = 1'-0"



WEST ELEVATION
SCALE: ¾" = 1'-0"



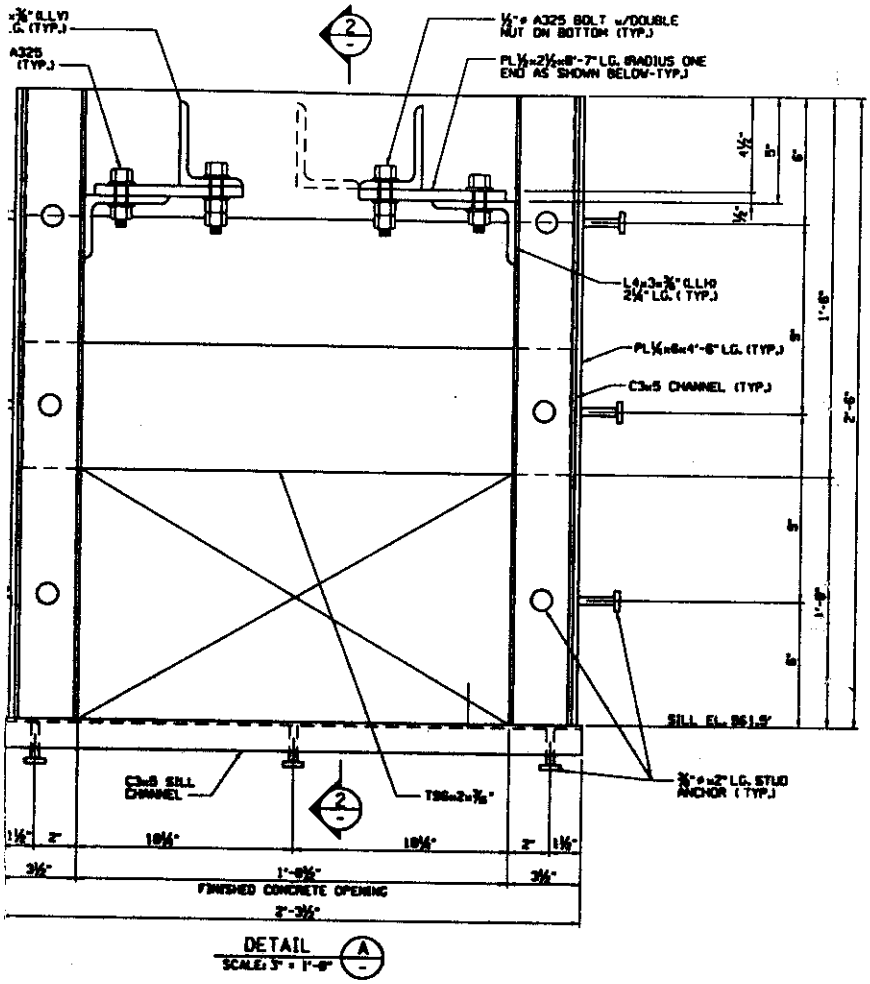
TYPICAL CONSTRUCTION JOINT DETAIL
SCALE: 3" = 1'-0"



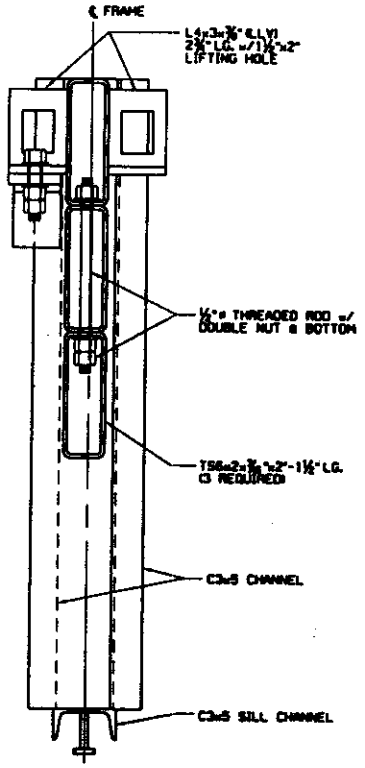
SPILLWAY PLAN
SCALE: ¾" = 1'-0"

NOTE:
REMOVE EXIST. CONCRETE TO DIMENSIONS/ELEVATIONS SHOWN OR AS DIRECTED BY OWNER. ONLY HAND PNEUMATIC AND/OR HAND GAS POWERED EQUIPMENT WILL BE PERMITTED FOR CONCRETE DEMOLITION. USE OF MIKE-RAM IS PROHIBITED. CARE SHALL BE TAKEN TO PREVENT STRESS RELIEF AND PREVENT OVER BREAKAGE OF CONCRETE DURING SPILLWAY DEMOLITION FOR MINIMUM FLOW GATE STRUCTURE.

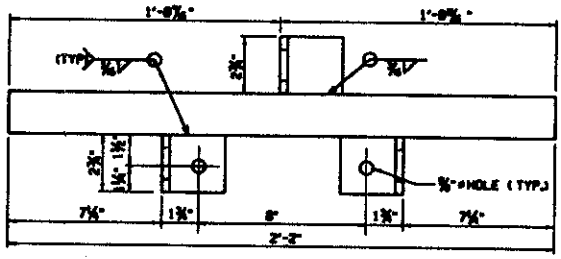
REFERENCE DESCRIPTION	DRAWING NUMBER	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION



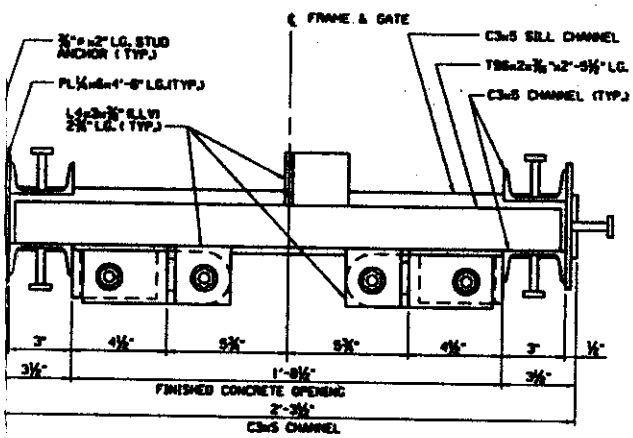
DETAIL
SCALE: 3" = 1'-0"



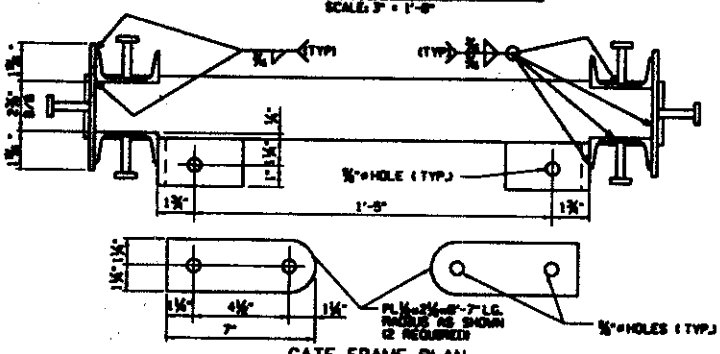
SECTION
SCALE: 3" = 1'-0"



TOP TUBE STEEL STOPLOG PLAN
SCALE: 3" = 1'-0"



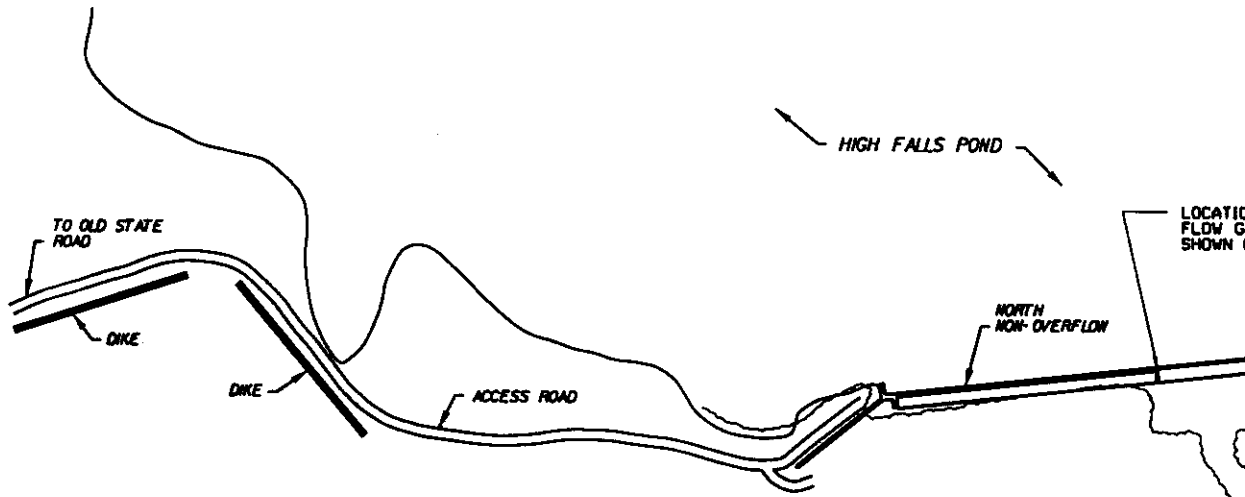
PLAN
SCALE: 3" = 1'-0"



GATE FRAME PLAN
SCALE: 3" = 1'-0"

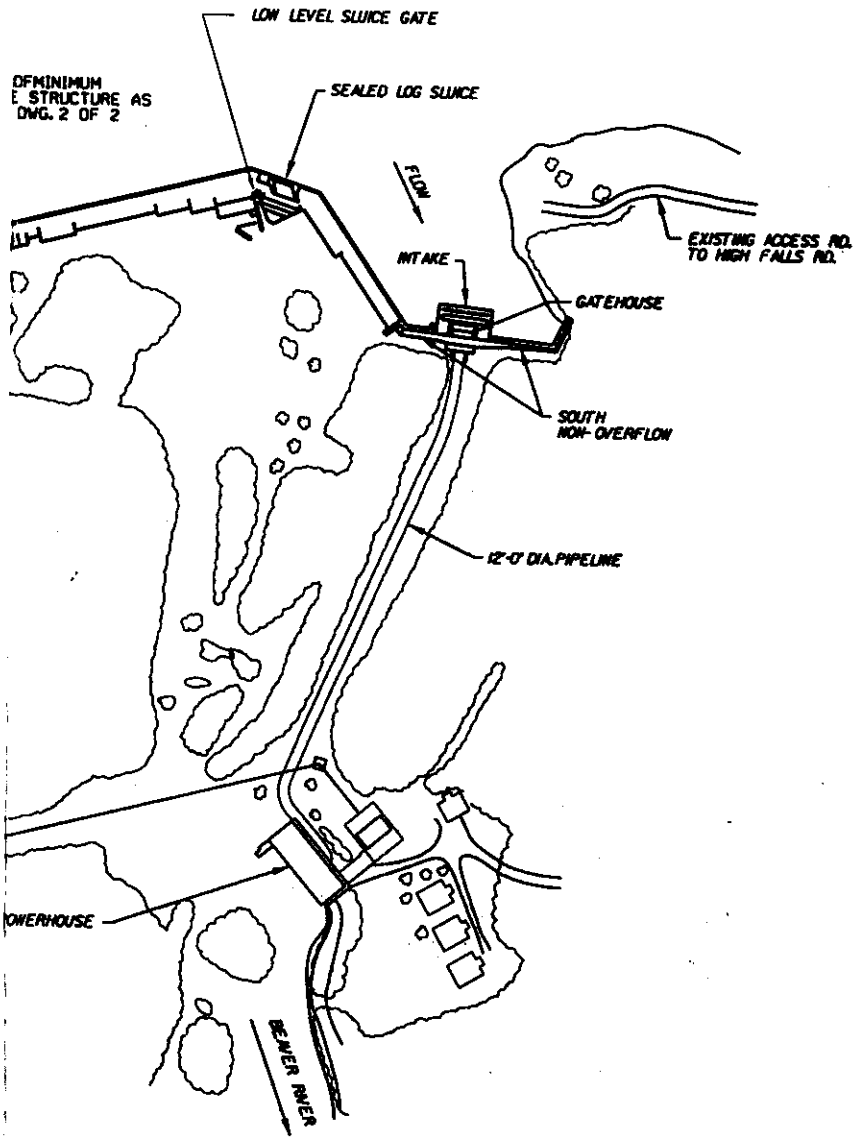
DRAWING SEQUENCE NO. 2 OF 2

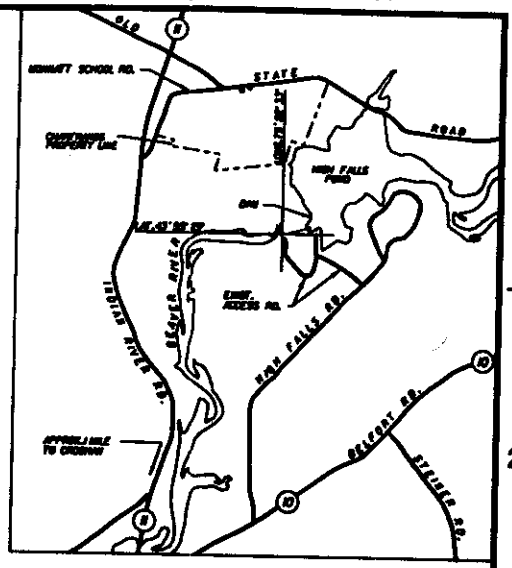
NIAGARA MOHAWK		BELFORT HYDRO DEVELOPMENT	
		MINIMUM FLOW GATE STRUCTURE	2-89-H2
		PLAN, SECTIONS AND DETAILS	D-53782-C



TRANSMISSION LINE

GENERAL PLAN
SCALE: 1" = 100'



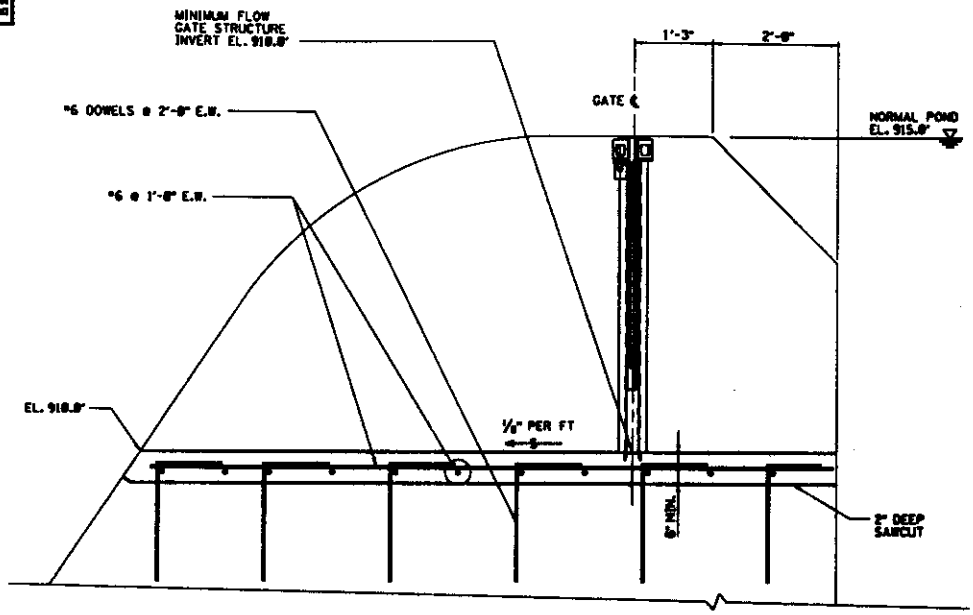


PROJECT LOCATION
SCALE:- 2000'
BELFORT & CROGHAN QUADRANGLE

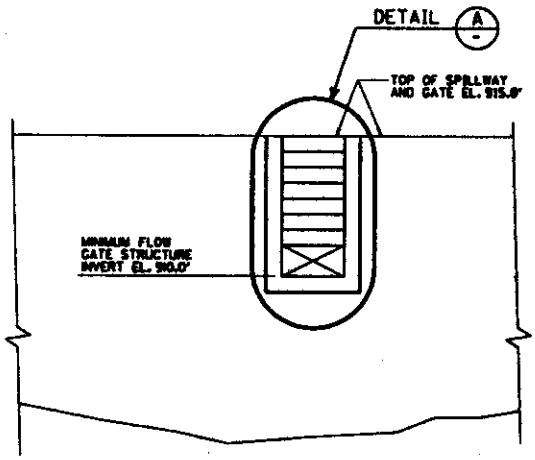
DRAWING SEQUENCE NO. 1 OF 2

NIAGARA MOHAWK	HIGH FALLS HYDRO DEVELOPMENT		
	MINIMUM FLOW GATE STRUCTURE	DWG. 2-H9-H2	
	GENERAL PLAN, LOCATION MAP	D- 53699-C	

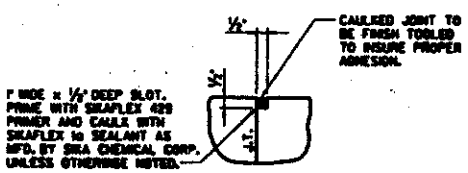
D-53700-C



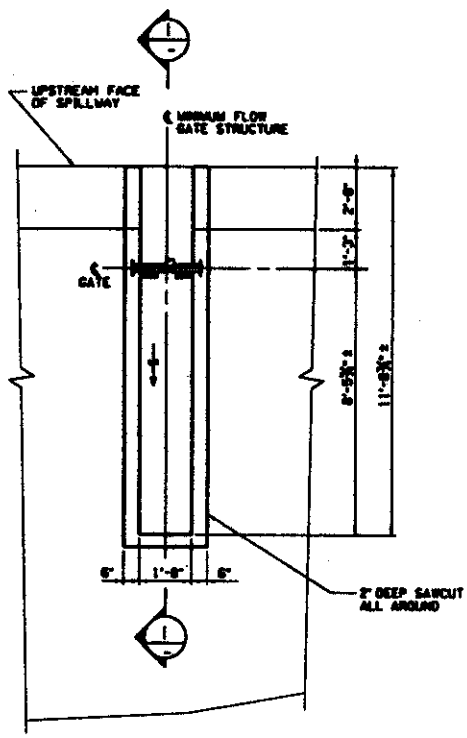
SECTION 1
SCALE: 3/4" = 1'-0"



WEST ELEVATION
SCALE: 3/4" = 1'-0"



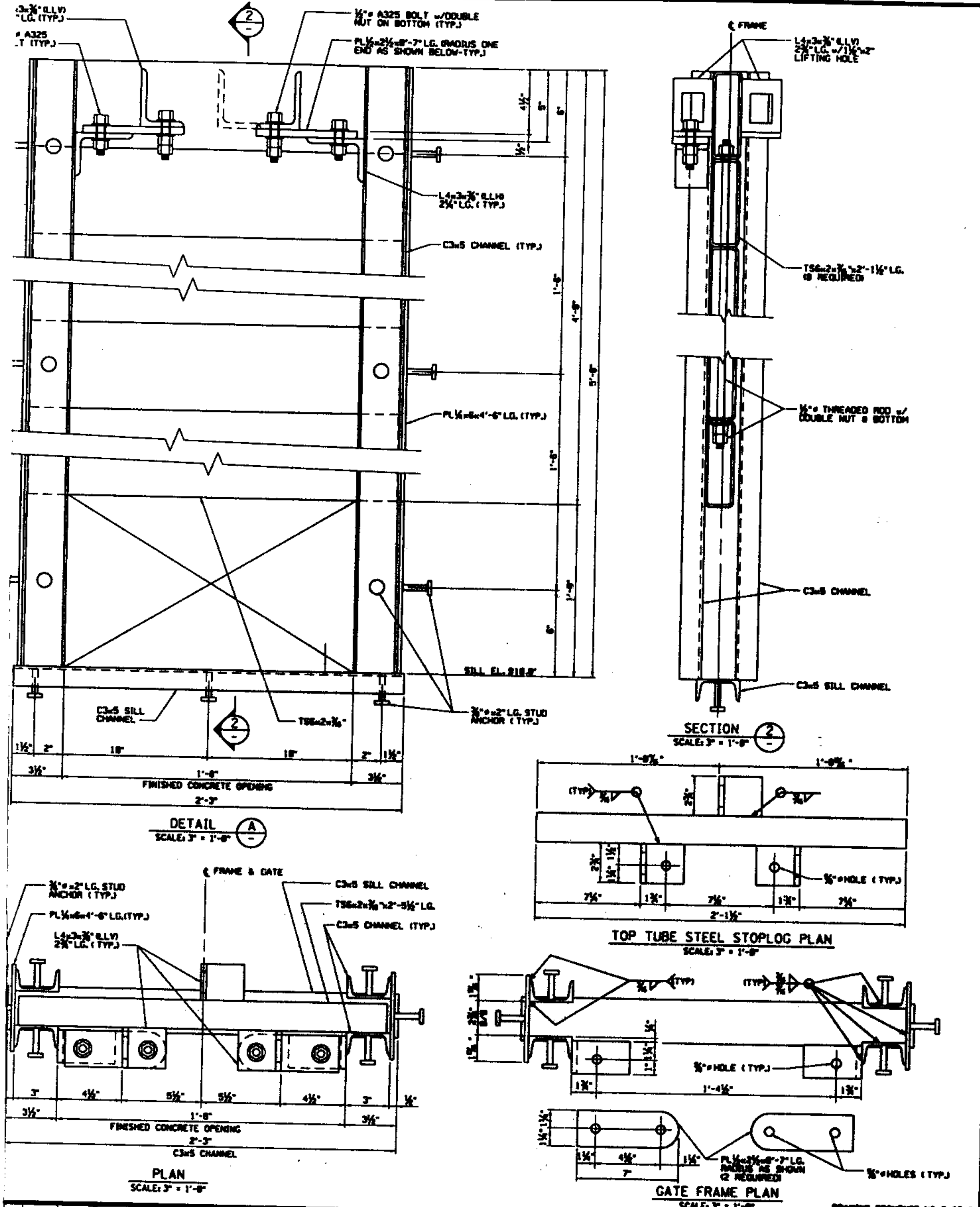
TYPICAL CONSTRUCTION JOINT DETAIL
SCALE: 3" = 1'-0"



SPILLWAY PLAN
SCALE: 3/4" = 1'-0"

NOTE:
REMOVE EXIST. CONCRETE TO DIMENSIONS/ELEVATIONS SHOWN OR AS DIRECTED BY OWNER. ONLY HAND PNEUMATIC AND/OR HAND GAS POWERED EQUIPMENT WILL BE PERMITTED FOR CONCRETE DEMOLITION. USE OF HOE-RAM IS PROHIBITED. CARE SHALL BE TAKEN TO PROVIDE STRESS RELIEF AND PREVENT OVER BREAKAGE OF CONCRETE DURING SPILLWAY DEMOLITION FOR MINIMUM FLOW GATE STRUCTURE.

REFERENCE DESCRIPTION	DRAWING NUMBER	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION



DRAWING SEQUENCE NO. 2 OF 2

NIAGARA MOHAWK

ACCOUNT NUMBER 320.00-43245-570000-0000-0000

HIGH FALLS HYDRO DEVELOPMENT

MINIMUM FLOW GATE STRUCTURE

PLAN, SECTIONS AND DETAILS

2-HS-H2

D-53700-C

LICENSE ARTICLES 401, 405, 407 & 408

MINIMUM FLOW RELEASE STRUCTURES (DRAFT DRAWINGS)

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

February 21, 1997

Mr. Len Ollivett
NYS Dept. of Environmental Conservation
State Office Building
317 Washington Street
Watertown, NY 13601

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Hon. Sama:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above referenced project, issued on August 2, 1996, enclosed are Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license articles:

License Article 401	Moshier Development, new slide gate structure;
License Article 405	Elmer Development, new release structure contained within the existing needle beam structure;
License Article 407	Belfort Development, new gate structure; and
License Article 408*	High Falls Development, existing low level slide gate structure and new gate structure.

* In a January 8, 1997 letter to FERC, Niagara Mohawk requested FERC's concurrence of Niagara Mohawk's understanding of License Articles 408 and 409 requirements dealing with the same physical structure. Consequently, License Article 409 is not specifically addressed herein.

The enclosed draft drawings have been marked up to denote the proposed locations of the minimum flow release structures and to provide some detail of the release structure mechanism.

Following are brief descriptions of the minimum flow release structures at each of the above noted developments and appropriate comments:

LICENSE ARTICLE 401 - MOSHIER DEVELOPMENT

The license requires that the release be made through two points; the existing tap at the pipeline and the new slidegate structure. Per field discussions with resource agencies on July 6 and 7, 1995, Niagara Mohawk is proposing, as an alternate, that the total (45 cfs) minimum flow release will be made through the new slide gate structure (See field meeting summary July 25, 1995).

The existing needle beam structure is being replaced with a new slidegate to provide the minimum flow release. The new slidegate will be 10.0 feet wide and will be raised 0.416 feet from its closed position to provide the nominal 45 cfs minimum flow release. The minimum flow release will vary from 42.3 cfs to 50.0 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1641.0 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

LICENSE ARTICLE 405 - ELMER DEVELOPMENT

The existing needle beam structure will be modified to include the new minimum flow release structure. Four needle beams, having a width of 1.83 feet, will be raised 1.0 feet to provide the nominal 20 cfs minimum flow release. The minimum flow release will vary from 20.25 cfs to 22.39 cfs over the reservoir fluctuation range of 1.0 feet as measured from the normal maximum headwater elevation (spillway crest elevation 1108.0 feet). The nominal 20 cfs minimum flow release could be reduced to 10 cfs (See Settlement Offer pg. 9 and License Article 405).

LICENSE ARTICLE 407 - BELFORT DEVELOPMENT

A new gate structure located on the south side of the spillway will provide the minimum flow release. The gated opening, 1.0 feet high by 1.71 feet wide, will provide the nominal 20 cfs minimum flow release. The minimum flow release will vary from 18.73 cfs to 21.63 cfs over the reservoir fluctuation range of 1.0 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 966.0 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

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The existing low-level slidegate structure located in the middle of the spillway will provide the nominal 10 cfs minimum flow release. The minimum flow release will vary from 9.9 cfs to 10.1 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (spillway crest elevation 915.0 feet).

A new gate structure located at the north side of the spillway will provide the nominal 20 cfs minimum flow release. The minimum flow release will vary from 18.29 cfs to 22.41 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (spillway crest elevation 915.0 feet).

SCHEDULE

License Article/Development	Minimum Flow Release Structure Construction Period
Article 401/Moshier	August 25 through December 15, 1997
Article 405/Elmer	June 9 through December 15, 1997
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After installation of the minimum flow release structures, Niagara Mohawk will assess the need for any fish protection and conveyance measures in accordance with the field meeting summary dated July 25, 1995.

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If you have any questions, please contact me at (315) 428-5556.

Sincerely,

Jacob S. Niziol, P. E.
Dam Safety & Regulatory Compliance Coordinator

Enclosures:

xc: Ms. Sherry Morgan, USFWS, Cortland
Hon. Jeffrey J. Sama, NYSDEC, Albany
Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. S. S. Hirschey

T\TMSL52C.7AC

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

February 21, 1997

Hon. Jeffrey J. Sama
Chief Bureau of Environmental Analysis
NYS Dept. of Environmental Conservation
50 Wolf Road
Albany, NY 12233

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Hon. Sama:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above referenced project, issued on August 2, 1996, enclosed are Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license articles:

License Article 401	Moshier Development, new slide gate structure;
License Article 405	Elmer Development, new release structure contained within the existing needle beam structure;
License Article 407	Belfort Development, new gate structure; and
License Article 408*	High Falls Development, existing low level slide gate structure and new gate structure.

* In a January 8, 1997 letter to FERC, Niagara Mohawk requested FERC's concurrence of Niagara Mohawk's understanding of License Articles 408 and 409 requirements dealing with the same physical structure. Consequently, License Article 409 is not specifically addressed herein.

The enclosed draft drawings have been marked up to denote the proposed locations of the minimum flow release structures and to provide some detail of the release structure mechanism.

Following are brief descriptions of the minimum flow release structures at each of the above noted developments and appropriate comments:

LICENSE ARTICLE 401 - MOSHIER DEVELOPMENT

The license requires that the release be made through two points; the existing tap at the pipeline and the new slidegate structure. Per field discussions with resource agencies on July 6 and 7, 1995, Niagara Mohawk is proposing, as an alternate, that the total (45 cfs) minimum flow release will be made through the new slide gate structure (See field meeting summary July 25, 1995).

The existing needle beam structure is being replaced with a new slidegate to provide the minimum flow release. The new slidegate will be 10.0 feet wide and will be raised 0.416 feet from its closed position to provide the nominal 45 cfs minimum flow release. The minimum flow release will vary from 42.3 cfs to 50.0 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1641.0 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

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Dam Safety & Regulatory Compliance Coordinator

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Mr. S. S. Hirschey

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

February 21, 1997

Ms. Sherry Morgan
Field Supervisor
U. S. Fish & Wildlife Service
3817 Luker Road
Cortland, New York 13045

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

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Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. S. S. Hirschey

ATTACHMENT 1

DISCHARGE CURVES AND TABLES FOR MINIMUM FLOW RELEASE STRUCTURES

MOSHIER HYDRO DEVELOPMENT
MINIMUM FLOW GATE

Discharge Area (A)	4.16 ft^2	(See Note 2)
Minimum Flow	45 cfs	
Gravity (g)	32.2 ft/sec^2	
Top of Flashboards	1641.0 ft	
Dam Crest Elevation	1639.0 ft	
Needle Beam Crest	1635.0 ft	
Maximum draw down below top of flashboards	1.5 ft	
Centerline of Gate Opening Elevation	1635.5 ft	

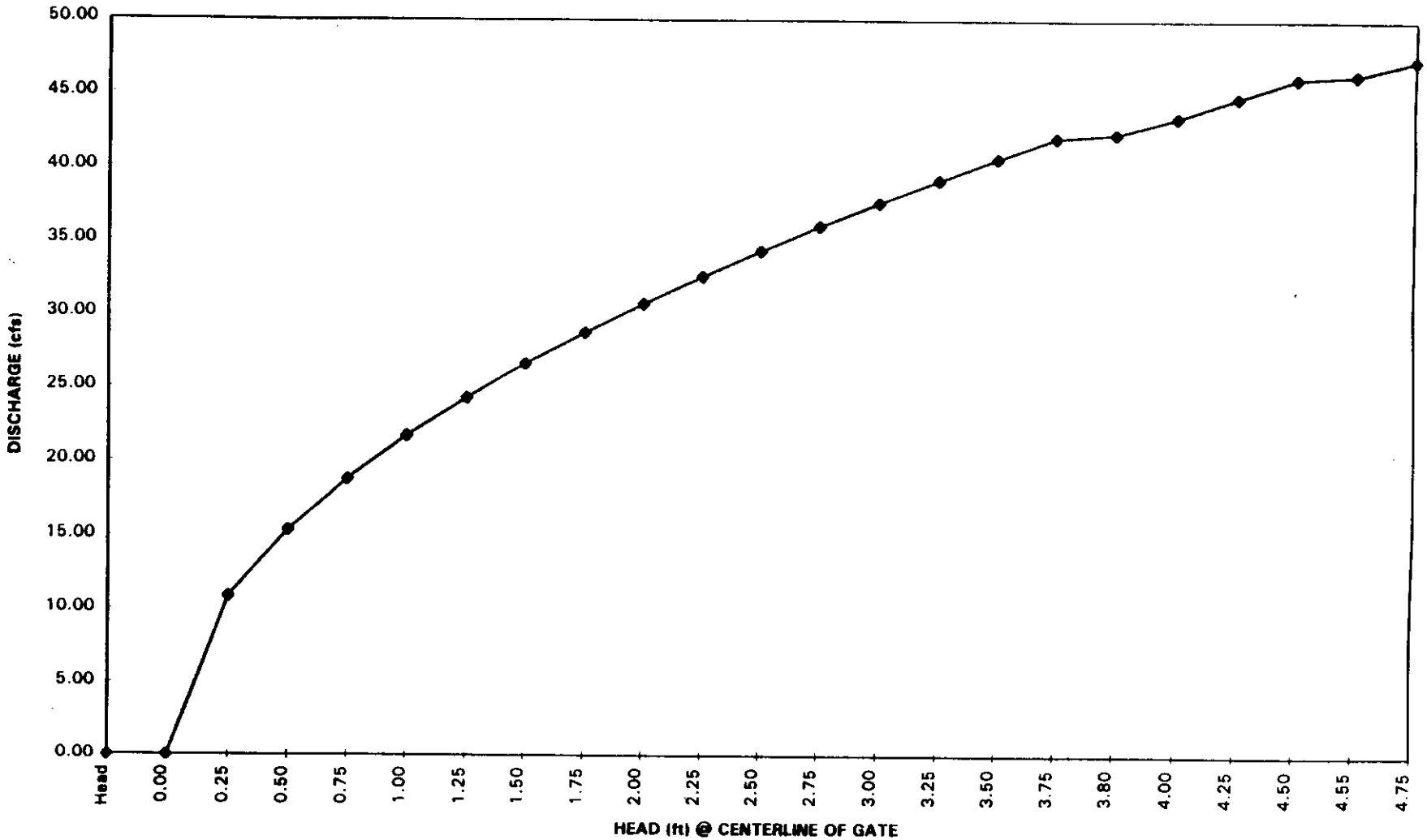
Head	Discharge	
0.00	0.0	
0.25	10.9	
0.50	15.4	
0.75	18.8	
1.00	21.7	
1.25	24.3	
1.50	26.6	
1.75	28.7	
2.00	30.7	
2.25	32.6	
2.50	34.3	
2.75	36.0	
3.00	37.6	
3.25	39.2	
3.50	40.6	
3.75	42.1	
3.80	42.3	Discharge @El. 1639.5 (1.5' below top of flashboards)
4.00	43.4	
4.25	44.8	
4.50	46.1	
4.55	46.3	Nominal Discharge
4.75	47.3	
5.00	48.6	
5.25	49.8	
5.30	50.0	Discharge @El. 1641.0 (top of flashboards)

Notes:

1) As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation. Pond elevation versus time curve will verify the level of compliance meeting the nominal discharge over time.

2) Discharge through 10'-0" wide gate at 0.416' open.

MOSHIER HYDRO DEVELOPMENT
MINIMUM FLOW GATE



ELMER HYDRO DEVELOPMENT
MINIMUM FLOW RELEASE

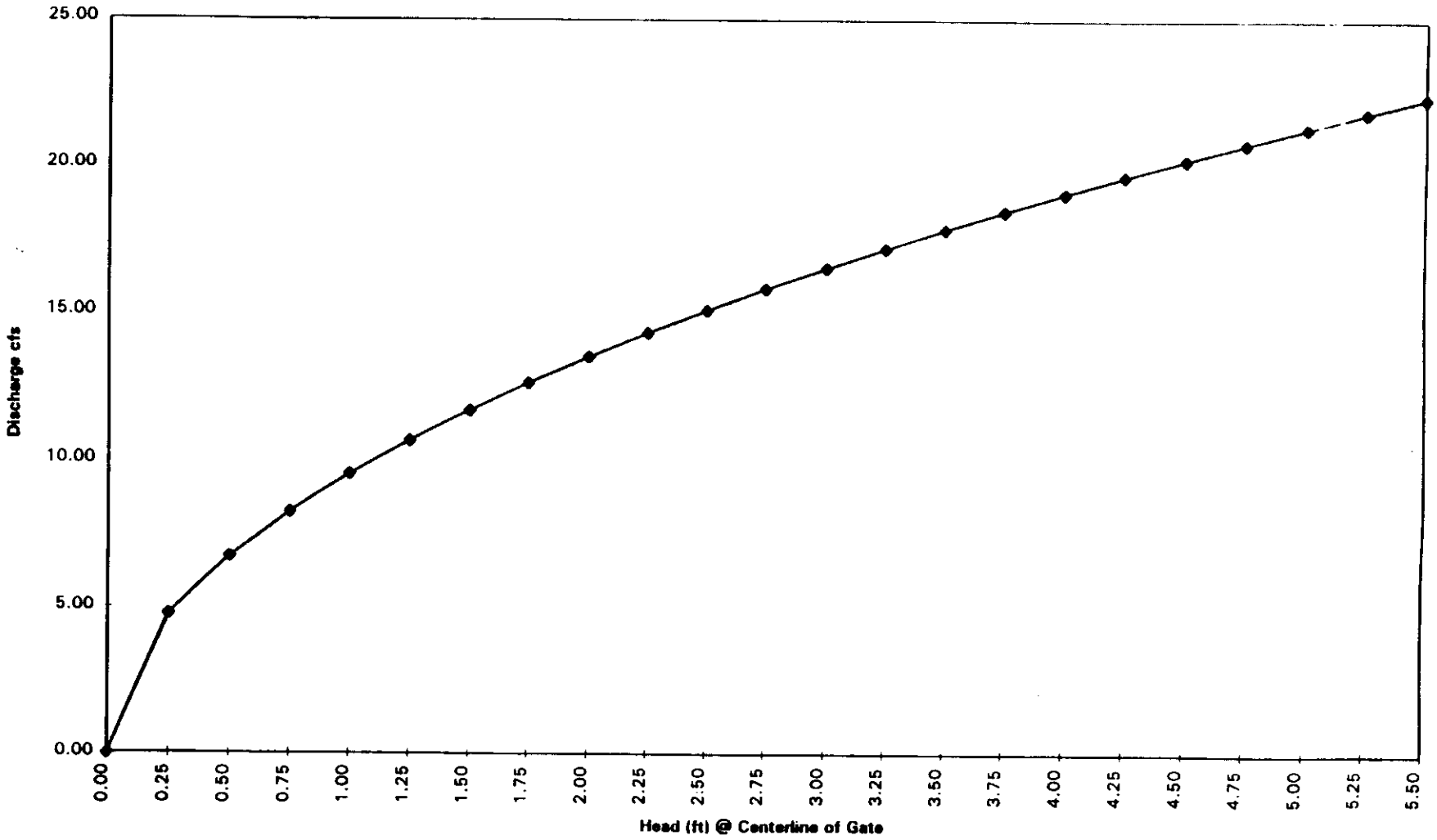
Discharge area (A)	1.83 ft^2	(4 - 6"x 6" timbers raised 1'-0", 1'-10" wide by 1'-0" high)
Gravity (g)	32.2 ft/sec^2	
Minimum Flow	20 cfs	(See Note 1)
Dam Crest Elevation	1108.0 ft	
Needle Beam Crest	1102.0 ft	
Maximum draw down below crest	1 ft	
Centerline of Opening Elevation	1103.0 ft	

Head	Discharge	
0.00	0.00	
0.25	4.77	
0.50	6.75	
0.75	8.27	
1.00	9.55	
1.25	10.67	
1.50	11.69	
1.75	12.63	
2.00	13.50	
2.25	14.32	
2.50	15.09	
2.75	15.83	
3.00	16.53	
3.25	17.21	
3.50	17.86	
3.75	18.49	
4.00	19.09	
4.25	19.68	
4.50	20.25	Discharge @ El. 1107' (1'-0" below crest)
4.75	20.80	
5.00	21.34	Nominal Discharge
5.25	21.87	
5.50	22.39	Discharge @ El. 1108' (dam crest)

Notes:

1) Minimum flow could be reduced to 10 cfs.

ELMER HYDRO DEVELOPMENT
MINIMUM FLOW RELEASE



BELFORT HYDRO DEVELOPMENT
MINIMUM FLOW GATE

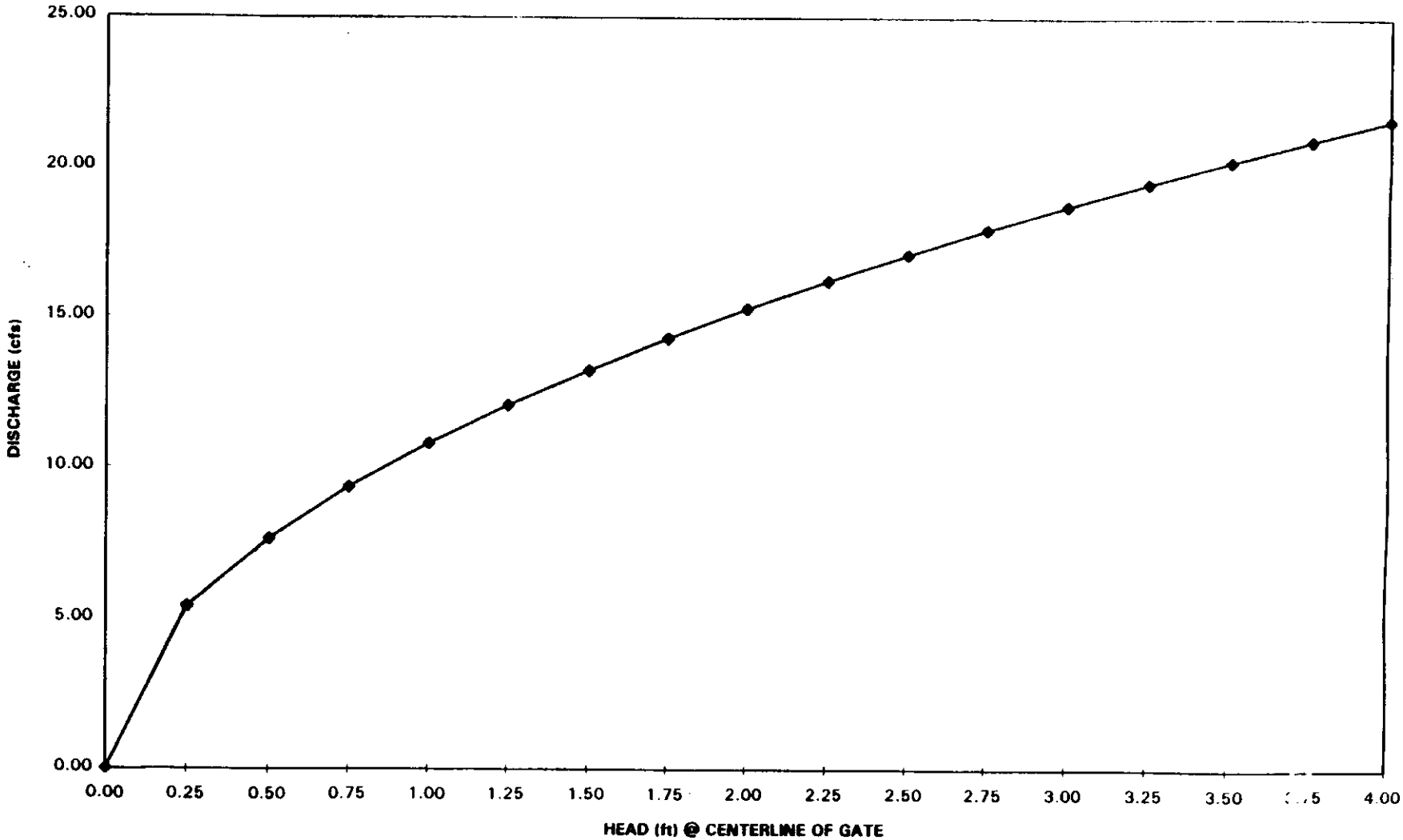
Discharge area (A)	1.71 ft^2	1.0' high by 1.71' wide
Gravity (g)	32.2 ft/sec^2	
Top of Flashboards	966.0 ft	
Dam Crest Elevation	964.0 ft	
Centerline of Gate Opening Elevation	962.0 ft	
Invert Elevation of Gate Opening	961.5 ft	
Maximum draw down below top of flashboard	1.0 ft	

Head (ft)	Discharge (cfs)	
0.00	0.00	
0.25	5.41	
0.50	7.65	
0.75	9.37	
1.00	10.81	
1.25	12.09	
1.50	13.25	
1.75	14.31	
2.00	15.29	
2.25	16.22	
2.50	17.10	
2.75	17.93	
3.00	18.73	Discharge @ EL. 965.0' (1'-0" below top of flashboards)
3.25	19.50	
3.50	20.23	Nominal Discharge 20 cfs
3.75	20.94	
4.00	21.63	Discharge @ EL. 966.0' (top of flashboards)

Notes:

1) As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation. Pond elevation versus time curve will verify the level of compliance meeting the nominal discharge over time.

BELFORT HYDRO DEVELOPMENT
MINIMUM FLOW GATE

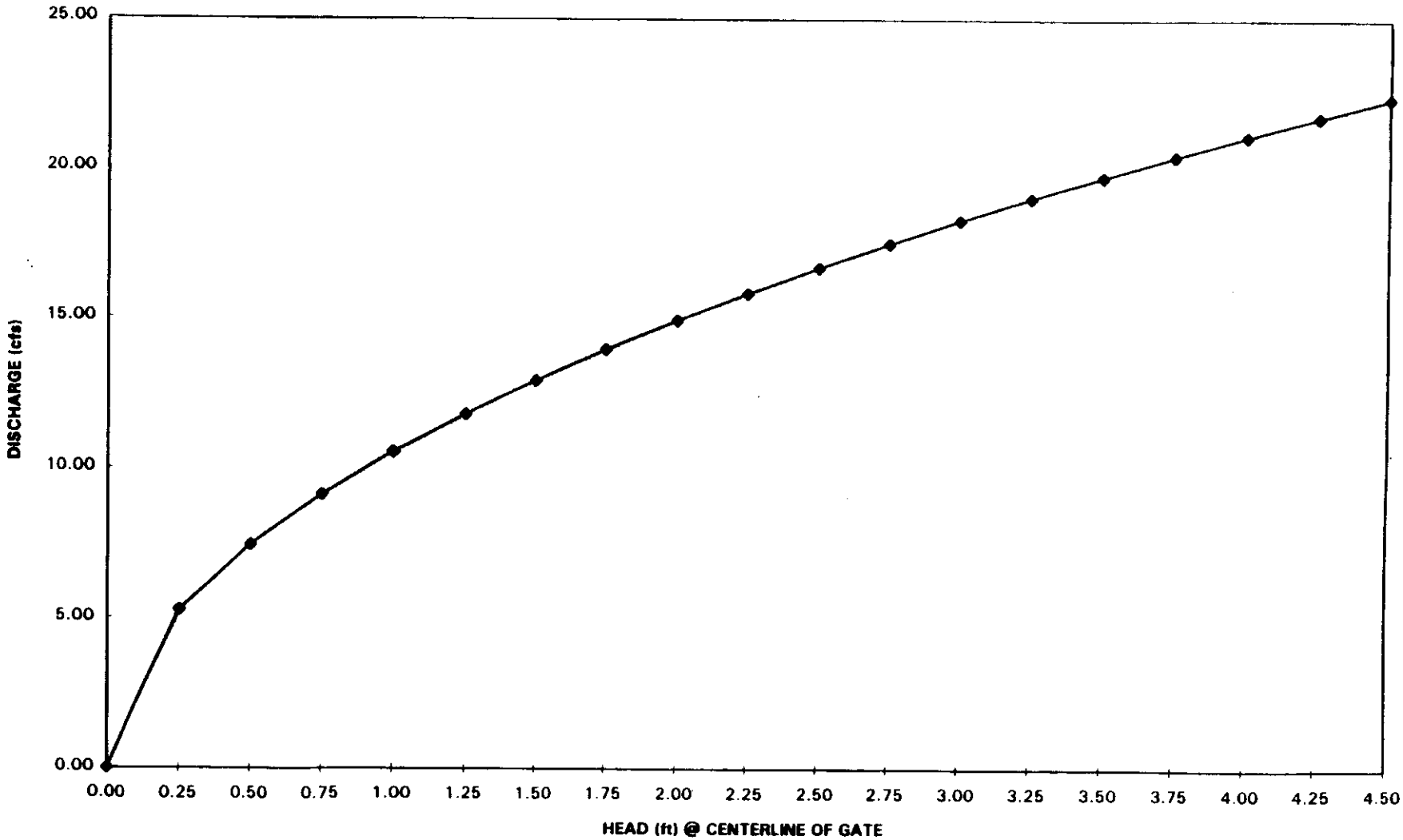


HIGH FALLS HYDRO DEVELOPMENT
20 CFS MINIMUM FLOW GATE

Discharge area (A)	1.67 ft^2	1.0' high by 1.67' wide
Gravity (g)	32.2 ft/sec^2	
Dam Crest Elevation	915.0 ft	
Centerline of Gate Opening Elevation	910.5 ft	
Invert Elevation of Gate Opening	910.0 ft	
Maximum draw down below crest	1.5 ft	

Head	Discharge	
0.00	0.00	
0.25	5.28	
0.50	7.47	
0.75	9.15	
1.00	10.56	
1.25	11.81	
1.50	12.94	
1.75	13.97	
2.00	14.94	
2.25	15.84	
2.50	16.70	
2.75	17.52	
3.00	18.29	Discharge @ EL. 913.5' (1.5' below crest)
3.25	19.04	
3.50	19.76	
3.75	20.45	Nominal Discharge
4.00	21.12	
4.25	21.77	
4.50	22.41	Discharge @ EL. 915.0' (dam crest)

HIGH FALLS HYDRO DEVELOPMENT
20 CFS MINIMUM FLOW GATE

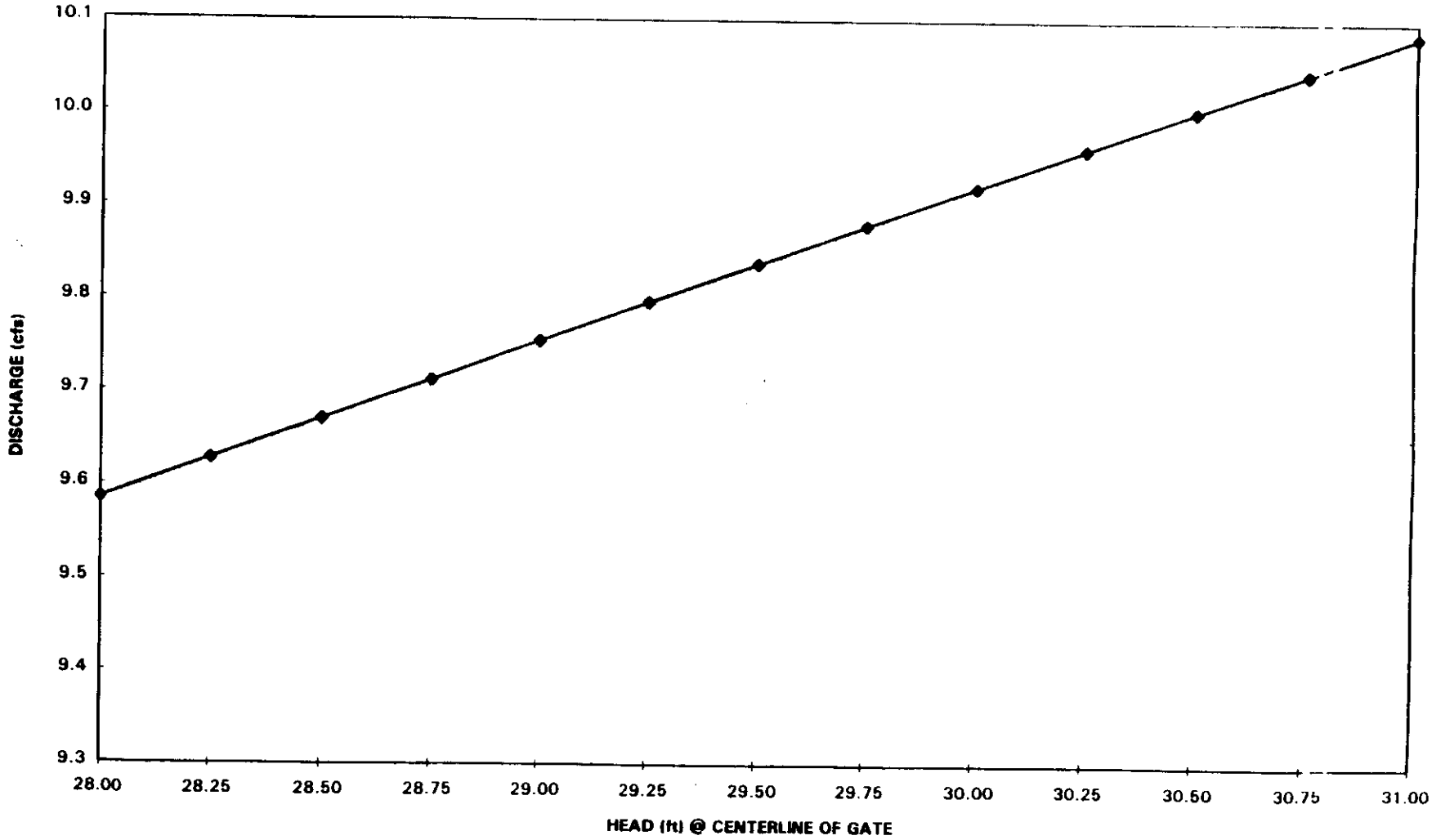


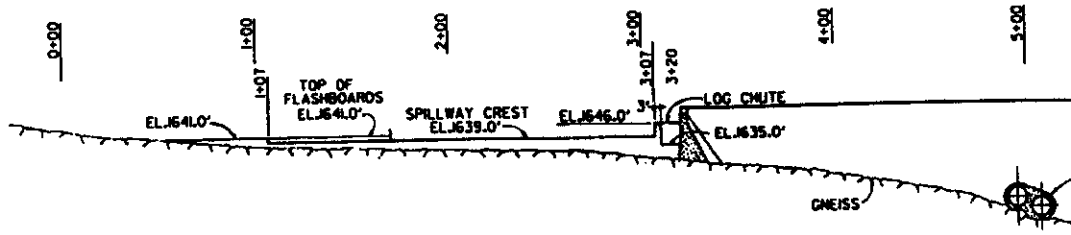
HIGH FALLS HYDRO DEVELOPMENT
10 CFS MINIMUM FLOW GATE

Discharge Area (A)	0.35 ft^2	6.67 ft wide by 0.05 ft high
Gate Width	6.67 ft	
Minimum Flow	10 cfs	
Gravity (g)	32.2 ft/sec^2	
Dam Crest Elevation	915.0 ft	
Gate Sill Elevation	884.0 ft	
Centerline of Gate Opening Elevation		
Maximum draw down below crest	1 ft	

Head	Discharge	
28.00	9.6	
28.25	9.6	
28.50	9.7	
28.75	9.7	
29.00	9.8	
29.25	9.8	
29.50	9.8	
29.75	9.9	
30.00	9.9	Discharge @El. 913.5 (1.5' below top of flashboards)
30.25	10.0	
30.50	10.0	Nominal Discharge
30.75	10.0	
31.00	10.1	Discharge @El. 915.0 (dam crest)

HIGH FALLS HYDRO DEVELOPMENT
10 CFS MINIMUM FLOW GATE





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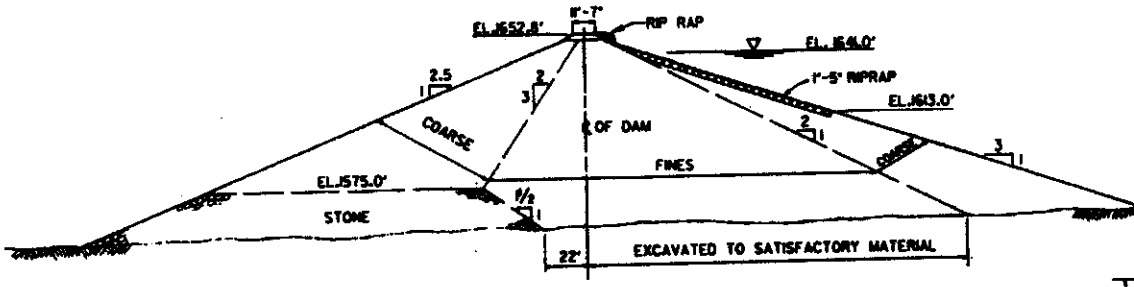
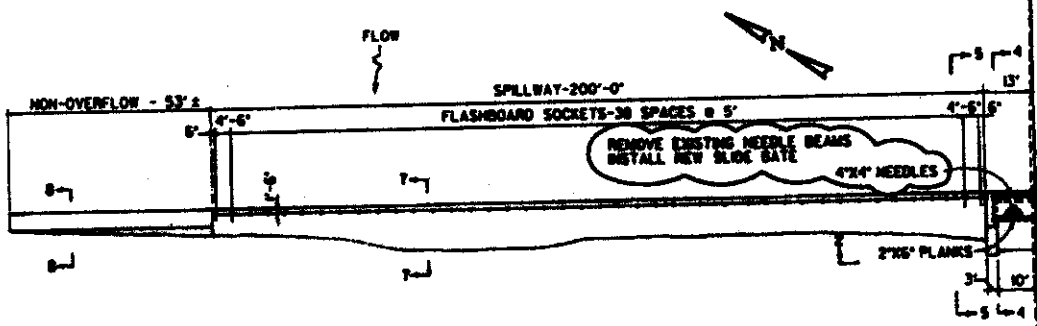
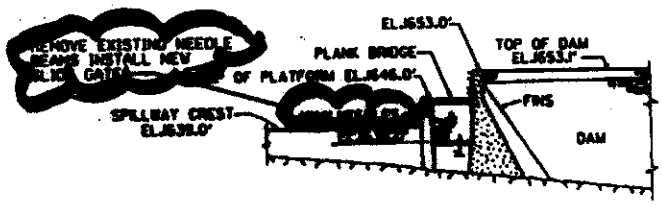


SECTION 1-1
SCALE: 1" = 40'

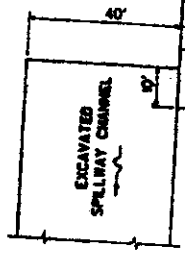


PLAN
SPILLWAY & NON-OVERFLOW SECTION

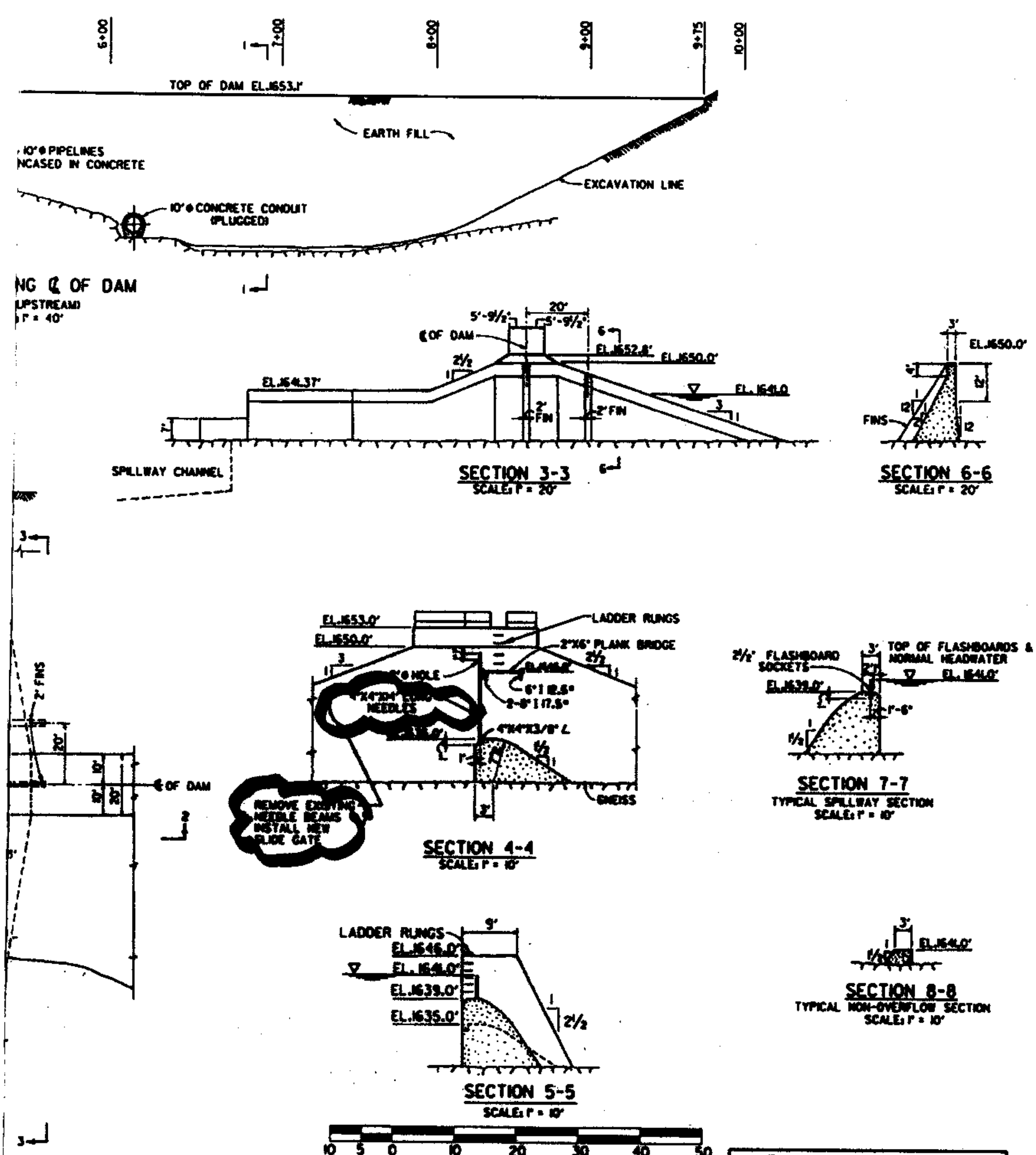
SCALE: 1" = 20'
20 10 0 20 40 60 80 100



SECTION 2-2
SCALE: 1" = 20'



NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION



THIS IS A CADD DRAWING.
DO NOT MAKE MANUAL CHANGES.

NIAGARA MOHAWK
BEAVER RIVER PROJECT
MOSHIER DEVELOPMENT
DAM AND SPILLWAY
PLAN, ELEVATION AND SECTIONS

EXHIBIT F — SCALE: 1" = 40' — SHEET NO. 3

40 0 40 80 120 160 200

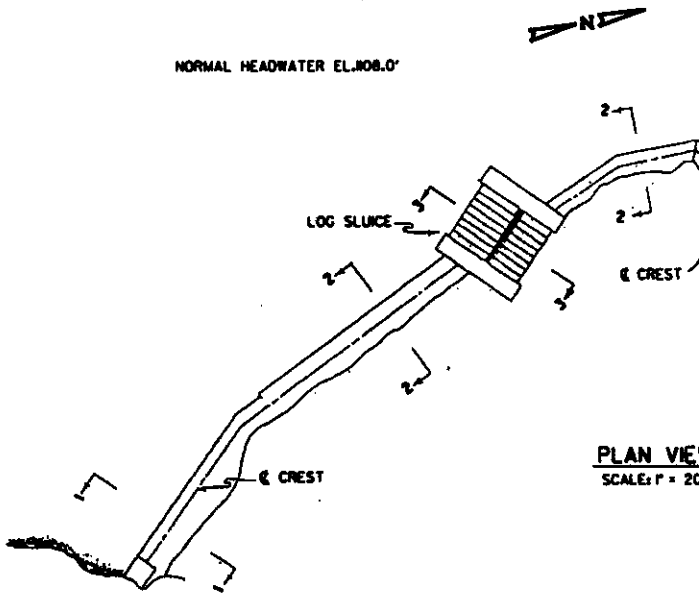
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
3	1/13/93	LIC. APP. ACCEPTED FOR FILING	—	DSM	—
2	10/28/91	LICENSE APPLICATION	PRW	GEC	JLS
1	6/12/90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

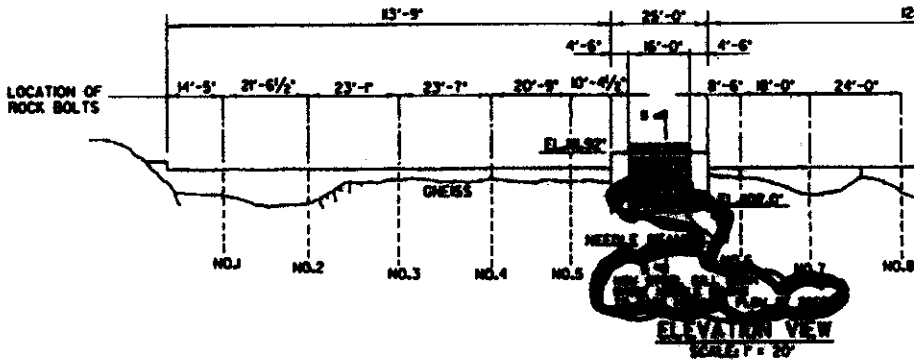
FILE INDEX: 103-F1-M6-3.8, 3.13

DRAWING NUMBER: F32645.DGN F32645.CP4

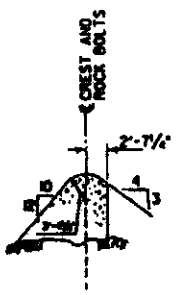
FERC NO. 2645-029-3



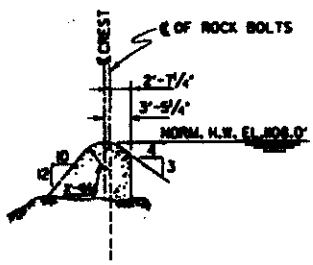
PLAN VIE
SCALE: 1" = 20



ELEVATION VIEW
SCALE: 1" = 20'



SECTION 1-1
SCALE: 1" = 10'



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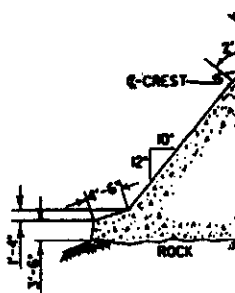
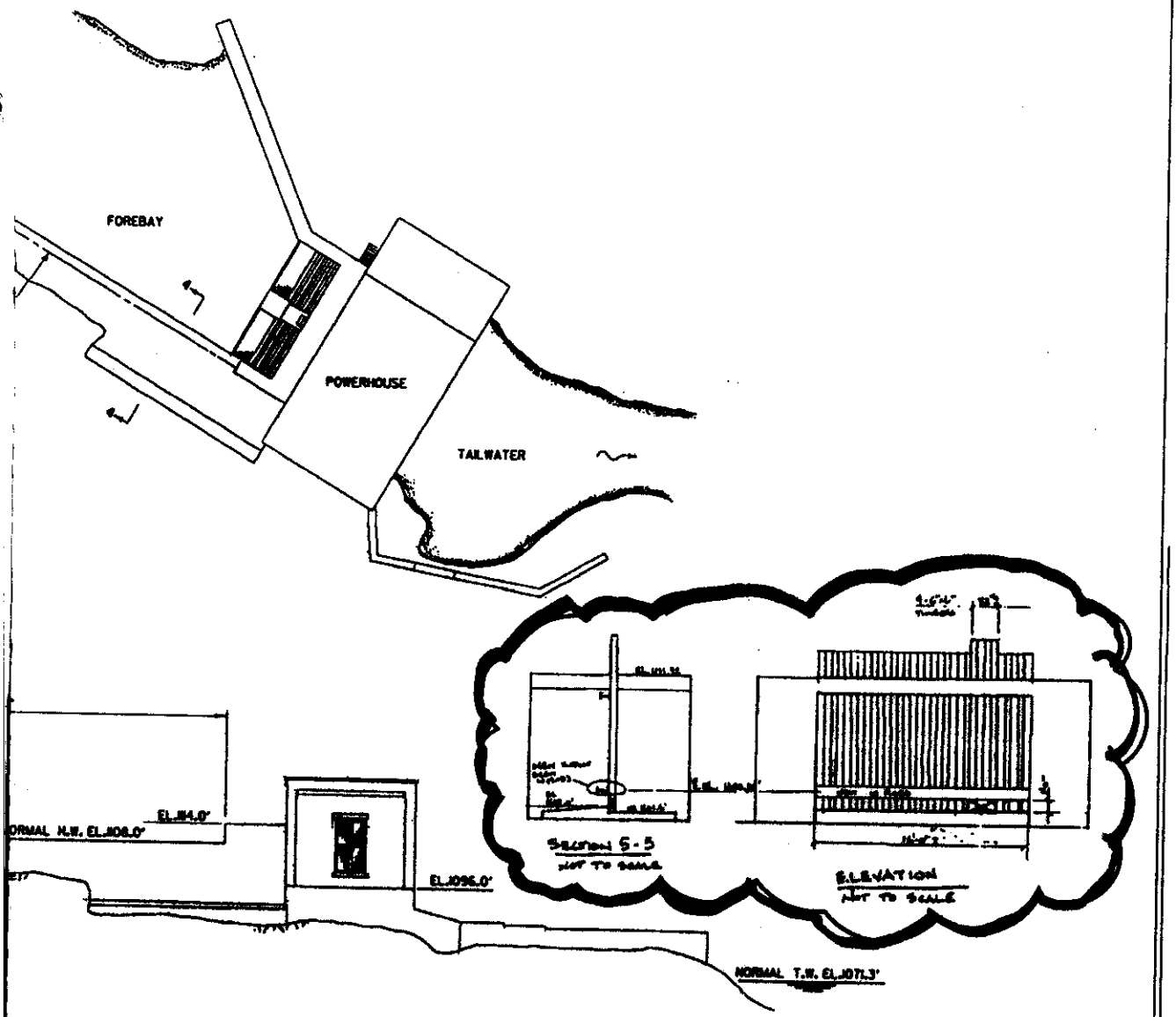
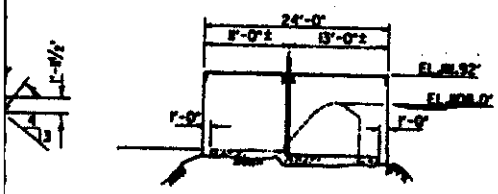


SECTION 4-
SCALE: 1" = 10'

SCALE: 1" = 10'
10 5 0 10 20 30 40 50

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION





SECTION 3-3
SCALE: 1" = 10'

THIS IS A CADD DRAWING.
DO NOT MAKE MANUAL CHANGES.

NIAGARA MOHAWK

BEAVER RIVER PROJECT

ELMER DEVELOPMENT

GENERAL PLAN AND SECTIONS OF DAM AND SLUICE

EXHIBIT F

SCALE: 1" = 20'

SHEET NO. 15

20 10 0 20 40 60 80 100

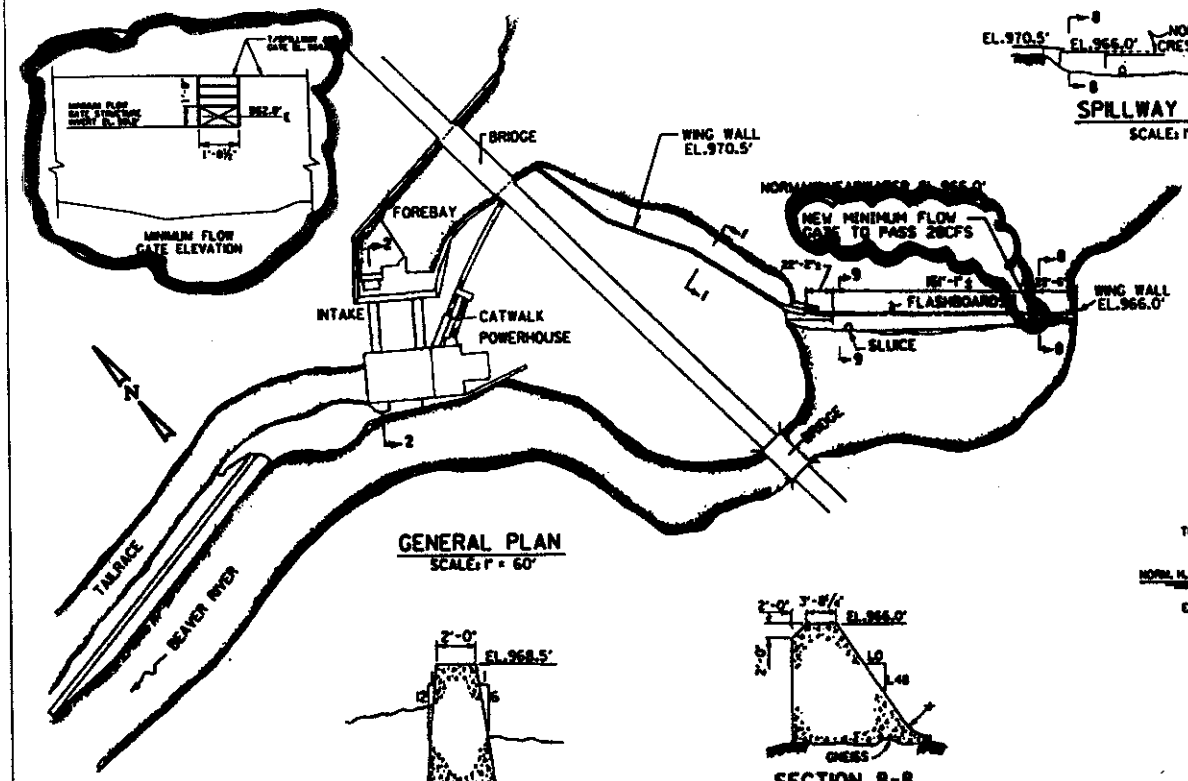
CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
		3	1/13/93	LIC. APP. ACCEPTED FOR FILING	—	DMM	—
		2	12/28/92	LICENSE APPLICATION	GBF	GEC	J.S
		1	8/12/92	DRAFT LICENSE APPLICATION	JPC	GEC	J.S

ORIGINAL ISSUE DATE

FILE INDEX 103-FI-M6-3.II, 3.13

DRAWING NUMBER FIS2645.DGN FIS2645.GP4

FERC NO. 2645-029-15

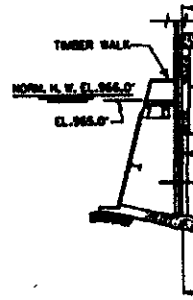


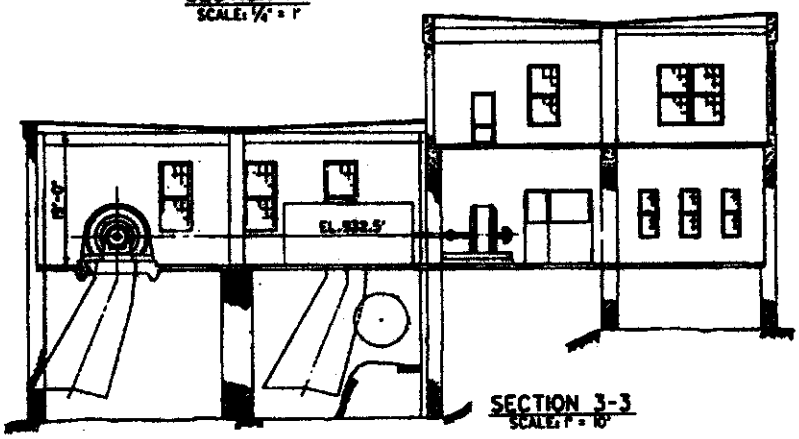
GENERAL PLAN
SCALE: 1" = 60'

SPILLWAY ELEVATION
SCALE: 1" = 60'

SECTION 1-1
SCALE: 1/4" = 1'

SECTION 8-8
SCALE: 1" = 10'





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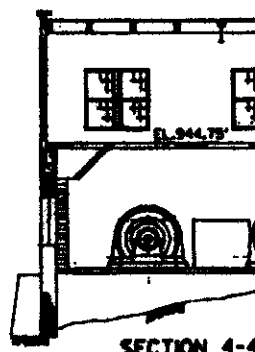

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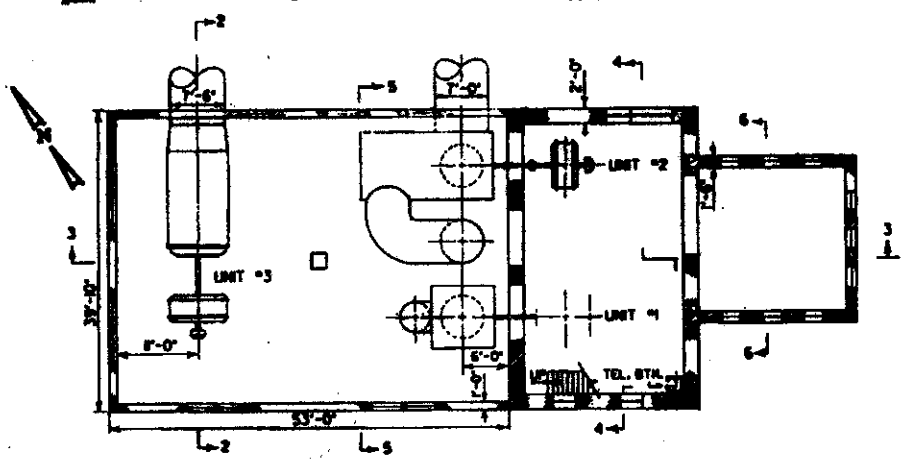
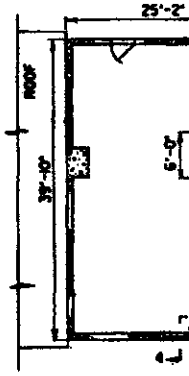
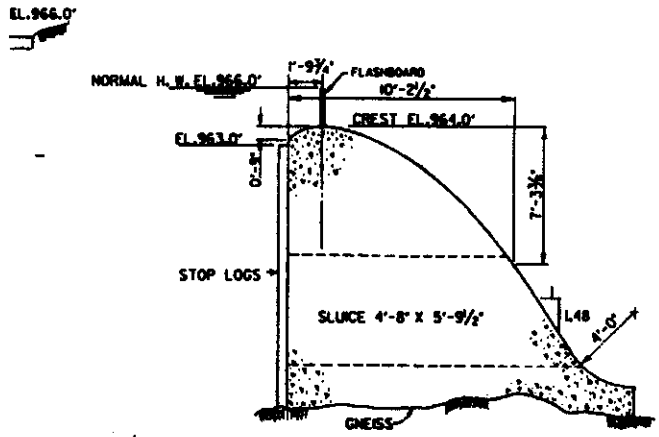


GENERATOR FLOOR PLAN
EL.928.5' SCALE: 1" = 10'



SECOND F
SCALE

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION



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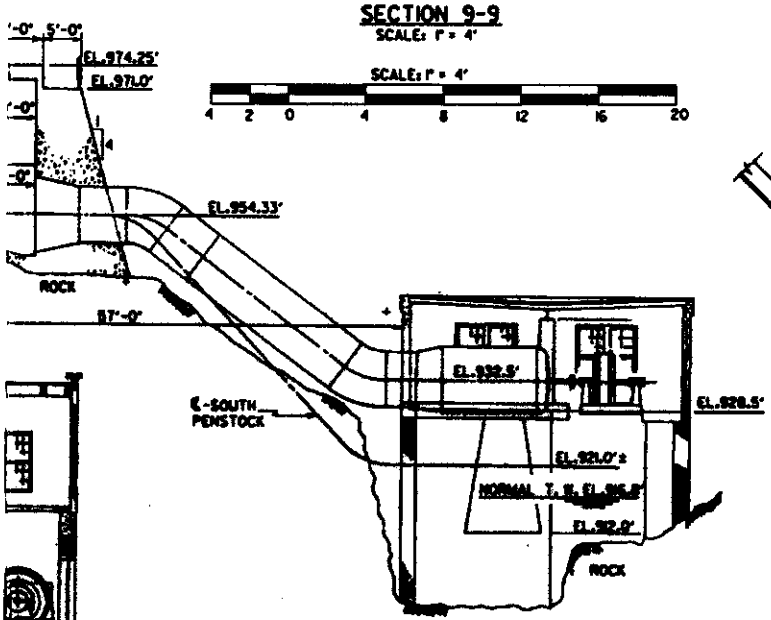

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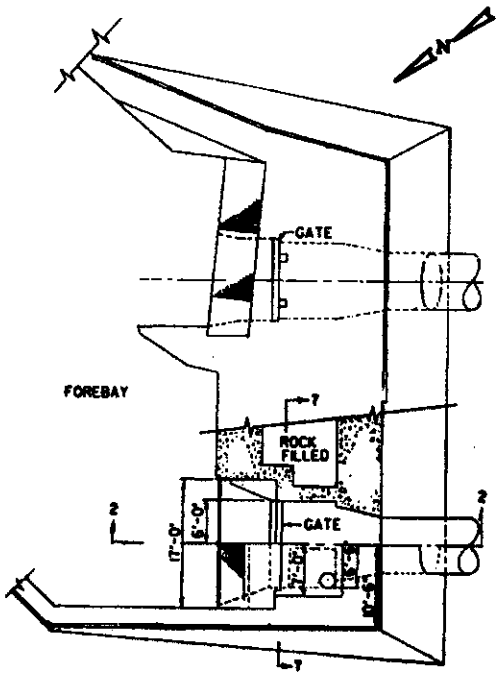
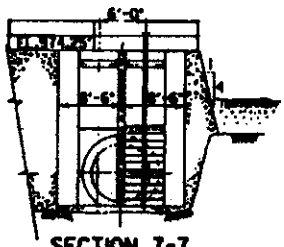
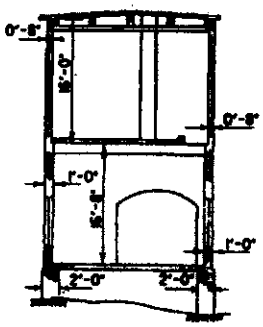


INTAKE PLAN
SCALE: 1" = 10'



SECTION 7-7
SCALE: 1" = 10'



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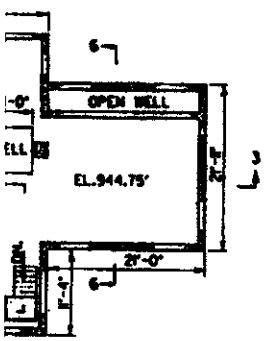
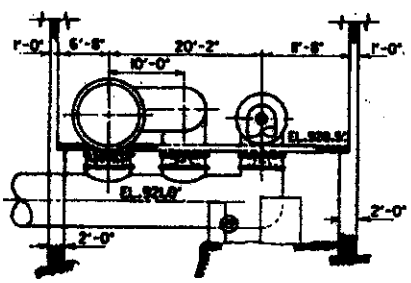


OR PLAN
= 10'

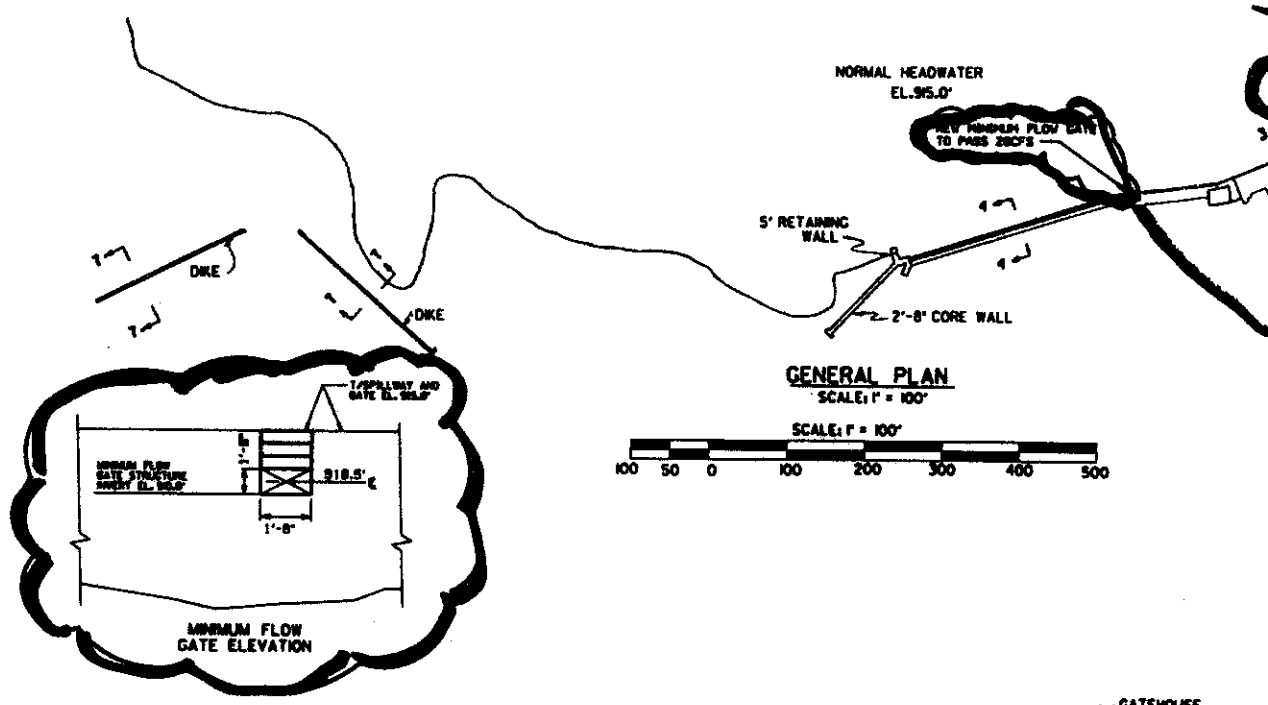


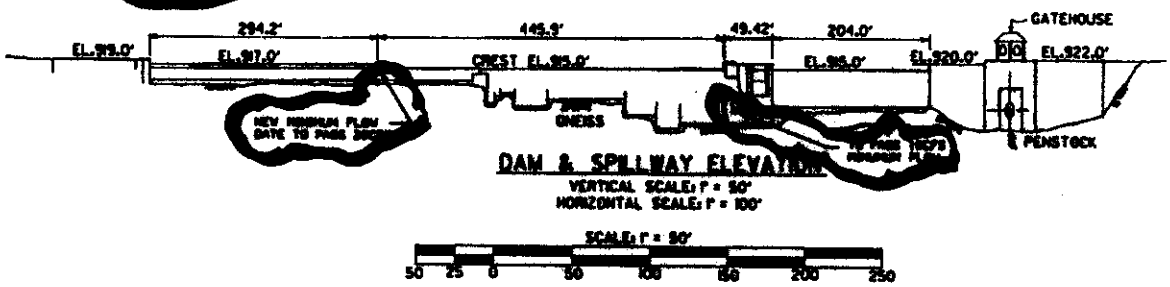
SECTION 5-5
SCALE: 1" = 10'

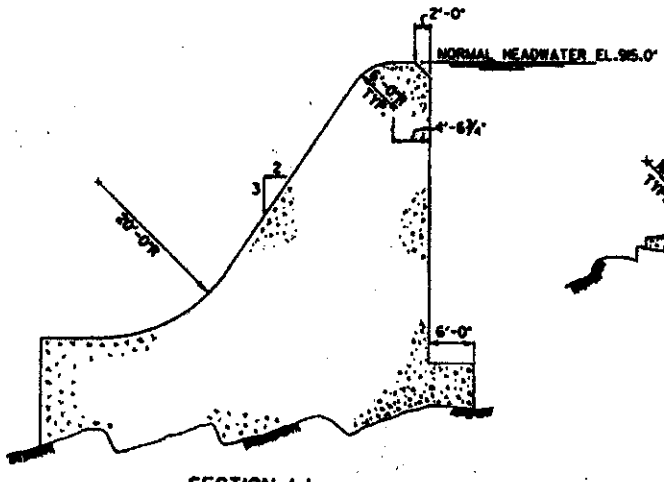
NIAGARA MOHAWK
BEAVER RIVER PROJECT
BELFORT DEVELOPMENT (EXISTING)
GENERAL PLAN AND DETAILS
DAM, INTAKE AND POWERHOUSE
EXHIBIT F
SCALE: 1" = 60'
SHEET NO. 20

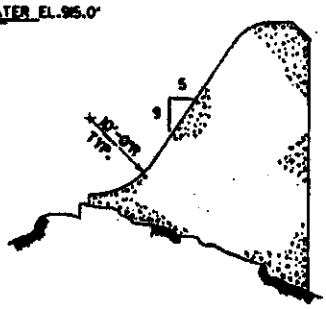
CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
		2		LICENSE APPLICATION	BW		
		1	6/82/B	DRAFT LICENSE APPLICATION	JFC	GEC	S.S

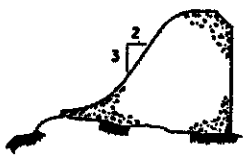
ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER



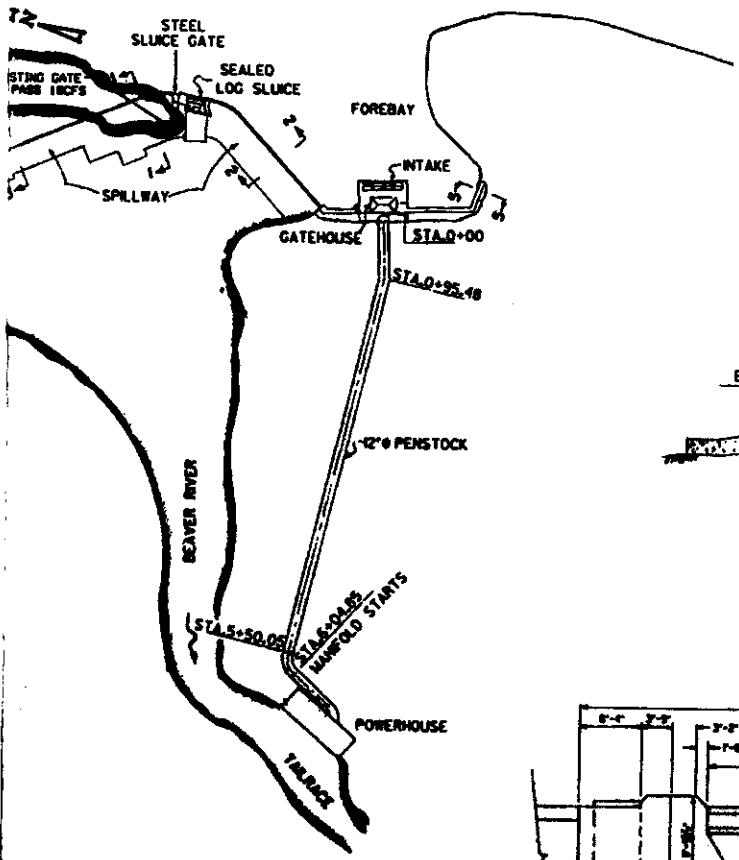


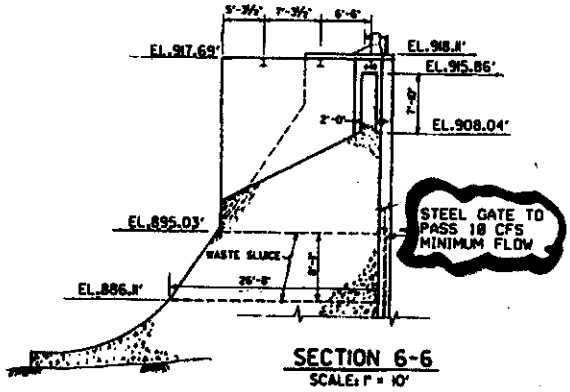






NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION





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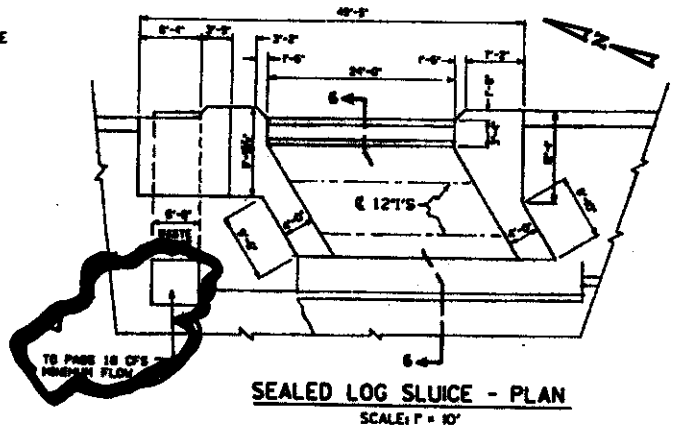
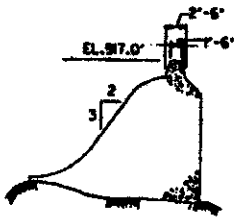


SEALED LOG SLUICE - PLAN
SCALE: 1" = 10'



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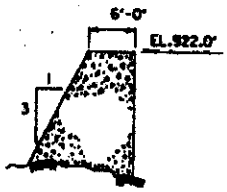

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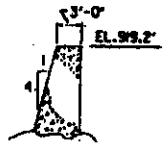


SECTION 7-7
SCALE: 1" = 10'

THIS IS A CADD DRAWING. DO NOT MAKE MANUAL CHANGES.

NIAGARA MOHAWK
BEAVER RIVER PROJECT

HIGH FALLS DEVELOPMENT

GENERAL PLAN - DAM AND SECTIONS

EXHIBIT F — SCALE: 1" = 10' — SHEET NO. 22

10 5 0 10 20 30 40 50

CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
		3	1/13/93	LIC. APP. ACCEPTED FOR FILING	—	DWM	—
		2	10/29/91	LICENSE APPLICATION	MM	GEC	JLS
		1	8-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

ORIGINAL ISSUE DATE

FILE INDEX 103-FI-NG-3.A, 3.13

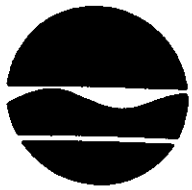
DRAWING NUMBER F222645.DGN F222645.DP4

FERC NO. 2645-029-22

LICENSE ARTICLES 401, 405, 407 & 408

AGENCY CORRESPONDENCE

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH & WILDLIFE & MARINE RESOURCES
317 Washington Street, Watertown, NY 13601
315-785-2267



John P. Cahill
Acting Commissioner

April 2, 1997

Mr. Jacob S. Niziol. P.E.
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Dear Mr. Niziol:

The Department of Environmental Conservation offers the following comments on draft drawings for the minimum flow release structures concerning license articles 401, 405, 407 and 408 of Niagara Mohawk's license (FERC Project # 2645-NY) for the Beaver River Project.

We have one general comment which applies to all sites, namely that the minimum flow release value at emergency flow augmentation reservoir elevations be included in the discharge tables along with the full pool and 1" drawdown release values.

Specific comments, by location, are as follows:

1. **License Article 401: Moshier Development - new slide gate**

The use of a single release structure is acceptable. The ability of this release to safely convey fish into the bypass will need to be evaluated after the structure is built.

2. **License Article 405: Elmer Development - new release works within needle beam structure**

The path of released water from the structure to the pool at the base of the dam and the adequacy of the receiving pool should be assessed after the release is constructed.

3. **License Article 407: Belfort Development - new gate structure**

The use of a gate structure to release the required minimum flow is an acceptable alternative to the notch discussed during the July 1995 field visits. The exact position of the gate structure should be chosen to best utilize existing channel conditions with respect to providing safe passage of fish utilizing the release as a means to move downstream.

4. **License Article 408: High Falls Development - existing low level slide gate and new gate structure**

The proposal appears to be acceptable provided releases from the low level gate (existing) do not result in turbidity problems associated with re-suspension of sediments presently held above the dam.

We appreciate the opportunity to comment on these structures, if you have any questions, please do not hesitate to contact me at (315) 785-2267.

Sincerely,

Len Ollivett

Len Ollivett
Conservation Biologist 2
Region 6

cc: Ms. Sherry Morgan, USFWS -Cortland
Mr. J. Mark Robinson, FERC DL&C - Washington
Mr. Randy Vaas, NYSDEC - Watertown

United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, New York 13045

April 4, 1997

Mr. Jacob S. Niziol, P.E.
Coordinator - Dam Safety & Compliance
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, NY 13202

RE: Minimum instream flow release structures
Beaver River Hydroelectric Project (FERC #2645).

Dear Mr. Niziol:

The U.S. Fish and Wildlife Service (Service) has reviewed Niagara Mohawk Power Corporation's (NMPC) design drawings and calculations for the instream flow release structures at the Moshier, Elmer, Belfort, and High Falls developments [License Articles 401, 405, 407, and 408, respectively]. NMPC plans to make minimum flow releases at a number of approved locations on the dams or existing outlet works to provide water to the bypassed portions of the Beaver River. We appreciate the design work and expense involved in providing these minimum flows. In general, the flows computed for the release structures are technically correct. One concern with release structures that use bottom orifices is the increased risk of plugging.

Moshier Development

The computations were checked to verify that the new slide gate structure will pass the flows ranging from about 45 to 50 cfs. The Service's October 18, 1995, letter to NMPC (enclosed) noted that a chute located downstream of the release point may be needed to convey flow and fish. Other alternatives discussed were weirs to increase the plunge pool area and depth. Some excavation of rock at the base of the vertical rock cut may be necessary to provide safe passage into this pool. NMPC's recent letter states that they will assess the need for additional fish protection and conveyance measures after installation of the release structure.

Elmer Development

The modification to the needle beam structure will pass the nominal 20 cfs minimum flow release. As discussed in the field, a plunge pool shall be constructed immediately downstream of the release structure. In addition, curbs were to be installed to divert flow into existing channels in the bedrock and toward a plunge pool at the base of the rock outcrop.

Belfort Development

The new gate structure should pass the nominal 20 cfs flow. No channel modifications were deemed as necessary in the field inspection.

High Falls Development

The flow calculation is technically correct for the small opening on the existing low level outlet works to pass 10 cfs. An opening of .05 feet or six-tenths of an inch is small and highly susceptible to plugging. The second gate structure at the right abutment is considered adequate to pass the nominal 20 cfs. A flow demonstration was discussed in the field as needed to determine the areas of the wetted channel and the path of the flow from both release points; this demonstration has not been scheduled.

Conclusions and Recommendations

The minimum flow calculations were checked and found to be technically correct. After the flow release structures are completed, the Service recommends that the flow in each of the bypassed reaches be gaged to verify compliance with the minimum instream flow requirements. The Service appreciates the opportunity to provide NMPC with our comments and recommendations. If you have further questions, please contact Dave Bryson at (607) 753-9334.

Sincerely,

Sherry W. Morgan

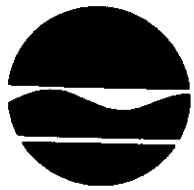
Sherry W. Morgan
Field Supervisor

Enclosure

cc:

APA, Ray Brook, NY (G. Outcalt)
NYRU, Utica, NY (B. Carpenter)
NMPC, Syracuse, NY (S. Hirschey, J. Sabattis)
NYSDEC, Watertown, NY (L. Ollivett)
FERC, Washington, DC (L. Cashell, J. Robinson)
USFWS, Newton Corner, MA (C. Orvis)

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH & WILDLIFE & MARINE RESOURCES
317 Washington Street, Watertown, NY 13601
315-785-2267



John P. Cahill
Acting Commissioner

April 9, 1997

Mr. Jacob S. Niziol. P.E.
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Dear Mr. Niziol:

The Department of Environmental Conservation offers the following clarification on comments submitted 4/2/97 on draft drawings for the minimum flow release structures concerning license articles 401, 405, 407 and 408 of Niagara Mohawk's license (FERC Project # 2645-NY) for the Beaver River Project.

We have one general comment which applies to all sites, namely that the minimum flow release value at emergency flow augmentation minimum reservoir elevations be included in the discharge tables along with the full pool and normal drawdown release values. These values are with flashboards in place as boards seldom fail on the Beaver River plants.

We appreciate the opportunity to comment on these structures, if you have any questions, please do not hesitate to contact me at (315) 785-2267.

Sincerely,

Len Ollivett
Conservation Biologist 2
Region 6

cc: Ms. Sherry Morgan, USFWS -Cortland
Mr. J. Mark Robinson, FERC DL&C - Washington
Mr. Randy Vaas, NYSDEC - Watertown

80 FERC ¶ 62,045

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Niagara Mohawk Power Corporation	)	Project No. 2645-057, -058, -059, and -060

ORDER MODIFYING AND APPROVING MINIMUM FLOW RELEASE STRUCTURE PLANS

JUL 21 1997

Niagara Mohawk Power Corporation filed, on April 30, 1997, design drawings of the minimum flow release structures under articles 401, 405, 407, and 408 of the license for the Beaver River Project (FERC No. 2645). The project is located on the Beaver River in the Towns of Croghan and Watson in Lewis County and in the Town of Webb in Herkimer County, New York. The project comprises the following eight developments (in descending order) which span 18 miles: Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls.

BACKGROUND

Article 401 requires the licensee to release from the Moshier development into the bypassed reach a year-round minimum flow of 45 cubic feet per second (cfs) through the existing minimum flow discharge pipe and orifice plate and through a new slide gate to be installed. Article 405 requires a release from the Elmer development into the bypass reach a year-round minimum flow of 20 cfs through a new release structure designed in the existing needle beam structure in the middle of the spillway.

Article 407 requires a year-round minimum flow of 20 cfs from the Belfort development into the bypass reach through a new gate structure located on the south side of the spillway. Article 408 requires the licensee to release from the High Falls development into the bypass reach a year-round nominal flow of 30 cfs. The release of 10 cfs will be through the existing low-level slide gate structure in the middle of the spillway. The remaining 20 cfs will be provided through a new gate structure at the north side of the spillway.

Each of the four articles also requires the licensee to file, for Commission approval, detailed design drawings of the licensee's proposed gate structures together with a schedule to construct and install the structure. The articles also require the new structures to be able to accommodate downstream fish passage.

9703720358-3

LICENSEE'S PLAN

Moshier development

The license requires that the release be made through two points; the existing tap at the pipeline and the new slidegate structure. Per field discussions with resource agencies, the licensee is proposing, as an alternative, that the total (45 cfs) minimum flow release will be made through the new slide gate structure.

The existing needle beam structure will be modified with a new slidegate to provide the minimum flow release. The new slidegate will be 10.0 feet wide and will be raised 0.426 feet from its closed position to provide the 45 cfs minimum flow release. According to the licensee's plan, the minimum flow release will vary from 42.3 cfs to 50.0 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1641.0 feet).

Elmer development

The existing needle beam structure will be modified to include the new minimum flow release structure. Four needle beams, having a width of 1.83 feet, will be raised 1.0 foot to provide the 20 cfs minimum flow release. The licensee's plan indicates the minimum flow release will vary from 20.25 cfs to 22.39 cfs over the reservoir fluctuation range of 1.00 foot as measured from the normal maximum headwater elevation (spillway crest elevation 1108.0 feet).

Belfort development

A new gate structure located on the south side of the spillway will provide the minimum flow release. The gated opening, 1.0 foot high by 1.71 feet wide, will provide the 20 cfs minimum flow release. The licensee's plan indicates the minimum flow release will vary from 18.73 cfs to 21.63 cfs over the reservoir fluctuation range of 1.0 foot as measured from the normal maximum headwater elevation (top of flashboard elevation 966.0 feet).

High Falls development

The existing low-level slidegate structure located in the middle of the spillway will provide the 10 cfs minimum flow release. The licensee's plan indicates the minimum flow release will vary from 9.9 cfs to 10.1 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (spillway crest elevation of 915.0 feet).

A new gate structure located at the north side of the spillway will provide the 20 cfs minimum flow release. The minimum flow release will vary from 18.29 cfs to 22.41 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (spillway crest elevation 915.0 feet).

Schedule

The licensee's plan indicates all four minimum flow structures are scheduled to be constructed by December 15, 1997. After installation of the release structures, the licensee indicates it will assess the need for any fish protection and conveyance measures in accordance with the field meeting summary dated July 25, 1996, which summarizes understandings reached with the resource agencies at the meeting.

AGENCY COMMENTS

The New York State Department of Environmental Conservation (DEC), by letter dated April 2, 1997, concurs with the licensee's plan. In a letter dated April 9, 1997, the DEC provides an additional comment regarding flow releases during minimum reservoir elevation. The licensee incorporated the DEC's comment into the plans.

The U.S. Fish and Wildlife Service (FWS), by letter dated April 4, 1997, concurs with the plan and recommends the flow in each bypass reach be gaged to verify compliance with the minimum flow requirements. The licensee's plans incorporate the FWS's comments.

DISCUSSION AND CONCLUSIONS

The Beaver River Project operations are controlled by the daily releases of the upstream Stillwater Reservoir, which is operated by the Hudson River-Black River Regulating District. The licensee operates the eight developments of the project as store-and-release facilities that operate in a peaking mode. The Soft Maple development has the greatest discharge capacity and operates with the highest concentration of power generation. At the succeeding downstream developments, water is stored and released at lower generation levels. Together, the developments reregulate the peaking flow into a steadier continuous flow at the furthest downstream development, High Falls, which maintains a base minimum flow of 250 cfs downstream of the powerhouse.

The minimum flow release structures for the Moshier, Elmer, Belfort, and High Falls developments will allow the licensee to release the required flows over the range of reservoir elevation levels prescribed within the license. Only under extremely low

water conditions will the possibility exists that the required minimum flows will not be met because of the lower water surface elevations. In such events, provisions are in place under the licensee's approved streamflow and water surface elevation monitoring plan for the licensee to report incidents in which the minimum flows are not met. 1/

The licensee's plans for each development indicate it will assess the need for any fish protection and conveyance measures once the facilities are constructed. The main concern with these facilities is where the outflow will spill into the bypass reach. Fish passing downstream could be subject to falling onto rock outcroppings or into areas with turbulent flows. This could cause injury to the fish passing downstream through the structures.

As part of the requirements for articles 401, 405, 407, and 408, the assessment on downstream fish passage is to be done in consultation with the agencies and filed for Commission approval. Therefore, the licensee should be required to assess the need for any fish protection and conveyance measures, in consultation with the DEC and FWS, and file with the Commission, for approval, its recommendations on measures to protect fish at each of the four developments. The licensee should be required to file its recommendations within 120 days of completing the minimum flow release structures.

The licensee's plans, with the above modification, would provide for the required minimum flow release and accommodate downstream fish passage at each development, and should, therefore, be approved.

The Director orders:

(A) The licensee's plans for minimum flow release structures under articles 401, 405, 407, and 408 for the Beaver River Project (FERC No. 2645), filed on April 30, 1997 and as modified by paragraph (B) below, is approved.

(B) The licensee shall assess the need for any fish protection and conveyance measures at the Moshier, Elmer, Belfort, and High Falls developments, in consultation with the New York State Department of Environmental Conservation and the U.S. Fish and Wildlife Service, and file with the Commission for approval, within 120 days of completing construction of the minimum flow release structures, recommendations on measures to

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1/ Order Modifying and Approving Streamflow and Water Surface Elevation Monitoring Plan issued July 10, 1997 (80 FERC ¶62,022).

fish at each of the four developments. The licensee shall include with its recommendations documentation of consultation, copies of the agency comments and recommendations, and specific descriptions of how the agencies' comments are accommodated by the licensee. The licensee shall allow a minimum of 30 days for the agencies to comment and make recommendations before filing with the Commission. The Commission reserves the right to require changes to the plan.

(C) The licensee shall, within 90 days of completion of the minimum flow release structures, file with the Commission, for approval, revised exhibits A, F, and G to describe and show the project as-built.

(D) Unless otherwise directed in this order, the licensee shall file an original and seven copies of any filing required by this order with:

The Secretary
Federal Energy Regulatory Commission
Mail Code: DLC, HL-11.2
888 First Street, N.E.
Washington, D.C. 20426

In addition, the licensee shall serve copies of these filings on any entity specified in this order to be consulted on matters related to these filings. Proof of service on these entities shall accompany the filings with the Commission.

(E) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 CFR § 385.713.

Kevin P. Madden
Acting Director
Office of Hydropower Licensing

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

OVERNIGHT COURIER

May 22, 1997

ORIGINAL

Ms. Lois D. Cashell, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, N.E.
Washington, DC 20426

061

Subject: **Beaver River Project LP 2645-029 NY**
License Article 403
Minimum Flow Release Structures

Dear Secretary Cashell:

In accordance with the ORDER APPROVING SETTLEMENT AGREEMENT AND ISSUING NEW LICENSE issued on August 2, 1996, Niagara Mohawk is herein filing an original and eight copies of the detailed design drawings of the minimum flow release structures for the above referenced license article. Niagara Mohawk submitted drawings in draft form for consultation purposes with agencies as required by License Article 403 on April 4, 1997. Agency correspondence addressing the license article is included herein. Following is a summary of agencies in receipt of the consultation documents, agencies providing comments, and Niagara Mohawk's position on the comments received.

LICENSE ARTICLE 403
MINIMUM FLOW RELEASE STRUCTURES

Agencies in receipt of draft plans:

New York State Department of Environmental Conservation (DEC)
U.S. Fish and Wildlife Service (USFWS)

Agencies providing comments:

New York State Department of Environmental Conservation (DEC)
U.S. Fish and Wildlife Service (USFWS)

9706200389-3

T\TMSL141A.7AC

Niagara Mohawk's position on agency comments:

New York State Department of Environmental Conservation comment letter of April 11, 1997

DEC Comment 2nd paragraph: DEC notes that the calculated flow velocity across the "fish exclusion grate" and its' small openings required for fish exclusion, could cause an impingement problem and / or a debris accumulation problem. DEC suggests that, given the location of the release structure within the larger diversion structure, perhaps an overlay on the existing diversion structure intake trashracks may be better able to exclude fish and pass the required volume of water without becoming a significant debris catcher or an impingement problem.

Licensee Response: Niagara Mohawk is planning on performing a diver inspection of the diversion intake structure as soon as the river flows subside sufficiently enough to perform the diver inspection safely. This diver inspection will assess the condition of the diversion structure as well as the existing trashrack measures in place. Niagara Mohawk envisions, if not already in place, replacing the existing trashracks with new trashracks having a 1" clear spacing.

The location of the diversion structure intake, being approximately 23 feet below normal pond elevation, is probably not subjected to substantial debris build-up. However, the diver inspection will also assess the amount of debris build-up on the diversion structure intake trashracks and remove same if necessary.

Niagara Mohawk contemplates periodic diver inspections in the future to assess the performance of the diversion intake structure as a means of providing the 20 cfs minimum flow requirement.

United States Fish & Wildlife Service comment letter of May 1, 1997

USFWS Comment 2nd paragraph: The USFWS states that the opening of 1.3 inches in the slide gate structure to pass the 15 cfs may be subject to plugging with trash and debris.

Licensee Response: Niagara Mohawk's traveling operators will be inspecting this slide gate for any plugging occurrences as part of the normal routine and scheduling activities to clear the water path at this structure when necessary.

USFWS Comment 3rd paragraph: The USFWS notes that the bar spacing of the diversion tunnel intake structure trashrack is not provided on the drawings and that a diver inspection is to be performed to determine the existing spacing. The USFWS wishes to be informed of the results of this diver inspection and the proposed plan of action.

Licensee Response: Niagara Mohawk will advise the USFWS of the results of the diver inspection and our proposed plan of action. Also, see response to DEC comment above.

USFWS Comment 4th paragraph: The USFWS is concerned about the potential for scouring to occur downstream of the diversion tunnel outlet. The USFWS suggests that the release should be made within the diversion tunnel rather than at the outlet of the tunnel to avoid such scouring.

Licensee Response: Niagara Mohawk terminated the discharge at the downstream outlet of the diversion tunnel for safety reasons. On occasion, when it is necessary for Niagara Mohawk to access the 12" diameter butterfly valve, the operator can gain safe access to the valve without having to overcome the effects of the 20 cfs release having a velocity of 28 feet per second. Further, discharging the release within the diversion tunnel also creates a potential for erosion of the concrete, thereby necessitating future maintenance repairs.

The area immediately downstream of the outlet consists of granitic gneiss and it is anticipated that this release will have no effect on the substrate.

USFWS Comment 5th paragraph: The USFWS recommends that the flow in each of the bypassed reaches be gaged to verify compliance with the minimum instream flow requirements after installation of the minimum flow release structures.

Licensee Response: As proposed in Niagara Mohawk's Plan for Streamflow and Headpond Elevation Monitoring in response to License Article 412 requirements, Item (2), the Gage Calibration Plan discusses the methodology for calibrating the flow releases from the minimum flow release structures.

If you have any further questions regarding this submittal, please contact Jacob S. Niziol at (315) 428-5556.

Sincerely,

for Sam S. Hirschey, P.E.
Manager,
Hydro Licensing & Regulatory Compliance

Enclosures:

xc: J. Sama, NYSDEC, Albany
L. Ollivett, NYSDEC, Watertown
S. Morgan, USFWS, Cortland
A. Sidoti, FERC, New York
B. Carpenter, New York Rivers United
J. Mark Robinson, FERC, Washington, DC
J. S. Niziol

TVTMSL141A.7AC

LICENSE ARTICLE 403

MINIMUM FLOW RELEASE STRUCTURES (DETAILED DESIGN DRAWINGS)

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 4, 1997

Mr. Len Ollivett
NYS Dept. of Environmental Conservation
State Office Building
317 Washington Street
Watertown, NY 13601

SAMPLE LETTER TO ACCOMPANY DESIGN DRAWINGS AS PER DRAFT CONSULTATION DOCUMENTS

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Mr. Ollivett:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above-referenced project issued on August 2, 1996, enclosed is Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license article:

License Article 403 Soft Maple Development, 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel new release structure;

The enclosed draft drawings have been marked up to denote the proposed locations of the minimum flow release structures and to provide some detail of the release structure mechanism.

Following is a brief description of the minimum flow release structures at the Soft Maple Development and appropriate comments:

LICENSE ARTICLE 403 - SOFT MAPLE DEVELOPMENT

The license requires that the 35 cfs minimum flow release into the bypassed reach be made through two locations; 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel and new release structure.

The existing slide gate structure in the spillway will provide the nominal 15 cfs minimum flow release through an opening, 10.0 feet wide by 1.3 inches high. The minimum flow release will vary from 15.1 cfs to 16.6 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet).

The nominal 20 cfs minimum flow release from the existing diversion tunnel will be made through a new release structure utilizing the existing gate valve tower. A new 12" diameter piping and valve arrangement will provide the nominal 20 cfs minimum flow release at the end of the diversion tunnel, discharging into the bypassed reach. The minimum flow release will vary from 20.33 cfs to 20.64 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

SCHEDULE

License Article/Development	Minimum Flow Release Structure Construction Period
Article 403/Soft Maple	July 14 through December 15, 1997

DISCHARGE CURVES AND TABLES FOR SOFT MAPLE MINIMUM FLOW RELEASE STRUCTURES

Niagara Mohawk has developed the Soft Maple discharge curves and tables using orifice equations and the Hazen-Williams Pressure Pipe Flow Equation for the minimum flow release structures, based upon varying reservoir elevations as stated in the Settlement Offer and with maximum fluctuations as allowed by License Article 410. These discharge curves and tables for the Soft Maple Development's two release locations can be found under Attachment 1 and will also appear in the final plan for License Article 412.

Niagara Mohawk would appreciate receiving your comments in 30 days from the date of this letter. Upon receipt of agency comments, Niagara Mohawk will incorporate agency comments as appropriate in the detailed design drawings, and submit to FERC.

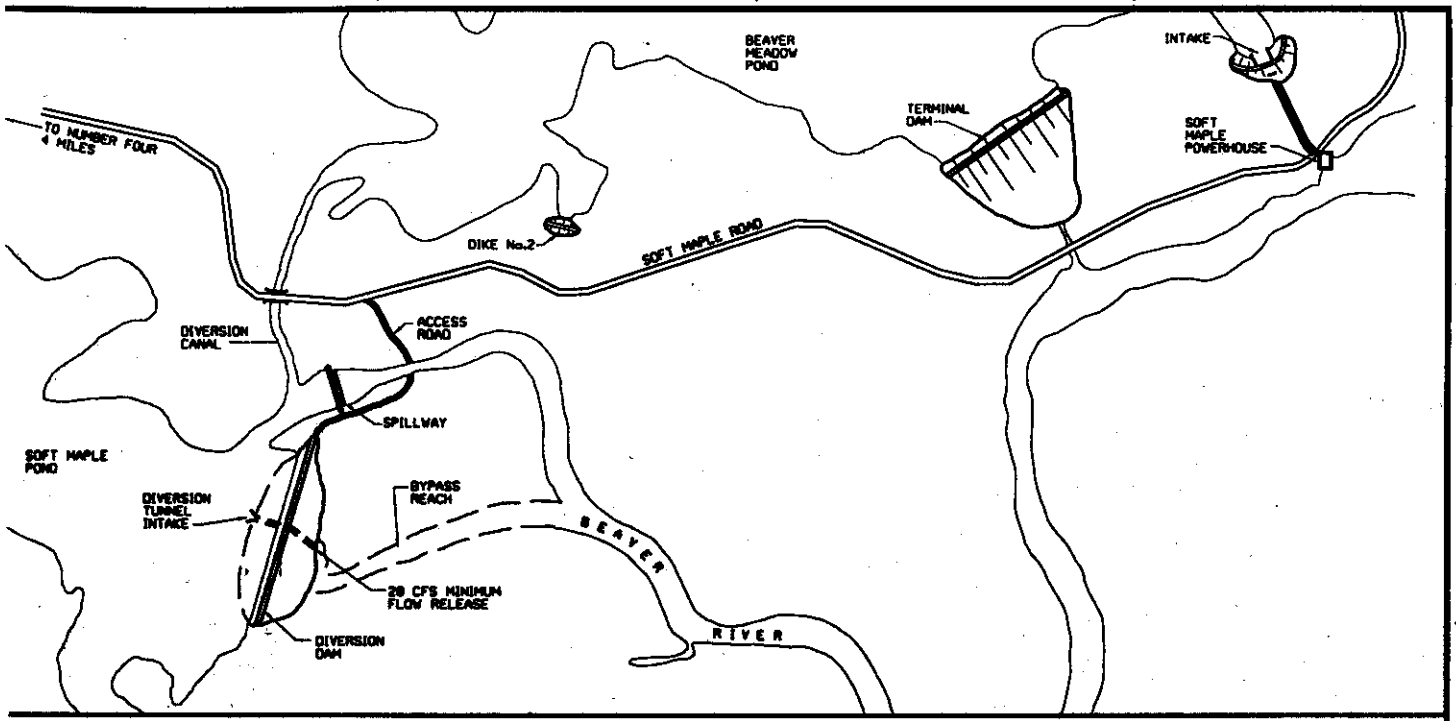
If you have any questions, please contact me at (315) 428-5556 or Tom Skutnik at (315) 428-5564.

Sincerely,

Jacob S. Niziol, P. E.
Dam Safety & Regulatory Compliance Coordinator

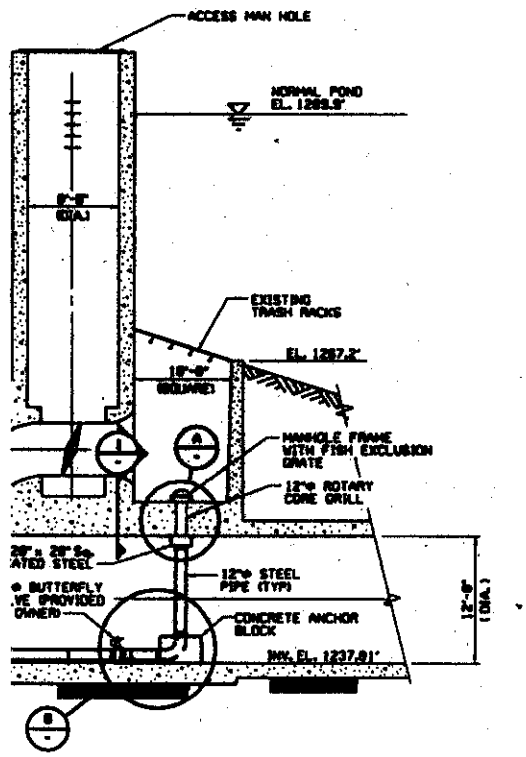
Enclosures:

xc: Ms. S. Morgan, USFWS, Cortland
Mr. J. J. Sama, NYSDEC, Albany
Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. C. Orvis, USFWS - Hadley, Ma.
Mr. S. S. Hirschey

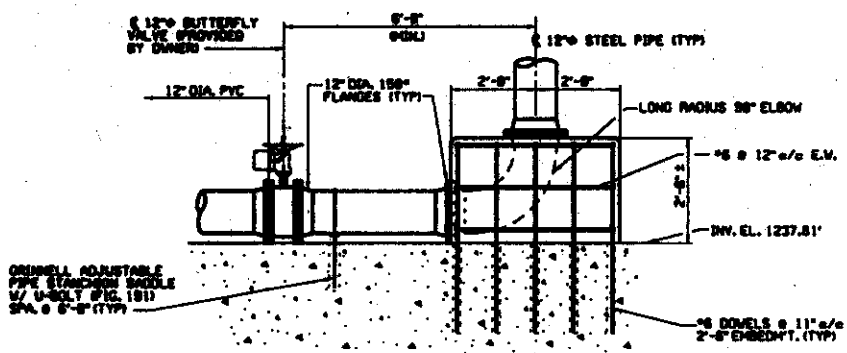


LOCATION PLAN

SCALE: 1" = 400'



ION THRU TUNNEL INTAKE

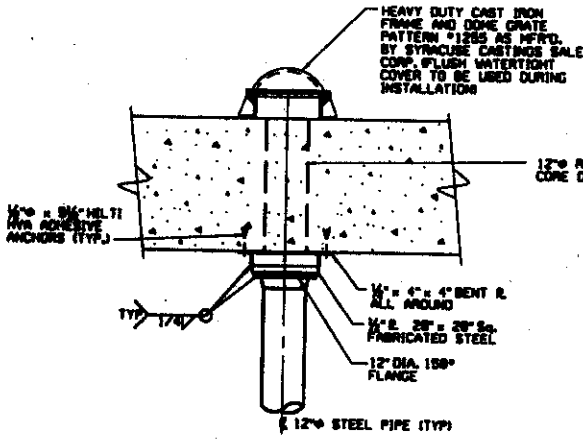


DETAIL

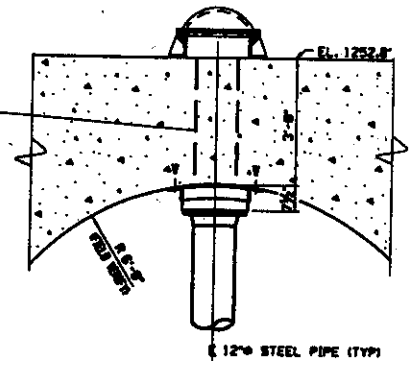
SCALE: 1/2" = 1'-0"

DR.	DS.	APP.	DES.	APPROVED	NIAGARA MOHAWK
			DR.	APPROVED	SOFT MAPLE HYDRO DEVELOPMENT
			DS.	APPROVED	MINIMUM FLOW ASSEMBLY
				APPROVED	ACCOUNT NUMBER

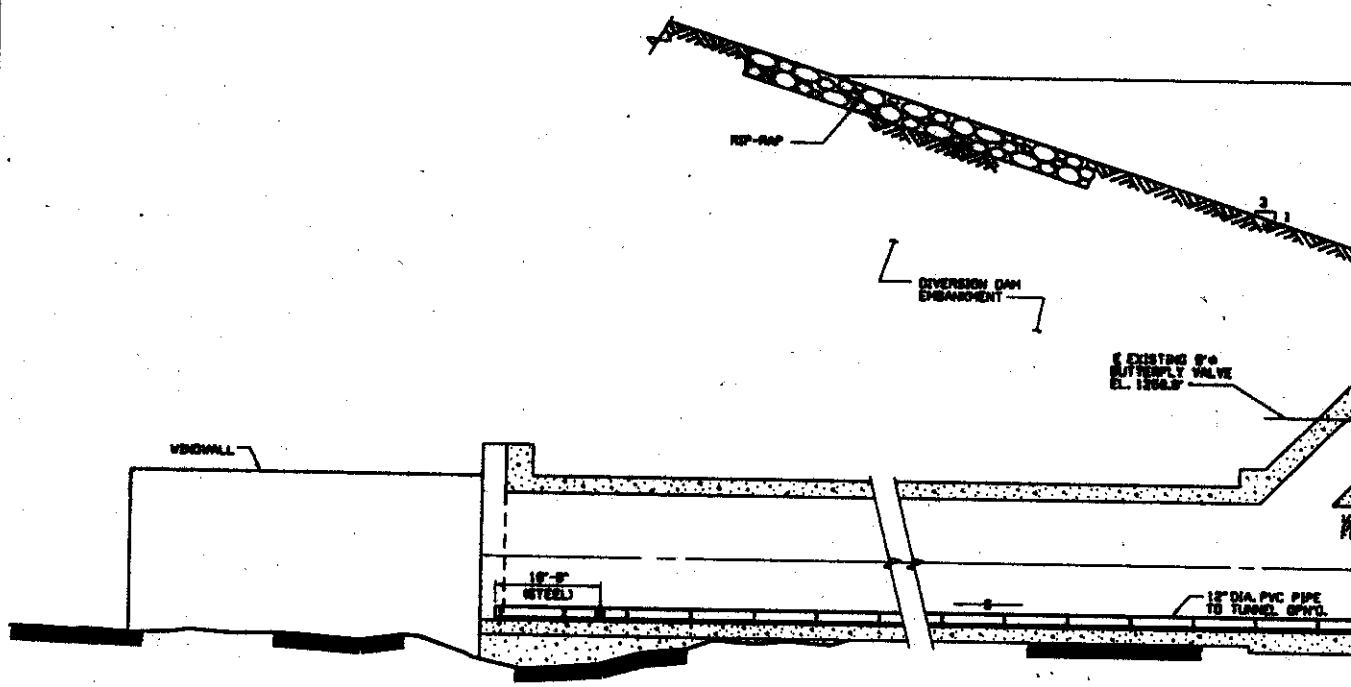
SHEET D-



DETAIL (A)
SCALE: ½" = 1'-0"



SECTION (1)
SCALE: ½" = 1'-0"



TYPICAL SE
SCALE: ½" = 1'-0"

REFERENCE DESCRIPTION	DRAWING NUMBER
DIVERSION DAM & CONDUIT PLAN	2566-1823
DIVERSION DAM PLAN AND CONDUIT SECTION	2566-1824
GATE TOWER & CONDUIT PLAN & SECTIONS	2566-1825

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION

ATTACHMENT 1

DISCHARGE CURVES AND TABLES FOR MINIMUM FLOW RELEASE STRUCTURES

SOFT MAPLE HYDRO DEVELOPMENT
15 CFS MINIMUM FLOW GATE

Discharge Area (A)	1.09 ft^2	(See Note 2)
Minimum Flow	15 cfs	
Gravity (g)	32.2 ft/sec^2	
Top of Flashboards	1289.9 ft	
Dam Crest Elevation	1288.4 ft	
Gate Crest	1281.4 ft	
Maximum draw down below top of flashboards	1.5 ft	
Centerline of Gate Opening Elevation	1281.45 ft	

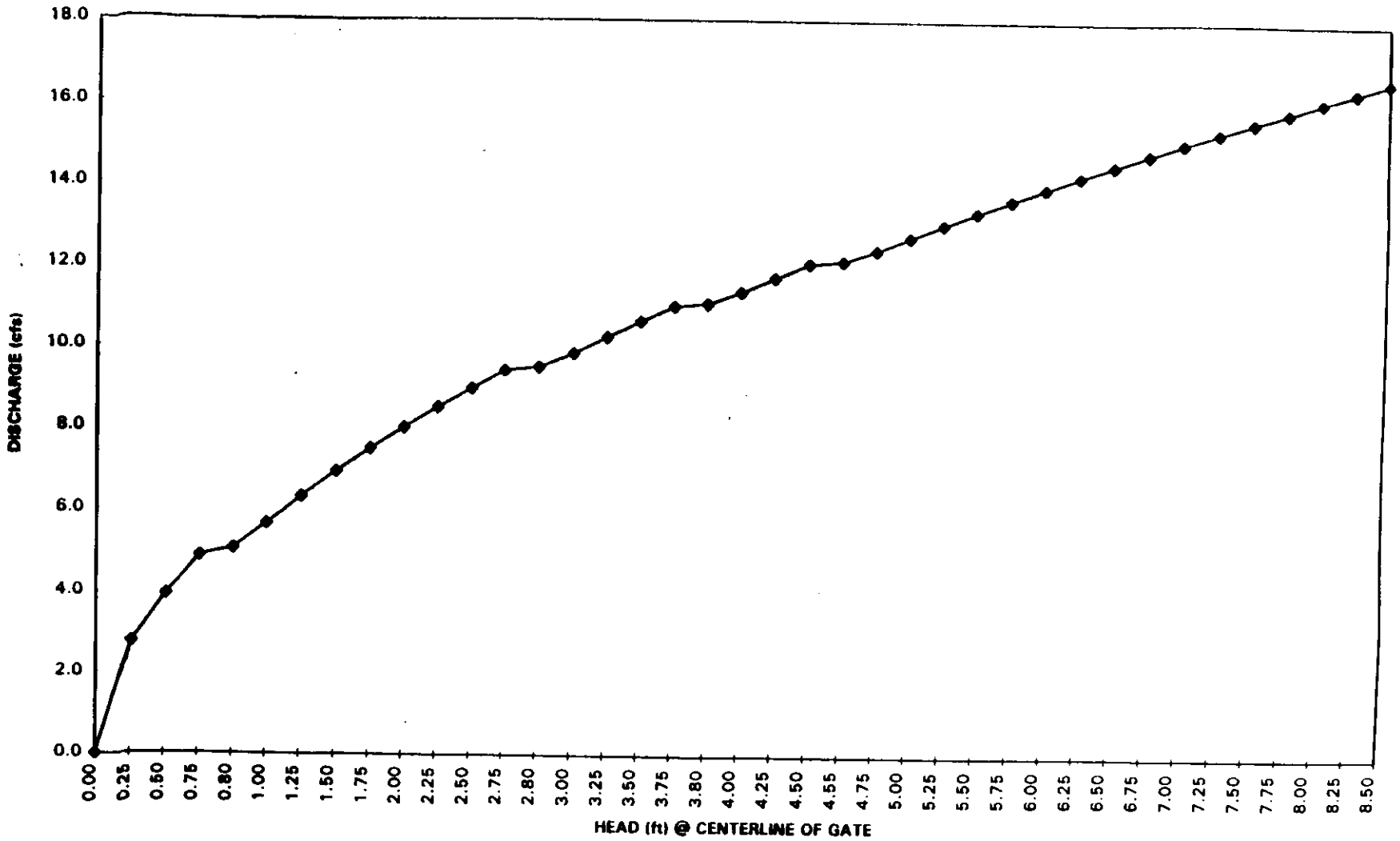
Head	Discharge	
0.00	0.0	
0.25	2.8	
0.50	4.0	
0.75	4.9	
0.80	5.1	
1.00	5.7	
1.25	6.4	
1.50	7.0	
1.75	7.5	
2.00	8.0	
2.25	8.5	
2.50	9.0	
2.75	9.4	
2.80	9.5	
3.00	9.9	
3.25	10.3	
3.50	10.6	
3.75	11.0	
3.80	11.1	
4.00	11.4	Discharge @El. 1285.4 (3.0' below dam crest)
4.25	11.7	
4.50	12.1	
4.55	12.1	
4.75	12.4	
5.00	12.7	
5.25	13.0	
5.50	13.3	Discharge @El. 1286.9' (3.0' below top of flashboards)
5.75	13.6	
6.00	13.9	
6.25	14.2	
6.50	14.5	
6.75	14.8	
7.00	15.1	Nominal Discharge (dam crest & 1.5' below top of flashboards)
7.25	15.3	
7.50	15.6	
7.75	15.8	
8.00	16.1	
8.25	16.3	
8.50	16.6	Discharge @El. 1289.9' (top of flashboards)

Notes:

1) As stated in the Settlement Agreement, page 2, flashboards *rarely fail* on the Beaver River due to the high degree of flow regulation. Pond elevation versus time curve will verify the level of compliance meeting the nominal discharge over time.

2) Discharge through 10'-0" wide gate at 0.109' open.

SOFT MAPLE HYDRO DEVELOPMENT
MINIMUM FLOW GATE



Soft Maple Hydro 20 cfs Min. Flow Release @ Tunnel
Rating Table for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\sftmple.fm2
Worksheet	sftmple
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Constant Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 2	1,235.24 ft
Length	301.20 ft
C Coefficient	120.0
Diameter	12.00 in

Input Data			
	Minimum	Maximum	Increment
Elevation at 1	1,285.40	1,289.90	0.25 ft

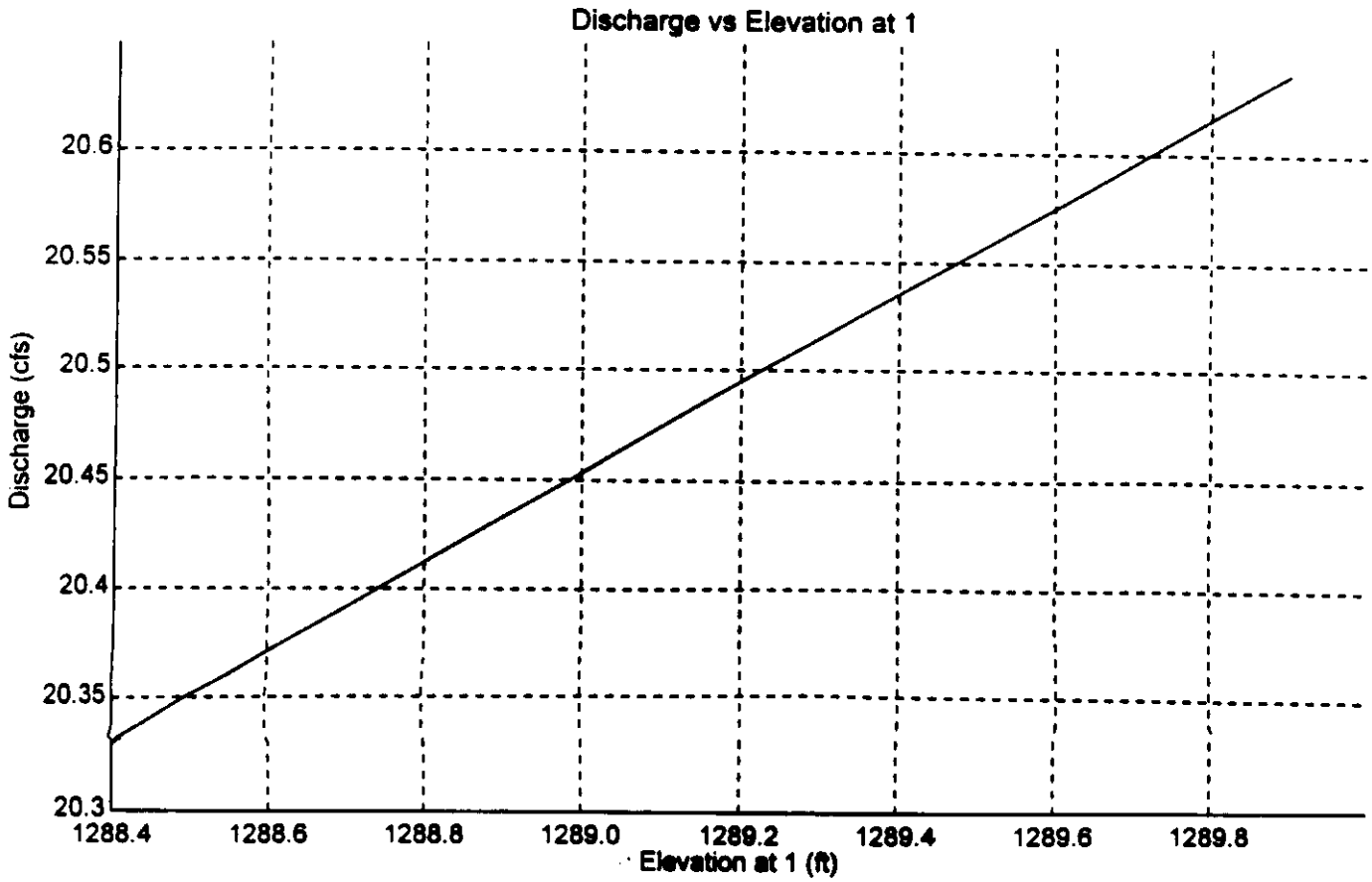
Rating Table		
Elevation at 1 (ft)	Discharge (cfs)	
1,285.40	19.7015	Discharge @ 3' below dam crest
1,285.65	19.7545	
1,285.90	19.8073	
1,286.15	19.8601	
1,286.40	19.9127	
1,286.65	19.9652	
1,286.90	20.0175	Discharge @ 3' below top of flashboards
1,287.15	20.0696	
1,287.40	20.1219	
1,287.65	20.1739	
1,287.90	20.2258	
1,288.15	20.2776	
1,288.40	20.3293	Discharge @ dam crest & 1.5' below top of flashboards
1,288.65	20.3809	
1,288.90	20.4324	
1,289.15	20.4837	
1,289.40	20.5349	
1,289.65	20.5861	
1,289.90	20.6371	Discharge @ top of flashboards

Soft Maple Hydro 20 cfs Min. Flow Release @ Tunnel
Plotted Curves for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\sftmple.fm2
Worksheet	sftmple
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Constant Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 2	1,235.24 ft
Length	301.20 ft
C Coefficient	120.0
Diameter	12.00 in

Input Data			
	Minimum	Maximum	Increment
Elevation at 1	1,288.40	1,289.90	0.25 ft



Soft Maple Hydro 20cfs Min. Flow Release
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\sftmple.fm2
Worksheet	sftmple
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Input Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 1	1,289.90 ft
Elevation at 2	1,235.24 ft
Length	301.20 ft
C Coefficient	120.0
Diameter	12.00 in

Results		
Discharge	20.6371	cfs
Headloss	54.66	ft
Energy Grade at 1	1,298.92	ft
Energy Grade at 2	1,244.26	ft
Hydraulic Grade at 1	1,289.90	ft
Hydraulic Grade at 2	1,235.24	ft
Flow Area	0.79	ft^2
Wetted Perimeter	3.14	ft
Velocity	26.28	ft/s
Velocity Head	10.73	ft
Friction Slope	0.181474	ft/ft

LICENSE ARTICLE 403

MINIMUM FLOW RELEASE STRUCTURES (DRAFT DRAWINGS)

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 4, 1997

Mr. Len Ollivett
NYS Dept. of Environmental Conservation
State Office Building
317 Washington Street
Watertown, NY 13601

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Mr. Ollivett:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above-referenced project issued on August 2, 1996, enclosed is Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license article:

License Article 403 — Soft Maple Development, 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel new release structure;

The enclosed draft drawings have been marked up to denote the proposed locations of the minimum flow release structures and to provide some detail of the release structure mechanism.

Following is a brief description of the minimum flow release structures at the Soft Maple Development and appropriate comments:

LICENSE ARTICLE 403 - SOFT MAPLE DEVELOPMENT

The license requires that the 35 cfs minimum flow release into the bypassed reach be made through two locations; 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel and new release structure.

The existing slide gate structure in the spillway will provide the nominal 15 cfs minimum flow release through an opening, 10.0 feet wide by 1.3 inches high. The minimum flow release will vary from 15.1 cfs to 16.6 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet).

The nominal 20 cfs minimum flow release from the existing diversion tunnel will be made through a new release structure utilizing the existing gate valve tower. A new 12" diameter piping and valve arrangement will provide the nominal 20 cfs minimum flow release at the end of the diversion tunnel, discharging into the bypassed reach. The minimum flow release will vary from 20.33 cfs to 20.64 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

SCHEDULE

License Article/Development	Minimum Flow Release Structure Construction Period
Article 403/Soft Maple	July 14 through December 15, 1997

DISCHARGE CURVES AND TABLES FOR SOFT MAPLE MINIMUM FLOW RELEASE STRUCTURES

Niagara Mohawk has developed the Soft Maple discharge curves and tables using orifice equations and the Hazen-Williams Pressure Pipe Flow Equation for the minimum flow release structures, based upon varying reservoir elevations as stated in the Settlement Offer and with maximum fluctuations as allowed by License Article 410. These discharge curves and tables for the Soft Maple Development's two release locations can be found under Attachment 1 and will also appear in the final plan for License Article 412.

Niagara Mohawk would appreciate receiving your comments in 30 days from the date of this letter. Upon receipt of agency comments, Niagara Mohawk will incorporate agency comments as appropriate in the detailed design drawings, and submit to FERC.

If you have any questions, please contact me at (315) 428-5556 or Tom Skutnik at (315) 428-5564.

Sincerely,

Jacob S. Niziol, P. E.
Dam Safety & Regulatory Compliance Coordinator

Enclosures:

xc: Ms. S. Morgan, USFWS, Cortland
Mr. J. J. Sama, NYSDEC, Albany
Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. C. Orvis, USFWS - Hadley, Ma.
Mr. S. S. Hirschey

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 4, 1997

Hon. Jeffrey J. Sama
Chief, Bureau of Environmental Analysis
NYS Dept. of Environmental Conservation
50 Wolf Road
Albany, NY 12233

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Hon. Sama:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above-referenced project issued on August 2, 1996, enclosed is Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license article:

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The license requires that the 35 cfs minimum flow release into the bypassed reach be made through two locations; 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel and new release structure.

The existing slide gate structure in the spillway will provide the nominal 15 cfs minimum flow release through an opening, 10.0 feet wide by 1.3 inches high. The minimum flow release will vary from 15.1 cfs to 16.6 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet).

The nominal 20 cfs minimum flow release from the existing diversion tunnel will be made through a new release structure utilizing the existing gate valve tower. A new 12" diameter piping and valve arrangement will provide the nominal 20 cfs minimum flow release at the end of the diversion tunnel, discharging into the bypassed reach. The minimum flow release will vary from 20.33 cfs to 20.64 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

SCHEDULE

License Article/Development	Minimum Flow Release Structure Construction Period
Article 403/Soft Maple	July 14 through December 15, 1997

DISCHARGE CURVES AND TABLES FOR SOFT MAPLE MINIMUM FLOW RELEASE STRUCTURES

Niagara Mohawk has developed the Soft Maple discharge curves and tables using orifice equations and the Hazen-Williams Pressure Pipe Flow Equation for the minimum flow release structures, based upon varying reservoir elevations as stated in the Settlement Offer and with maximum fluctuations as allowed by License Article 410. These discharge curves and tables for the Soft Maple Development's two release locations can be found under Attachment 1 and will also appear in the final plan for License Article 412.

Niagara Mohawk would appreciate receiving your comments in 30 days from the date of this letter. Upon receipt of agency comments, Niagara Mohawk will incorporate agency comments as appropriate in the detailed design drawings, and submit to FERC.

If you have any questions, please contact me at (315) 428-5556 or Tom Skutnik at (315) 428-5564.

Sincerely,

Jacob S. Niziol, P. E.
Dam Safety & Regulatory Compliance Coordinator

Enclosures:

xc: Ms. S. Morgan, USFWS, Cortland
Mr. Len Ollivett, NYSDEC, Watertown
Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. C. Orvis, USFWS - Hadley, Ma.
Mr. S. S. Hirschey

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 4, 1997

Ms. Sherry Morgan
Field Supervisor
U.S. Fish & Wildlife Service
3817 Luker Road
Cortland, NY 13045

SUBJECT: Beaver River Project
FERC Project No. 2645-NY

Dear Ms. Morgan:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above-referenced project issued on August 2, 1996, enclosed is Niagara Mohawk's draft drawings for the minimum flow release structures pertaining to the following license article:

License Article 403 — Soft Maple Development, 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel new release structure;

The enclosed draft drawings have been marked up to denote the proposed locations of the minimum flow release structures and to provide some detail of the release structure mechanism.

Following is a brief description of the minimum flow release structures at the Soft Maple Development and appropriate comments:

LICENSE ARTICLE 403 - SOFT MAPLE DEVELOPMENT

The license requires that the 35 cfs minimum flow release into the bypassed reach be made through two locations; 15 cfs through the existing slide gates at the spillway and 20 cfs through the existing diversion tunnel and new release structure.

The existing slide gate structure in the spillway will provide the nominal 15 cfs minimum flow release through an opening, 10.0 feet wide by 1.3 inches high. The minimum flow release will vary from 15.1 cfs to 16.6 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet).

The nominal 20 cfs minimum flow release from the existing diversion tunnel will be made through a new release structure utilizing the existing gate valve tower. A new 12" diameter piping and valve arrangement will provide the nominal 20 cfs minimum flow release at the end of the diversion tunnel, discharging into the bypassed reach. The minimum flow release will vary from 20.33 cfs to 20.64 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet). As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation.

SCHEDULE

License Article/Development	Minimum Flow Release Structure Construction Period
Article 403/Soft Maple	July 14 through December 15, 1997

DISCHARGE CURVES AND TABLES FOR SOFT MAPLE MINIMUM FLOW RELEASE STRUCTURES

Niagara Mohawk has developed the Soft Maple discharge curves and tables using orifice equations and the Hazen-Williams Pressure Pipe Flow Equation for the minimum flow release structures, based upon varying reservoir elevations as stated in the Settlement Offer and with maximum fluctuations as allowed by License Article 410. These discharge curves and tables for the Soft Maple Development's two release locations can be found under Attachment 1 and will also appear in the final plan for License Article 412.

Niagara Mohawk would appreciate receiving your comments in 30 days from the date of this letter. Upon receipt of agency comments, Niagara Mohawk will incorporate agency comments as appropriate in the detailed design drawings, and submit to FERC.

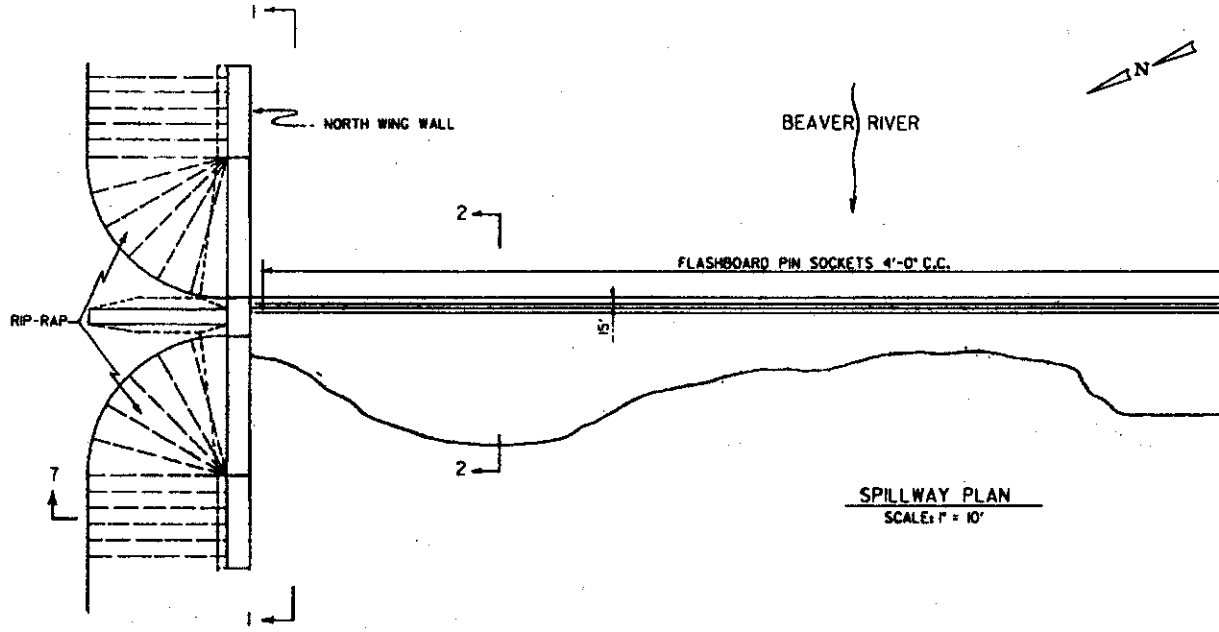
If you have any questions, please contact me at (315) 428-5556 or Tom Skutnik at (315) 428-5564.

Sincerely,

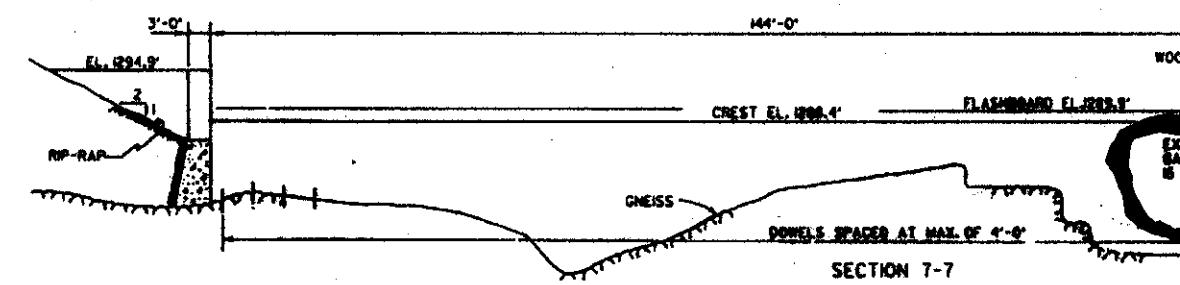
Jacob S. Niziol, P. E.
Dam Safety & Regulatory Compliance Coordinator

Enclosures:

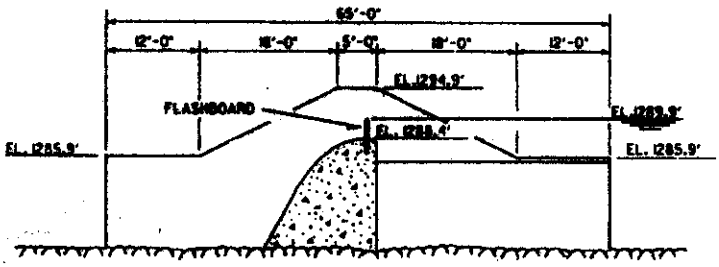
xc: Mr. J. J. Sama, NYSDEC - Albany
Mr. Len Ollivett, NYSDEC - Watertown
Mr. J. Mark Robinson, FERC DL&C, Washington
Mr. C. Orvis, USFWS - Hadley, Ma.
Mr. S. S. Hirschey



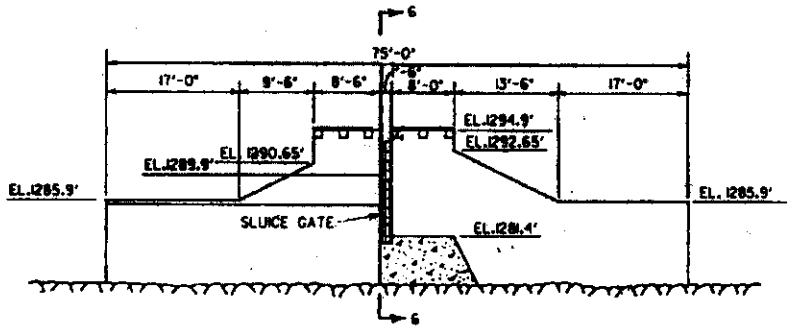
SPILLWAY PLAN
SCALE: 1" = 10'



SECTION 7-7
SPILLWAY ELEVATION
SCALE: 1" = 10'

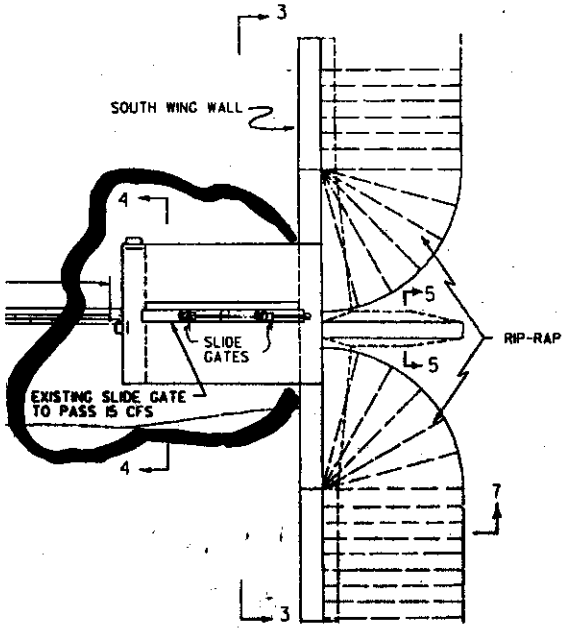


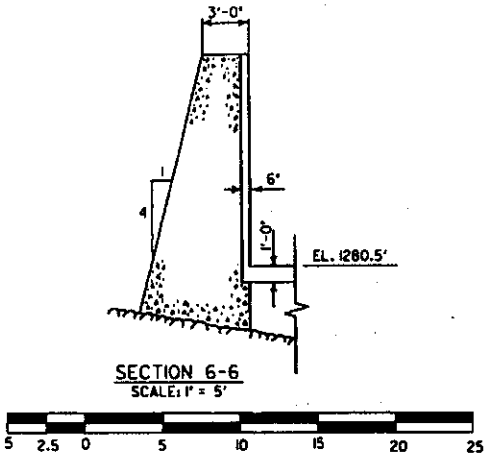
SECTION 1-1
NORTH WING WALL
SCALE: 1" = 10'

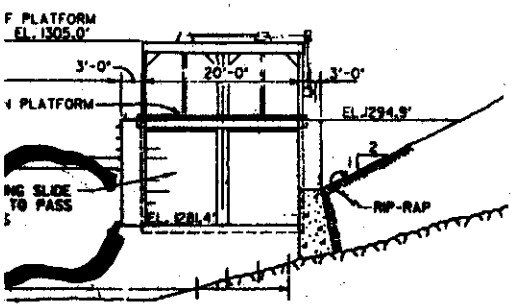


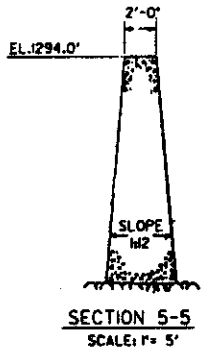
SECTION 3-3
SOUTH WING WALL
SCALE: 1" = 10'

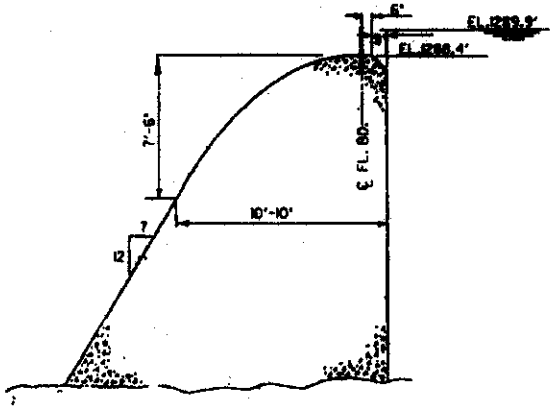
NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION

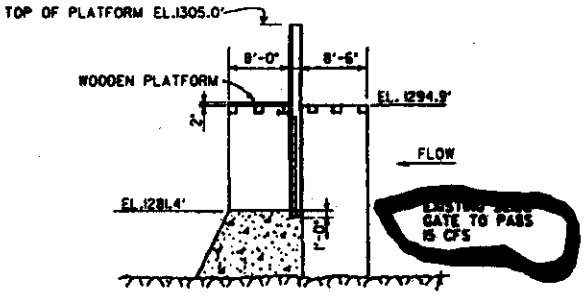












THIS IS A CADD DRAWING.
DO NOT MAKE MANUAL CHANGES.

NIAGARA MOHAWK

BEAVER RIVER PROJECT

SOFT MAPLE DEVELOPMENT

SPILLWAY DAM
PLAN AND SECTIONS

EXHIBIT F

SCALE: 1" = 10'

SHEET NO. 10

10 5 0 10 20 30 40 50

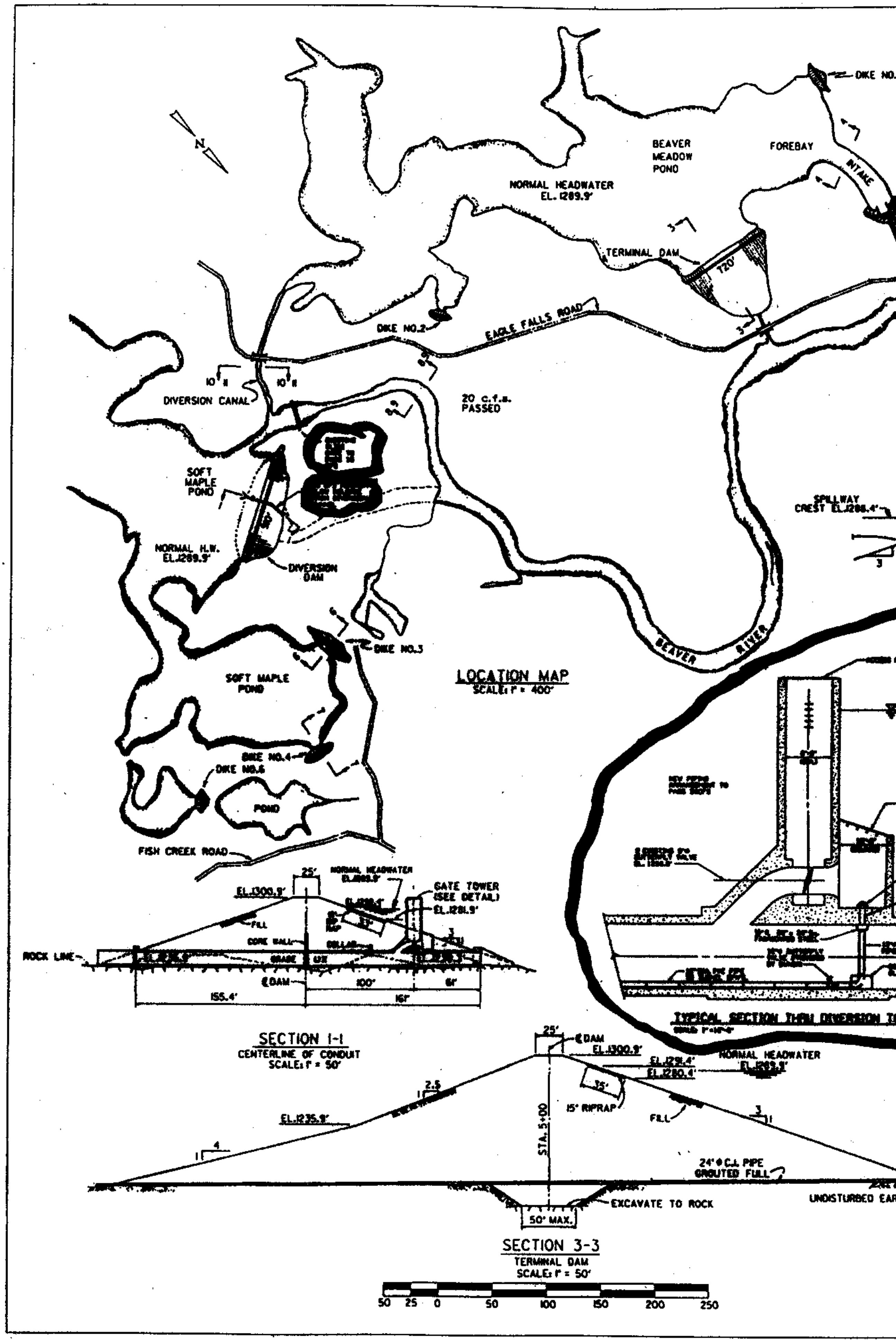
DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
			3	1/13/93	LIC. APP. ACCEPTED FOR FILING	—	DWM	—
			2	10/25/91	LICENSE APPLICATION	MM	GEC	JLS
			1	11-12-90	DRAFT LICENSE APPLICATION	JPC	GEC	JLS

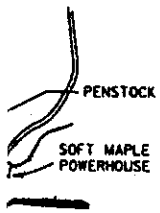
ORIGINAL ISSUE DATE

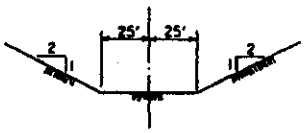
FILE INDEX 103-F1-N6-3.11, 3.13

DRAWING NUMBER F102645.DGN
F102645.GP4

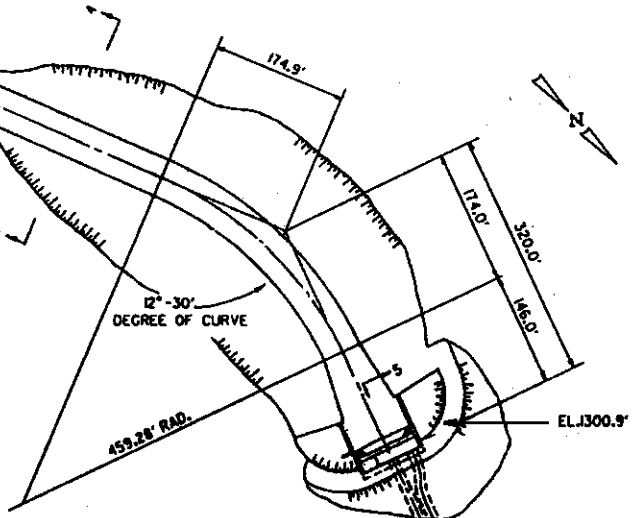
FERC NO. 2645-029-10


DIKE NO.
BEAVER MEADOW POND
FOREBAY
INTAKE
NORMAL HEADWATER EL. 1289.9'
TERMINAL DAM
720'
EAGLE FALLS ROAD
DIKE NO.2
DIVERSION CANAL
20 c.f.s. PASSED
SOFT MAPLE POND
NORMAL H.W. EL.1289.9'
DIVERSION DAM
SPILLWAY CREST EL.1288.4'
BEAVER RIVER
DIKE NO.3
LOCATION MAP
SCALE: 1" = 400'
SOFT MAPLE POND
DIKE NO.4
DIKE NO.6
POND
FISH CREEK ROAD
25'
EL.1300.9'
GATE TOWER (SEE DETAIL)
EL.1281.9'
FILL
CORE WALL
COLLAR
ROCK LINE
℄ DAM
100'
61'
155.4'
161'
SECTION 1-1
CENTERLINE OF CONDUIT
SCALE: 1" = 50'
TYPICAL SECTION THRU DIVERSION
25'
℄ DAM
EL.1300.9'
EL.1291.4'
EL.1280.4'
NORMAL HEADWATER EL.1289.9'
2.5
15' RIPRAP
FILL
3
EL.1235.9'
STA. 5+00
4
24" Φ C.I. PIPE GROUTED FULL
EXCAVATE TO ROCK
50' MAX.
UNDISTURBED EAR
SECTION 3-3
TERMINAL DAM
SCALE: 1" = 50'
50 25 0 50 100 150 200 250



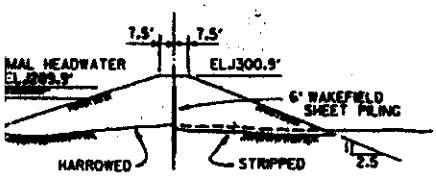


SECTION 4-4
INTAKE CANAL
SCALE: 1" = 40'

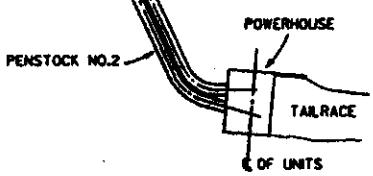


INTAKE
SCALE: 1" = 100'

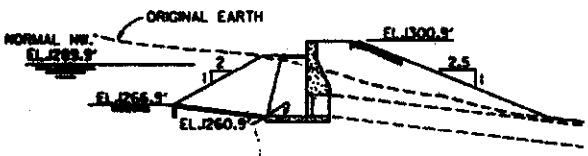
100 50 0 100 200 300 400 500



SECTION 6-6
TYPICAL FOR DIKES NO. 1,2&3
SCALE: 1" = 40'

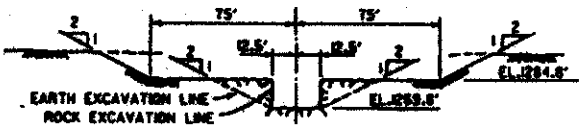


SECTION 7-7
TYPICAL FOR DIKES NO. 4 & 6
SCALE: 1" = 40'

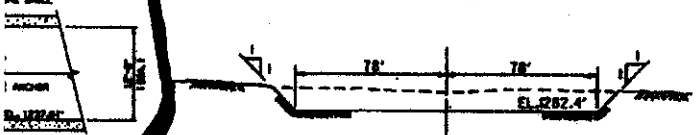


SECTION 5-5
INTAKE EMBANKMENT
SCALE: 1" = 40'

40 20 0 40 80 120 160 200

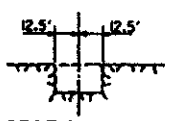


SECTION 8-8
SPILLWAY CHANNEL (EARTH & ROCK)
SCALE: 1" = 40'



SECTION 9-9
SPILLWAY CHANNEL (EARTH)
SCALE: 1" = 40'

THIS IS A CADD DRAWING.
DO NOT MAKE MANUAL CHANGES.



SECTION 10-10
DIVERSION CANAL (ROCK)
SCALE: 1" = 40'

SECTION 11-11
DIVERSION CANAL (EARTH)
SCALE: 1" = 40'

MVIRRIGA
BEAVER RIVER PROJECT

SOFT MAPLE DEVELOPMENT

GENERAL PLAN AND DETAILS
DAMS, DIKES AND CANALS

EXHIBIT F
SCALE: 1" = 400'
SHEET NO. 9

400 200 0 400 800 1200 1600 2000

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
3	4/13/93	LIC. APP. ACCEPTED FOR FILING	—	DWM	—
2	10/23/91	LICENSE APPLICATION	EJW	DEC	JLS
1	9-12-90	DRAFT LICENSE APPLICATION	JPC	DEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX 103-FI-NG-3.11, 3.13
DRAWING NUMBER F92645.DGN F92645.GP4

FERC NO. 2645-029-9

ATTACHMENT 1

DISCHARGE CURVES AND TABLES FOR SOFT MAPLE MINIMUM FLOW RELEASE STRUCTURES

SOFT MAPLE HYDRO DEVELOPMENT
15 CFS MINIMUM FLOW GATE

Discharge Area (A)	1.09 ft^2	(See Note 2)
Minimum Flow	15 cfs	
Gravity (g)	32.2 ft/sec^2	
Top of Flashboards	1289.9 ft	
Dam Crest Elevation	1288.4 ft	
Gate Crest	1281.4 ft	
Maximum draw down below top of flashboards	1.5 ft	
Centerline of Gate Opening Elevation	1281.45 ft	

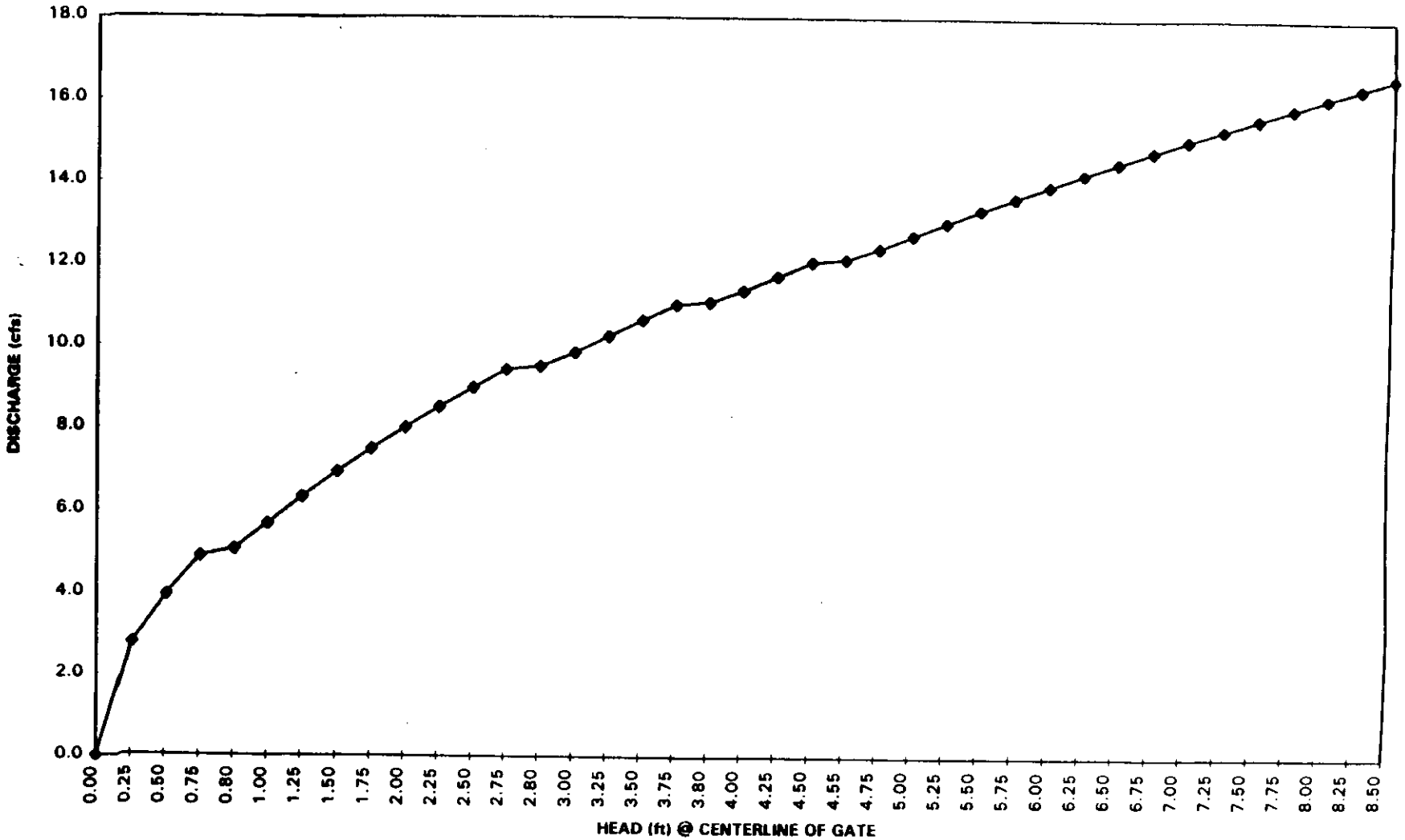
Head	Discharge	
0.00	0.0	
0.25	2.8	
0.50	4.0	
0.75	4.9	
0.80	5.1	
1.00	5.7	
1.25	6.4	
1.50	7.0	
1.75	7.5	
2.00	8.0	
2.25	8.5	
2.50	9.0	
2.75	9.4	
2.80	9.5	
3.00	9.9	
3.25	10.3	
3.50	10.6	
3.75	11.0	
3.80	11.1	
4.00	11.4	Discharge @El. 1285.4 (3.0' below dam crest)
4.25	11.7	
4.50	12.1	
4.55	12.1	
4.75	12.4	
5.00	12.7	
5.25	13.0	
5.50	13.3	Discharge @El. 1286.9' (3.0' below top of flashboards)
5.75	13.6	
6.00	13.9	
6.25	14.2	
6.50	14.5	
6.75	14.8	
7.00	15.1	Nominal Discharge (dam crest & 1.5' below top of flashboards)
7.25	15.3	
7.50	15.6	
7.75	15.8	
8.00	16.1	
8.25	16.3	
8.50	16.6	Discharge @El. 1289.9' (top of flashboards)

Notes:

1) As stated in the Settlement Agreement, page 2, flashboards rarely fail on the Beaver River due to the high degree of flow regulation. Pond elevation versus time curve will verify the level of compliance meeting the nominal discharge over time.

2) Discharge through 10'-0" wide gate at 0.109' open.

SOFT MAPLE HYDRO DEVELOPMENT
MINIMUM FLOW GATE



Soft Maple Hydro 20 cfs Min. Flow Release @ Tunnel
Rating Table for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\sftmple.fm2
Worksheet	sftmple
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Constant Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 2	1,235.24 ft
Length	301.20 ft
C Coefficient	120.0
Diameter	12.00 in

Input Data			
	Minimum	Maximum	Increment
Elevation at 1	1,285.40	1,289.90	0.25 ft

Rating Table

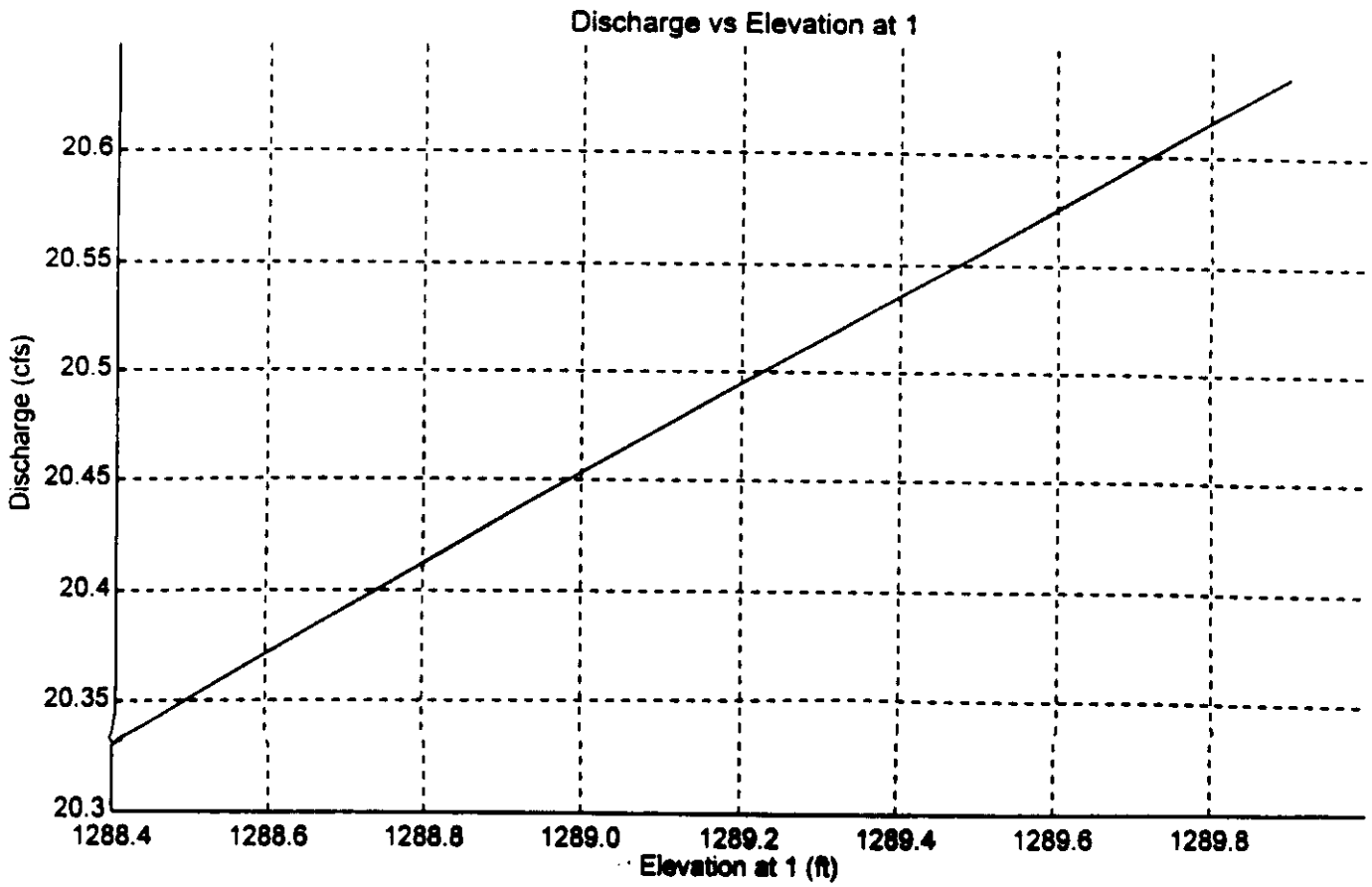
Elevation at 1 (ft)	Discharge (cfs)	
1,285.40	19.7015	Discharge @ 3' below dam crest
1,285.65	19.7545	
1,285.90	19.8073	
1,286.15	19.8601	
1,286.40	19.9127	
1,286.65	19.9652	
1,286.90	20.0175	Discharge @ 3' below top of flashboards
1,287.15	20.0698	
1,287.40	20.1219	
1,287.65	20.1739	
1,287.90	20.2258	
1,288.15	20.2776	
1,288.40	20.3293	Discharge @ dam crest & 1.5' below top of flashboards
1,288.65	20.3809	
1,288.90	20.4324	
1,289.15	20.4837	
1,289.40	20.5349	
1,289.65	20.5861	
1,289.90	20.6371	Discharge @ top of flashboards

Soft Maple Hydro 20 cfs Min. Flow Release @ Tunnel
Plotted Curves for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\sftmple.fm2
Worksheet	sftmple
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Constant Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 2	1,235.24 ft
Length	301.20 ft
C Coefficient	120.0
Diameter	12.00 in

Input Data			
	Minimum	Maximum	Increment
Elevation at 1	1,288.40	1,289.90	0.25 ft



Soft Maple Hydro 20cfs Min. Flow Release
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\sftmple.fm2
Worksheet	sftmple
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

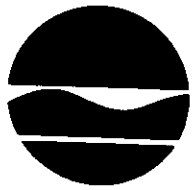
Input Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 1	1,289.90 ft
Elevation at 2	1,235.24 ft
Length	301.20 ft
C Coefficient	120.0
Diameter	12.00 in

Results		
Discharge	20.6371	cfs
Headloss	54.66	ft
Energy Grade at 1	1,298.92	ft
Energy Grade at 2	1,244.26	ft
Hydraulic Grade at 1	1,289.90	ft
Hydraulic Grade at 2	1,235.24	ft
Flow Area	0.79	ft^2
Wetted Perimeter	3.14	ft
Velocity	26.28	ft/s
Velocity Head	10.73	ft
Friction Slope	0.181474	ft/ft

LICENSE ARTICLE 403

AGENCY CORRESPONDENCE

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH & WILDLIFE & MARINE RESOURCES
317 Washington Street, Watertown, NY 13601
315-785-2267



John P. Cahill
Acting Commissioner

April 11, 1997

Mr. Jacob S. Niziol. P.E.
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Dear Mr. Niziol:

The Department of Environmental Conservation offers the following comments on draft drawings for the minimum flow release structures concerning license article 403 of Niagara Mohawk's license (FERC Project # 2645-NY) for the Beaver River Project.

We note that the calculated flow velocity through the 12" pipe release is 26.28 feet per second. We also note that the draft plans call for a "fish exclusion grate" on the by-pass pipe. If the openings in the "fish exclusion grate" are small enough to block the movement of fish into the by-pass pipe (0.5" max), will the velocity across the intake create an impingement problem and / or a debris loading problem? Given the location of the release structure within the much larger diversion structure, would an overlay on the existing trashracks on the diversion intake be better able to exclude fish and pass the required volume of water without becoming a significant debris catcher or impingement problem?

We appreciate the opportunity to comment on these structures, if you have any questions, please do not hesitate to contact me at (315) 785-2267.

Sincerely,

Len Ollivett

Len Ollivett
Conservation Biologist 2
Region 6

cc: Ms. Sherry Morgan, USFWS -Cortland
Mr. J. Mark Robinson, FERC DL&C - Washington
Mr. Randy Vaas, NYSDEC - Watertown

United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, New York 13045

May 1, 1997

Mr. Jacob S. Niziol, P.E.
Dam Safety & Regulatory Compliance Coordinator
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, NY 13202

RE: Beaver River Project
FERC No. 2645

Dear Mr. Niziol:

The U.S. Fish and Wildlife Service (Service) has reviewed Niagara Mohawk Power Corporation's (NMPC) design drawings and calculations for the proposed two instream flow release structures at the Soft Maple development of the Beaver River Project. License Article 403 requires a flow of 15 cubic feet per second (cfs) to be released from the existing slide gate at the spillway, and an additional 20 cfs release through a new structure within the existing diversion tunnel. A fish screen, with clear space openings of no greater that ½ inch, is to be installed in front of the diversion tunnel release mechanism to preclude fish from exiting the reservoir.

The Service appreciates the design work and expense involved in providing these minimum flows. In general, the flow releases computed for each of the release structures are technically correct. Opening the existing slide gate 1.3 inches should provide the required 15 cfs; however, this small opening may be subject to plugging with trash and debris.

The bar spacing of the diversion tunnel intake trashrack is not identified on the design drawing provided. The Service contacted NMPC and inquired about the trashrack's spacing. At this time, we understand that NMPC plans to investigate the condition of this trashrack through a diver survey. The results of this investigation may determine whether a replacement or upgrade of this trashrack is needed. Since this evaluation has not been completed, please keep the Service informed of the results and proposed plan of action.

The Service has evaluated the use of the proposed flow release pipe in the diversion tunnel. The projected discharge velocity (>28 feet per second) raises a concern with the potential for downstream stream scour. The design drawing does not depict the location of the discharge but indicates that the 12-inch-diameter pipe will extend to the tunnel opening. The Service has discussed this issue with NMPC. NMPC's representatives suggested that the need to dissipate the discharge velocities would be evaluated after the pipe is constructed. The Service suggests that NMPC consider having the 12-inch-diameter pipe discharge within the diversion tunnel instead of at the outlet of the tunnel. This would result in a reduction in the length of the new pipe. Further, discharging the 20 cfs into the

tunnel may result in a condition similar to that observed when the diversion tunnel was used as an interim instream flow release mechanism. Please keep the Service informed of any changes, modifications, or further evaluations of the instream flow release structures.

After the flow release structures are completed, the flow in each of the bypassed reaches should be gaged to verify compliance with the minimum instream flow requirements. The Service appreciates the opportunity to provide NMPC with our comments and recommendations. If you have further questions, please contact Dave Bryson at (607) 753-9334.

Sincerely,

Sherry W. Morgan

Sherry W. Morgan
Field Supervisor

cc:

APA, Ray Brook, NY (G. Outcalt)
New York Rivers United, Utica, NY (B. Carpenter)
NMPC, Syracuse, NY (T. Skutnik, S. Hirschey, J. Sabattis)
NYSDEC, Watertown, NY (L. Ollivett)
FERC, Washington, DC (L. Cashell, K. Madden, J. Robinson)
USFWS, Hadley, MA (C. Orvis)

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Niagara Mohawk Power Corporation	)	Project No. 2645-061
	)	

ORDER MODIFYING AND APPROVING MINIMUM FLOW RELEASE STRUCTURE PLANS

AUG 4 1997

Niagara Mohawk Power Corporation filed, on May 23, 1997, design drawings of the minimum flow release structure under article 403 of the license for the Beaver River Project (FERC No. 2645). The project is located on the Beaver River in the Towns of Croghan and Watson in Lewis County and in the Town of Webb in Herkimer County, New York. The project comprises the following eight developments (in descending order) which span 18 miles: Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls.

BACKGROUND

Article 403 requires the licensee to release from the Soft Maple development into the bypass reach a year-round minimum flow of 35 cubic feet per second (cfs). The release of 15 cfs will be through the existing slide gates at the spillway. The remaining 20 cfs will be provided through the existing diversion tunnel and a new release structure. The filing is to include the fish screen (or equivalent) proposed for the upstream end of the diversion tunnel.

After three full years of these minimum flows being provided, the New York State Department of Environmental Conservation (DEC) will conduct a fisheries investigation on resident brook trout in the bypass reach. If the investigation reveals the need to supplement the existing brook trout population, the DEC will commence a four-year program of transplanting native brook trout from local heritage streams to enhance prospects for a sustainable brook trout fishery in the bypass reach. The licensee will provide two fisheries biologists for three days in each year of the transplant program and equipment necessary for safe transport of fish during this effort.

LICENSEE'S PLAN

The existing slide gate structure in the spillway will provide the 15 cfs minimum flow release through an opening 10.0 feet wide by 1.3 inches high. The minimum flow release will vary from 15.1 cfs to 16.6 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet).

The 20 cfs minimum flow release from the existing diversion tunnel will be made through a new release structure utilizing the existing gate valve tower. A new 12-inch diameter piping and valve arrangement will provide the 20 cfs minimum flow release at the end of the diversion tunnel, discharging into the bypass reach. The minimum flow release will vary from 20.33 cfs to 20.64 cfs over the reservoir fluctuation range of 1.5 feet as measured from the normal maximum headwater elevation (top of flashboard elevation 1289.9 feet). The construction of these structures are anticipated to be complete by December 15, 1997.

AGENCY COMMENTS

The DEC, by letter dated April 11, 1997, concurs with the licensee's plan, but questions whether the openings in the fish exclusion grate are small enough to block the movement of fish into the bypass pipe. The DEC is also concerned that the velocity across the intake will create an impingement problem or a debris loading problem. The licensee incorporated the DEC's comment into the plan and indicated it would replace the existing trashracks with new trashracks having a 1-inch clear spacing when replacement is necessary.

The U.S. Fish and Wildlife Service (FWS), by letter dated May 1, 1997, concurs with the plan and recommends the flow in the bypass reach be gaged to verify compliance with the minimum flow requirement. The licensee's plan incorporated the FWS's comments.

DISCUSSION AND CONCLUSIONS

The Beaver River Project operations are controlled by the daily releases of the upstream Stillwater Reservoir, which is operated by the Hudson River Black River Regulating District. The licensee operates the eight developments of the project as store-and-release facilities that operate in a peaking mode. The Soft Maple development has the greatest discharge capacity and operates with the highest level of power generation. At the succeeding downstream developments, water is stored and released at lower generation levels. Together, the developments reregulate the peaking flow into a steadier continuous flow at the furthest downstream development, High Falls, which maintains a base minimum flow of 250 cfs downstream of the powerhouse.

Given the changing water surface elevation in the reservoir of the Soft Maple development due to peaking operation, the proposed minimum release structure will provide the required flows over the full range of operation. Depending on the water surface elevation, the flow from the existing slide gate structure will vary from 15.1 cfs to 16.6 cfs while flow from the diversion tunnel will vary from 20.33 cfs to 20.64 cfs. The

combination of the these two flows will exceed the required minimum flow of 35 cfs over the allowable range of reservoir fluctuation. Provisions are already in place under the licensee's approved streamflow and water surface elevation monitoring plan for the licensee to report incidents in which the minimum flows are not met. 1/

The licensee's plan should provide for the required minimum flow release into the bypass reach of the Soft Maple development and should, therefore, be approved.

The Director orders:

(A) The licensee's design plans for a minimum flow release structure under article 403 for the Beaver River Project (FERC No. 2645), filed on May 23, 1997, is approved.

(B) The licensee shall, within 90 days of completion of the minimum flow release structure, file with the Commission for approval, revised exhibits A, F, and G to describe and show the project as-built.

(C) Unless otherwise directed in this order, the licensee shall file an original and seven copies of any filing required by this order with:

The Secretary
Federal Energy Regulatory Commission
Mail Code: DLC, HL-11.2
888 First Street, N.E.
Washington, D.C. 20426

In addition, the licensee shall serve copies of these filings on any entity specified in this order to be consulted on matters related to these filings. Proof of service on these entities shall accompany the filings with the Commission.

(D) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 CFR § 385.713.

Kevin P. Madden
Acting Director
Office of Hydropower Licensing

1/ Order Modifying and Approving Streamflow and Water Surface Elevation Monitoring Plan issued July 10, 1997 (80 FERC ¶62,022).

ATTACHMENT H

QUESTION D – WATERSHED PROTECTION:

1996 BEAVER RIVER FUND MANAGEMENT PLAN

2013 BEAVER RIVER FUND ANNUAL CONTRIBUTION LETTER

ORIGINAL

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

OVERNIGHT COURIER

October 31, 1996

Mr. J. Mark Robinson, Director
Division of Project Compliance & Administration
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, N. E.
Washington, DC 20426

Subject: **Beaver River Project**
FERC Project No. 2645-029 NY
Article 416 - Beaver River Fund

Dear Mr. Robinson:

In accordance with the Order Issuing License issued on August 2, 1996, Niagara Mohawk herein submits an original and fourteen (14) copies of the detailed plan for Niagara Mohawk's participation in and management of the Beaver River Fund, as required by article 416 of the license.

If you have any questions, please contact the undersigned at (315) 428-5561 or Jacob S. Niziol at (315) 428 5556.

Sincerely,
Thomas M. Skrutski
for
Sam S. Hirschey, P. E.
Manager,
Hydro Licensing & Regulatory Compliance

Attachment
xc: M. W. Murphy
J. S. Niziol

TVTMSL305A.6AC

9611140223

NIAGARA MOHAWK POWER CORPORATION

BEAVER RIVER PROJECT
FERC PROJECT NO. 2645-029

LICENSE ARTICLE 416 COMPLIANCE SUBMITTAL; PLAN FOR LICENSEE'S PARTICIPATION IN AND MANAGEMENT OF THE BEAVER RIVER FUND

October 31, 1996

BEAVER RIVER PROJECT
FERC PROJECT NO. 2645-029

LICENSE ARTICLE 416 COMPLIANCE SUBMITTAL;
PLAN FOR LICENSEE'S PARTICIPATION IN
AND MANAGEMENT OF THE BEAVER RIVER FUND

I. INTRODUCTION

Niagara Mohawk submitted to the Federal Energy Regulatory Commission ("FERC") an Application For A New License for Beaver River Project No. 2645 on November 23, 1991. Following this submittal, Niagara Mohawk entered into negotiations with resource agencies and non-governmental organizations (NGO's), which negotiations culminated with a Settlement Offer, dated February 7, 1995 and amended on March 8, 1995. The Settlement Offer was eventually adopted as part of the FERC's Order Issuing License, issued on August 2, 1996 ("License"). As part of the Settlement Offer, a river fund was established with annual contributions by Niagara Mohawk (c.f. attached Settlement Offer's Attachment 2 - Beaver River Fund and Advisory Council). As part of the License, FERC included Article 416[1] , which is as follows:

> Article 416. Within 90 days from the date of this order, the licensee shall file for Commission approval a detailed plan for the licensee's participation in and management of the Beaver River Fund, as set forth in Attachment 2 to the Settlement approved and made part of the new license issued for the Beaver River Project. On or before October 1 of each year, in accordance the articles of this license and the Commission's Uniform System of Accounts, the licensee shall file for Commission approval a plan which shows the amount of money that the licensee will spend or contribute to the Beaver River Fund for the following year, pursuant to the funding provisions set forth in the Settlement. The Commission reserves the right to require changes in the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. The Commission also reserves the right, after notice and opportunity for hearing, to modify the funding arrangement, including ordering a suspension or cessation of contributions and expenditures, should it be necessary or appropriate.

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[1] By correspondence dated August 30, 1996, Niagara Mohawk sought rehearing (but not a stay) of certain aspects of the license, inclusive of Article 416. As regards Article 416, Niagara Mohawk's rehearing petition sought modification of Article 416 such that FERC receives reports on Beaver River Fund expenditures but does not approve or administer same. On September 19, 1996, the Commission issued an "Order Granting Rehearing For Further Consideration" for rehearing requests filed by Niagara Mohawk and two others. Thus, this filing reflects compliance with Article 416 as is, not as Niagara Mohawk seeks to have same modified by its rehearing petition.

The licensee shall also file, on or before April 1 of each year, a statement for the previous calendar year, in accordance with the articles of this license and the Commission's Uniform System of Accounts, showing the amounts of money the licensee has spent or contributed to the Beaver River Fund, and the purposes for which these amounts have been spent or contributed. The statement shall be sufficiently detailed to show whether the money has been spent on the purposes approved in the license.

II. FUND OBJECTIVES

The Beaver River Fund ("Fund") and the managing entity envisioned by the Settlement Offer, the Beaver River Advisory Council ("BRAC"), were created for use within the Beaver River basin for projects and services designated by the BRAC for purposes of ecosystem restoration and protection, natural resource stewardship, public education, facility maintenance, and applied research necessary to accomplish these projects and provide these services and additional public access to outdoor recreational resources not currently covered by Niagara Mohawk as part of its Beaver River Project No. 2645 or the Settlement Offer executed for that project.

III. FUND EXPENDITURE(S)

Niagara Mohawk is to deposit $80,000 in the Beaver River Fund within one year of acceptance of the FERC license.[2] All or a portion of that money is to be used to facilitate New York State's acquisition of the following from Niagara Mohawk within eighteen months of Niagara Mohawk's acceptance of the License[2]: (a) a conservation easement, 25 feet in width, around the Moshier impoundment, (b) reserved sand and gravel rights along Moshier bypassed reach and the fee title to the abutting acreage to the south, and (c) fee title to "Eagle Canyon", all with appropriate reservations for Niagara Mohawk access, operation and maintenance purposes, (d) any other Niagara Mohawk lands, easements and mineral rights not essential to project operation and not otherwise identified herein. Any money not used to purchase the land will remain in the fund for other uses. The State will prepare the title documents, appraisal, surveys and all other documents necessary to transfer title of the property at no cost to the Beaver River Fund or Niagara Mohawk.

Niagara Mohawk to contribute no less than $14,000 (fixed contribution) annually to the Beaver River Fund for the years 1 - 15 following acceptance of the FERC license and $20,000 annually for the remaining years of the new license.

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[2] Note that while the Settlement Offer sets up a schedule that is initiated by Niagara Mohawk acceptance of the License (an event that has not yet happened by virtue of pending rehearing requests by Niagara Mohawk and others), Article 416 keys annual FERC reporting by April 1st to a calendar year and the annual FERC approval filing on October 1st to an unspecified year (interpreted by Niagara Mohawk as the August 2 - August 1 license year).

IV. FUND ADMINISTRATION

The Beaver River Fund will be administratively managed by Niagara Mohawk and disbursements of the Fund will be made according to the recommendations of the BRAC. The BRAC will be chaired by a representative of the New York State Department of Environmental Conservation (NYSDEC). At a minimum, one BRAC meeting will be scheduled annually and other special meetings will be at the discretion of the NYSDEC and/or Niagara Mohawk. As a minimum, the following entities will be invited to serve on the BRAC.

- New York State Department of Environmental Conservation (NYSDEC)
- Niagara Mohawk Power Corporation (NMPC)
- United States Fish & Wildlife Service (USFWS)
- New York Rivers United (NYRU)
- Board of Hudson River-Black River Regulating District (HRBRRD)
- New York State Conservation Council (NYSCC)
- Adirondack Park Agency (APA)
- Adirondack Mountain Club (ADK)
- Lewis County
- Trout Unlimited (TU)
- American Whitewater Affiliation (AWA)
- Adirondack Council (AC)
- National Park Service (NPS)

Other entities, not part of the original BRAC, will be invited to serve on the BRAC as deemed necessary or appropriate by the BRAC.

Distribution of funds by the BRAC will be based on majority vote of a quorum of the BRAC. The BRAC will also make recommendations which must be considered by the regulatory agencies and Niagara Mohawk regarding management of the Beaver River and hydropower project operations, in accordance with other provisions of the Settlement Offer.

V. FUND REPORTING

On or before October 1 of each year, in accordance with Article 416 of the License and the Commission's Uniform System of Accounts, Niagara Mohawk will file for FERC approval a plan which shows the amount of money that Niagara Mohawk will spend or contribute to the Beaver River Fund for the following year, pursuant to the funding provisions set forth in the Settlement Offer and identified above under III. Fund Expenditure(s).

Niagara Mohawk will also file, on or before April 1 of each year, a statement for the previous calendar year, in accordance with the Article 416 of the License and the Commission's Uniform System of Accounts, showing the amounts of money Niagara Mohawk has spent or contributed to the Beaver River Fund, and the purposes for which these amounts have been spent or contributed. The statement will be sufficiently detailed to show whether the money has been spent on the purposes approved in the License.

VI. FUND SCHEDULE OF EVENTS

	Due Date
A. Events/Activities Required by Article 416	
1. Within 90 days of license order issuance, the licensee is to file for FERC approval a detailed plan for licensee's participation in, and management of, the Beaver River Fund.	October 31, 1996
2. Annually by October 1st, the licensee is to file, for FERC approval, the plan which shows the amount of money that the licensee will spend or contribute to the Beaver River Fund in the following year.	October 1, 1997
3. Annually by April 1st, the licensee is to file a statement for the previous calendar year, which statement shows the amounts of money licensee has spent or contributed to the Beaver River Fund and the purposes for which these amounts have been spent or contributed.	April 1, 1998
B. Events/Activities Required To Activate the Beaver River Advisory Council and the Beaver River Fund	
1. FERC resolution of rehearing petitions relative to Article 416	TBD
2. Initial meeting of Beaver River Advisory Council Participants	By August 1, 1997
a. Designating a representative for each member b. Adopting rules for decision making and conduct of meetings c. Considering receipts from NMPC and plan/ schedule for expenditures thereof d. Determine procedures for receipt, retention and expenditure of moneys	
3. NMPC initial contribution of $80,000 upfront to Beaver River Fund and initial annual contribution	By August 1, 1998*

* Assuming, for example, resolve of pending rehearing petitions on July 3, 1997, the starting of the Settlement Offer's one year clock (from license acceptance, i.e. 30 days past rehearing determination with no further rehearing petitions or court appeals) would then commence on August 2, 1997 and result in an initial $80,000 Niagara Mohawk funding obligation by August 1, 1998.

NIAGARA MOHAWK POWER CORPORATION'S

BEAVER RIVER PROJECT
FERC PROJECT NO. 2645-029

LICENSE ARTICLE 416 COMPLIANCE SUBMITTAL:
PLAN FOR LICENSEE'S PARTICIPATION IN
AND MANAGEMENT OF THE BEAVER RIVER FUND

DATES: (1) October 1, 1997
(2) October 1, 1998
(3) October 1, 2013
(4) October 1, 2024

SUBMITTAL:

_X_ A. By October 1st Annually, Licensee Filing, For FERC Approval, of a Plan Which Shows the Amount of Money That Licensee Will Contribute To The Beaver River Fund in the Following Year ("A" Filing).

___ B. By April 1st Annually, Statement Filing By Licensee Showing the Amounts of Money licensee Has Spent or Contributed to the Beaver River Fund and the Purposes For Which These Amounts Have Been Spent or Contributed ("B" Filing).

A FILING CONTENTS: Columns A and B

B FILING CONTENTS: Columns A, B and C

	COLUMN A	COLUMN B	COLUMN C
	Timeframe	LICENSEE's Monetary Contribution To Beaver River Fund	Purpose(s) for Which Licensee Contributed Money Has Been Spent
(1)	1998*	$80,000.00	Acquisition by the State of New York, or its assignee, of those Attachment 1 lands/rights detailed in "III. Fund Expenditures"
(2)	By August 1, 1998	$14,000.00/yr.	As determined by the BRAC
(3)	By August 1, 2013	$20,000.00/yr.	As determined by the BRAC
(4)	By August 1, 2025	$20,000.00/yr. (Last contribution to the Beaver River Fund)	As determined by the BRAC

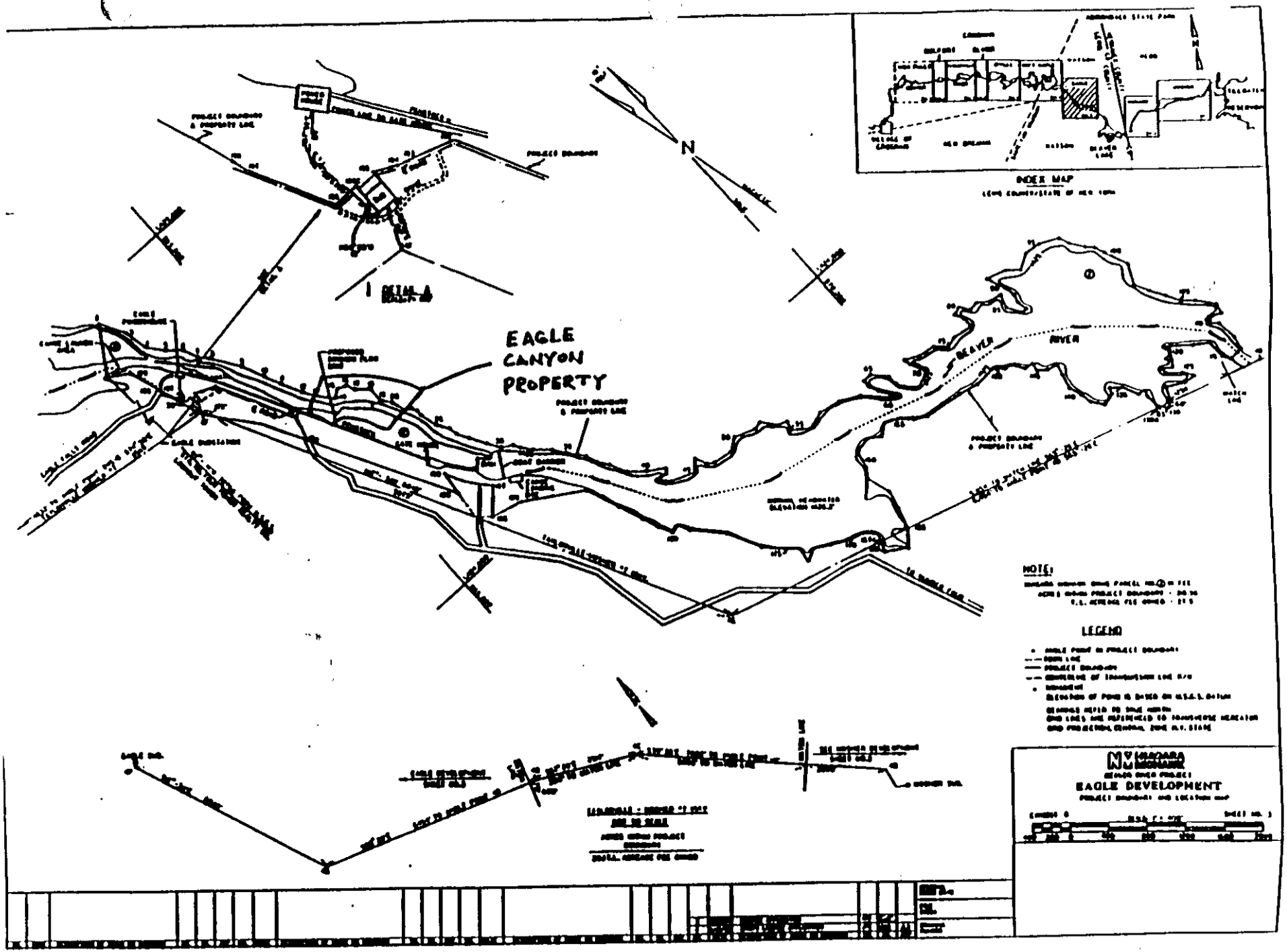
* c.f. footnote regarding assumed time schedule from preceding page.

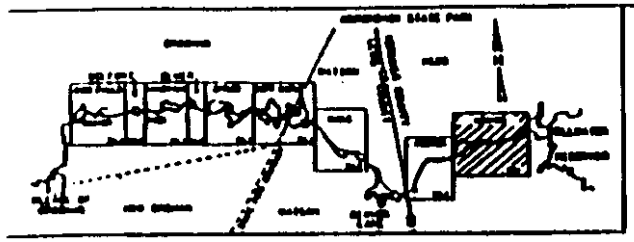
SAMPLE

ATTACHMENT 1

LANDS AND INTERESTS

TO BE CONVEYED


EAGLE
CANYON
PROPERTY
BEAVER
RIVER
N
INDEX MAP
NOTES:
LEGEND
EAGLE DEVELOPMENT



INDEX MAP

BEAVER RIVER

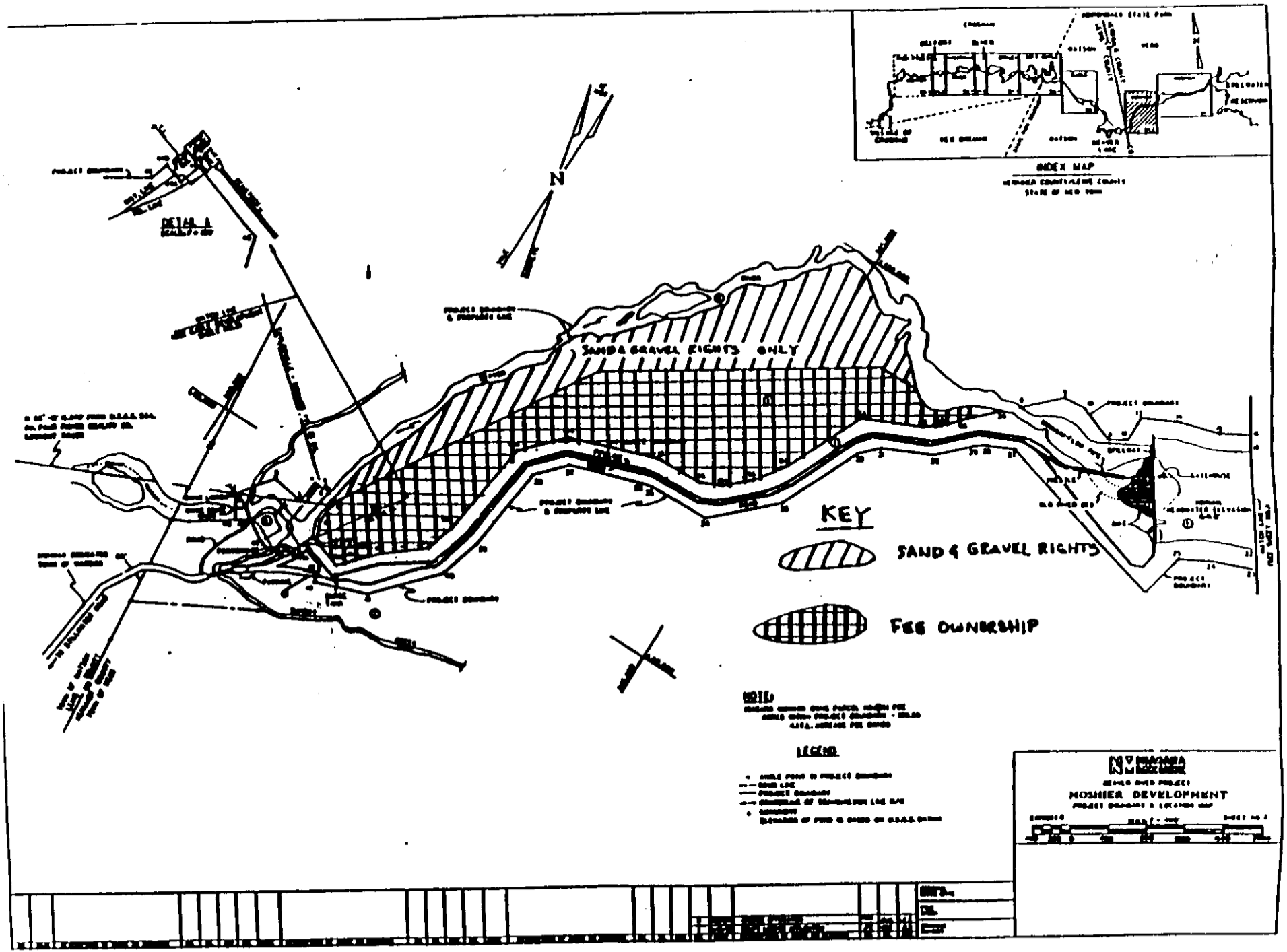
BEAVER RIVER

KEY

25' STRIP

LEGEND

MOSHIER DEVELOPMENT


INDEX MAP
SAND & GRAVEL RIGHTS ONLY
KEY
SAND & GRAVEL RIGHTS
FEE OWNERSHIP
NOTE:
LEGEND
NIAGARA MOHAWK
MOSHIER DEVELOPMENT

ATTACHMENT 2

BEAVER RIVER FUND AND ADVISORY COUNCIL

THE BEAVER RIVER FUND AND ADVISORY COUNCIL

1. Niagara Mohawk will provide $80,000 within one year of FERC license acceptance ("upfront money") to be deposited into the Beaver River Fund. As indicated in Attachment 1, all or part of the upfront money will be used to facilitate the State's acquisition of the following from Niagara Mohawk within eighteen months of Niagara Mohawk's FERC license acceptance for Beaver River Project No. 2645: (a) a conservation easement, 25 feet in width, around the Moshier impoundment, (b) reserved sand and gravel rights along Moshier bypassed reach and the fee title to the abutting acreage to the south, and (c) fee title to "Eagle Canyon", all with appropriate reservations for Niagara Mohawk access, operation and maintenance purposes, d) any other Niagara Mohawk lands, easements and mineral rights not essential to project operation and not otherwise identified herein. Any money not used to purchase the land will remain in the fund for other uses. The State will prepare the title documents, appraisal, surveys and all other documents necessary to transfer title of the property at no cost to the Beaver River Fund or Niagara Mohawk.

2. Niagara Mohawk will contribute no less than $14,000 (fixed contribution) annually to the Beaver River Fund for the years 1-15 following acceptance of the FERC license and $20,000 annually for the following 15 years for the purposes described herein.

3. The base minimum flows at Moshier, Eagle, Elmer and Taylorville will be 45, 45, 20, and 60 cfs, respectively. If downward adjustments to any or all of these base minimum flows are made, Niagara Mohawk will supplement the Beaver River Fund annually by an amount equivalent to 50 percent of the annual hydropower generating value associated with the difference between the flows selected and the base minimum flows using the energy values prevailing in that year. For the purposes of this evaluation, the Public Service Commission (PSC) Service Classification No. 6 (SC6) for transmission Voltage, blended on peak/off peak "energy only" rates will be used for the value of energy.

4. The Beaver River Fund will be administratively managed by Niagara Mohawk and distributed according to the recommendation of a Beaver River Advisory Council. The NYSDEC will chair the council. At a minimum the following entities shall be invited to serve on the Council.

    - New York State Department of Environmental Conservation (NYSDEC)
    - Niagara Mohawk Power Corporation (NMPC)
    - United States Fish & Wildlife Service (USFWS)
    - New York Rivers United (NYRU)
    - Board of Hudson River-Black River Regulating District (HRBRRD)
    - New York State Conservation Council (NYSCC)
    - Adirondack Park Agency (APA)
    - Adirondack Mountain Club (ADK)
    - Lewis County
    - Trout Unlimited (TU)

- American Whitewater Affiliation (AWA)
- Adirondack Council (AC)
- National Park Service (NPS)

Each member will have one vote with regards to the distribution of funds based on majority vote.

The Council will also make recommendations which must be considered by the regulatory agencies and Niagara Mohawk regarding management of the Beaver River and hydropower project operations, in accordance with other provisions of this agreement.

5. The Beaver River Fund will be used within the Beaver River basin for projects and services designated by majority vote of the council for purposes of ecosystem restoration and protection, natural resource stewardship, public education, facility maintenance, and applied research necessary to accomplish these projects and provide these services and additional public access to outdoor recreational resources not currently agreed to by Niagara Mohawk as its commitment to these purposes. The fund is not intended for any of the parties to carry out any obligations under the new FERC license or any amendment thereto. Furthermore, the fund is not intended for any person or party to discharge any legal or statutory obligations. Unspent funds shall accumulate with interest in a Federal Deposit Insurance Corporation (FDIC) insured account or instrument managed pursuant to prevailing trust standards. Within one year following surrender or expiration without annual renewal of the new FERC license, the funds accumulated and not otherwise obligated shall revert to Niagara Mohawk.

Brookfield

New York West Operations
Erie Boulevard Hydropower, LP
33 West 1st Street South
Fulton, NY 13069

Tel. (315) 593-3118
Fax (315) 598-4831
www.brookfieldpower.com

April 1, 2013

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

Subject: Beaver River Project P-2645 NY
License Article 416 – Beaver River Fund

Dear Secretary Bose:

Pursuant to Order On Rehearing issued January 16, 1998, on or before April 1 of each year, the licensee is required to file in accordance with the Commission's Uniform System of Accounts, a statement of the amount of money the licensee has contributed to the Beaver River Fund.

The Licensee has made the following contributions to the Beaver River Fund:

August 1998	$ 80,000
August 1998	$ 14,000
August 1999	$ 14,000
August 2000	$ 14,000
August 2001	$ 14,000
August 2002	$ 14,000
August 2003	$ 14,000
August 2004	$ 14,000
August 2005	$ 14,000
August 2006	$ 14,000
August 2007	$ 14,000
August 2008	$ 14,000
August 2009	$ 14,000
August 2010	$ 14,000
August 2011	$ 14,000
August 2012	$ 14,000
Total Contributions	$290,000

The licensee will contribute $20,000 to the Beaver River Fund in August 2013.

Should you have any questions, please contact me at (315) 598-6130.

Sincerely,

Steven P. Murphy
New York West Operations

xc: Alice Richardson, NYSDEC-Watertown

ATTACHMENT I

QUESTION E – THREATENED & ENDANGERED SPECIES PROTECTION:

CONSULTATION RECORD

Brookfield

New York West Operations
Erie Boulevard Hydropower, LP
33 West 1st Street South
Fulton, NY 13069

Tel. (315) 593-3118
Fax (315) 598-4831
www.brookfieldpower.com

February 11, 2013

Ms. Jean Pietrusiak
New York State Department of Environmental Conservation
New York Natural Heritage Program
625 Broadway, 5th Floor
Albany, NY 12233-4757

Subject: **Beaver River Hydroelectric Project (FERC No. 2645)**
Threatened and Endangered Species Consultation

Dear Ms. Pietrusiak:

Erie Boulevard Hydropower, L.P. (Erie) is the owner, operator, and licensee of the Beaver River (FERC No. 2645) Project. This Project is comprised of eight hydroelectric developments located at eight dams along the Beaver River in Lewis and Herkimer Counties. From upstream to downstream, these are the Moshier (River Mile [RM] 29.9), Eagle (RM 23.0), Soft Maple (RM 21.0), Effley (RM 16.9), Elmer (RM 16.2), Taylorville (RM 14.8), Belfort (RM 13.5) and High Falls (RM 11.0) developments.

As a matter of background, the license from the Federal Energy Regulatory Commission (FERC) was issued for this Project on August 2, 1996. Project operations and environmental protection measures at this Project have been largely determined by a comprehensive Offer of Settlement that Erie developed in conjunction with the New York State Department of Environmental Conservation and other entities in 1995. The licensing processes for this Project included consultation with resource agencies regarding threatened and endangered species.

Erie is presently working with the Low Impact Hydropower Institute (LIHI) to recertify the Beaver River Project as a low impact project. In preparing the application for LIHI certification, Erie must update or confirm consultation with resource agencies with respect to the presence of threatened or endangered species within the vicinity of these eight hydroelectric developments.

Per the request from LIHI, Erie respectfully requests information on the presence of threatened or endangered species within the vicinity of the above-listed Project. The project location coordinates have been provided below, as well as on the enclosed aerial maps.

- Moshier ..... Latitude: 43.8867; Longitude: -75.1086
- Eagle ..... Latitude: 43.9017; Longitude: -75.1944
- Soft Maple..... Latitude: 43.9183; Longitude: -75.2231
- Effley..... Latitude: 43.9233; Longitude: -75.2783
- Elmer..... Latitude: 43.9267; Longitude: -75.2889
- Taylorville..... Latitude: 43.9283; Longitude: -75.3033

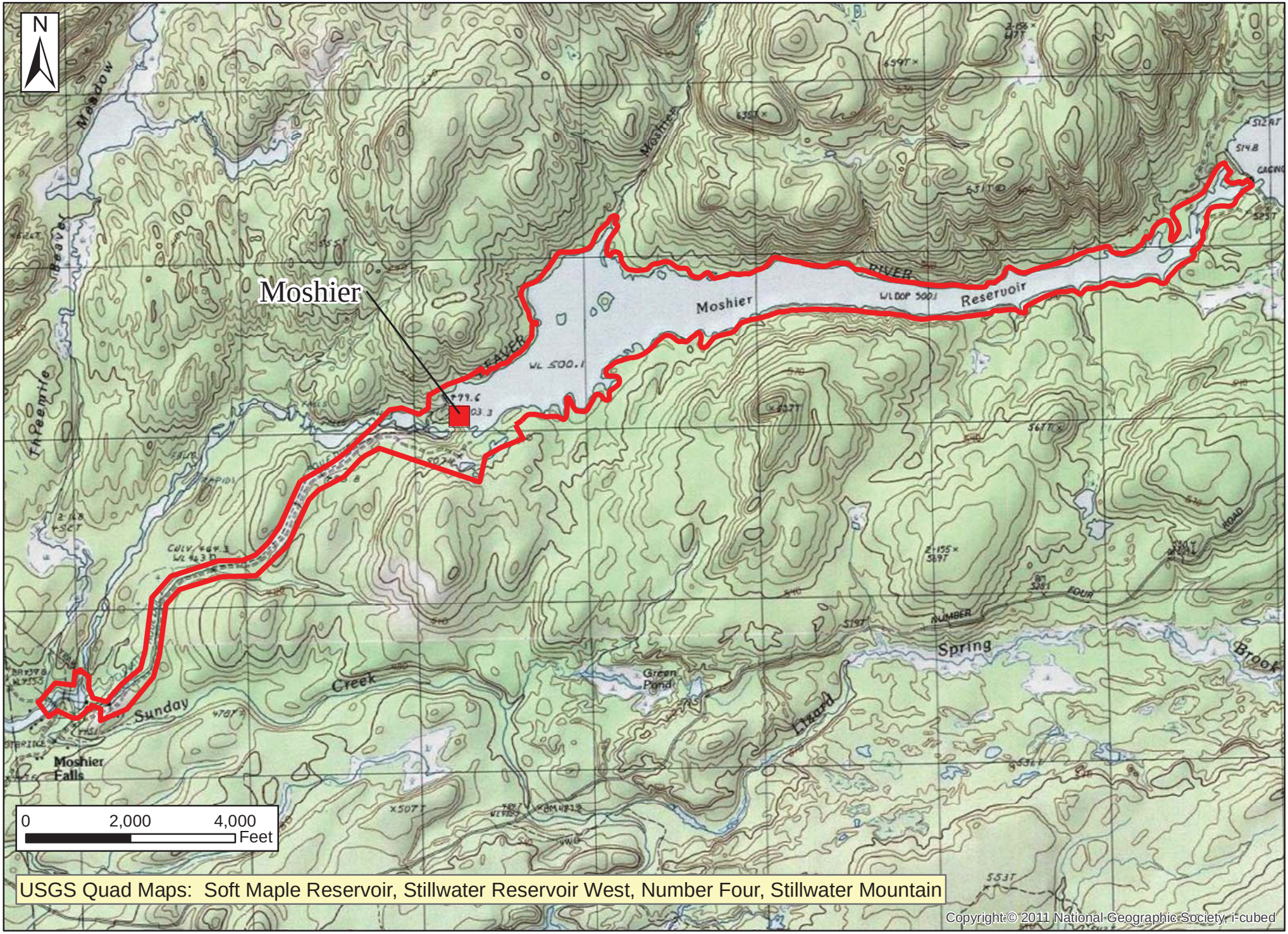
- Belfort ..... Latitude: 43.9267; Longitude: -75.2883
- High Falls..... Latitude: 43.9261; Longitude: -75.3739

Erie would appreciate a response within 30 days of the date of this letter. Thank you in advance for your assistance, and if you have any questions, please do not hesitate to contact me at (315) 598-6130.

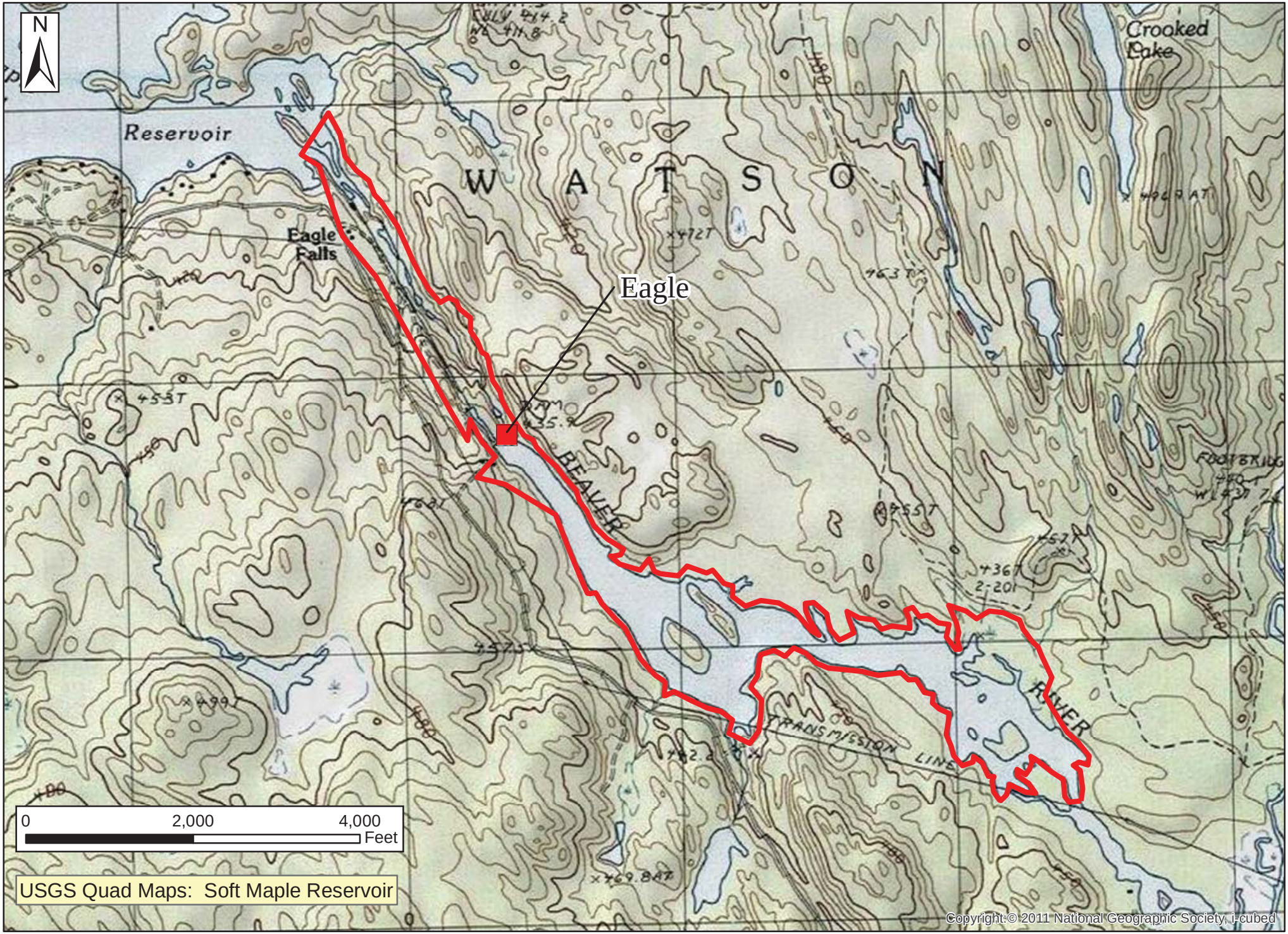
Sincerely,

Steven P. Murphy
New York West Operations

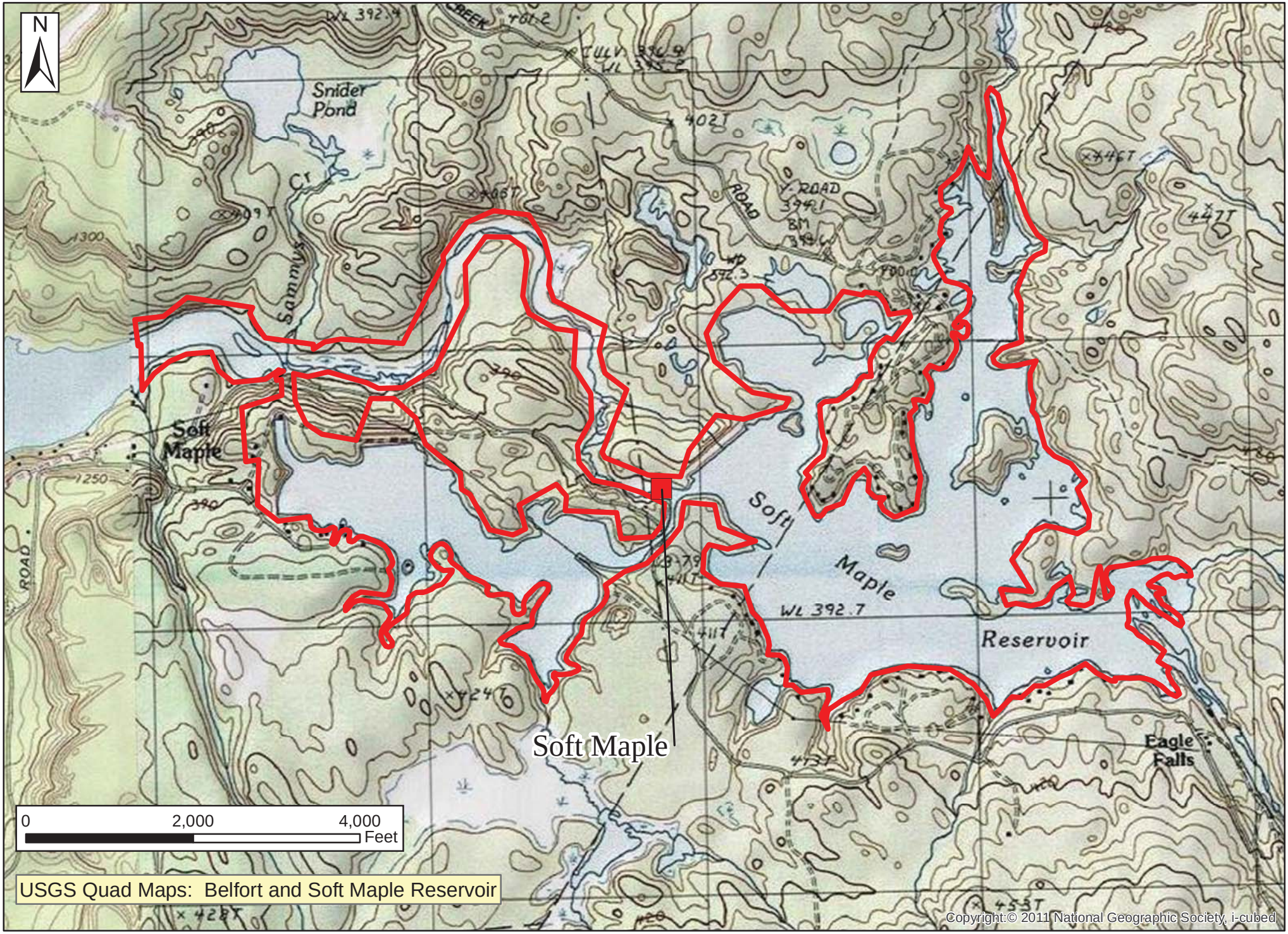
Enclosure



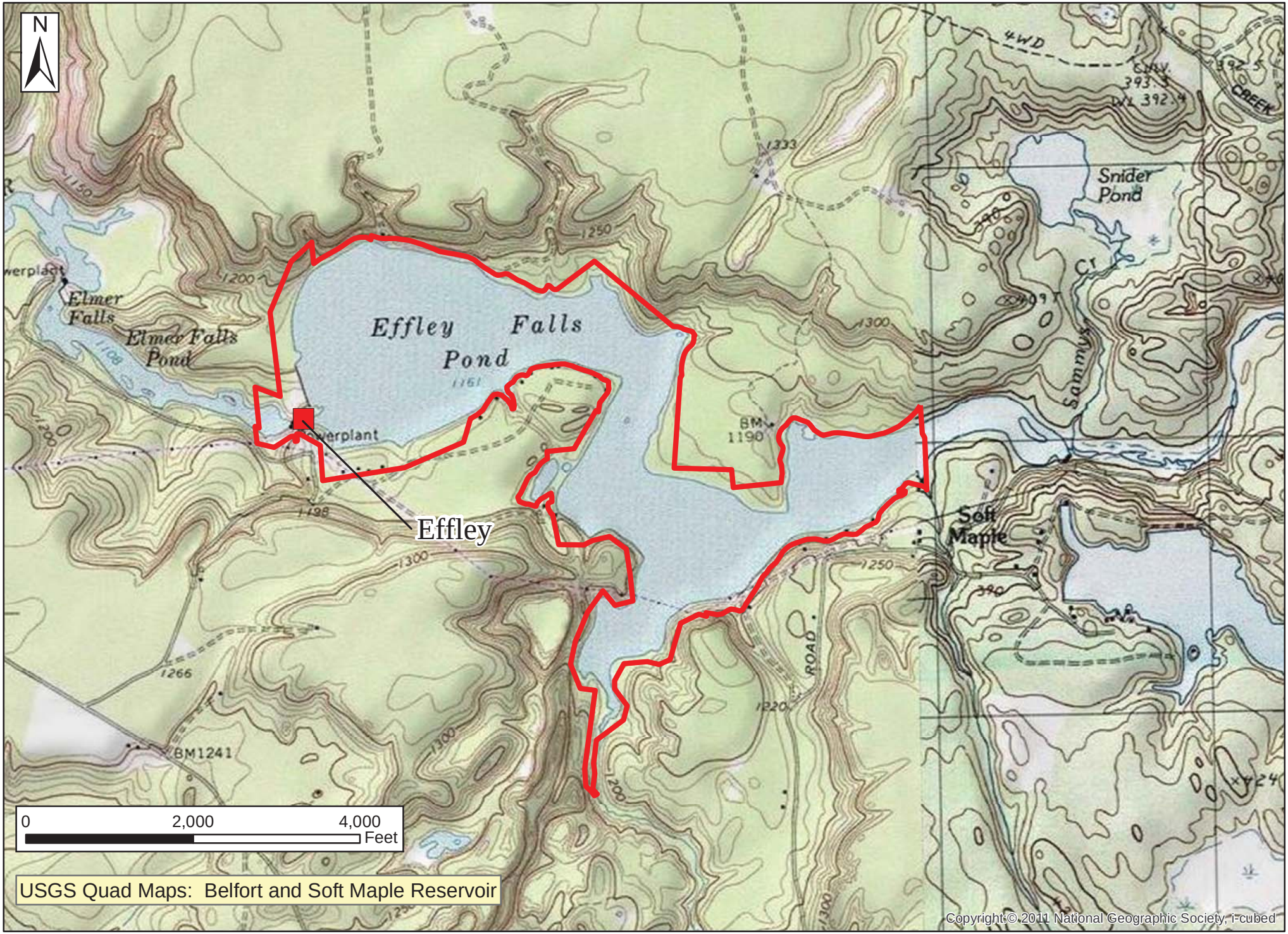
Moshier Project Boundary



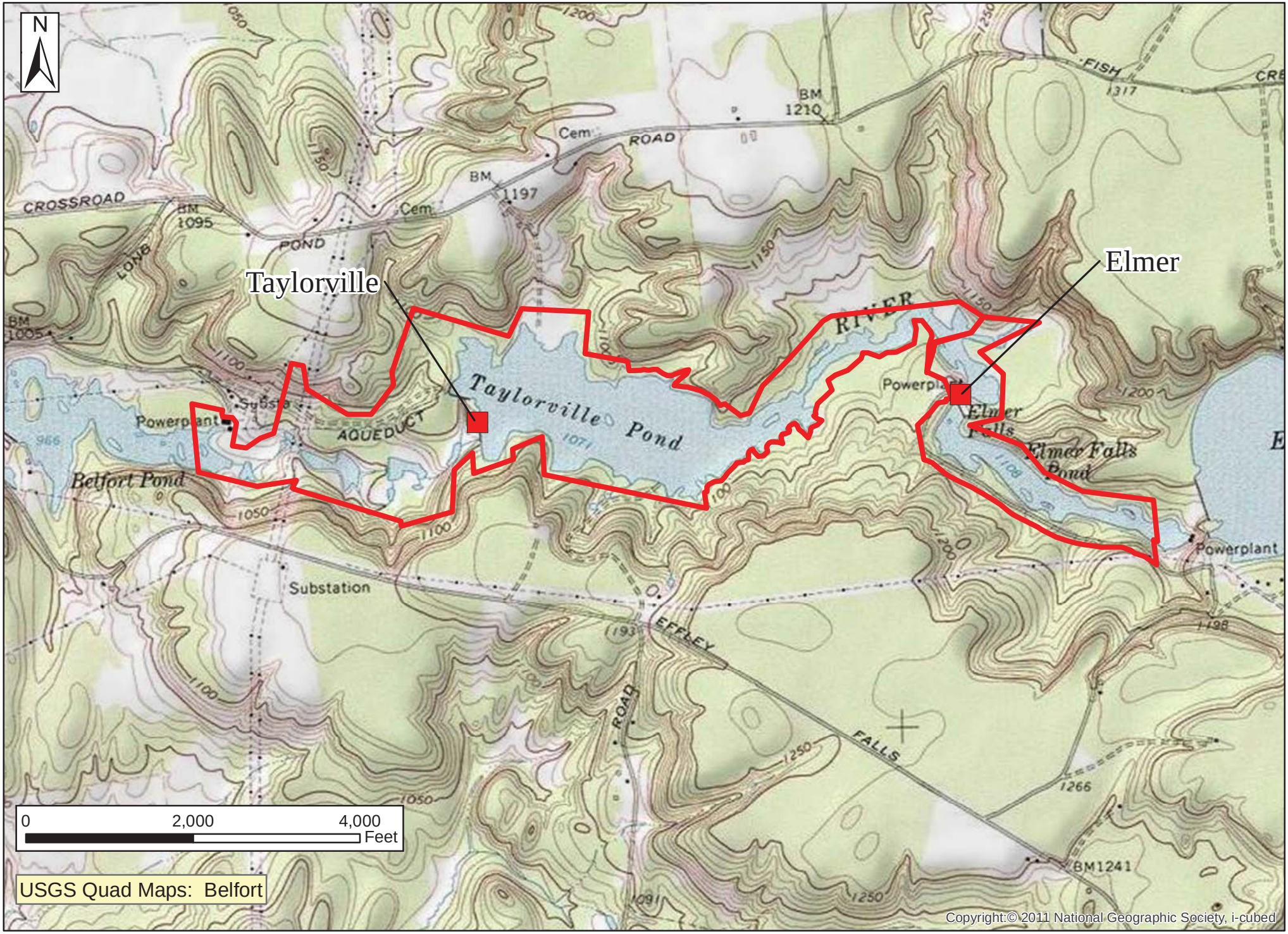
Eagle Project Boundary



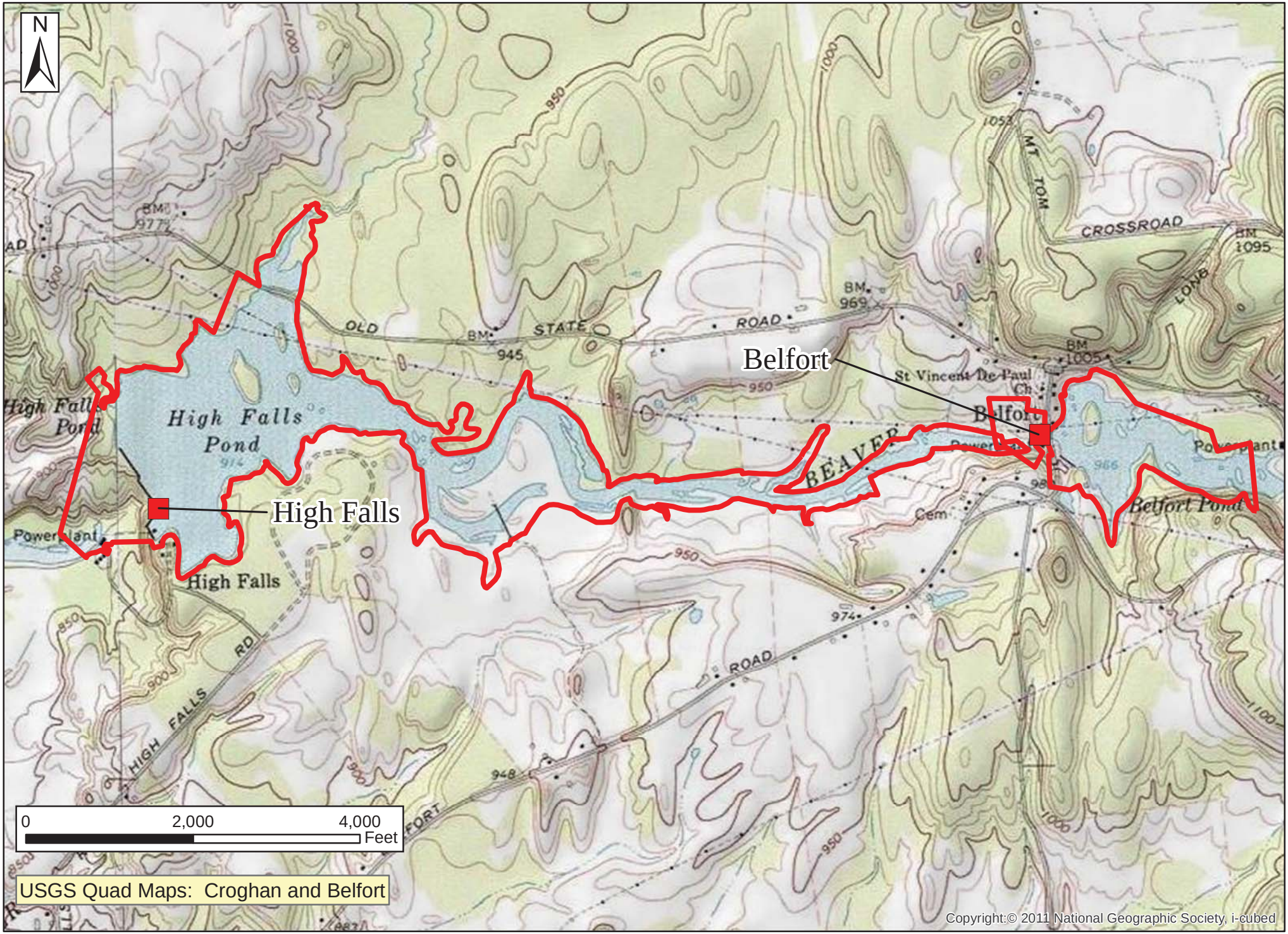
Soft Maple Project Boundary



Effley Project Boundary



Taylorville and Elmer Project Boundaries



High Falls and Belfort Project Boundaries

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Joe Martens
Commissioner

February 27, 2013

Steven Murphy
Brookfield
Erie Blvd Hydropower
33 West 1st Street South
Fulton, NY 13069

Dear Mr. Murphy:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the Proposed Beaver River Hydro Project, FERC 2645, - 8 Dams along the Beaver River in Lewis and Herkimer Counties, sites as indicated on the maps you enclosed.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities, which our database indicates occur, or may occur, on your site or in the immediate vicinity of your site. For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

The enclosed report may be included in documents that will be available to the public. However, any maps displaying locations of rare species are considered sensitive information, and should not be included in any document that will be made available to the public, without permission from the New York Natural Heritage Program.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,

Jean Pietrusiak, Information Services
NYS Department Environmental Conservation
167

Enc.
cc: Reg. 6, Wildlife Mgr.

The following rare plants, rare animals, and significant natural communities have been documented at your project site, or in its vicinity.

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

The following animals, while not listed by New York State as Endangered or Threatened, are of conservation concern to the state, and are considered rare by the New York Natural Heritage Program.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*

Birds

Common Loon *Gavia immer* Special Concern

Breeding

Beaver Lake Watson: The loons were observed on a lake. 5885

Common Loon *Gavia immer* Special Concern

Breeding

Moshier Reservoir: The loons were observed on a lake created by a dam. 5213

Common Loon *Gavia immer* Special Concern

Breeding

Soft Maple Reservoir: 2 lakes connected by a narrow channel and created by multiple dams or dikes. 1488

Common Loon *Gavia immer* Special Concern

Breeding

Stillwater Reservoir: The loons were observed on a large reservoir with a complex shoreline and many islands. 8447

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Northern Clustered Sedge	*Carex arcta*	Endangered	Critically Imperiled in NYS

Stillwater Reservoir Northwest: Seasonally inundated graminoid lowland. 10233

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

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

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

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to http://www.dec.ny.gov/animals/29384.html and click on Draft Ecological Communities of New York State.

Brookfield

New York West Operations
Erie Boulevard Hydropower, LP
33 West 1st Street South
Fulton, NY 13069

Tel. (315) 593-3118
Fax (315) 598-4831
www.brookfieldpower.com

February 11, 2013

Mr. David Stillwell
U.S. Fish and Wildlife Service
3817 Luker Road
Cortland, NY 13045

Subject: **Beaver River Hydroelectric Project (FERC No. 2645)**
Threatened and Endangered Species Consultation

Dear Mr. Stillwell:

Erie Boulevard Hydropower, L.P. (Erie) is the owner, operator, and licensee of the Beaver River (FERC No. 2645) Project. This Project is comprised of eight hydroelectric developments located at eight dams along the Beaver River in Lewis and Herkimer Counties. From upstream to downstream, these are the Moshier (River Mile [RM] 29.9), Eagle (RM 23.0), Soft Maple (RM 21.0), Effley (RM 16.9), Elmer (RM 16.2), Taylorville (RM 14.8), Belfort (RM 13.5) and High Falls (RM 11.0) developments.

As a matter of background, the license from the Federal Energy Regulatory Commission (FERC) was issued for this Project on August 2, 1996. Project operations and environmental protection measures at this Project have been largely determined by a comprehensive Offer of Settlement that Erie developed in conjunction with the New York State Department of Environmental Conservation and other entities in 1995. The licensing processes for this Project included consultation with resource agencies regarding threatened and endangered species.

Erie is presently working with the Low Impact Hydropower Institute (LIHI) to recertify the Beaver River Project as a low impact project. In preparing the application for LIHI certification, Erie must update or confirm consultation with resource agencies with respect to the presence of threatened or endangered species within the vicinity of these eight hydroelectric developments.

Per the request from LIHI, Erie respectfully requests information on the presence of threatened or endangered species within the vicinity of the above-listed Project. The project location coordinates have been provided below, as well as on the enclosed aerial maps.

- Moshier ..... Latitude: 43.8867; Longitude: -75.1086
- Eagle ..... Latitude: 43.9017; Longitude: -75.1944
- Soft Maple..... Latitude: 43.9183; Longitude: -75.2231
- Effley..... Latitude: 43.9233; Longitude: -75.2783
- Elmer..... Latitude: 43.9267; Longitude: -75.2889
- Taylorville..... Latitude: 43.9283; Longitude: -75.3033

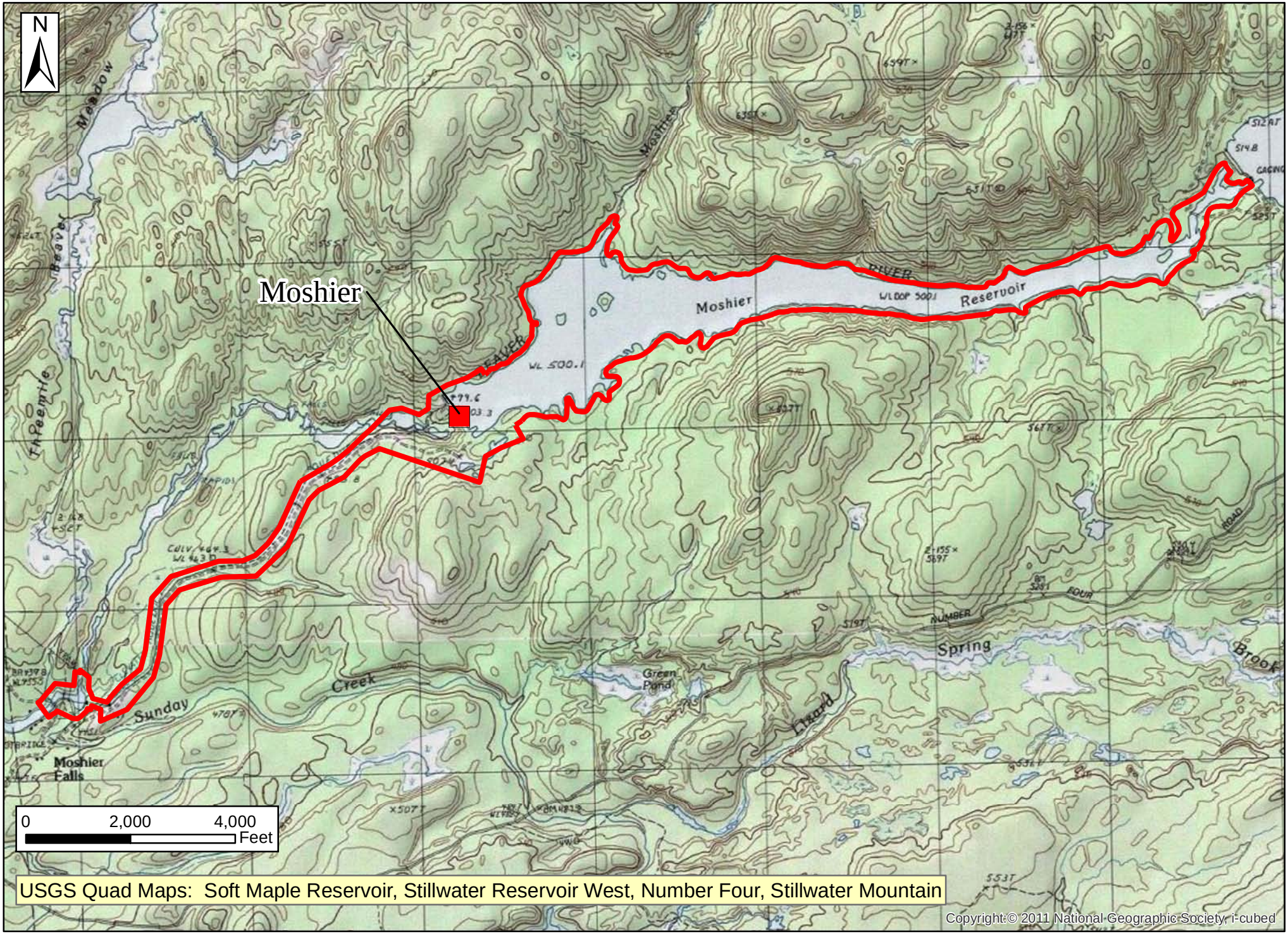
- Belfort ..... Latitude: 43.9267; Longitude: -75.2883
- High Falls..... Latitude: 43.9261; Longitude: -75.3739

Erie would appreciate a response within 30 days of the date of this letter. Thank you in advance for your assistance, and if you have any questions, please do not hesitate to contact me at (315) 598-6130.

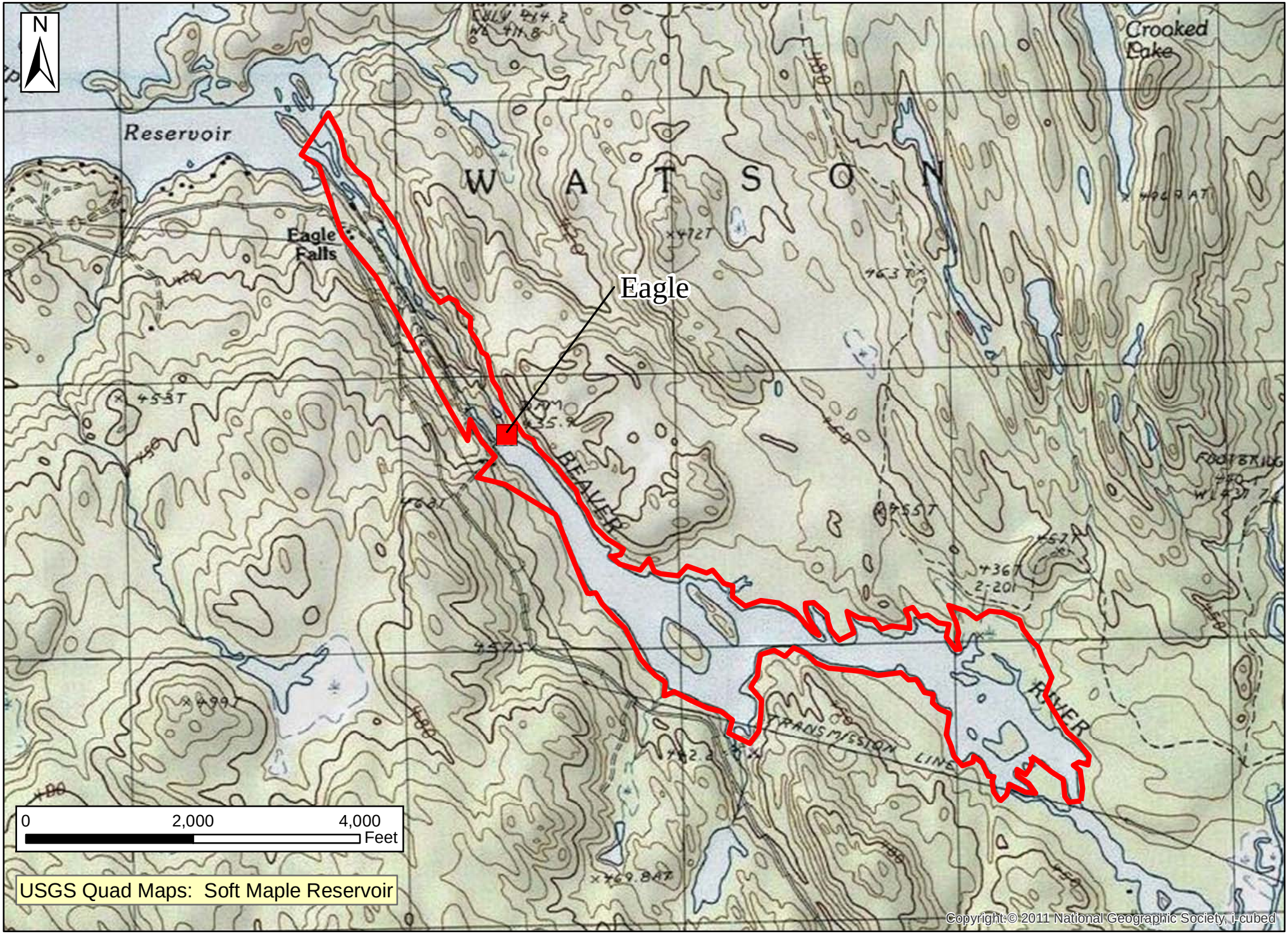
Sincerely,

Steven P. Murphy
New York West Operations

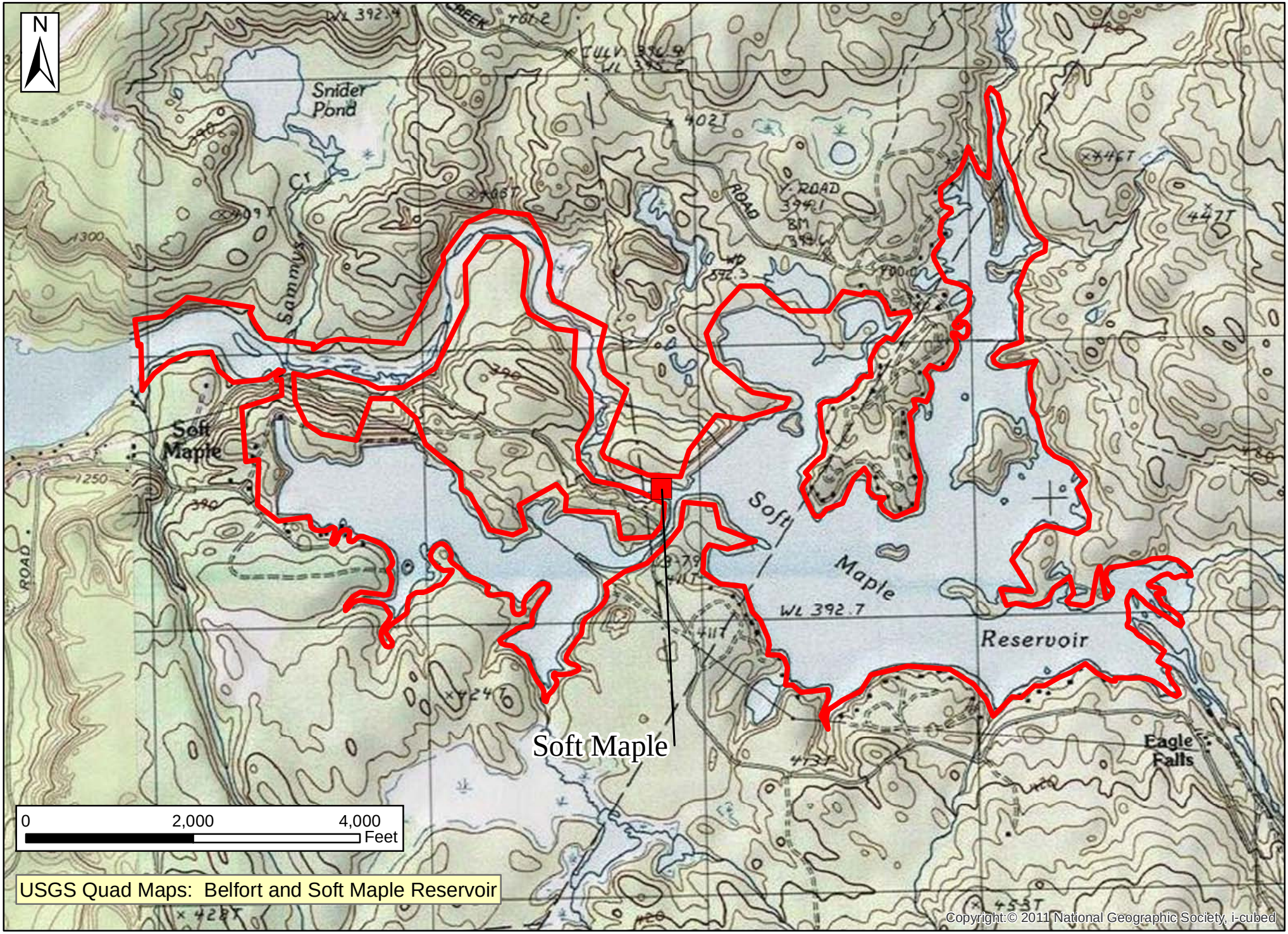
Enclosure



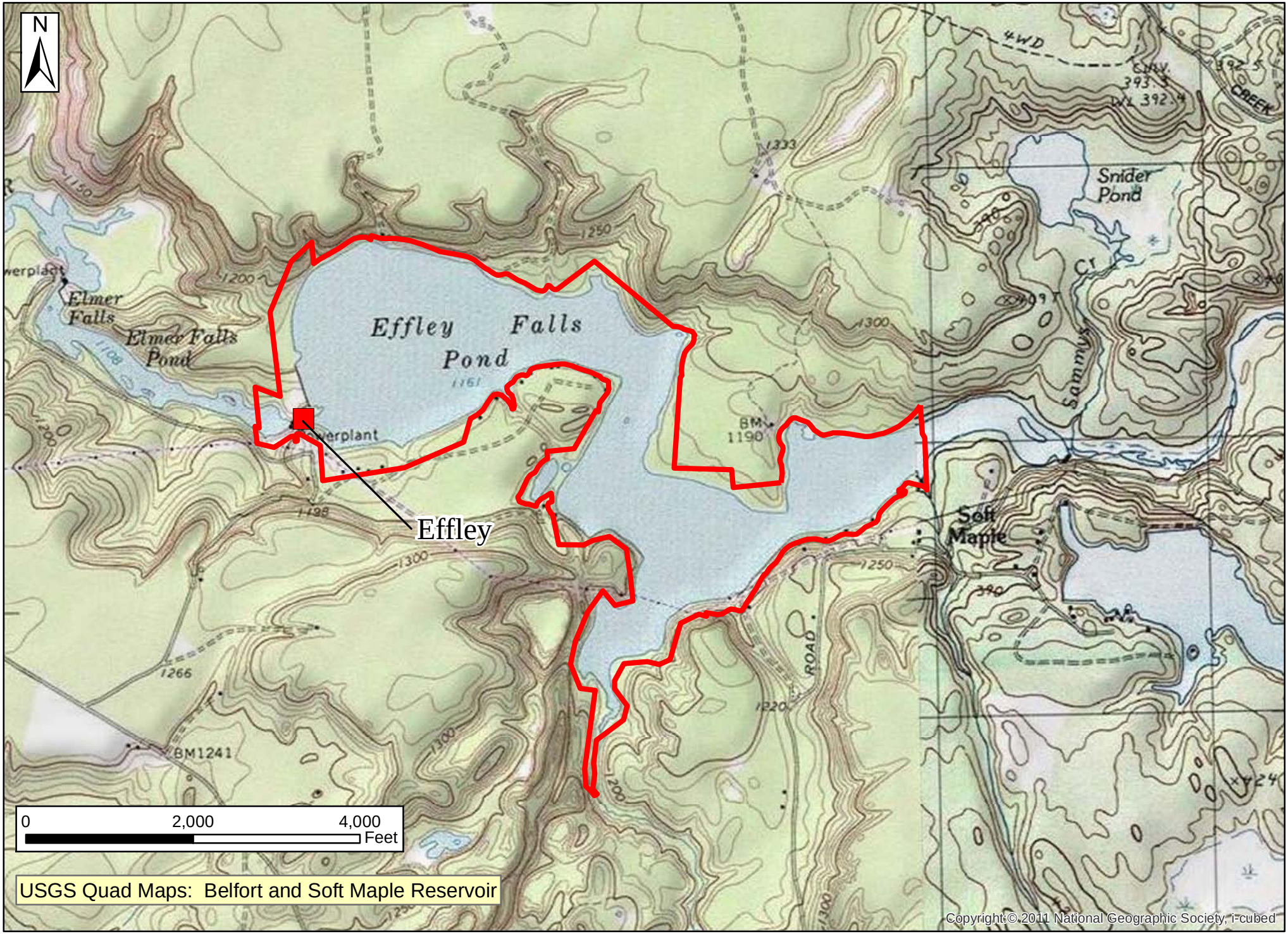
Moshier Project Boundary



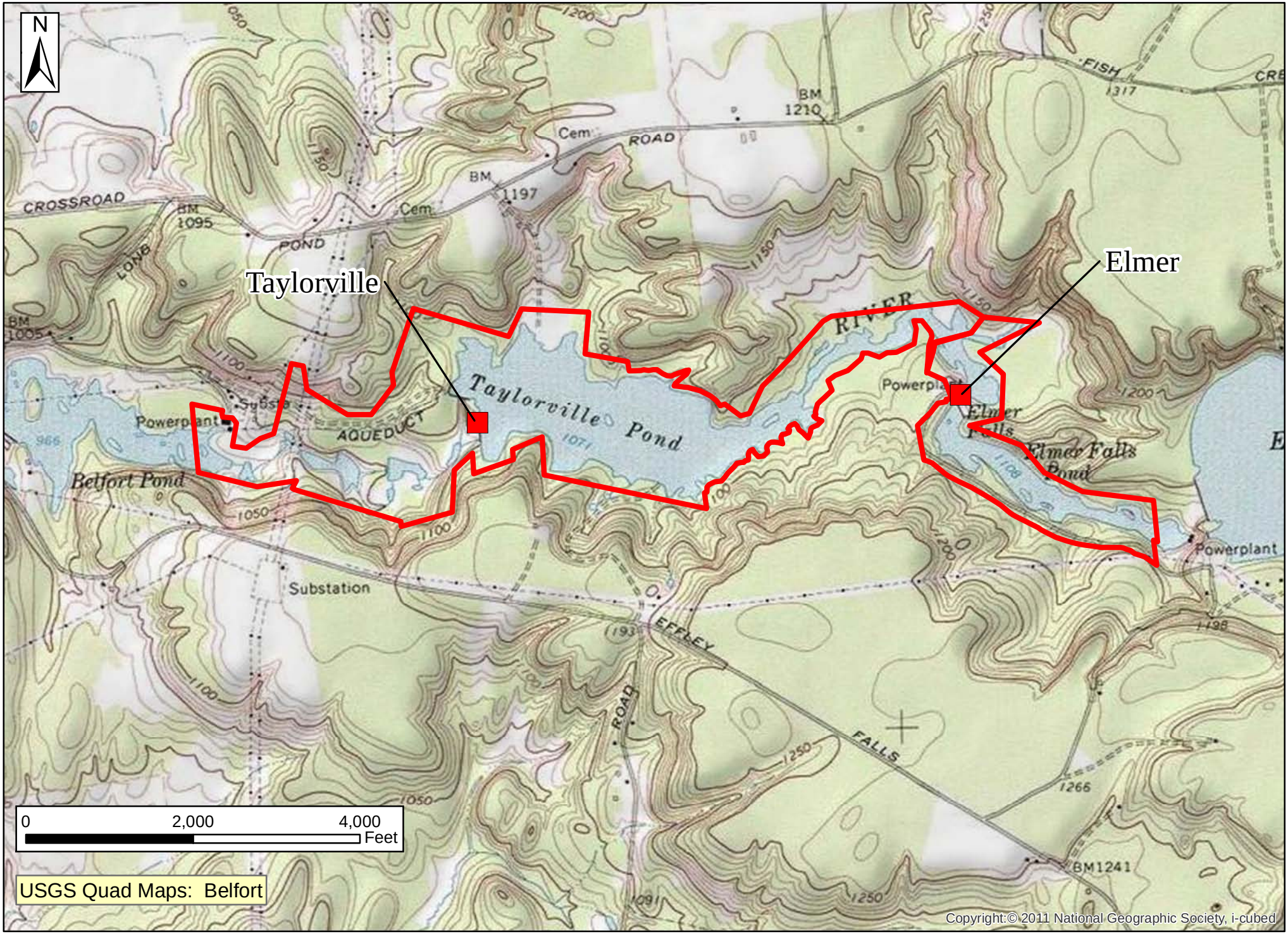
Eagle Project Boundary



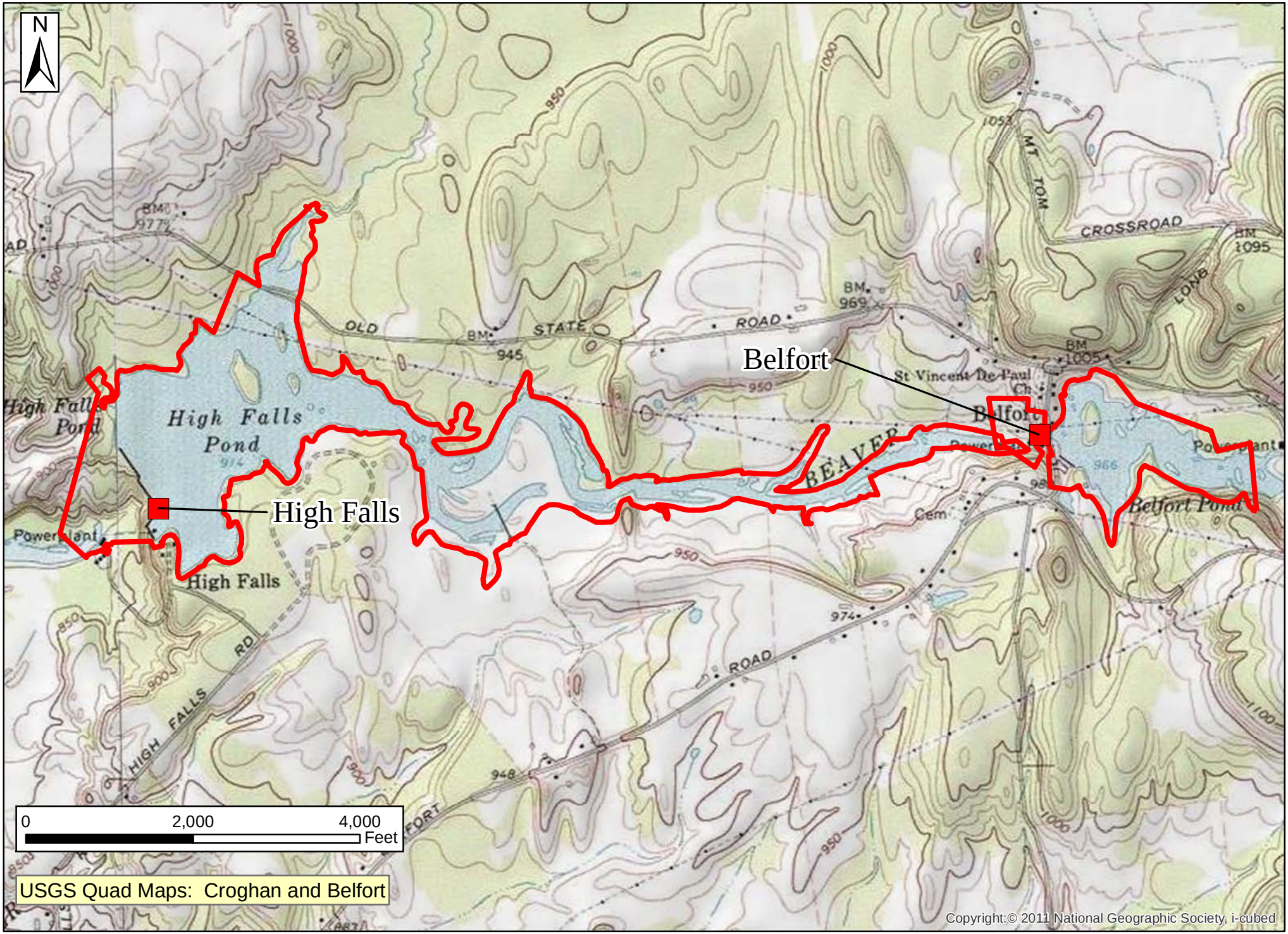
Soft Maple Project Boundary



Effley Project Boundary



Taylorville and Elmer Project Boundaries



High Falls and Belfort Project Boundaries

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

February 20, 2013

Mr. Steven Murphy, Compliance Specialist
Brookfield Renewable Power -- New York West Operations
33 West 1st Street South
Fulton, NY 13069

RE: Beaver River Hydroelectric Project (FERC $2645)
Threatened and Endangered Species Consultation

Dear Mr. Murphy:

The U.S. Fish and Wildlife Service (Service) has reviewed Brookfield Renewable Power's (Brookfield) February 11, 2013, request for consultation related to recertification of the Beaver River Hydroelectric Project (Project) as a low impact project. The Project is located at eight developments along the Beaver River in Lewis and Herkimer Counties, New York. Brookfield is preparing an application to the Low Impact Hydropower Institute (LiHi) for recertification as a low impact hydropower project. The Service did not oppose the initial certification from LiHi. Project operations have not changed, and to the best of our knowledge, Brookfield is in full compliance with license articles and settlement conditions.

Threatened and Endangered Species

The following comments are provided as technical assistance pursuant to the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Directions for completing consultation can be found on the Service's website.[1] The most recent compilation of federally-listed and proposed endangered and threatened species for each county in New York is available for your information on the New York Field Office website. Until the proposed certification is complete, we recommend that you check this website every 90 days from the date of this letter to ensure that listed species presence/absence information for the Project is current.

The bald eagle (*Haliaeetus leucocephalus*) was removed from the Federal Endangered Species List on August 8, 2007, and is no longer protected under Section 7 of the ESA; however, bald

[1] Additional information may be found on the Service's website at: http://www.fws.gov/northeast/nyfo/es/section7.htm

eagles remain on the New York State list as a state-listed threatened species. Bald eagles are also protected under the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). If bald eagles are present in the project area, the Service recommends that you follow the Bald Eagle Management Guidelines found on the Service's website at http://www.fws.gov/northeast/ecologicalservices/eagle.html prior to commencement of any work activities.

For additional information on fish and wildlife resources or state listed species, we suggest you contact the appropriate New York State Department of Environmental Conservation regional office(s) and the New York Natural Heritage Program Information Services.[2]

We appreciate the opportunity to review your recertification application. If you have any questions or desire additional information, please contact Steve Patch at 607-753-9334.

Sincerely,

for David A. Stilwell
Field Supervisor

cc: NYSDEC, Watertown, NY (A. Richardson)
NYSDEC, Albany, NY (Endangered Species Unit)

[2] Additional information referred to above may be found on the Service's website in footnote #1.

ATTACHMENT J

QUESTION F – CULTURAL RESOURCES PROTECTION:

1996 MULTI-PROJECT PROGRAMMATIC AGREEMENT

1997 CULTURAL RESOURCES MANAGEMENT PLAN FOR P-2645

1997 FERC ORDER APPROVING CRMP FOR P-2645

2013 BEAVER RIVER CRMP ANNUAL COMPLIANCE LETTER

P-2645-029

PROGRAMMATIC AGREEMENT

AMONG

THE FEDERAL ENERGY REGULATORY COMMISSION,

THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,

AND THE NEW YORK STATE HISTORIC PRESERVATION OFFICER,

FOR MANAGING HISTORIC PROPERTIES

THAT MAY BE AFFECTED BY LICENSES ISSUING TO

NIAGARA MOHAWK POWER CORPORATION,

BEEBEE ISLAND CORPORATION OR

MOREAU MANUFACTURING CORPORATION

FOR THE CONTINUED OPERATION OF FOURTEEN

HYDROELECTRIC POWER PROJECTS

IN UPSTATE NEW YORK

WHEREAS, the Federal Energy Regulatory Commission or its staff, on delegated authority (hereinafter, "Commission"), expects to accept applications and to issue new licenses[1], appropriately conditioned, to

» Niagara Mohawk Power Corporation,

» Beebee Island Corporation, or

» Moreau Manufacturing Corporation

(hereinafter, "NMPC", "BIC", and "MMC," respectively, or "Licensees" collectively) to continue operating the following ~~fourteen~~ hydroelectric projects that had an initial license expiration date of December 31, 1993:

» Beaver River Project, Project No. 2645 (consisting of the Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls Developments),

9607310310

[1] Unless otherwise noted, licenses would be issued to Niagara Mohawk Power Corporation.

» Black River Project, Project 2569 (consisting of the Herrings, Deferiet, Kamargo, Black River, and Sewalls Developments),

» Beebee Island Project, Project No. 2538[2],

» School Street Project, Project No. 2539,

» Oswego River Project, Project No. 2474 (consisting of the Varick, Minetto, and Fulton Developments),

» Middle Raquette River Project, Project No. 2320 (consisting of the Higley, Colton, Hannawa, and Sugar Island Developments),

» Lower Raquette River Project, Project No. 2330 (consisting of the Norwood, East Norfolk, Norfolk, and Raymondville Developments),

» E.J. West Project, Project No. 2318,

» Hudson River Project, Project No. 2482 (consisting of the Spier Falls and Sherman Island Developments),

» Feeder Dam Project, Project No. 2554[3], and

» Hoosic River Project, Project No. 2616 (consisting of the Johnsonville and Schaghticoke Developments);

New license applications to be filed at the Commission by January 31, 2000:

» Stewarts Bridge Project, Project No. 2047[4],

---

[2] New license being sought by Beebee Island Corporation.

[3] New license being sought by Moreau Manufacturing Corporation.

[4] As the initial license expiration date for this project is June 30, 2000, any new license application is to be submitted to the Commission no later than June 30, 1998.

» Carry Falls Project, Project No. 2060[5] , and

» Upper Raquette River Project, Project No. 2084[6] (consisting of the Stark, Blake, Rainbow, Five Falls and South Colton Developments)

(hereinafter, individually by Project No. or "Projects" collectively), as authorized by Part I of the Federal Power Act, 16 U.S.C. Sections 791(a) through 825(r), as amended; and,

WHEREAS, the Commission has determined or may determine that issuing such licenses may affect properties included on or eligible for inclusion on the National Register of Historic Places (hereinafter, "Historic Properties"); and

WHEREAS, Appendix A of this Programmatic Agreement provides a description of each of these Projects, Historic Properties identified as of the date of issuance of the draft environmental document for each Project, anticipated effects, and the Licensees' proposed measures to protect Historic Properties; and

WHEREAS, the Commission has consulted with the Advisory Council on Historic Preservation (hereinafter, "Advisory Council") and the New York State Historic Preservation Office (hereinafter, "SHPO") pursuant to 36 C.F.R. Section 800.13, of the Advisory Council's regulations (36 C.F.R. Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470F; hereinafter, "Section 106");

WHEREAS, the Licensees have participated in the consultation and have been invited to concur in this Programmatic Agreement; and

---

[5] As the initial license expiration date for this project is January 31, 2001, any new license application is to be submitted to the Commission no later than January 31, 1999.

[6] As the initial license expiration date for this project is January 31, 2002, any new license application is to be submitted to the Commission no later than January 31, 2000.

WHEREAS, the Commission will require the Licensees to implement the provisions of this Programmatic Agreement as a condition of issuing the new licenses for the Projects; and

NOW THEREFORE, the Commission, the Advisory Council, and the SHPO agree that the Projects will be administered in accordance with the following stipulations in order to satisfy the Commission's Section 106 responsibilities during the term of the Projects' new licenses.

S t i p u l a t i o n s .

The Commission will ensure that, upon a new license issuing for any of these Projects to the existing Licensee, the Licensee implements the following stipulations. All stipulations that apply to the Licensee will similarly apply to any and all of the Licensee's successors. Compliance with any of the following stipulations does not relieve either Licensee of any other obligations it has under the Federal Power Act, the Commission's regulations, or its license, nor does it constitute a waiver of the Licensee's right to notice and opportunity for a hearing as regards any changes to, or issuance of, a license.

I. CULTURAL RESOURCES MANAGEMENT PLAN

A. Within one year of a license issuing for each of these Projects, the Licensee will file for the Commission's approval a Cultural Resources Management Plan (hereinafter, "CRMP") for that Project specifying how Historic Properties will be managed in the Projects' areas of potential effect, as defined in 36 C.F.R. Section 800.2(c), during the term of the license. During development of the CRMP, the Licensee will consult with the SHPO and interested persons, as defined in 36 C.F.R. Section 800.1(c)(2). The Licensee will seek the SHPO's concurrence in the CRMP.

B. The Licensee will ensure that the CRMP filed with the Commission pursuant to this Programmatic Agreement is consistent with "Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines" (in Federal Register, September 29, 1983, Vol. 48, No. 190, Part IV, pp. 44716-44740; hereinafter, "Secretary's Standards"); and will take the following standards and documents into account:

» U.S. Department of the Interior, 1990, The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings,

» U.S. Department of the Interior, 1991, National Register Bulletin 15, "How to Apply the National Register Criteria for Evaluation,"

» U.S. Department of the Interior, 1991, National Register Bulletin 16A, "How to Complete the National Register Registration Form,"

» U.S. Department of the Interior, 1991, National Register Bulletin 16B, "How to Complete the National Register Multiple Property Documentation Form,"

» U.S. Department of the Interior, 1993, National Register Bulletin 36, "Guidelines for Evaluating and Registering Historical Archaeological sites and Districts,"

» Duncan Hay, 1991, Hydroelectric Development in the United States 1880-1946, Edison Electric Institute, Washington, D.C. (two volumes),

» Duncan Hay, 1991, A History of Hydroelectric Power in New York State, prepared for Niagara Mohawk Power Corporation, by the New York State Museum, Albany, New York, and

» Duncan Hay, 1990, New York State Hydroelectric Inventory, prepared for Niagara Mohawk Power Corporation, by the New York State Museum. Albany, New York (13 volumes);

in developing the CRMP. Moreover, the CRMP will be developed by or developed under the direct supervision of a person or persons who meet, at a minimum, the professional qualifications standards for architectural history and archeology in the Secretary's Standards (in 48 Federal Register 44738-39).

C. The CRMP will, at a minimum, include principles and procedures to address the following:

1. completion, if necessary, of identification of Historic Properties within the Projects' areas of potential effect;

2. continued use and maintenance of Historic Properties;

3. protection of Historic Properties threatened by shoreline erosion, other project-related ground-disturbing activities, and vandalism;

4. mitigation of unavoidable adverse effects on Historic Properties;

5. treatment and disposition of any human remains that may be discovered, taking into account any applicable state laws and the Advisory Council's "Policy Statement Regarding Treatment of Human Remains and Grave Goods" (September 27, 1988, Gallup, NM);

6. compliance with the Native American Graves Protection and Repatriation Act (25 U.S.C. Section 3001), if Tribal or Federal lands are within any of the project areas;

7. discovery of previously unidentified Historic Properties during project operations;

8. public interpretation of the historic and archeological values of the Project;

9. coordination with the SHPO and interested persons during implementation of the CRMP.

II. CRMP REVIEW AND IMPLEMENTATION

A. The Licensee will submit the CRMP, along with documentation of the views of the SHPO and interested persons, to the Commission for review and approval.

B. If the SHPO has concurred in the CRMP, and the Commission determines that the CRMP is adequate, the Commission will forward a copy of the CRMP to the Advisory Council, which will have 30 days to review the CRMP.

1. If the Advisory Council does not object to the CRMP, the Commission will proceed to ensure that the Licensee implements the CRMP.

2. If the Advisory Council objects to the CRMP, the Commission will consult with the Advisory Council in an effort to reach agreement on the CRMP. If agreement cannot be reached, the Commission will request that the Advisory Council comment pursuant to Stipulation IV.B, of this Programmatic Agreement.

C. If the SHPO has not concurred in the CRMP, or the Commission finds the CRMP inadequate, the Commission will consult with the Licensee and the SHPO to seek agreement on the CRMP. If concurrence is not reached within 30 days, the Commission will request that the Advisory Council enter into consultation to seek agreement on the CRMP.

1. If agreement is reached on the CRMP, the Commission will forward a copy of the revised CRMP to the Advisory Council for review pursuant to Stipulation II.B.

2. If agreement on the CRMP cannot be reached among the Commission, the SHPO, the Licensee, and the Advisory Council, the Commission or the SHPO will request that the Advisory Council comment pursuant to Stipulation IV.B, of this Programmatic Agreement; or the Advisory Council may terminate consultation and comment sua sponte.

D. The Licensee will develop separate appendices for each project covered by the PA, and licenses for those projects will not be issued without consideration of the Advisory Council comments and those of the other PA signatories on these appendices. Once the Commission has approved the appendices, they will be attached to the executed PA, and the Commission's responsibilities under Section 106 of the National Historic Preservation Act would be satisfied for any license issued to these projects.

E. The Licensee will, on every anniversary of the license issuing following Commission approval of the CRMP, file a report with the Commission and the SHPO of activities conducted under the implemented CRMP. This annual

report filing obligation shall terminate in the year when all activities conducted under the implemented CRMP have been completed.

III. INTERIM TREATMENT OF HISTORIC PROPERTIES

A. Pending review and implementation of the CRMP pursuant to Stipulation II, the Licensees will consult with the SHPO and interested persons regarding the effect of the following:

1. all activities, including recreational developments, that require ground-disturbance;

2. new construction, demolition, or rehabilitation of project facilities;

3. active erosion of archeological sites due to project operations.

B. Consultation will be in accordance with 36 C.F.R. Sections 800.4 and 800.5(a) through (c), with the Licensee acting as the Agency Official. If the Licensee and the SHPO agree that the activity will not adversely effect Historic Properties, the Licensee may proceed in accordance with any agreed-upon treatment measures or conditions.

C. If either the Licensee or the SHPO determines that the activity will have an adverse effect, and the affected property is a National Historic Landmark, the Licensee will submit the matter to the Commission, which will initiate the process set forth at 36 C.F.R. Section 800.5(e). Otherwise, the Licensee and the SHPO will consult to develop a strategy for avoiding or mitigating such adverse effects. If the Licensee and the SHPO can reach agreement, the Licensee will implement the agreed-upon strategy. If they disagree, the Licensee will submit the matter to the Commission, which will initiate the process set forth at 36 C.F.R. Section 800.5(e).

IV. DISPUTE RESOLUTION

A. If at any time during implementation of this Programmatic Agreement and the resulting CRMP, the SHPO, the Licensee, the Advisory Council, or an interested person objects to any action or any failure

to act pursuant to this Programmatic Agreement or the CRMP, they may file written objections with the Commission.

1. The Commission will consult with the objecting party, and with other parties or interested persons, as appropriate, to resolve the objection.

2. The Commission may initiate sua sponte such consultation to remove any of its objections.

B. If the Commission determines that the objection cannot be resolved, the Commission will forward all documentation relevant to the dispute to the Advisory Council and request that the Advisory Council comment. Within 30 days after receiving all pertinent documentation, the Advisory Council will either:

1. provide the Commission with recommendations, which the Commission will take into account in reaching a final decision regarding the dispute; or

2. notify the Commission that it will comment pursuant to 36 C.F.R. Section 800.6(b) and Section 110(1) of the National Historic Preservation Act, and proceed to comment.

C. The Commission will take into account any Advisory Council comment, provided in response to such a request, with reference to the subject of the dispute, and will issue a decision on the matter. The Commission's responsibility to carry out all actions under this Programmatic Agreement that are not the subject of dispute will remain unchanged.

V. AMENDMENT AND TERMINATION OF THIS PROGRAMMATIC AGREEMENT

A. The Commission, the SHPO, a Licensee, or the Advisory Council may request that this Programmatic Agreement be amended, whereupon the Commission, the SHPO, the Advisory Council, and the Licensee will consult in accordance with 36 C.F.R. Section 800.13, to consider such amendment.

B. The Commission, the SHPO, the Licensee, or the Advisory Council may terminate this Programmatic Agreement by providing 30 days written notice to the other parties, provided that the Commission, the SHPO, the Licensee,

and the Advisory Council consult during the 30-day notice period in order to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the Commission will comply with 36 C.F.R. Sections 800.4 through 800.6, with regard to individual actions covered by this Programmatic Agreement.

Execution of this Programmatic Agreement by the Director, Office of Hydropower Licensing, pursuant to authority delegated by the Commission; the State Historic Preservation Officer; and the Advisory Council on Historic Preservation; and subsequent implementation of this Programmatic Agreement evidence that the Commission has satisfied its responsibilities pursuant to Section 106 of the National Historic Preservation Act, as amended, for all individual actions carried out under the new licenses. Provided, however, that unless and until the Commission issues a new license for a project and this Programmatic Agreement is incorporated by reference therein, the Programmatic Agreement has no independent legal effect for any specific license applicant or project.

FEDERAL ENERGY REGULATORY COMMISSION

By: John H. Clements for FES Date: 7-3-96
Fred E. Springer
Director
Office of Hydropower Licensing

NEW YORK OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION

By: J.W. Aldrich Date: 19 June 96
J. Winthrop Aldrich
Deputy State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: Robert D. Bush Date: 7-19-96
Robert D. Bush
Executive Director

CONCUR: NIAGARA MOHAWK POWER CORPORATION

By: Thomas H. Boyd Date: 7/18/96

Vice President
Fossil & Hydro Generation

CONCUR: BEEBEE ISLAND CORPORATION

By: Thomas N. Bam Date: 7/18/96

President

CONCUR: MOREAU MANUFACTURING CORPORATION

By: Thomas N. Bar Date: 7/18/96

President

Appendix A To

PROGRAMMATIC AGREEMENT AMONG THE FEDERAL ENERGY REGULATORY COMMISSION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND THE NEW YORK STATE HISTORIC PRESERVATION OFFICER, FOR MANAGING HISTORIC PROPERTIES THAT MAY BE AFFECTED BY LICENSES ISSUING TO NIAGARA MOHAWK POWER CORPORATION, BEEBEE ISLAND CORPORATION OR MOREAU MANUFACTURING CORPORATION FOR THE CONTINUED OPERATION OF FOURTEEN HYDROELECTRIC POWER PROJECTS IN UPSTATE NEW YORK

PROJECTS, HISTORIC PROPERTIES, AND ANTICIPATED EFFECTS

In this appendix, the parties to the Programmatic Agreement specify the factual basis of the Programmatic Agreement insofar as they are in possession of these facts. Here, relevant facts concerning Niagara Mohawk Power Corporation's (NMPC), Beebee Island Corporation's (BIC), and Moreau Manufacturing Corporation's (MMC) fourteen projects and modifications to these Projects proposed by the new license applicants under the Commission's relicensing procedures are reviewed; Historic Properties subject to the Programmatic Agreement's stipulations are, in part, identified; and the anticipated effects of each new license issuing are disclosed.

NMPC has applied, or will apply, to the Commission for new licenses for the following Projects:

» Beaver River Project, Project No. 2645 (consisting of the Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls Developments)

» Black River Project, Project 2569 (consisting of the Herrings, Deferiet, Kamargo, Black River, and Sewalls Developments)

» School Street Project, Project No. 2539

» Oswego River Project, Project No. 2474 (consisting of the Varick, Minetto, and Fulton Developments)

» Middle Raquette River Project, Project No. 2320 (consisting of the Higley, Colton, Hannawa, and Sugar Island Developments)

» Lower Raquette River Project, Project No. 2330 (consisting of the Norwood, East Norfolk, Norfolk, and Raymondville Developments)

» E.J. West Project, Project No. 2318

» Hudson River Project, Project No. 2482 (consisting of the Spier Falls and Sherman Island Developments)

» Hoosic River Project, Project No. 2616 (consisting of the Johnsonville and Schaghticoke Developments)

» Stewarts Bridge Project, Project No. 2047,

» Carry Falls Project, Project No. 2060, and

» Upper Raquette River Project, Project No. 2084 (consisting of the Stark, Blake, Rainbow, Five Falls and South Colton Developments)

MMC has applied to the Commission for a new license for the following Project.

» Feeder Dam Project, Project No. 2554

BIC has applied to the Commission for a new license for the following Project.

» Beebee Island Project, Project No. 2538

The Commission, the SHPO, and the Council have reviewed NMPC's, BIC's, or MMC's proposals for issuing new licenses for the continued operation of these Projects, and have jointly determined and agree that these Projects would affect Historic Properties and that certain aspects of the anticipated effects could be adverse, but that adverse effects which cannot be avoided can be taken into account through mitigation.

I. BEAVER RIVER PROJECT, PROJECT NO. 2645

NMPC applied to the Commission on November 29, 1991, for a new license for the Beaver River Project, proposing to continue operating and maintaining existing facilities according to an established operating regime, and to improve recreational facilities.

The Beaver River Project consists of the Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls Developments. The eight developments are located on the Beaver River, between the Stillwater Reservoir and the confluence with the Black River in the State of New York. The Moshier Development is located 29 miles from the confluence with the Black River and the High Falls Development is located eleven miles from this confluence. The Moshier Development is in the Town of Webb, Herkimer County and the Eagle Development is in the Town of Watson, Lewis County. The remaining six developments are in the Town of Croghan, Lewis County

A. Project Facilities:

1. Moshier Development consists of •a 920-foot-long, 93-foot-high earth embankment dam containing a 200-foot-long concrete spillway topped with two-foot-high flashboards and a 53-foot-long non-overflow concrete abutment, •a reservoir which, at the normal maximum surface elevation of 1,641 feet (USGS), has a surface area of 340 acres, a gross storage capacity of 7,339 acre-feet (ac-ft), and a usable capacity of 2,876 ac-ft, •a 28-foot-wide, 51-foot-high concrete intake structure containing two 11-foot-wide, 51.5-foot-high trashracks and two 10-foot-wide, 10-foot-high steel slide gates, •a 3,740-foot-long, 10-foot-diameter steel penstock connected to a 5,620-foot-long, 10-foot-diameter fiberglass reinforced plastic penstock for a total penstock length of 9,360 feet, •an excavated tailrace channel, •a 30-foot-diameter steel surge tank, •a bifurcation downstream of the penstock into two 70-foot-long, 7-foot diameter steel penstocks, •a 34-foot-wide, 70-foot-long concrete and masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 4,000 kiolwatts (kW), a hydraulic capacity of 330 cubic feet per second (cfs), and a design head of 196 feet, •an 11-mile-long, 115 kilovolt (kV) transmission line, and •associated appurtenant equipment.

2. Eagle Development consists of •a 365-foot-long, 21-foot-high concrete gravity dam containing an 185-foot-long ogee spillway topped with 1-foot-high flashboards and an 85-foot-long non-overflow concrete abutment, •a reservoir which, at normal maximum surface elevation of 1,426 feet (USGS), has a surface area of 138 acres, a gross storage capacity of 668 ac-ft, and a usable capacity of 545 ac-ft, •a 20-foot-wide gated log-sluice section, •a 50-foot-long headgate structure containing four 9.5-foot-wide stop-log slots and four 9.5-foot square trashracks, •an 18-foot-wide, 16-foot-deep, 540-foot-long unlined forebay canal, •a concrete intake structure containing three 10-foot-wide, seven-foot-high timber slide gates, •a 2,725-foot-long, 9-foot-diameter steel penstock, •a 300-foot-long tailrace channel separated from the river by a stone-masonry wall, •a 63-foot-wide, 87-foot-long concrete and masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,350 kW (units 1 through 3) and 2,000 kW (unit 4), hydraulic capacities of 150 cfs (units 1 through 3) and 200 cfs (unit 4), and design heads of 135 feet (units 1 through 3) and 125 feet (unit 4), •a 5-foot-wide aluminum slide gate that currently supplies minimum flow to the bypass reach, •an 160-foot-long, 115 kV transmission line, •and associated appurtenant equipment.

3. Soft Maple Development consists of •five earth embankment dams, •a 910-foot-long, 115-foot-high earth embankment diversion dam, •a 720-foot-long, 100-foot-high, earth embankment terminal dam, •a reservoir which, at normal maximum surface elevation of 1,289 feet (USGS), has a surface area of 400 acres, a gross storage capacity of 2,678 ac-ft, and a usable capacity of 1,528 ac-ft, •an 144-foot-long concrete ogee spillway topped with 1.5-foot-high flashboards, •two 10-foot-wide aluminum sluice gates, •a 600-foot-long unlined forebay, •an 81.5-foot-wide concrete intake structure containing three 26-foot-wide, 33.5-foot-high trashracks, •two 530-foot-long, 11.5-foot-diameter steel penstocks, •intake facilities for an additional penstock, •an excavated tailrace channel, •an 82-foot-wide, 50-foot-long concrete and masonry powerhouse containing two identical vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 7,500 kW, a hydraulic capacity of 860 cfs, and a design head at 121.5 feet, •a 20-foot-long, 115 kV transmission line, and •associated appurtenant equipment.

4. Effley Development consists of •a 647-foot-long dam containing a 430-foot-long, 30-foot-high concrete ogee spillway and an 188-foot-long non-overflow concrete abutment, •a gated 29-foot-long log chute, •a 340-acre reservoir, which at normal maximum surface elevation of 1,163 feet (USGS), has a

surface area of 340 acres, a gross storage capacity of 3,140 ac-ft, and a usable capacity of 1,720 ac-ft, •an 100-foot-long forebay, •38.5-foot-wide concrete intake structure containing a 22-foot-wide, 22-foot-high trashrack and three 6-foot-wide, 8-foot-high timber slide-gates, •a 36-foot-wide concrete intake structure containing a 20-foot-wide, 27-foot-high trashrack and a 11-foot-square slide-gate, •three 87-foot-long, 5-foot-diameter steel penstocks, •an 148-foot-long, 8-foot-diameter steel penstock, •excavated tailrace channels, •a 58-foot-wide, 53-foot-long concrete and masonry powerhouse (built in 1902) containing three horizontal Francis turbines with rated capacities of 400 kW, hydraulic capacities of 135 cfs, design heads of 55 feet (units 1 and 2) and with unit 3 rated at 560 kW, 200 cfs hydraulic capacity and a design head of 54 feet, •a 42.5-foot-wide, 44-foot-long concrete and masonry powerhouse (built in 1923) containing a single vertical Francis turbine connected to a direct-drive synchronous generator, rated at 1,600 kW, with a hydraulic capacity of 450 cfs and a design head of 52.6 feet, •a 2.3-mile-long, 23kV transmission line, •and associated appurtenant equipment, .

5. Elmer Development consists of •a 238-foot-long, 23-foot-high concrete gravity spillway, •a 25-foot-wide sluice gate with needle beams, •a reservoir, which at normal maximum surface elevation of 1,108 feet, has a surface area of 34 acres, a gross storage capacity of 345 ac-ft, and a usable capacity of 207 ac-ft, •a short forebay, •a 39-foot-wide concrete intake structure containing two 16.5-foot-wide, 21.5-foot-high trashracks and four 6-foot-wide, 11-foot-high timber slide gates, •an excavated tailrace channel, •a 78-foot-wide, 34-foot-long concrete and masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 750 kW, a hydraulic capacity of 290 cfs, and a design head of 37 feet, •a 2,270-foot-long, 23 kV transmission line, •and associated appurtenant equipment.

6. Taylorville Development consists of •an 1,003-foot-long, 23-foot-high concrete gravity dam, •a reservoir, which at normal maximum surface elevation of 1,070.6 feet (USGS), has a surface area of 170 acres, a gross storage capacity of 1,091 ac-ft, and a usable capacity of 685 ac-ft, •a 33-foot-wide concrete intake structure containing a 25-foot-wide, 20-foot-high trashrack and three 5.5-foot-wide, 13-foot-high timber slide gates, •a 2,725-foot-long, 9.5-foot-diameter steel penstock, •an 18-foot-diameter surge tank located about 40 feet upstream of the powerhouse, •an excavated tailrace channel, •a 93-foot-wide, 62.5-foot-long concrete and masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,100 kW (units 1 and 2),

1,372 kW (unit 3), and 1,200 kW (unit 4), each with a hydraulic capacity of 180 cfs, and a design head of 96.6 feet, •a 400-foot-long, 23kV transmission line, •and associated appurtenant equipment.

The dam consists of two main sections separated by an island - 494.5 feet long and 508.5 feet long - located on the north and south side of the river, respectively. The north section of the dam contains an 127.5-foot-long concrete ogee spillway topped with 0.8-foot-high flashboards, two 7.5-foot-wide aluminum slide gates, a 33-foot-wide intake structure and a 305-foot-long concrete non-overflow section. The south section of the dam contains a 348-foot-long concrete ogee spillway topped with 0.8-foot-high flashboards and an 160.5-foot-long concrete non-overflow section.

7. Belfort Development consists of •a 206-foot-long, 19-foot-high concrete dam containing an 161-foot-long, 17-foot-high concrete ogee spillway topped with 2-foot-high flashboards, •a reservoir, which at normal maximum elevation of 966 feet, has a surface area of 50 acres, a gross storage capacity of 120 ac-ft, and a usable capacity of 47 ac-ft, •an 120-foot-long forebay, •a 62-foot-wide concrete intake structure containing one 12-foot-wide, 17-foot-high trashrack and one 12-foot-wide, 23-foot-high trashrack and two 11-foot-square timber slide gates, •two 52-foot-long steel penstocks, 7 feet and 7.5 feet in diameter, •a 78-foot-wide, 39-foot-long concrete and masonry powerhouse containing three horizontal Francis turbines connected to direct-drive synchronous generators, with a rated capacity of 400 kW (unit 1), 640 kW (unit 2) and 1,000 kW (unit 3), with hydraulic capacities of 200 cfs (units 1 and 2), and 310 cfs (unit 3), each with a design head of 48 feet, •a 400-foot-long tailrace channel, •a 3,540-foot-long, 23 kV transmission line, •and associated appurtenant equipment.

8. High Falls Development consists of •an 1,233-foot-long concrete gravity dam containing a 470-foot-long, non-overflow concrete gravity section and a 650-foot-long concrete ogee spillway, •a reservoir, which at normal maximum surface elevation of 915 feet (USGS), has a surface area of 145 acres, a gross storage capacity of 1,058 ac-ft, and a usable capacity of 923 ac-ft, •a 64-foot-wide, 29-foot-high concrete intake structure containing four 12-foot-wide, 20.5-foot-high trashracks and four steel slide gates, •a 49-foot-wide log sluice that has been sealed, •a 605-foot-long, 12-foot-diameter riveted steel penstock, •a 34-foot-wide, 99-foot-long concrete and masonry powerhouse containing three vertical Francis units connected to direct-drive synchronous generators, each with a rated capacity of 1,600 kW, a hydraulic capacity of 300 cfs, and

a design head of 100 feet, •a spare turbine bay for future expansion, •a 3.7-mile-long, 23kV transmission line, •and associated appurtenant equipment.

B. Operating Regime:

The Beaver River is regulated by the Hudson River-Black River Regulating District (HRBRRD) at the Stillwater Reservoir, which is primarily operated for flood control of the Black River. The eight developments of the Beaver River Project operate in conjunction with the daily releases from Stillwater Reservoir. NMPC, as much as possible, operates the eight Developments as a coordinated unit to provide a base flow of 250 cfs below the High Falls Development. The Moshier, Soft Maple, and Effley Developments also provide some seasonal storage, which further augments flows during dry periods or when Stillwater Reservoir is releasing minimal water.

Individually, the Beaver River Project developments are storage-and-release facilities that operate in a peaking mode. With the exception of the Moshier and High Falls Developments, the discharge from one development flows into the impoundment of the next downstream development. Water from the Moshier Development flows into Beaver Lake, which is formed by a natural constriction in the channel leading to the Eagle impoundment and dam. High Falls Development, the most downstream of the developments, flows directly into the Beaver River.

NMPC will continue operating the Project in a peaking mode with limits on daily and seasonal fluctuations and minimum flows as provided for in the Settlement Offer dated February 7, 1995 as amended.

C. Proposed Project Modifications and Recreational Developments:

NMPC proposes to provide recreational enhancements at each development as described in the new license application, as amended by the Settlement Offer of February 7, 1995. In addition to enhancements at individual developments, NMPC will establish a Beaver River Fund to facilitate acquisitions by the State of New York of conservation easements and lands. A Beaver River Advisory Council will be appointed and will make recommendations regarding the management of the Beaver River and the hydropower operations consistent with the provisions of the Settlement Offer. The Beaver River Advisory Council will assist NMPC in managing the Beaver River Fund.

1. Moshier Development enhancements measures include

limiting seasonal reservoir fluctuations to 3 feet from the normal maximum headwater elevation, daily fluctuation to 1.5 feet during July 1 to April 30 and 1 feet from May 1 to June 30; providing a year-round minimum flow of 45 cfs; providing a route for downstream fish passage through a new gate structure; releasing one 4-hour flow of 400 cfs in September or October for whitewater boating; constructing a canoe take-out at the downstream end of the Moshier impoundment; opening the gate near the Sunday Creek Brook parking lot by special permit only to provide handicapped access and scheduled whitewater releases; making minor improvements to the existing canoe put-in at the Moshier tailrace, specifically, the width of the existing footbridge may need to be improved; installing new signage for recreational facilities and replacing existing trailmarkers with new trailmarkers on the existing bypassed reach access trail.

2. Eagle Development enhancement measures include limiting daily and seasonal reservoir fluctuations to 1 feet from the normal maximum headwater elevation; not erecting or replacing flashboards from May 1 to June 30; providing a year-round minimum flow of 45 cfs subject to further consultation that could reduce the minimum flow to as low as 30 cfs; replacing existing trashracks with new trashracks with 1-inch clear bar spacing; installing a bench and canoe rest along the existing canoe portage trail; constructing a new 150-foot fishing access trail to the bypassed reach; releasing five, 4-hour flows of 200 cfs in September and October for whitewater boating; facilitating the acquisition by the State of New York of Eagle Cliffs for rock climbing; and providing access to this area via the existing canoe portage trail along the south side of the bypass reach.

3. Soft Maple Development enhancement measures include limiting maximum daily reservoir fluctuations to 1.5 feet from the normal maximum headwater elevation, to 1 feet from May 1 to June 30, and to 3 feet during periods of low inflows (less than 250 cfs); providing a year-round minimum flow of 35 cfs in the bypassed reach; relocating the existing canoe campsites, which are presently located on the western end of the upper Soft Maple impoundment, to 7 primitive campsites on the island and remote peninsulas of the upper reservoir; converting this area, which was previously the canoe campsite area before it was moved to the island and remote peninsulas of the upper reservoir, to a campground with 10 new primitive campsites with a new 800-foot gravel access road, a new caretaker cabin, and a garage; a new picnic area, located adjacent to the new campground, with 15 picnic tables, grills, 4 restrooms, a new car-top boat launch and parking area for 10 cars with trailers; a new 200-foot trail

connecting the new picnic area with the campgrounds; a parking area, at the existing gravel pit for access to the existing trail along the south side of the bypassed reach and a roadside parking area, near the upper portion of the bypassed reach where the waterfalls are located, for scenic viewing of these falls; rerouting the west end of the portage trail to access the existing canoe put-in below the Soft Maple powerhouse; a new footbridge over the stream; and maintaining the existing car-top boat parking area located adjacent to the existing canoe put-in.

4. Effley Development enhancement measures include limiting maximum daily reservoir fluctuations to 1.5 feet from the normal maximum headwater elevation, to 1 feet during May 1 to June 30, and to 3 feet during periods of low inflows (less than 250 cfs); providing a year-round minimum flow of 20 cfs; providing a new route for downstream fish passage through the new gate structure. Access to the Effley impoundment is provided by the existing canoe put-in and parking area at the Soft Maple tailrace.

5. Elmer Development enhancement measures include limiting maximum daily reservoir fluctuations to 1 feet from the normal maximum headwater elevation; providing a year-round minimum flow of 20 cfs which may be reduced by USFWS to not less than 10 cfs within 1 year of license acceptance; constructing a downstream fish passage through a new release structure; and replacing existing trashracks with new trashracks with 1-inch clear bar spacing.

6. Taylorville Development enhancement measures include limiting daily and seasonal reservoir fluctuations to within 1 feet from the normal maximum headwater elevation; not replacing flashboards between May 1 and June 30; providing a year-round minimum flow of 60 cfs with the possibility of reducing the minimum flow to between 45 and 60 cfs subject to further consultation; replacing existing trashracks with new trashracks with 1-inch clear bar spacing; releasing five 4-hour flows of 400 cfs in September and October for whitewater boating; installing a new car-top boat launch north of the dam; constructing a 250-foot gravel access road to the car-top boat launch; developing a new picnic area with 4 picnic tables, grills, and 2 restrooms; developing new trails, including 2,800 feet of barrier free cement and stonedust trails, to access the north bank of the bypassed reach; extending the Beaver River Canoe Route by 750 feet along the Taylorville penstock; installing two benches, canoe rests and a footbridge; and providing a canoe put-in to the Belfort reservoir.

7. Belfort Development enhancement measures include limiting daily reservoir fluctuations to 1 feet from the normal maximum headwater elevation; not replacing flashboards from May 1 through June 30; providing a year-round minimum flow of 20 cfs; replacing existing trashracks with new trashracks with 1-inch clear bar spacing; providing a new 700 foot portage trail from the canoe take-out extending along Erie Canal Road to the Belfort tailrace; installing a 600 sq ft barrier free fishing deck on the west shore south of the dam; providing parking for 6 cars in a lot between the reservoir and Erie Canal Road; and providing signage.

8. High Falls Development enhancement measures include limiting maximum daily reservoir fluctuations to 1.5 feet from the normal maximum headwater elevation and to 3 feet during low flow periods (less than 250 cfs); providing a year-round nominal flow of 30 cfs $\pm$ 3 cfs, depending on head; providing a year-round base flow of 250 cfs; replacing existing trashracks with new trashracks with 1-inch clear bar spacing; providing new primitive campsites on the islands within the reservoir; extending the Beaver River Canoe Route with a new portage trail around the north side of the bypassed reach to the High Falls tailrace.

D. Historic Properties Identified:

Historic Properties affected by the Beaver River Project include the Belfort powerhouse and any as yet unknown archeological sites that might exist at the eight developments.

The project facilities at hydroelectric facilities in New York State, including the eight developments of the Beaver River Project, were surveyed by an historian retained for this purpose by NMPC. The results of this survey is documented in the following report:

A History of Hydroelectric Power in New York State. Prepared by Duncan Hay. New York State Museum. 1991.

1. Historic Structures: The Belfort Hydroelectric Plant was originally developed in 1898 by Lafayette Wetmore. The original powerhouse was enlarged in 1915 by the New York Power Corporation, and retains three early turbines/generators installed in 1903, 1915, and 1918.

The Belfort Hydroelectric Plant meets Criteria A and C of the National Register of Historic Places (NRHP) as one of the earliest operating facilities of its type and period in the Black River Basin. The stone and concrete block powerhouse, steel penstock, and ogee dam retain integrity of design and materials and contribute to an understanding of small, localized hydroelectric generating industries in the early 20th century.

2. Archeological Sites: No archeological survey has been conducted and no prehistoric or historic archeological sites listed on or eligible for listing on the NRHP have been recorded within the areas of potential effect of the eight developments that comprise the Beaver River Project.

E. Anticipated Effects:

The proposed issuing of a new license to NMPC for the Beaver River Project could have both beneficial and adverse effects.

1. Historic Structures: Inasmuch as the Belfort Hydroelectric Plant is an Historic Property, issuing NMPC a new license to continue operating and maintaining the Project under the protection afforded by Section 106, is generally to be considered a beneficial effect. In itself, however, continuing to operate the Project under the protection afforded by Section 106 does not ensure that no adverse effects would ensue. Adverse effects could inadvertently occur during routine daily activities in the absence of an operation and maintenance plan designed to hold intact the property's historic integrity. Issuing NMPC a new license to continue operating the project without such a plan would overall adversely affect the Historic Properties.

2. Archeological Sites: No sites have been recorded that are listed on or are eligible for listing on the NRHP. However, as yet unknown archeological sites could be encountered during the construction of enhancement measures at any of the eight developments.

Appendix items II - XIV will be distributed for comment with scheduled draft environmental reports for the remaining thirteen projects and will be appended to this Programmatic Agreement prior to issuance of final environmental reports for these projects.

ORIGINAL

NIAGARA MOHAWK
GENERATION
BUSINESS GROUP

FOSSIL AND HYDRO GENERATION/300 ERIE BOULEVARD WEST, SYRACUSE, NEW 13202/TELEPHONE (315) 474-1511

July 2, 1997

Hon. Lois D. Cashell, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, N.E.
Washington, DC 20426

d63

Subject: Beaver River Project
LP 2645 NY
Cultural Resources Management Plan - Article 417
OPRHP # 90PR2684

Dear Secretary Cashell:

In accordance with the Order Approving Settlement Agreement and Issuing New License dated August 2, 1996, Niagara Mohawk is herein filing an original and eight copies of the final plan for the above referenced license article. On April 11, 1997, Niagara Mohawk submitted the draft Cultural Resources Management Plan (CRMP) for consultation purposes to the NYS Office of Parks, Recreation and Historic Preservation (SHPO) as required by the license article. Agency correspondence addressing the draft filing is included in Appendix A, Consultation Correspondence.

Also attached are nine (9) copies of the Compendium of Compatible Operation and Maintenance Activities - Categorical Exclusions, February 1997 (Compendium) which is a separate related document. As a matter of practicality this Compendium is a separate living document, common to all of Niagara Mohawk's CRMPs. This is the same document that was submitted to your office on February 24, 1997, with the Salmon River Project CRMP (LP11408NY).

In its response dated June 17, 1997, the SHPO responded to the specific questions posed and found the Beaver River CRMP acceptable.

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JSNL182A.7DB

If you have any questions regarding this submittal, please contact Mr. Jacob S. Niziol at (315) 428-5556.

Very truly yours,

Sam S. Hirschey, P.E.
Manager, Hydro Licensing &
Regulatory Compliance

Enclosures:

xc: Mr. J. Mark Robinson, FERC, Washington
Mr. Robert D. Kuhn, PH.D., SHPO
Mr. J.S. Niziol

ORIGINAL

CULTURAL RESOURCES MANAGEMENT PLAN
BEAVER RIVER PROJECT

Federal Energy Regulatory Commission
Project No. 2645 NY—063
OPRHP # 90PR2684

Submitted by
Niagara Mohawk Power Corporation
July 1997

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CULTURAL RESOURCES MANAGEMENT PLAN
BEAVER RIVER PROJECT
Federal Energy Regulatory Commission Project No. 2645 NY

1. SUMMARY

With the issuance of a new license for the Beaver River Project on August 2, 1996, Article 417 required the formulation of a Cultural Resources Management Plan (CRMP). In the development of the Programmatic Agreement, July 1996, a resource evaluation of the eight hydro developments of the Beaver River by the New York State Office of Parks, Recreation and Historic Preservation (NYS SHPO) identified the Belfort Hydro Development as being National Register Eligible (NRE). The Programmatic Agreement, noted the powerhouse, steel penstocks and ogee dam, individually and as whole, as possessing historic significance.

During the new term of the FERC license, certain operation and maintenance activities could have an effect on the historic resources of the project, and therefore require consultation with the NYS SHPO. Other activities have been identified, however, which will not affect the historic resources of the project and these have been compiled and presented in a separate document, "Compendium of Compatible Operation and Maintenance Activities, (Categorical Exclusions For Historic Hydro Facilities)". The Compendium is a living, stand-alone document developed in consultation with the NYS SHPO, presently in NYS SHPO's files and, available on request.

At this time, the remaining seven developments of the Beaver River Project and all the eight Project's reservoirs, riverine sections, and related lands have not been found to be of historic or archaeological significance requiring specific protection. However, protection is afforded, in these instances, under the provisions of the CRMP pertaining to presently unknown cultural resources that may subsequently be discovered.

2. INTRODUCTION

2.1 Background

The Beaver River Project consists of eight hydroelectric power developments located at the western edge of the Adirondack region in upstate New York as depicted on Figure 1. The Beaver river flows west into the Black River near Lowville, New York, with its headwaters in the Adirondack foothills upstream from Stillwater Reservoir. Each hydro development, the year of its construction and its distance from the Black River are as follows:

HYDRO DEVELOPMENT	YEAR BUILT	DISTANCE UPSTREAM, MILES
High Falls	1925	11
Belfort	1898 / 1915	13
Taylorville	1913	14
Elmer	1916	15
Effley	1902/1923	16
Soft Maple	1925	20
Eagle	1914	23
Moshier	1929	29

The Beaver River Project is located in the Towns of Croghan and Watson in Lewis County and the Town of Webb in Herkimer County, New York.

The new Federal Energy Regulatory Commission (FERC) license for the Beaver River Project was issued on August 2, 1996, and required the development of this Cultural Resource Management Plan (CRMP) under Article 417 of the license.

2.2 Purpose

The purpose of the CRMP is to provide a management plan that would establish procedures for avoiding, minimizing or mitigating effects on historic properties of the Beaver River Project. At this time, the Belfort Hydro Development is the only identified National Register Eligible (NRE) cultural resource requiring specific protection measures. The plan however, also addresses procedures for yet undiscovered historic resources and provides for public interpretation of the significance of the identified cultural resources.

2.3 Guidelines and Source Documents

This report has been prepared in accordance with the following:

Programmatic Agreement ... for Managing Historic Properties that may be affected by Licenses issued to Niagara Mohawk Power Corporation, ... for the Continued Operation of Fourteen Hydroelectric Power Projects in Upstate New York, with *Appendix A* . Dated July, 1996.

Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines, (in Federal Register, September 29, 1983, vol. 48, No. 190, Part IV, pp. 44716-44740).

Beaver River Project FERC No. 2645, Settlement Offer, dated March 8, 1995, with cover letter dated May 26, 1995.

FERC *Order Approving Settlement Agreement and Issuing New License*, August 2, 1996.

Final Environmental Assessment, dated August 2, 1996.

FERC License Application for the Beaver River Hydroelectric Project, December l, 1991, as altered by *Order Approving Settlement Agreement and Issuing New License.*

2.4 Preparers

This CRMP was prepared by Mr. Jacob S. Niziol, P.E. of Niagara Mohawk. This report was prepared under the direction of Mr. Gary R. Schoonmaker, L.A. who also contributed to its formulation.

3. CULTURAL RESOURCES

3.1 General Context of Historic Hydro Resources

3.1.a. Periods of Hydro Development

The history of hydroelectric development in New York and the nation can be divided into several broad periods. The first, referred to as the pioneering age, ran from 1880, when DC arc light dynamos were first connected to water turbines, through 1895 when the Niagara Falls Power Company project first demonstrated the commercial potential of hydroelectric generation and transmission. The key inventions which made large scale generation and long distance transmission practical occurred during this period, primarily in the 1890's. In 1891 an experimental 112 mile transmission of three-phase alternating current was made in Germany. With this experiment it was shown that alternating current was superior to direct current for transmission purpose as it considerably reduced power loss in the line over long distances. Three-phase alternative current was adopted over single-phase as it produced a steadier current and was able to be transmitted further. Another of the advantages of three-phase current was that is could be used to operate three-phase, alternating current induction motors. Another milestone during this period was development of the electric transformer, which permitted power to be stepped up to high voltages for transmission and stepped down for application. High transmission voltages further reduced the loss of power in the line, and thus permitted much longer transmission distances. The culmination of the developing hydroelectric technology in North America came in 1895 with the construction of the Niagara Falls Power Company's Adams plant in Niagara Falls, New York.

The dramatic demonstration of long distance power transmission through polyphase AC current at Niagara Falls inspired more than two decades of aggressive and creative attempts to expand both generation and application electricity and hydropower. This second period of hydroelectric development, characterized by innovation and experimentation in hydroelectric technology, ran from 1895 through approximately 1915. During this period, a wide variety of solutions to the problems of harnessing waterpower and converting it into electricity were tried. Waterpower technology had reached a high level of sophistication during the 19th century, and alternating current was rapidly becoming a standardized and readily converted commodity. The combination and expansion of these two technologies inspired further innovations. Drives for efficiency and cost savings led to creative practices in mechanical, electrical and civil engineering that had wide ramifications, not only in hydroelectricity, but throughout the electrical and construction industries. Hydro plants built during the first decades of the 20th century incorporated an array of horizontal shaft multiple runner turbines, vertical shaft multiple runner turbines, cylinder gates, wicket gates, open flume settings. scroll cases, stone, brick, tile, wood-frame, and cast concrete powerhouses, and all manner of electrical equipment. During this period of innovation and experimentation, hydraulic, electrical, mechanical, structural, and architectural systems came together in ways that made each plant unique.

The period of innovation and experimentation gave way, in the years during and after World War I, to a third period characterized by marked standardization in the design and equipment of hydroelectric facilities. By the 1920s, most new hydro plants in the East were driven by single runner vertical Francis turbines supported by a Kingsbury type thrust bearing that also carried the weight of the alternator's rotating parts. Speed was controlled by hydraulic governors (usually Woodward) that actuated wicket gates. Some low head plants had open flume settings, but most turbines received water through some sort of scroll case. Powerhouses were generally steel frame structures, clad in brick and capped with a flat roof that allowed maximum clearance for the overhead crane with a minimum expense for wall height and roofing materials. Steel framed windows, either rectangular or arch topped, provided natural light and ventilation. Standardization in hydroelectric plant design was the product of several factors including cumulative experience, national and regional technical periodicals, the growing influence of consulting engineering and management firms, holding companies, and corporate consolidation. A larger number of hydroelectric plants came on line or were significantly upgraded between 1920 and 1930 than during any decade before or since. The decade of the 1920s also represented the final period of hydro development's "coming of age".

Waterpower development came to a near standstill during the Great Depression. Demand for electricity declined, and there was little incentive for companies to incur the expenses required for new powerplant construction. The effect of the depression was also compounded by the increasing cost competitiveness of fossil fuel powered thermal plants. While investor owned utilities suspended powerplant construction through the 1930s, hydroelectric development by federal agencies, local governments, and public authorities rose dramatically. During this period, public power developments came to provide a significant share of U.S. electrical output. The appearance, scale, multiple use features, and social agenda of the "New Deal" era federal hydro projects set them very much apart from previous patterns in American hydroelectric development.

World War II placed extraordinary demands on America's electric power systems. Consequently, some companies reactivated hydroelectric plants that had been retired or relegated to stand-by service during the depression. Some stations were also upgraded during the war. However, at the end of World War II, many aging plants were retired for the last time. While the number of plants in operation declined, the nations total hydro generating capacity showed a renewed growth. The 1950s and early 1960s saw construction of several very large mixed use projects by public agencies, including the Power Authority of the State of New York's 900 megawatt St. Lawrence and Niagara Falls projects. In the 1960s, public and Canadian hydro projects, large thermal plants and dreams of affordable nuclear energy made the costs of operating and maintaining small hydro plants appear prohibitively high to many utility managers. At least 344 hydroelectric plants were retired during this decade. By the mid-1970s, increasingly stringent air pollution regulations, financial disappointments in the nuclear field, and an oil embargo contributed to a reevaluation of hydro's role. Federal laws designed to encourage independent energy production, initiated a hydro boom during the late 1970s and 1980s. Subsequently, utilities, municipalities and an increasing number of independent power producers have reactivated retired sites and made capacity additions to operating plants.

3.1.b. Surviving Historic Hydro Sites in New York State

Niagara Mohawk recently funded completion of a comprehensive historical inventory of active and retired hydroelectric facilities in New York State (Hay, 1990). Phase I of that study, conducted by the Historical Survey of the New York State Museum, built upon an earlier, uncompleted, survey started by the Environmental Planning Office of the New York State Public Service Commission. Fieldwork involved visiting, photographing, and recording data on over 270 sites. The Phase I study resulted in a 13 volume report documenting all pre-1940 hydroelectric facilities to at least Historic American Engineering Record (HAER) level 4. Each Niagara Mohawk facility was further documented to HAER level 3.

Phase II of the study involved preparation of a statewide context statement (Hay, 1991). This report addresses the historical development of hydroelectric power in New York State, and includes a textual history, with figures and an annotated bibliography. A summary of pertinent findings from this project is presented below.

In 1939, the Federal Power Commission (FPC) listed 1500 commercial hydroelectric plants rated at over 100 horsepower in operation throughout the country. New York accounted for 270 of those; more than any other state in the union. Lists of active and retired hydroelectric plants, published in 1983, by the FERC (successor to the FPC), indicate that throughout the country, 756 of the sites identified in 1939 were still being used to generate electricity. About 100 of New York's pre-1940 sites remained in operation.

Niagara Mohawk, and affiliated companies, own and/or operate 74 hydroelectric plants in New York State. Sixty-four of Niagara Mohawk's operating plants were built before 1940. Four other utilities, New York State Electric & Gas, Rochester Gas & Electric, Orange & Rockland Utilities, and Central Hudson Gas & Electric, together operate 24 hydro plants, 17 of which went on line before 1940. Two plants operated by the New York Power Authority were built in the 1920s, as were five municipal hydroelectric plants scattered throughout Upstate New York. There is less information available regarding non-utility facilities. Consequently it is more difficult to assign precise start-up dates. However, approximately half of the 22 industrial hydro plants and 21 independents utilize sites, and at least some structures and equipment, that were in place prior to 1940.

No plants remain in operation, and almost no physical evidence survives from hydroelectricity's pioneering age. The Fulton plant, started in 1884 on the Oswego River, is listed as the oldest hydroelectric plant in the Niagara Mohawk System, but the powerhouse was completely re-equipped during the 1920s, and extensively remodeled in the 1980s. The two Adams Powerhouses at Niagara Falls were demolished during the 1960s to make way for the city's new water treatment plant. Only the smaller transformer house survives, along with a section of the entry portal, laid out as lawn sculpture beside the Robert Moses Parkway.

Innovation and experimentation, characteristic of the second period of hydro development, may be seen in the surviving structures and equipment of 33 operating plants in New York State. Twenty-seven of those are owned by Niagara Mohawk. New York once had about 80 pre-standardized hydroelectric stations. Half of those have been removed from service. Ten of the remainder were completely re-equipped or had additions built with new generating machinery installed during and after the 1920s. In most cases, renovations obliterated evidence of the roles that these plants played in the period of innovation and experimentation. At least 10 of the retired sites were reactivated during the hydro boom of the 1970s and 1980s. Two Niagara Mohawk plants, Bakers Falls and Middle Falls, have been retired, but are being preserved with their equipment in place. In addition to retirements, many operating pre-1915 plants have had extensive replacement of original equipment. As less efficient equipment wore out, and repair and replacement parts became expensive and hard to find, economic pressures encouraged major redevelopment of early plants. That trend was aggravated throughout the 1970s and 1980s by FERC policies that gave preference to schemes that promised the greatest possible power production, in cases where there were competing license applications for the same site.

Schaghticoke, Inghams, and Diamond Island, built during the early teens, represent the transition from hydro's era of innovation and experimentation to the period of standardization. These facilities contain many features characteristic of the standardized plants built during the 1920s, but they went into operation more than half-a-decade before the norms were established.

By far the largest number of surviving hydroelectric plants in New York were built during the period of standardization that began around 1915 and lasted until construction came to a standstill during the Depression. Thirty-one of Niagara Mohawk's operating plants show the effects of standardization. Only nine standardized plants have been removed from service in New York since World War II. Part of the reason for this high survival rate is that standardization was a by-product of the high plateau that hydro technology reached during the late teens and twenties. There have been increases in turbine and generator efficiencies in the years since, but those gains have not been large enough to justify the expense of replacing functional equipment.

3.1.c. Archaeological Resources at Hydro Sites

Lands in the vicinity of hydroelectric developments generally have a higher than average probability of yielding archaeological data (historic and prehistoric). This is because these sites are adjacent to major water courses, and are typically located at the site of major waterfalls and rapids. Rivers in New York State were used by Indians as transportation corridors. Waterfalls and rapids represented obstruction that generally had to be bypassed. These areas thus often included portage trails and temporary camp sites. In addition to travel on the rivers, well established Indian trails often paralleled water courses and valleys. Along these foot trails, waterfalls and rapids were points of interest that were probably used disproportionately as stopping points and for overnight and seasonal camps.

Early European settlers also used rivers as transportation corridors. Fur traders and loggers used these water courses to transport their products to market. Like the Indians, these early settlers had to bypass major waterfalls and rapids. Along with being used as portages, sites with waterfalls and steep drops were quickly recognized for their waterpower potential. These sites were thus developed for saw mills, gristmills and other early water-powered industries. Around these early mill sites, settlements, villages and (in some cases) eventually cities grew up. Early mills were gradually replaced with larger manufacturing operations, and starting at the end of the 19th century, hydroelectric developments. Thus, many existing hydro projects occupy sites with a long history of known (or potential) human use. It is not surprising therefore, that many hydro sites are considered archaeologically sensitive even if specific archaeological sites are not known.

3.2 Identification of Historic Properties: Beaver River Project

3.2.a. Belfort Hydro Development

3.2.a.1 Project Description

The Belfort Hydro Development consists of a reservoir with a surface area of 50 acres at normal water level elevation 966 feet USGS; a 206 feet long concrete dam with a spillway section 161 feet long , 17 feet high with 2 feet of flashboards; a 120 feet long forebay; a 62 feet wide concrete intake structure with trashracks and timber slide gates; two 50 feet long steel penstocks, 7 feet and 7.5 feet in diameter; a bifurcation on the south (7 feet diameter) penstock; a 78 feet by 39 feet concrete and masonry powerhouse with three horizontal Francis turbine generator units rated at a total of 2,040 kW; ancillary equipment; a 400 feet long tailrace; and a 3,500 feet long, 23 kV transmission line extending to the Taylorville substation.

The Belfort reservoir has not changed in its extent since 1915 and continues to serve to provide the headpond for operation of the hydro facility. There have been no major changes in the reservoir since its construction. The dam and penstocks of themselves do not possess unique characteristics in design or appearance that set them apart from numerous similar structures.

The powerhouse and generating equipment are representative of early twentieth century hydroelectric development. The powerhouse and generating equipment are fully functional, intact and largely unmodified since the major modifications that were performed in 1915. More recently, the powerhouse roof was replaced in 1979, the headrace wall was rehabilitated in 1981, the powerhouse retaining wall, dam and wingwall were rehabilitated in 1987, and various mechanical repairs have been performed in this time frame. The modifications that have been performed have maintained the configuration and visual integrity of the facility.

3.2.a.2. National Register Eligibility

Cultural resource evaluations in the area of potential effect for the Beaver River Project have determined that the Belfort Hydro Development's powerhouse, penstocks and ogee dam are eligible for listing on the National Register of Historic Places. This listing is in accordance with the finding of the NYS SHPO letter dated April 11, 1991 (ref. Appendix A) under criteria A and C which state that the Belfort Hydro Development is:

> "Associated with events that have made a significant contribution to the broad patterns of our history: or...
>
> Embodies the distinctive characteristics of a type, period or method of construction: or represents a significant and distinguishable entity whose components may lack individual distinction; "

The April 11, 1991 NYS SHPO letter addressed the mothballing of the existing Belfort Development in consideration of Niagara Mohawk's proposal at the time to retire these facilities and construct a new powerhouse, intake and penstock in the adjacent area. With the passage of time a diminution of energy value has rendered such redevelopment uneconomic, and the present plan , which is reflected in the August 2, 1996 Order Issuing New License, abandons the redevelopment plan and provides for the continued operation of the existing facilities. Accordingly, the three conditions stated that pertain to mothballing the structure are no longer applicable. However, the remaining comments of the NYS SHPO letter remain pertinent.

3.2.a.3 Modifications and Operational Changes per the FERC License

With the new license for the Belfort Hydro Development, stemming from the Settlement Agreement, there are to be subtle changes to the physical facilities and operation. There will be an increase in recreational utilization of this water body and surrounding shoreline area with proposed recreational enhancements. Summarized below are specific areas of change for the Belfort Development:

> Provide recreational enhancements and public access improvements (FERC license Article 415).
>
> - 700 feet long canoe portage trail.
> - Barrier free fishing deck on the south shore above the dam.
> - Parking lot for 6 cars on Belfort Road.
>
> A continuous 20 cfs will be released into the bypass reach through a new minimum flow release structure to be located in the ogee dam (FERC license Article 407).

Replacement of the existing 1.5 inch clear openings trash racks with new trash racks with 1.0 inch clear openings (FERC license Article 413).

Operationally, limit pond fluctuation to 1 foot below normal pond level (FERC license Article 410).

The details for these activities were presented in the Settlement Offer and in both the Draft and Final Environmental Assessments. Accordingly, with the scrutiny afforded in those fora, Niagara Mohawk believes these new features would not have an adverse affect on the identified historic resources at the Belfort Development.

The following activities involve the National Register eligible facilities at Belfort Hydro (item 1) and potentially involve unidentified cultural resources at Belfort and five other developments (item 2):

1. The plan for the Belfort minimum flow release structure to be installed at the ogee dam is included in Appendix B. The release facility is to consist of a notch cut into the dam and the installation of a gate that would create an orifice for release of the 20 cfs minimum flow for the enhancement of habitat and aesthetic values.

2. New activities at Belfort and Moshier, Eagle, Soft Maple, Taylorville and High Falls Developments of the Beaver River Project involve the installation of recreational facilities. These activities were also previewed in the above referenced documents. Plans for the Beaver River recreational facilities are included in the license filings and were included in Appendix B of the Draft CRMP submitted to the SHPO. With these recreational drawings (full size) presently residing in the SHPO files and not specifically at issue in this CRMP, these drawings are not included in the plan. Although no archaeological or historic sites have been identified in the areas affected by the installation of the recreational facilities, Niagara Mohawk will adhere to the procedures in Section 4., Management Plan For Historic Resources, specifically, Sub-section 4.4, Unidentified Cultural Resource Properties, of this CRMP.

The remaining activities and operational changes described above will have no effect on the historical resources of the project compared to pre-license conditions. However, other operation and maintenance activities, in some cases, could have an effect on the character of the historic resource. This aspect is discussed in Section 4.

3.3 Archaeological Resources

The NYS SHPO letter dated June 17, 1997 states, "Therefore, it is our opinion that there are no known archeological sites within the project area.". In any event, Section 4.4 "Unidentified Cultural Resource Properties" would address situations where such resources are encountered.

4. MANAGEMENT PLAN FOR HISTORIC RESOURCES

4.1 Protection of Historic Properties

Historic properties associated with the Beaver River Project have been identified as the Belfort powerhouse, penstocks, and ogee dam. Niagara Mohawk has operated and maintained the facility for many years as a valuable renewable energy resource, and by virtue of the recently issued 30 year FERC license, anticipates this stewardship will continue into the future. Continued use of a viable facility is usually considered the best practice for preservation and portrayal of the value and function of the historic resource.

The issued FERC license does not require significant modification or new construction at Belfort Hydro. Section 3.2.a.3. "Modifications and Operational Changes per the FERC License", lists these requirements.

Operation and maintenance activities will be directed towards continued efficient and safe operation of the facility. In time, there will of necessity be major maintenance or upgrade actions taken at the Development. One example would be the replacement of a worn, poorly operating turbine runner with a new runner of similar character but perhaps of improved design or more durable materials. A second example might be the addition of special personal safety equipment (e.g. safety signage) that is required by OSHA. The first example would not be functionally different or visually apparent since the runner is completely enclosed within the turbine casing, while the second example would introduce a visual element that was not in character for the period, but now necessary for safety compliance.

None-the-less the guiding tenet for the Belfort powerhouse, penstocks and dam will be that major components would be preserved and visual integrity would be maintained. Changes that are deemed necessary, but of a major nature would be subject to SHPO review. However, there are numerous operation and maintenance activities of a recurring nature that fall into the categories of preventive and corrective maintenance. The former are routine, often daily, while the latter are done under the conditions of an outage or safety concern, where time is of the essence.

The separate document, "Compendium of Compatible Operation and Maintenance Activities", presents those operation and maintenance activities that Niagara Mohawk and NYS SHPO have agreed would not detract from the integrity of the historic resource and would therefore qualify as categorical exclusions. Niagara Mohawk would not consult with SHPO on the listed actions and mitigation for these routine activities would not be considered necessary. Activities not listed will be evaluated as to potential effect on the character of the historic resource and consultation with NYS SHPO pursued.

The "compendium" is common to all CRMP's (Salmon River Project, Beaver River Project and all subsequent CRMP's). In cases where there is particular sensitivity to a specific maintenance activity, those special conditions would be spelled out in the project specific CRMP.

Actions taken under emergency conditions will not require prior consultation with SHPO, and are described in Section 5.1 "Plan Revision and Continuing Consultation". It would be unusual for emergency actions to involve historic resources at Belfort Hydro. However, in that eventuality, such actions will be conducted with sensitivity towards protection of historic values.

In the case of an emergency effecting a historic resource, Niagara Mohawk will advise SHPO as immediately as possible of the proposed actions and document to FERC and SHPO within 30 days, the actions taken, present conditions and mitigation that is proposed.

4.2 Interim Measures

Surficial ground disturbing activities will be involved in constructing the recreational enhancements, slated to start in July, 1997. Ongoing operation and maintenance activities will continue as they have in the past in order to maintain the facility.

The SHPO comment letter dated June 17, 1997 indicates the near term work at Belfort, including the notch in the ogee spillway, does not create a concern as to cultural resources. Also, it is indicated that there are no known archeological sites within the project area. The construction of the recreational facilities will proceed as indicated and if cultural resources are encountered, the procedures described in 4.4 and 4.5 of this section would be followed. Should activities that might impact the historic resource be proposed in the near term the procedures described in Section III. Interim Treatment of Historic Properties of the Programmatic Agreement would be followed.

4.3 Mitigation of Unavoidable Adverse Effects

Upon consultation with the SHPO regarding a proposed action, a circumstance may arise where Niagara Mohawk concludes an action is necessary and yet an adverse effect has been determined for the historic resource. An adverse effect would be determined if:

The resource is destroyed, demolished or altered.

Visual elements are introduced that alter the character or setting.

Status is changed by transfer of owner responsibility, abandonment or retirement.

Presently, there are no actions anticipated that would have an adverse effect.

Should an adverse effect be identified, a report will be prepared describing the need for the actions proposed, alternatives considered, rationale for the action and proposed mitigation. Mitigation could include documentation to the appropriate HABS/HAER standards, secured retirement of the property in place, the preservation and removal of the historic item to a suitable repository or other mutually acceptable action.

If during implementation of the plan or subsequent consultation proceedings Niagara Mohawk and SHPO disagree about eligibility or treatment of historic resources, FERC dispute resolution procedures would be followed.

4.4 Unidentified Cultural Resource Properties

There are no known archaeological sites within the licensed project boundary of the Beaver River Project as discussed in Section 3, Archaeological Resources. However, in the course of maintenance activities and any presently unidentified, construction or excavation in the future, the prospect of a discovery does exist.

Upon discovery of a potential cultural resource, Niagara Mohawk's Operation and Maintenance Organization or Construction Services Representative, would take the following steps:

1. Work will be stopped in the area of concern and stabilization / protective measures will be taken.

2. Niagara Mohawk's Hydro Licensing and Regulatory Compliance group will be immediately notified.

3. SHPO will then immediately be notified.

4. Identification and confirmation of potential significance will be performed.

5. The planning for any subsequent survey would be made in accordance with *The Secretary of the Interior's Standards for Identification* and *The New York Archaeological Council's Standards for Cultural Resources Investigations and the Curation of Archaeological Collections in New York State*.

6. The survey would be conducted by a qualified professional and documented in a report.

7. Any artifacts that are collected would be treated in accordance with the New York Archaeological Council standards.

4.5 Protection of Discovered Human Remains

Should human remains be unexpectedly unearthed in the conduct of work, construction activities will be halted in the immediate area. The requirements of Section 106 of the NHPA and the Native American Graves Repatriation Act (NAGPRA) would be fully followed in that eventuality.

4.6 Public Interaction

The environs of the Beaver River Project are moderately utilized for recreation. The Beaver River is known state wide for its canoe route. Whitewater recreation is anticipated to become a more important recreational activity, specifically at the Taylorville, Eagle and Moshier Developments. Niagara Mohawk is to provide special whitewater releases in accordance with Article 415 of the license. The various reservoirs in the Project have a mix of public and private use for boating and fishing. The rural setting of the Beaver River corridor attracts people to enjoy numerous other activities such as snowmobiling, cross country skiing, hunting and hiking. Recreational facilities and signage are provided by Niagara Mohawk and others to accommodate public access to the resources of the Project.

The Belfort powerhouse is a remotely operated facility and is not open to the public because of various safety reasons. However, tours would be afforded to groups who have a specific or general interest in historic hydro power (e.g. student classes, service organizations, scouts) upon application to the Superintendent of Hydro O&M in Watertown.

4.7 Consultation

Preparation of the CRMP was initiated for the Beaver River Project several years ago as part of an effort to develop a system-wide CRMP. The consultation associated with that effort culminated in the development and subsequent execution of the Programmatic Agreement in 1996

This CRMP was submitted in draft form to the NY SHPO for review on April 11, 1997. Comments from SHPO are attached in Appendix A, Consultation Correspondence.

5. COMPLIANCE UNDER THE CRMP

5.1 Plan Revision and Continuing Consultation

Niagara Mohawk will amend this plan if a new site within the Project Boundary is discovered and determined to be eligible to be included in the National Register, if requested by SHPO and required by the FERC. Section 4.4 Unidentified Cultural Resource Properties describes the steps to be taken in this regard.

Should Niagara Mohawk propose an operation and maintenance activity not covered by the Compendium, or a modification to the historic resource, consultation will be required and the following procedure would be followed:

1. Niagara Mohawk will advise the SHPO, FERC and other interested parties at least 30 days prior to the start of work, describing specifically the action, necessity for the action and its physical effect.

2. SHPO would provide comments on the proposed action within 30 days

3. Niagara Mohawk would respond to the SHPO's comments, if any, otherwise the action may be undertaken.

4. Should SHPO or Niagara Mohawk not agree on mitigation needs, or in general, resolution to the issue, the procedures outlined in Section IV. DISPUTE RESOLUTION of the Programmatic Agreement shall be followed.

In the case of an emergency effecting a historic resource, Niagara Mohawk will advise SHPO as immediately as possible of the proposed actions and document to FERC and SHPO within 30 days, the actions taken, present conditions and mitigation that is proposed.

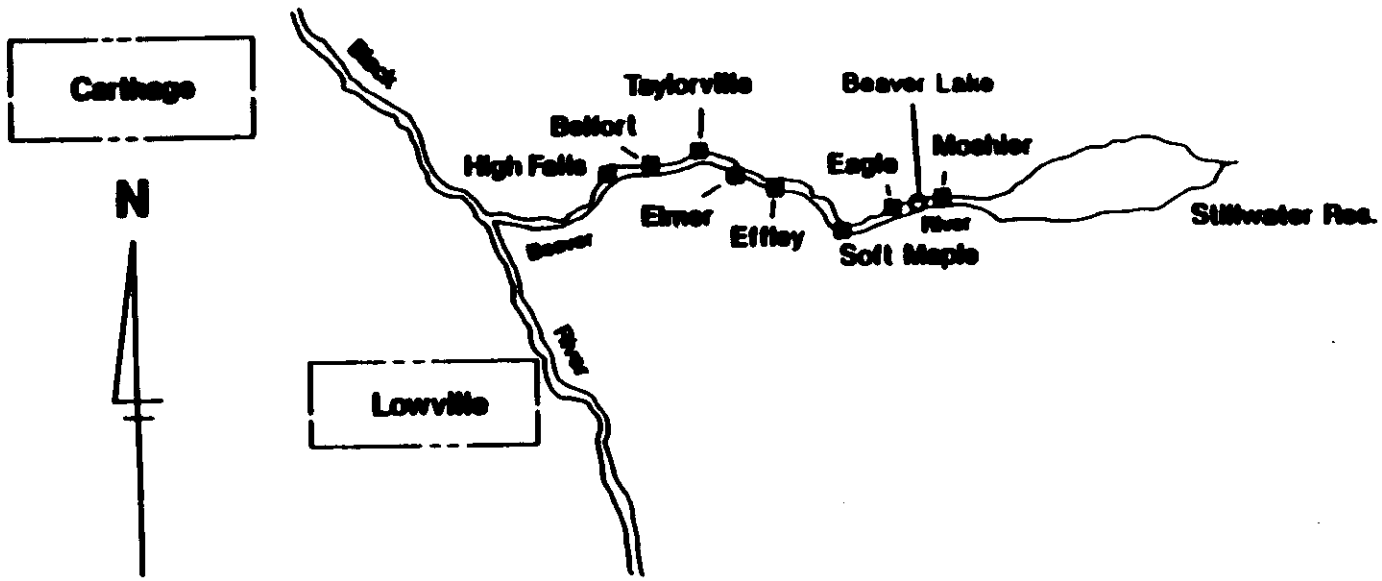
5.2 Compliance Activities

Niagara Mohawk will file an annual report on the anniversary of the license issuing with the Commission and SHPO describing the activities conducted under the implemented CRMP.

FIGURES

Figure 1

Project Location Map



APPENDIX A

CONSULTATION CORRESPONDENCE

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

Bernadette Castro
Commissioner

June 17, 1997

Jacob S. Nizio
Niagara Mohawk Power Corp.
300 Erie Boulevard West
Syracuse, NY 13202

Dear Mr. Nizio:

Re: FERC
Beaver River Hydro
Watson, Webb & Croghan,
Lewis and Herkimer Counties
90PR2684

Our office has reviewed the Draft CRMP for this project. As to the specific questions in your letter that address near-term activities we offer the following comments:

1. Our office has no concerns with the work proposed at Belfort that includes the installation of a notch in the ogee spillway.

2. Our letter in 1985 indicated that three sites were identified on the archeological sensitivity map as within your project area. However, there is no available information in the files for two of the reputed sites and the third site refers to the Eagle Falls hydro plant. Additionally there is no documentation for an earlier power plant at this location which may have been abandoned or destroyed leaving historic deposits or features. Therefore it is our opinion that there are no known archeological sites within the project area.

We do concur with the discussion in the CRMP Section 3.1.c., about the higher than average probability for sites in the vicinity of hydroelectric developments.

If you have any questions, please call Cynthia Blakemore at (518) 237-8643, extension 288.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director, Historic Preservation
Field Service Bureau

RLP:cm

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

EXPRESS MAIL

April 11, 1997

Mr. Robert D. Kuhn, PH.D.
Historic Preseration Program Coordinator
NYS Ofc. of Parks, Recreation & Historic Preservation
Peebles Island
PO Box 189
Waterford, NY 12188-0189

Subject: **Beaver River Project LP2645NY**
License Article 417
DRAFT Cultural Resources Management Plan (CRMP)

Dear Mr. Kuhn:

Please find enclosed two copies of the DRAFT CRMP for your review. I request that you submit your comments to me by **May 12, 1997**, so that we may include appropriate revisions, and make our FERC submittal date of May 19, 1997.

Your attention is requested in addressing specific near-term activities:

1. The Belfort Development has been identified as eligible for listing on the National Register. Work is planned to start in June this year at Belfort for the installation of a notch in the ogee spillway to allow passage of a 20 cfs minimum flow into the bypass reach for habitat and aesthetic enhancement as required by License Article 407.

2. Additionally, minor ground disturbing activities associated with the installation of recreation facilities under License Article 415 are scheduled to start this July at Belfort as well as at Moshier, Eagle, Soft Maple, Taylorville and High Fall Developments.

TJSNL101A.7AC

Further discussion regarding these activities is included in Section 3.2.a.3. "Modifications and Operational Changes per the FERC License." Annotated drawings depicting the nature and location of the above activities are included in Appendix B, "Drawings." One full-size copy of the drawings is also attached to facilitate your review.

One specific issue remains unclear which is contained in a NYS SHPO letter dated September 26, 1985 (Ref. CRMP Appendix A). The letter notes that there are three archeological resources in the vicinity of the Project Area. Our review of the archeological sensitivity maps at your office November 27, 1997 indicated there were no sites within the FERC Project Boundary of the Beaver River Project. Our interpretation is that the initial consultation stage in 1985 defined a Project Area much larger than the Project Boundary. Accordingly, our working premise is that there are no known archeological resources within the Project Boundary. In any event, Section 4.4 "Unidentified cultural Resource Properties" would address situations where such resources are encountered.

Please do not hesitate to call me at (315) 428-5556, if you have any questions.

Very truly yours,

Jacob S. Niziol, P.E.
Dam Safety & Compliance Coordinator

JSN:amc

Enclosures

xc: Sam S. Hirschey
Gary R. Schoonmaker

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1, Albany, New York 12238-0001

Orin Lehman
Commissioner

April 11, 1991

Mr. Jerry L. Sabattis
Relicensing Coordinator
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Dear Mr. Sabattis:

RE: FERC #2645
Beaver River Hydro
Towns of Webb, Watson and Crogham
Herkimer and Lewis Counties
90PR2684

The State Historic Preservation Officer (SHPO) has reviewed the additional information concerning the Belfort Project in accordance with Section 106 of the National Historic Preservation Act and relevant implementing regulations.

Based upon this review, the SHPO has determined that the Belfort Hydroelectric Plant meets the criteria for inclusion in the National Register of Historic Places. Please refer to the attached sheet for comments on eligibility.

Therefore, it is the SHPO's opinion that the project will have No Adverse Effect upon cultural resources in or eligible for inclusion in the National Register of Historic Places. This finding of No Adverse Effect is issued with the provision that the following conditions are met:

1. The powerplant is mothballed and all equipment be retained in place.

2. Prior to mothballing, the facility be recorded in accordance with HABS/HAER standards.

3. The new powerplant be of a material consistent with the color and texture of existing powerplant.

Please advise us in writing if these conditions cannot be met.

In addition, it is the SHPO's opinion that the remaining developments within the Beaver River Hydroelectric Project area will have No Effect upon cultural resources in or eligible for in inclusion in the National Register of Historic Places.

If you have any questions, please call Linda Harvey-Opiteck of our Project Review Unit at (518) 474-0479.

Sincerely yours,

Julia S. Stokes
Deputy Commissioner for
Historic Preservation

JSS/LHO:li

cc: FERC

Enc.: Eligibility Attachment

NEW YORK STATE OFFICE OF PARKS RECREATION HISTORIC PRESERVATION
Orin Lerman
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1, Albany, New York 12238-0001

ELIGIBILITY ATTACHMENT

FERC #2645 (Agency)

Beaver River Hydro. (Project Name)

Belfort, Croghan, Lewis County (Location)

I. _X_ Property appears NR/SR eligible. PRE SRB _X_ POST SRB ___

SPECIFIC CRITERIA:

A. _X_ Associated with events that have made a significant contribution to the broad patterns of our history; OR

B. ___ Associated with lives of persons significant in our past; OR

C. _X_ Embodies the distinctive characteristics of a type, period, or method of construction; OR represents a significant and distinguishable entity whose components may lack individual distinction; OR

D. ___ Have yielded, or may be likely to yield, information important in pre-history or history.

II. ___ Property appears to be within the boundaries of a potential historic district. ___ PRE SRB ___ POST SRB

___ Property contributes ___ does not contribute (to the historic district).

DISCUSSION:

The Belfort Hydroelectric Plant is historically significant as an intact representative example of early 20th century hydroelectric engineering in Northern New York. Built in 1898 and enlarged in 1915, the Belfort Plant retains three early turbines/generators (installed 1903,1915,1918) and is among the earliest operating facilities of its type and period in the Black River Basin. The stone and concrete block powerhouse, steel penstocks and ogee dam retain integrity of design and materials and contribute to an understanding of localized small hydroelectric generating industries in the early 20th century.

OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION
NEW YORK STATE
Orin Lehman
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1 Albany, New York 12238

518-474-0456

March 20, 1986

For further information
contact Project Review Unit
518-474-3176

Mr. Gary Schoonmaker
Environmental Analyst
Niagara Mohawk Power Corp
300 Erie Boulevard, West
Syracuse, NY 13202

Dear Mr. Schoonmaker:

Re: FERC #2645
Beaver River Hydro Project
Webb (Herkimer Co) Watson (Lewis Co)

The State Historic Preservation Officer (SHPO) has reviewed the above project in accordance with the Advisory Council on Historic Preservation's regulations, "Protection of Historic and Cultural Properties," 36 CFR 800.

Based upon this review, it is the opinion of the SHPO that the project will have no effect upon cultural resources on, or eligible for inclusion, in the National Register of Historic Places. This no effect is based on the provision that conditions outlined on the attached sheet are met.

Please advise us in writing if these conditions cannot be met. If you have any questions, please contact or Bruce Fullem at 474-3176.

Sincerely,

Julia S. Stokes
Deputy Commissioner for Historic Preservation

bb

Attachment: Conditions Sheet

cc K. Plumb
M. MacKenzie

#42b
1/85

OFFICE OF PARKS RECREATION HISTORIC PRESERVATION
NEW YORK STATE
Orin Lehman
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1, Albany, New York 12238

518-474-0456

For further information
contact Project Review Uni
518-474-3176

CONDITIONS ATTACHMENT

FERC 2645 (Agency)

Beaver River Hydro Project (Project Name)

Webb (Herkimer Co) Watson (Location)

Lewis County

(date of corresponding letter)

Any changes to the cureent mode of operation or project works will be submitted to the SHPO for review and comment (reference pg E 4-3 of draft relicense proposal)

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1, Albany, New York 12238

518-474-0456

September 26, 1985

Mr. Gary R. Schoonmaker
Environmental Analyst
Niagara Mohawk Power Corporation
300 Erie Boulevard, West
Syracuse, NY 13202

Dear Mr. Schoonmaker:

Re: FERC - Beaver River Hydro Project
Herkimer and Lewis Counties

The State Historic Preservation Officer (SHPO) has received your request for information on properties or sites which are included in or are eligible for inclusion in the National Register of Historic Places in or adjacent to the above project area.

Based upon the information which you provided, and upon a file search conducted by our staff, we have determined that there are three archeological resources in the vicinity of your project area. This determination is based upon the SHPO's archeological sensitivity model. In archeologically sensitive areas it is the SHPO's recommendation that unless recent prior ground disturbance can be documented, an archeological survey be undertaken to determine the nature and extent of archeological resources in your project area.

With regard to historic structures, there are no resources currently listed on the National and State Register of Historic Places, nor are there any properties listed on our statewide inventory of historic properties.

As you develop your project further, we will want to be provided with the opportunity to comment on existing structures in the project area. Additional information will allow the SHPO to comment on the significance of existing structures in accordance with the criteria of the National Register.

If you have any questions, please call the project review staff at 518:474-3176.

Sincerely,

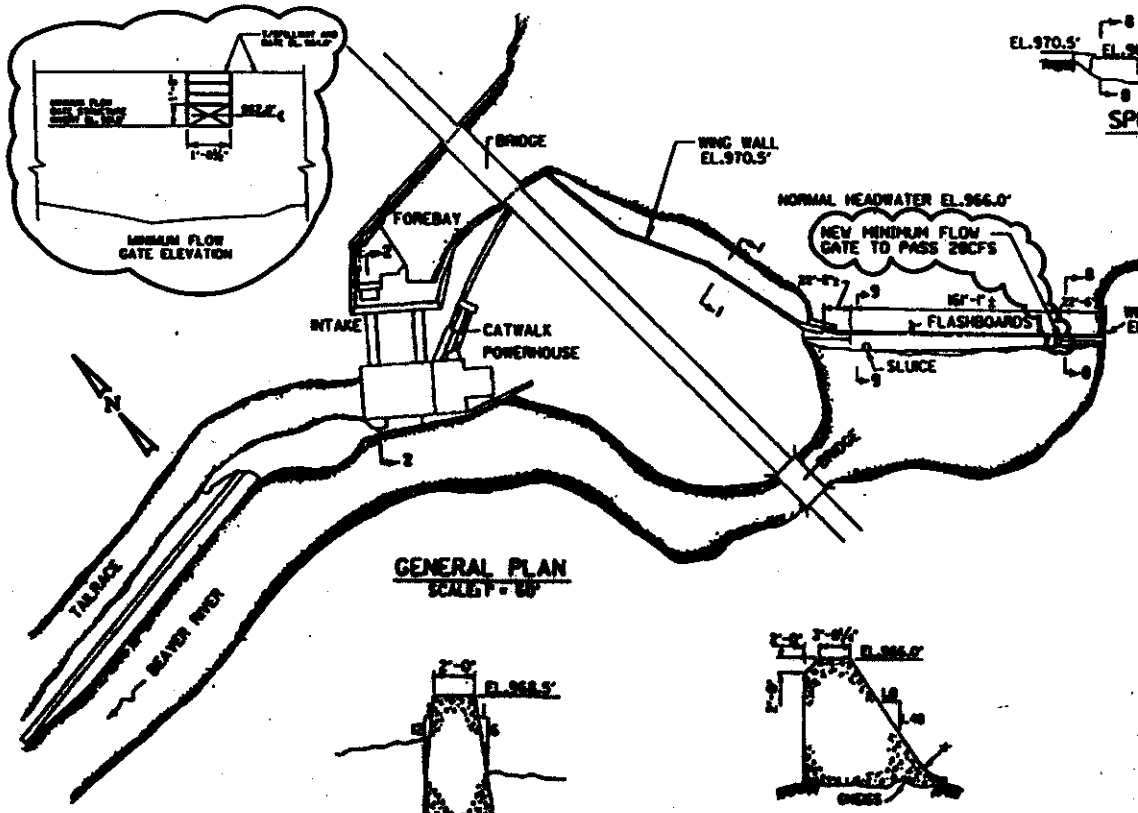
Julia S. Stokes
Deputy Commissioner for
Historic Preservation

bb

APPENDIX B

DRAWINGS

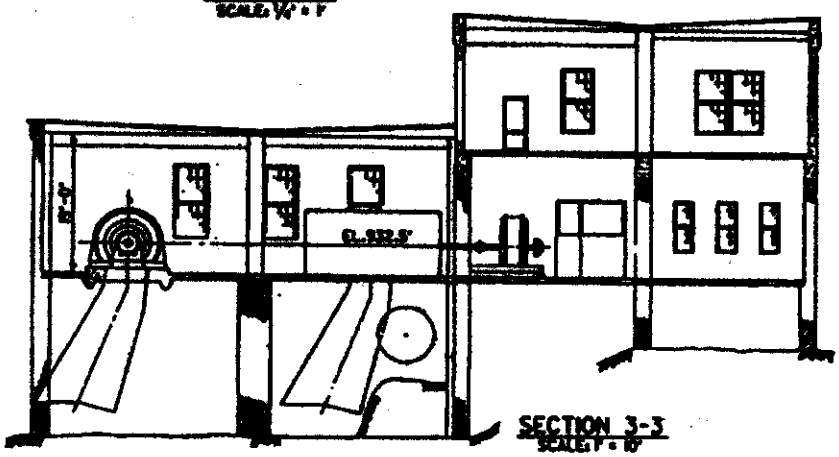
Belfort Development Sheet 20



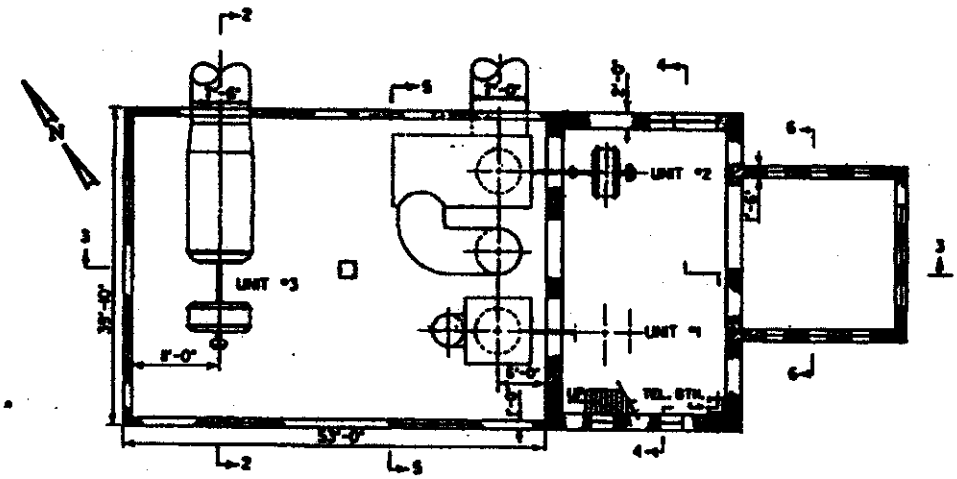
GENERAL PLAN
SCALE: 1" = 50'

SECTION 1-1
SCALE: 1/4" = 1'

SECTION 8-8
SCALE: 1" = 10'

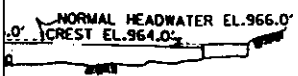


SECTION 3-3
SCALE: 1" = 10'



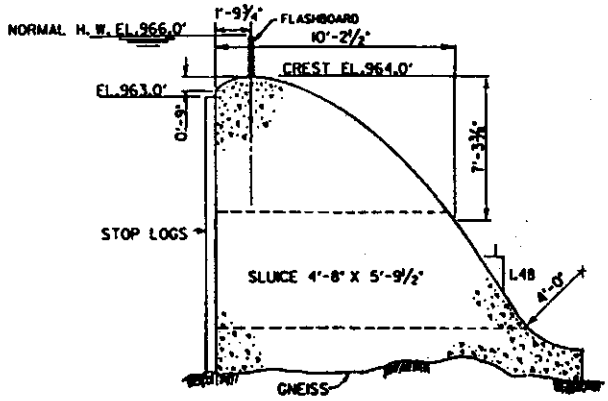
GENERATOR FLOOR PLAN
EL.928.5' SCALE: 1" = 10'

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPT

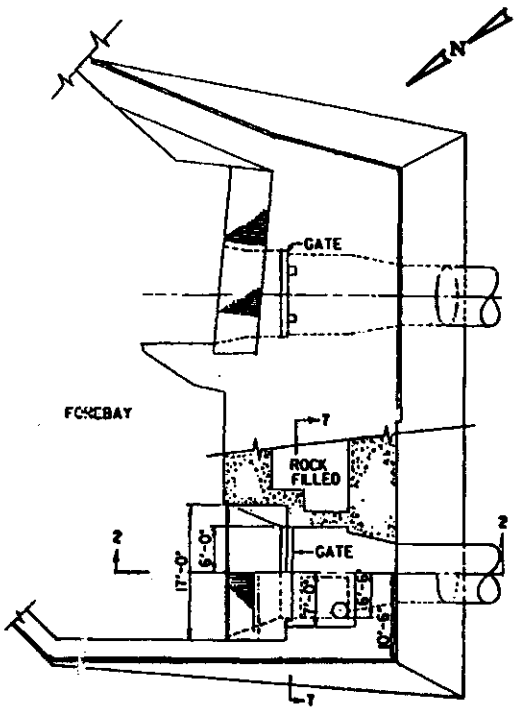


LWAY ELEVATION
SCALE: 1" = 60'

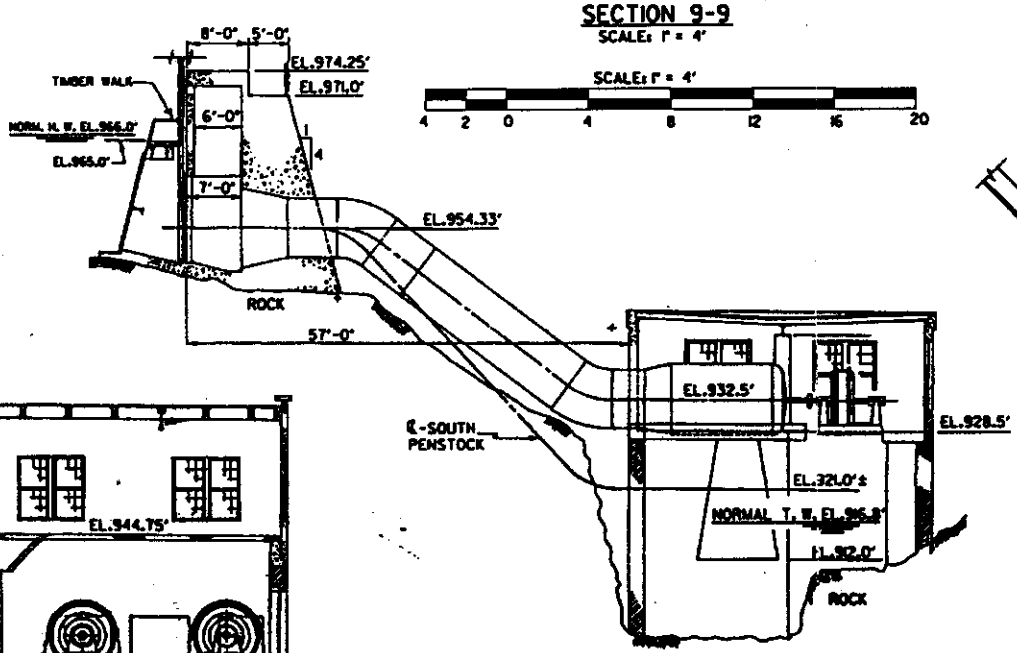
WALL
966.0'



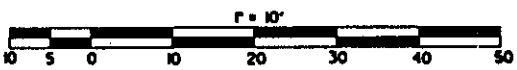
SECTION 9-9
SCALE: 1" = 4'

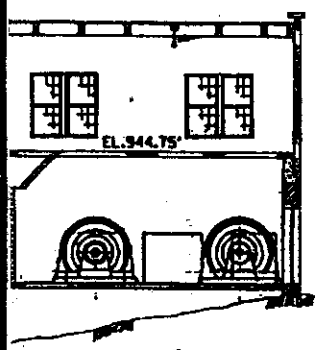


INTAKE PLAN
SCALE: 1" = 10'

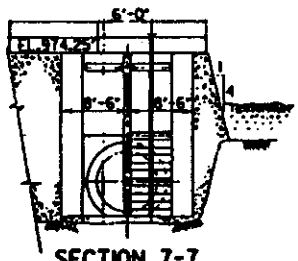


SECTION 2-2
SCALE: 1" = 10'

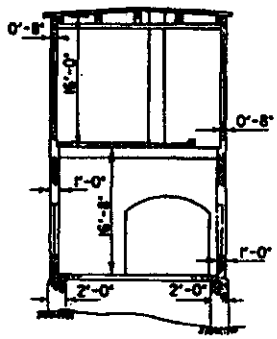




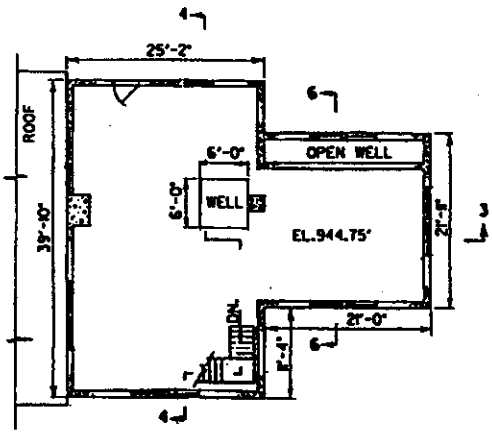
SECTION 4-4
SCALE: 1" = 10'



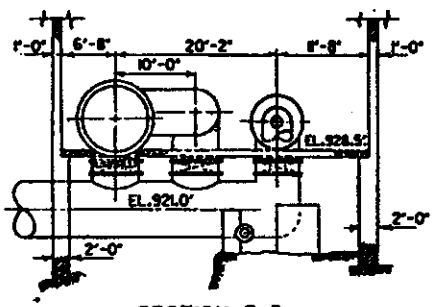
SECTION 7-7
SCALE: 1" = 10'



SECTION 6-6
SCALE: 1" = 10'



SECOND FLOOR PLAN
SCALE: 1" = 10'



SECTION 5-5
SCALE: 1" = 10'

NIAGARA MOHAWK
BEAVER RIVER PROJECT
BELFORT DEVELOPMENT (EXISTING)
GENERAL PLAN AND DETAILS
DAM, INTAKE AND POWERHOUSE

EXHIBIT F
SCALE: 1" = 60'
60 30 0 60 120 180 240 300
SHEET NO. 20

NO. OF ISSUE OR REVISION	DR.	CK.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	DR.	CK.	APP.
				2		LICENSE APPLICATION	KW		
				1	6/12/81	DRAFT LICENSE APPLICATION	JPC	DEC	JLS

ORIGINAL ISSUE DATE
FILE INDEX
DRAWING NUMBER

COMPENDIUM OF COMPATIBLE OPERATION AND MAINTENANCE ACTIVITIES (CATEGORICAL EXCLUSIONS FOR HISTORIC HYDRO FACILITIES) PURSUANT TO A CULTURAL RESOURCES MANAGEMENT PLAN

Submitted by
Niagara Mohawk Power Corporation
February 1997

COMPENDIUM OF COMPATIBLE OPERATION AND MAINTENANCE ACTIVITIES (CATEGORICAL EXCLUSIONS FOR HISTORIC HYDRO FACILITIES) PURSUANT TO A CULTURAL RESOURCES MANAGEMENT PLAN

A. UNIFORMITY OF OPERATION AND MAINTENANCE PRACTICE

- Numerous Niagara Mohawk owned hydros are subject to Cultural Resources Management Plan (CRMP) requirements of the Federal Energy Regulatory Commission (FERC) as part of the initial or new licenses to be issued by the FERC. Niagara Mohawk feels that there is a need for consistency in the CRMP's such that needless delays/costs will not be incurred in maintenance procedures while still preserving historic values.

- As a matter of practicality, this document is intended to be a separate living document common to all of Niagara Mohawk's CRMP's. As revisions become necessary, this document will be updated as appropriate.

- This document will be referenced in the CRMP and if there are any particular exceptions or departures from this listing, that notation will be made in that specific CRMP.

B. CATEGORICAL EXCLUSIONS

Niagara Mohawk, in consultation with the New York State Historic Preservation Officer (SHPO), proposes that the following operation and maintenance activities have no effect on historically significant properties, and will require no review by the SHPO. These are generally routine activities which have been carried out at the project throughout its lifetime and have resulted in its integrity being maintained to date. Consequently, continuing practice of these activities is expected to maintain the integrity of the project into the foreseeable future.

1 Minor modifications to electrical generating equipment, including generator rewinds, turbine runner and wicket rebuilding and replacement, and modifications to the electrical control system. Complete replacement of generating equipment or specific components that have been determined to be historically significant, is excluded.

2 Maintenance and improvements to electrical systems.

3 Upgrade / replacement of electrical switch gear including auxiliary power equipment.

4 Replacement of substation and transmission components.

5 Replacement / removal of overhead lines.

6 Routine maintenance of mechanical and electrical equipment (repair, lubrication, painting, etc.).

7 Repair / overhaul of generator exciters.

8 Minor repairs / in-kind replacement to structural components of the powerhouse, dam, and other facilities attributable to normal wear, vandalism, storm events, etc., to original condition.

9 Concrete repair work.

10 Replacement / repair of grating and fencing.

11 Realignment / replacement of non-structural partitions.

12 Maintenance activities related to pipelines, (e.g. painting, repair, vegetation clearing, etc.).

13 Repair / replacement of trashracks.

14 Repair and maintenance of earthen embankments including monitoring equipment.

15 All interior and exterior painting and staining provided that traditional, removable materials are used, appropriate preparation techniques are employed, and the original/significant texture is matched.

16 Compliance with FERC mandated safety improvements not requiring major structural modifications, e.g. installation of post-tensioned anchors.

17 Placement and maintenance of public safety devices and signs.

18 Compliance with FERC mandated instrumentation and monitoring requirements such as installation of piezometers and measuring weirs.

19 Removal of vegetation, e.g. brush.

20 Caulking and weatherstripping with comparable or modern materials such that the color of the caulking is consistent with the appearance of the building.

81 FERC ¶ 62,020

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Niagara Mohawk Power Corporation) Project No. 2645-063

ORDER APPROVING CULTURAL RESOURCE MANAGEMENT PLAN

OCT 07 1997

On July 14, 1997, Niagara Mohawk Power Corporation, licensee for the Beaver River Project, FERC No. 2645, filed a cultural resource management plan (CRMP or plan). The CRMP was filed pursuant to article 417 of the license 1/ and the Programmatic Agreement (PA). 2/ The Beaver River Project is located on the Beaver River in Lewis and Herkimer Counties, New York. The project consists of eight developments (Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls).

LICENSEE'S PLAN

The CRMP describes the properties eligible for listing in the National Register of Historic Places. While the only known historic property at the project is the Belfort Hydro Development, the plan includes provisions for the protection of undiscovered historic properties.

The CRMP includes procedures to protect the historic property and measures to mitigate any unavoidable adverse effect from project operation. The plan provides for public interpretation of the significance of identified cultural resources. The CRMP includes measures for revising the plan and for continued consultation with the SHPO and Commission if changes occur. It further includes a listing of operational and maintenance activities which are exempt from further consultation with the New York State Historic Preservation Officer (SHPO).

CONSULTATION

The licensee prepared the CRMP in consultation with the SHPO. The SHPO concurred with the CRMP in a letter dated June 17, 1997.

1/ See 76 FERC ¶ 61,152 (1996). Article 417 requires the licensee to implement the Programmatic Agreement to protect cultural resources at the project.

2/ The PA was executed on July 19, 1996 among the Advisory Council on Historic Preservation, the New York State Historic Preservation Officer, and the Commission.

971009-0362-3

In a letter dated July 28, 1997, the Commission sent a copy of the CRMP to the Advisory Council on Historic Preservation (Council) for a 30 day review pursuant to the PA. The Council did not provide any comments.

DISCUSSION AND CONCLUSION

The licensee has developed a CRMP which addresses historic preservation at the project. The CRMP describes how the licensee will integrate cultural resource protection into the planning process for all other activities at the project. It also describes how the licensee will address the discovery of unknown sites and provides for continually revisions in the event of changes at the project. The plan meets the requirements of the PA and article 417 and should be approved.

The licensee is reminded that pursuant to the PA it must file an annual report of activities conducted under the CRMP with the SHPO and the Commission. This report is due on the anniversary of the license issuance date. The first report is due by August 2, 1998.

The Director orders:

(A) The Cultural Resource Management Plan, filed on July 14, 1997, pursuant to article 417 of the license and the Programmatic Agreement executed on July 19, 1996, is approved.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 CAR § 385.713.

Kevin P. Madden
Acting Director
Office of Hydropower Licensing

ATTACHMENT H

QUESTION D – WATERSHED PROTECTION:

1996 BEAVER RIVER FUND MANAGEMENT PLAN

2013 BEAVER RIVER FUND ANNUAL CONTRIBUTION LETTER

ATTACHMENT K

QUESTION G – RECREATION:

1997 RECREATION PLAN FOR P-2645

1997 FERC ORDER APPROVING RECREATION PLAN FOR P-2645

NIAGARA MOHAWK
GENERATION
BUSINESS GROUP

FOSSIL AND HYDRO GENERATION/300 ERIE BOULEVARD WEST, SYRACUSE, NEW 13202/TELEPHONE (315) 474-1511

ORIGINAL

N

OVERNIGHT COURIER

June 11, 1997

Ms. Lois D. Cashell, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, N.E.
Washington, DC 20426

SUBJECT: Beaver River Project 062
FERC Project No. 2645-029 NY
License Article 415 - Recreation Plan

Dear Secretary Cashell:

In accordance with the Order Approving Settlement Agreement and Issuing New License for the above referenced project, issued on August 2, 1996, enclosed are an original and eight copies of Niagara Mohawk's Recreation Plan in accordance with License Article 415.

Several references are made in the content of License Article 415 and the Settlement Offer to consult with the Adirondack Mountain Club (ADK) regarding improvements to canoe portages, canoe put-ins and take-outs, hiking trails, and installation of trail markers. Further, reference is made in both documents, directing Niagara Mohawk to consult with the Beaver River Advisory Council (BRAC), which has not yet been formed. Niagara Mohawk decided it was in everyone's best interest to field consult with ADK and, additionally DEC, regarding these recreational facilities before finalizing this recreational plan. That field consultation occurred on May 15, 1997. Niagara Mohawk envisioned that, without the BRAC organization, ADK and DEC could best exemplify the other BRAC entities, and sought input from them in finalizing the recreation plan, anticipating that this upfront consultation would allow us to proceed with recreational site construction this summer without the need for another round of consultation, prior to seeking FERC approval.

Toward that end, Niagara Mohawk verbally contacted the parties noted below and informed them of the field consultation visit with ADK and DEC and the inclusion of their recommendations in the recreation plan. Additionally, Niagara Mohawk advised the parties that this recreation plan was being submitted to FERC as a final plan to initiate FERC's expedient review and approval for 1997 construction, and would be concurrently sent to them, via overnight courier. Niagara Mohawk further advised that any comments should be submitted to Niagara Mohawk for its review and subsequent submittal to FERC for its consideration in approving the recreation plan. All parties were

970625-0287-3

TMSL162A.7DB

in agreement with this approach and most stressed quick action on the part of all concerned, such that these recreational improvements can be implemented for the 1997 recreation season.

In closing, Niagara Mohawk remains committed to constructing these recreational facilities in 1997 for the benefit of the recreationists and would appreciate additional comments, if any, from the parties copied below after they have had an opportunity to review the plan. If no response is received within 14 days of the date of this letter, Niagara Mohawk will assume that no comments are to be offered.

If you have any questions, please contact Tom Skutnik at (315) 428-5564.

Very truly yours,

Sam Hirschey

Sam S. Hirschey, P.E.
Manager,
Hydro Licensing & Regulatory Compliance

Enclosure:

xc: Mr. Len Ollivett, DEC, Watertown
Mr. Alex Velto, ADK
Ms. Betty Lou Bailey, ADK
Mr. Dave Bryson, USFWS, Cortland
Ms. Betty Ann Hughes, DEC, Albany
Mr. Bruce Carpenter, NYRU
Ms. Barbara Rottier, APA
Mr. Thomas Matias, Trout Unlimited
Mr. Pete Skinner, AWA
Mr. Kevin Mendik, NPS
Mr. J. Mark Robinson, FERC
Mr. Jacob Niziol, NMPC
Mr. Tom Skutnik, NMPC

Revision 0
June 11, 1997

NIAGARA MOHAWK POWER CORPORATION

BEAVER RIVER PROJECT
FERC PROJECT NO. 2645-029

LICENSE ARTICLE 415 COMPLIANCE
RECREATION PLAN

JUNE 1997

BEAVER RIVER PROJECT
FERC PROJECT NUMBER 2645-029

LICENSE ARTICLE 415 COMPLIANCE SUBMITTAL;
RECREATION PLAN

INTRODUCTION

Niagara Mohawk submitted to the Federal Energy Regulatory Commission ("FERC") an Application For A New License for Beaver River Project No. 2645 on November 23, 1991. FERC issued the ORDER APPROVING SETTLEMENT AGREEMENT AND ISSUING NEW LICENSE for the Beaver River Project on August 2, 1996 ("License").

The Beaver River Project consists of eight developments located on the Beaver River in the Town of Webb, Herkimer County and the Towns of Watson and Croghan, Lewis County - all in the State of New York. The developments are situated along the Beaver River between the Stillwater Reservoir and the Beaver River's confluence with the Black River. The developments progressing downstream are: Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort and High Falls. As part of the License, FERC included License Article 415, which follows and is quoted verbatim for ease of reviewing this recreation plan in response to License Article 415 requirements:

> License Article 415: Within six months of license issuance, the licensee shall file for Commission approval a detailed plan for constructing, operating, and maintaining the recreational facilities at the project developments specified in: Pages E.5-9 to E.5-14 of the application for relicense, filed on November 29, 1991; the responses to Additional Information Request Nos. 11, 13, and 15, dated August 21, 1992; and recreation enhancements described in the Settlement Agreement filed with the Commission on May 30, 1995.
>
> The recreation plan shall include, but not be limited to:
>
> (1) a provision for annual whitewater boating releases commencing in 1997 at the Moshier, Eagle, and Taylorville bypass reaches in accordance with the following schedule for each development: (a) Moshier - one 4-hour release of 400 cubic feet per second (cfs) in September or October (prior to October 15) of each year. Ramping flows not to exceed 200 cfs will be provided for two hours before and two hours after the boating flow release. The total volume of each release, including ramping flows, shall not exceed 2,400 cfs-hrs; (b) Eagle - five 4-hour releases of at least 200 cfs will be provided in September and October of each year. Ramping flows not to exceed 100 cfs will be provided for one hour before and one hour after the boating flow releases. The total volume of each release, including ramping flows, shall not exceed 1,000 cfs-hrs; (c) Taylorville - five 4-hour releases not to exceed 400 cf will be provided in September and October of each year. Ramping flows not to exceed 200 cfs will be made before and after boating flow releases for a total duration of time, not

to exceed three hours. The total volume of each release, including ramping flows, shall not exceed 2,200 cfs-hrs. The releases at the three developments shall be coordinated with one another to the extent feasible. The exact timing of the releases will be determined by the licensee and American Whitewater Affiliation (AWA), in consultation with the Beaver River Advisory Council (BRAC). The schedule and flows for releases from all three developments may be modified by the licensee and AWA, based on the recommendations of BRAC, but the total of all the releases shall not exceed the equivalent of 96,600 kilowatt-hours (kWh).

(2) new recreation facilities and measures including but not limited to those described at each of the following developments:

Moshier: a canoe/boat take-out at the southwest corner of the downstream end of the Moshier impoundment near the end of the existing access road; a new gravel parking area and two trash receptacles in the vicinity of the powerhouse; minor improvements to the canoe portage made in consultation with the Adirondack Mountain Club (Adirondack), including widening of the footbridge; a kiosk adjacent to the canoe put-in that provides a map and a description of the Beaver River canoe route, portage, and foot trails; a sign-in register; a whitewater canoe put-in and four-car parking lot at the upper end of the bypass reach; replacement of existing trail markers to the bypass reach trail with new trail markers placed in consultation with Adirondack; manual brushing of the Pepperbox Wilderness Access Trail, the bypass reach trail, and the canoe route access trail; and removal of trash in the areas;

Eagle: a fishing access trail to the bypass reach, including a widened roadside gravel parking area adjacent to the trailhead with a vehicle barrier and trash receptacle; trail markers; a provision to provide access for the public to the road along the pipeline; a canoe rest and bench mid-way along the pipeline; and working with the Adirondack Mountain Club to make other minor improvements to the canoe portage and put-in near the tailrace;

Soft Maple: ten tent and recreational vehicle campsites and an 800-foot gravel access road on a peninsula of land on the south shore of the Soft Maple impoundment accessible from Eagle Falls Road; one car-top boat launch; one 1,000-square foot caretaker's cabin and one 500-square foot garage; one 20-car gravel parking lot with a gravel access road adjacent to the proposed campsites, boat launch, and picnic area; a picnic area, including 15 picnic tables, grills, and trash receptacles, four restrooms, and a 200 foot trail extending from the south end of the parking lot adjacent to the boat launch and camping area; seven primitive canoe campsites on islands and isolated peninsulas in the reservoir; new trail markers at the existing informal primitive trails to the south side of the bypass reach; a 150-foot scenic overlook trail; one 20-car parking lot in the abandoned gravel pit area at the head of the bypass reach access trails; one 4-car road widening on Soft Maple Road at the head of the new access trail to the scenic overlook; manual brushing of trails along the south side of the bypass reach; minor improvements made in consultation with the Adirondack Mountain Club, including a new footbridge, to the canoe portage and put-in near the tailrace of the

powerhouse; and a small parking area near the powerhouse to allow access to the canoe route;

Taylorville; one car-top boat launch and parking lot north of the dam; a kiosk at the existing parking lot that provides a map and a description of the Beaver River canoe route, portage and foot trails; a picnic area including four picnic tables, four grills, six trash receptacles, and two restrooms adjacent to the car-top boat launch; non-vehicular access trails to the bypass area, including barrier-free trails accessible by persons with disabilities; a canoe portage, including two benches, two canoe rests, and a downriver put-in;

Belfort: a canoe portage, inlcuding a bench, canoe rest, and downriver put-in developed in consultation with the ADK; one 600-square foot, barrier-free fishing deck and a gravel parking lot for six vehicles off Belfort Road providing fishing access to Belfort reservoir for persons with disabilities; a sign-in register and two trash receptacles adjacent to the parking lot; and signs along Belfort Road indicating the location of boat access points and parking facilities at Taylorville;

High Falls: five primitive campsites on islands in the High Falls Reservoir; a canoe portage and downriver put-in; two picnic tables, grills, and trash receptacles at the existing Cooperative Day Use area;

(3) final site plans for the facilities;

(4) the name of the entity or entities responsible for operating and maintaining the facilities;

(5) a discussion of how the design of the facilities take into consideration the guidelines established by the Architectural and Transportation Barriers Compliance Board (36 C.F.R. Part 1191) and designing facilities wherever practicable to meet guidelines using the U.S. Forest Service's Design Guide for Accessible Outdoor Recreation;

(6) erosion and sediment control measures and measures for revegetation of disturbed areas to be implemented during and after construction of the new recreational facilities; and

(7) a schedule for constructing the facilities within one year of plan approval.

The licensee shall file the plan after consultation with the Beaver River Advisory Council (BRAC). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the BRAC, and specific descriptions of how the BRAC's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the BRAC to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project - specific information.

The Commission reserves the right to require changes to the plan. No ground - disturbing or land - clearing activities shall begin until the licensee is notified that the plan is approved. Upon approval, the licensee shall implement the plan, including any changes required by the Commission. Within 90 days after completion of construction, the licensee shall file as - built drawings of the recreation facilities with the Commission.

BEAVER RIVER PROJECT
FERC PROJECT NO. 2645-029-NY

ARTICLE 415

RECREATION PLAN

(1) WHITEWATER BOATING RELEASES

In accordance with the requirements of License Article 415, Niagara Mohawk will annually provide the following whitewater boating releases commencing in 1997:

Moshier

One 4-hour release of 400 cubic feet per second (cfs) in September or October (prior to October 15) of each year. Ramping flows not to exceed 200 cfs will be provided for two hours before and two hours after the scheduled whitewater boating release. The total volume of each release, including ramping flows, will not exceed 2,400 cfs-hours.

Eagle

Five 4-hour releases of at least 200 cfs in September and October of each year. Ramping flows not to exceed 100 cfs will be provided for one hour before and one hour after the scheduled whitewater boating releases. The total volume of each release, including ramping flows, will not exceed 1,000 cfs-hours.

Taylorville

Five 4-hour releases not to exceed 400 cfs in September and October of each year. Ramping flows not to exceed 200 cfs will be provided before and after boating releases for a total duration of time, not to exceed three hours. The total volume of each release, including ramping flows, will not exceed 2,200 cfs-hours.

Niagara Mohawk will coordinate, to the extent feasible, the releases from the three developments in consultation with the American Whitewater Affiliation (AWA), scheduling such releases for the greatest benefit to the whitewater recreationist.

Initially, Niagara Mohawk, in consultation with the AWA, will determine the timing of the whitewater boating releases. After formation of the Beaver River Advisory Council (BRAC), Niagara Mohawk and AWA will schedule the annual whitewater boating releases and then consult with the BRAC regarding same, modifying the proposed schedule after consultation, if necessary.

During the license term, there may be some years when the license required number of and/or timing of whitewater releases may not be able to be satisfied because of meteorological conditions.

At such times, Niagara Mohawk will discuss with AWA and BRAC either a reduction in the total number of releases or a change in the timing.

Niagara Mohawk will record the cumulative energy loss in kilowatt-hours (kWh) resulting from each individual flow release and, when approaching the equivalent of 96,600 kWh (say 80,000 kWh), will so advise the AWA. Modifications to the scheduled releases may then become necessary so as to not exceed the equivalent of 96,600 kWh of lost generation.

(2) NEW RECREATION FACILITIES AND MEASURES

License Article 415 requires Niagara Mohawk to provide trash receptacles at several of the Beaver River recreational sites. Niagara Mohawk does not intend to provide trash receptacles at the Beaver River recreational sites, except for the Soft Maple campground. Most governmental and privately owned and operated recreational sites have in effect a CARRY IN - CARRY OUT policy for the recreational users. Niagara Mohawk has also adopted this policy because of several instances of misuse of existing trash facilities.

Niagara Mohawk is providing various recreational drawings for the Beaver River hydro sites identifying existing recreational facilities or new facilities in response to the requirements of License Article 415. Generally, Niagara Mohawk is providing the recreational enhancements required by License Article 415. Any exceptions or other enhancements requiring further explanation are included in the discussion below for each development as identified under License Article 415. Additionally, a recreational site inspection was conducted on May 15, 1997 with DEC and ADK, and their recommendations are included in the discussion.

Moshier

Niagara Mohawk will be providing a canoe/boat take-out at the southwest corner of the downstream end of the Moshier impoundment in the vicinity of the informal parking area located at the end of the existing access road. The location selected for the canoe/boat take-out and access way to the parking area and canoe portage, will be constructed to provide for handicapped accessibility. Niagara Mohawk will be expanding the existing informal parking area to accommodate four vehicles. Niagara Mohawk will not be providing the new gravel parking area in the vicinity of the powerhouse as per agreement with DEC and ADK, because the existing New York State Department of Environmental Conservation (DEC) day use parking area, provides the necessary parking. In addition to the kiosk at the canoe put-in, Niagara Mohawk will install a register with a kiosk adjacent to the DEC register in the day use parking area as agreed too in consultation with DEC and ADK and, as per the Settlement Offer. As previously mentioned, Niagara Mohawk will not provide trash receptacles at this site.

Niagara Mohawk has consulted with the Adirondack Mountain Club (ADK) and DEC, and will make minor improvements to the canoe portage trail which will utilize the existing access road adjacent to the pipeline. One recommendation of both ADK and DEC and which Niagara Mohawk agreed too, was to install a sign at the Moshier reservoir canoe/boat take-out noting the distance to the downstream Moshier tailrace put-in (2.5 miles). Vehicular access along the pipeline road will not be allowed except by special permit for handicapped access and scheduled whitewater releases.

Niagara Mohawk, per consultation with ADK and DEC, and based on the condition of the existing footbridge crossing over Sunday Creek, will not widen the footbridge at this time. However, when the footbridge requires replacement in the future, replacement with a wider footbridge will be considered. Niagara Mohawk will construct a new footbridge crossing over a small creek east of the powerhouse to provide access to the existing informal trail along the south side of the bypass reach. Per consultation with ADK, ADK will install trail markers as required along the existing trails. Regarding maintenance, Niagara Mohawk will brush the existing trails including the access trail to the Pepperbox Wilderness Area and remove any trash on the premises to the extent possible.

Eagle

After consultation with ADK and DEC, Niagara Mohawk will make minor improvements to the canoe portage trail and the put-in near the tailrace, such as removal of blow downs; ADK to install trail markers as needed; and DEC to provide canoe access signs directing canoeists to the Eagle put-in. Niagara Mohawk will keep the existing informal fishing trail along the south side of the bypassed reach brushed and maintained as a primitive and unimproved trail. This trail will provide for fishing access to the bypassed reach and ADK is to install trail markers as needed on this trail.

Niagara Mohawk, during the period from April 1 through October 31, will allow public access to the roadway alongside the pipeline and the parking area to be constructed, at the trailhead to the fishing access trail. Vehicular barriers will be installed at the parking area. Niagara Mohawk to provide a canoe rest and bench approximately mid-way along the pipeline. As previously mentioned, Niagara Mohawk will not provide trash receptacles at this site.

After DEC's acquisition of the area known as "Eagle Canyon", located on the northerly side of the bypass, DEC is to provide access for rock climbing and other associated recreational activities as per the Settlement Offer. Niagara Mohawk will provide access to this area via the existing trail located along the lower section of the south side of the bypassed reach.

Soft Maple

In conjunction with the ten site campground, Niagara Mohawk will provide an 800-foot gravel access road to the campsites. In addition to the caretaker cabin, Niagara Mohawk will also provide a garage. The existing boat launch in the vicinity of the campground serves as a car-top boat launch and will not be modified to accommodate a ramped/trailer launch. Niagara Mohawk will improve the existing informal picnic area and install 15 picnic tables and grills, one of which will be handicapped accessible. Niagara Mohawk will initially construct a 10-car parking area near the campground and will expand it to 20 cars in the future, if necessary. Niagara Mohawk will provide four restrooms in the campground area with one restroom being handicapped accessible. Niagara Mohawk will improve selected areas on the islands and peninsulas for the seven primitive canoe accessible campsites. These campsites are considered primitive and Niagara Mohawk is not planning any enhancements to these sites. Trash receptacles will be provided in the campground area only.

Niagara Mohawk will provide a widening of Soft Maple Road to accommodate a parking area for four cars near the head of the scenic overlook trail. The scenic overlook trail will be extended

a short distance downstream along the bypass reach and then looped back to the scenic overlook trailhead. Vehicle barriers will be installed to prevent vehicular access into the scenic overlook area.

A designated parking area in the abandoned gravel pit area at the head of the bypass reach access trails will provide parking for 4-6 cars. This parking area can be enlarged in the future if the recreational use demands such expansion. Trail markers will be installed by ADK on the existing trail to the bypass and along the bypass trails and minor modifications will be made to the existing footbridges spanning the bypass.

Niagara Mohawk has consulted with the ADK and DEC and will make minor improvements to the canoe portage trail and the existing put-in near the tailrace of the powerhouse. Some erosion of the put-in has occurred and Niagara Mohawk identified repair measures to ADK and DEC. ADK will install trail markers as needed. An existing parking area near the powerhouse provides the necessary parking requirements for the canoeists. Niagara Mohawk will manually brush the trails and maintain the trails as primitive and unimproved.

Taylorville

The car-top boat launch, parking lot north of the dam, and the picnic area are already in place. The parking lot will have a designated handicapped parking area with appropriate signage. A kiosk will be placed in the existing sign-in register located near the parking lot. The picnic area will be furnished with four tables and grills and the tables will be located on top of the knoll overlooking the impoundment. Niagara Mohawk will provide two restrooms near the parking lot and picnic area, with one restroom being handicapped accessible. Niagara Mohawk will install a sign in the picnic area adjacent to the intake advising the public of underwater intakes, no swimming.

Existing informal trails allow for access to the bypass reach and measures are in place (fencing and boulders) which prohibit vehicular access to these trails. Niagara Mohawk is planning a phased approach for barrier-free access to the bypass area, depending upon user demand, as shown on the drawings. Phase 1 will initially be constructed with phases 2 and 3 being implemented as usage and demand dictate. A 2-car handicapped parking area will be constructed at the head of the barrier-free access trail. Niagara Mohawk will also provide a barrier-free picnic table for the handicapped in the bypass area. Niagara Mohawk will provide a staging area for the whitewater recreationists and signage for the whitewater put-in. As previously mentioned, Niagara Mohawk will not provide trash receptacles at this site.

Improvements will be made to the existing informal bypass area trails and the trails will be extended, as appropriate, to provide access to scenic overlooks in the bypass area. ADK to install trail markers as necessary.

The downstream portion of the canoe portage trail will utilize the existing roadway to the powerhouse and terminate at the canoe put-in, immediately past the garage building. Two canoe rests and benches will be installed along the portage route.

Belfort

Niagara Mohawk has consulted with the ADK and DEC in further assessing the license required canoe portage trail and the downriver canoe put-in. The existing terrain for the canoe portage trail is a relatively steep embankment with a generally mucky area at the bottom of the embankment. Niagara Mohawk has agreed with DEC and ADK to construct the portage traversing down the embankment and extending the portage to a canoe put-in several hundred feet downstream of the powerhouse. Niagara Mohawk will provide signage along Belfort Road directing the recreationist to the boat access points and parking facilities at the Taylorville car-top boat launch. As previously mentioned, Niagara Mohawk will not provide trash receptacles at this site.

The location of the barrier-free fishing deck in the Belfort reservoir was further discussed with DEC and ADK. The available shoreline is very limited for providing this barrier-free fishing deck but it was agreed that the deck could be installed at the north end of the spillway. A handicapped access ramp to the fishing deck will be included in the deck construction. The canoe take-out will be constructed north of the fishing deck. Improvements will be made to the existing parking area to accommodate six vehicles and a sign-in register will be installed in the parking area.

High Falls

Niagara Mohawk has consulted with the ADK and DEC and will make minor improvements to the canoe take-out, the canoe portage trail (utilizing an existing logging road), and the canoe put-in, in the tailrace. Niagara Mohawk will improve selected areas on the islands in the High Falls reservoir for the five primitive canoe accessible campsites. These campsites are considered primitive and Niagara Mohawk is not planning any enhancements to these sites. As previously mentioned, Niagara Mohawk will not provide trash receptacles at this site but will provide two picnic tables and grills at the Cooperative Day Use Area.

(3) FINAL SITE PLANS FOR THE FACILITIES

The enclosed recreation drawings denote Niagara Mohawk's position on the recreational improvements. These drawings will be revised to include relevant comments as deemed necessary, if so desired.

(4) THE NAME OF THE ENTITY OR ENTITIES RESPONSIBLE FOR OPERATING AND MAINTAINING THE FACILITIES

Niagara Mohawk is the responsible party for the operation and maintenance of the recreational facilities.

(5) HOW THE DESIGN OF THE RECREATIONAL FACILITIES TAKES INTO CONSIDERATION THE GUIDELINES ESTABLISHED BY THE ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD (36 C.F.R. PART 1191)

The following denotes how the design of the recreational facilities incorporates the Architectural and Transportation Barriers Compliance Board guidelines and designing the facilities using the US Forest Service's Design Guide for Universal Access to Outdoor Recreation guidelines.

Parking areas

Niagara Mohawk will provide one handicapped accessible parking space at the Soft Maple campground area and three at the Taylorville parking lots. These parking spaces will be reserved for persons with disabilities and a sign showing the International Symbol of Accessibility will be installed at each designated parking space. The size of the parking space and accompanying access aisle will be in accordance with the Architectural and Transportation Compliance Board (ATCB) recommendations, Section 4, Accessible Elements and Spaces, subsections 4.1 and 4.6.

Restrooms

Niagara Mohawk will provide one handicapped accessible restroom at the Soft Maple campground and one near the Taylorville parking lot. The restrooms will be in accordance with the requirements of ATCB, Section 4, Accessible Elements and Spaces, subsection 4.17.

Picnic tables and grills

The picnic tables and grills will conform to the Americans with Disabilities Act Accessibility Guidelines (ADAAG). The picnic tables will be a maximum of 32 inches from the ground to the top and will extend a minimum of 30 inches beyond the legs at each end. The grills will be 30 - 36 inches high.

Fishing Deck

The fishing deck to be provided at Belfort reservoir will be constructed to the ADAAG guidelines and will have an access ramp grade no greater than 8.3%.

Handicapped Trails

The maximum grade for trails requiring handicapped access, will have a maximum grade of 10% and will have a level rest area at every 900 feet maximum.

(6) EROSION AND SEDIMENT CONTROL MEASURES AND MEASURES FOR REVEGETATION OF DISTURBED AREAS

The attached erosion and sedimentation control standard details drawing, which includes revegetation of disturbed areas affected by site enhancements, is Niagara Mohawk's means of implementing and controlling erosion and revegetation.

(7) SCHEDULE FOR CONSTRUCTING THE FACILITIES WITHIN ONE YEAR OF PLAN APPROVAL

In accordance with our submittal of January 8, 1997, whereby we submitted our proposed licensing compliance schedule, it is Niagara Mohawk's intentions to construct the recreational enhancements in the late July 1997 through mid-December 1997 timeframe.

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NIAGARA MOHAWK
GENERATION
BUSINESS GROUP

FOSSIL AND HYDRO GENERATION/300 ERIE BOULEVARD WEST, SYRACUSE, NEW 13202/TELEPHONE (315) 474-1511

OVERNIGHT COURIER

July 28, 1997

Ms. Lois D. Cashell, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, N.E.
Washington, DC 20426

062

Subject: Beaver River Project LP 2645-029 NY
License Article 415
Recreation Plan

Dear Secretary Cashell:

On June 11, 1997, Niagara Mohawk filed with the FERC a final recreation plan to initiate FERC's expedient review and approval for 1997 construction. Concurrently, Niagara Mohawk filed the recreation plan with the resource agencies and other entities advising same that any comments should be submitted to Niagara Mohawk for subsequent review and submittal to FERC, for FERC's consideration in approving the recreation plan.

On July 16, 1997, Niagara Mohawk filed with FERC, comments received on the recreation plan and our response to those comments. Since that date, Niagara Mohawk received comments from the United States Fish & Wildlife Service and the Adirondack Park Agency.[1]

Niagara Mohawk is herein filing an original and eight copies of these comments which are included herein. Niagara Mohawk's response to these comments follows.

LICENSE ARTICLE 415
RECREATION PLAN

United States Fish & Wildlife Service (USFWS) comment letter of July 14, 1997

USFWS Comment, 1st & 2nd paragraphs : USFWS states that the recreation plan filed on June 11, 1997 was not provided to all members of the Beaver River Advisory Council (BRAC)

[1]Niagara Mohawk notes the 30-day statutory comment period would have expired on July 11, 1997.

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for consultation prior to its filing and several members of the BRAC did not receive copies as filed with FERC. USFWS also notes that the NMPC suggested if no comments were received within 14 days, NMPC would assume no comments were forthcoming. This procedure does not comply with the 30-day review and comment period. USFWS further states that it is important that attention to detail and specific license requirements are not omitted or overtly amended.

Licensee Response: Niagara Mohawk stated in its June 11, 1997 filing, that the BRAC had not yet been formed. Several references were made in the Settlement Offer and License Article 415 requiring consultation with the Adirondack Mountain Club (ADK) and the BRAC. As mentioned previously, since the BRAC has not yet been organized, Niagara Mohawk pursued consultation with ADK and the DEC (as the primary agency responsible for convening the BRAC and the agency with the most local oversight of these issues on the Beaver River) in finalizing the recreation plan.

Niagara Mohawk omitted four potential BRAC members in its filing of June 11: Adirondack Council, New York State Conservation Council, Hudson River-Black River Regulating District and Lewis County. The Settlement Offer only identified entities to be invited to serve on the Council. It did not state that these entities shall comprise the Council. Until the formation of the BRAC, it would not have been known exactly which entities desired to serve on the BRAC. The June 11 and 16 filings have since been provided to these entities.

As per License Article 415, Niagara Mohawk is not required to complete construction of the recreation facilities until one year after FERC approval of the plan. Yet Niagara Mohawk is willing to complete construction within 2-3 months of FERC approval, well in advance of the FERC requirements. Niagara Mohawk was seeking FERC's expedient review and approval for 1997 construction and initiated this approach to achieve same. Most of the entities in receipt of this recreation plan have expressed approval of this approach realizing the benefit to be gained for the recreationists.

USFWS General Comment 1: USFWS states that an adequate release mechanism needs to be installed at the Moshier Development for the release of whitewater flows as previous releases have resulted in fish strandings. USFWS further states that a search and recovery effort should be initiated for stranded fish after every whitewater release.

Licensee Response: Our previous submittal pursuant to License Articles 401 and 412 clearly indicated that the proposed new slide gate was a vast improvement over the needle beam structure that was in place at the time of previous whitewater releases. This new gate structure will be providing regulated flows for whitewater releases as well as the minimum flow release. In regard to the fish stranding issue, the Settlement Agreement provided ramping flows after whitewater releases to encourage fish movement from potential strandable areas. To now insist that Niagara Mohawk perform a continued search and recovery effort in this nearly inaccessible, two mile long by-pass reach is unreasonable.

USFWS General Comment 2: USFWS disagrees with Niagara Mohawk's proposal not to provide trash receptacles at several recreational sites and notes that in the Settlement Offer

Niagara Mohawk agreed to place and regularly dispose of refuse from such trash cans. USFWS notes that the trash cans can be "bearproofed".

Licensee Response: Niagara Mohawk does not intend to provide trash receptacles at any recreational sites with the exception being the Soft Maple campground area. Niagara Mohawk has reviewed the Settlement Offer and fails to find any specific reference to Niagara providing trash receptacles and regularly disposing of refuse from such trash cans.

Further, Niagara Mohawk notes this policy has changed dramatically in NYS over the past few years. With the new solid waste/recycling laws, the increased liability and expense with complying makes this an unreasonable request for unsupervised recreation areas.

USFWS General Comment 3: USFWS notes that the drawings are of insufficient scale, some of the recreational facilities are outside the FERC project boundary and maps should be provided clearly depicting the location of all recreational facilities.

Licensee Response: Niagara Mohawk will provide as-built drawings denoting the locations of the recreational facilities and revised project boundary maps.

USFWS General Comment 4: USFWS states that it is Niagara Mohawk's responsibility to see that trail markers and signs are properly placed and maintained throughout the license term.

Licensee Response: Niagara Mohawk will maintain the trail markers and signs after installation throughout the license term. However, Niagara Mohawk defers to ADK who has agreed to the initial installation of trail markers since it has more experience and is more proficient at placement in strategic locations.

USFWS General Comment 5: USFWS comments that concrete picnic tables should be considered in place of wooden picnic tables.

Licensee Response: Niagara Mohawk has experimented with concrete picnic tables at other vandal-prone areas and has not had good results. They are easily broken, harder to repair/replace, and are not as aesthetically fitting in the Adirondack environment. Niagara Mohawk prefers to utilize the traditional wood picnic tables.

USFWS General Comment 6: USFWS notes that Niagara Mohawk should consider fire pits/rings at all proposed campsites.

Licensee Response: Niagara Mohawk will consider this request overall and as a minimum, will install fire pits/rings at the Soft Maple campsites.

MOSHIER DEVELOPMENT

USFWS Comment 1st paragraph: USFWS notes that the proposed boat take out is along the dike instead of on the southern shoreline of the impoundment. The diked section may be too steep for easy access. The southern shoreline should be used for the take out. USFWS

also states that the locations and dimensions of the existing informal parking area should be clearly noted on a project map.

Licensee Response: The location of the boat take out was discussed in the field with ADK and DEC. It was agreed too by all parties that the best location for the take out was along the dike. Sufficient land was available to properly grade the take out while maintaining easily accessible grades. It was also decided that this area could accommodate handicapped access more readily than the take out along the southern shoreline. Niagara Mohawk will provide as-built drawings denoting the location and dimensions of the existing parking area.

USFWS Comment 2nd paragraph: USFWS notes that members of the BRAC should be provided with a draft copy of the map to be placed in the kiosk for review and comment prior to installation within the kiosk and the location of the kiosk should be depicted on the project maps.

Licensee Response: Niagara Mohawk will provide a copy of the map to be placed in the kiosk to the members of the BRAC for review and comment and will note the location of the kiosk on the as-built drawings.

USFWS Comment 3rd paragraph: USFWS notes that Niagara Mohawk should maintain the footbridge crossing Sunday Creek and replace this bridge at the request of the BRAC.

Licensee Response: Niagara Mohawk agrees to maintain this bridge and will consider replacement at the request of the BRAC.

USFWS Comment 4th paragraph: USFWS states that Niagara Mohawk should provide a design drawing of the new footbridge to be constructed over the small creek east of the powerhouse.

Licensee Response: Niagara Mohawk fails to see the need of a design drawing for this footbridge spanning some four feet but will provide a hand drawn sketch.

USFWS Comment 5th paragraph: USFWS stresses that trash materials should be removed from the site by Niagara Mohawk.

Licensee Response: Niagara Mohawk, upon finding any trash that creates a public eyesore at or near its recreational facilities, will remove it from the premises.

EAGLE DEVELOPMENT

USFWS Comment 1st paragraph: USFWS states that Niagara Mohawk's proposal to limit public access to the roadway alongside the pipeline to the period from April 1 through October 31 is not in accord with the Settlement Offer. The USFWS sees no need to limit public access and use of this area and does not concur with the proposed seasonal restriction.

Licensee Response: The Niagara Mohawk proposed time period takes into consideration an extended recreation season. However, Niagara Mohawk will allow public access to December 1 annually to accommodate hunting in the area.

USFWS Comment 2nd paragraph: USFWS notes that additional parking should be provided at this site to accommodate whitewater recreationists and rock climbers.

Licensee Response: Niagara Mohawk will assess the need for additional parking requirements dependent upon the amount of interest generated by these events.

USFWS Comment 3rd paragraph: USFWS notes that the existing access trail along the south side of the bypassed reach should be indicated on the maps and that Niagara Mohawk should install signs with maps depicting the location of the trail near the parking areas.

Licensee Response: Niagara Mohawk will denote the location of the trail on the as-built drawings and will be installing signs noting the location of the trail.

SOFT MAPLE DEVELOPMENT

USFWS Comment 1st paragraph: USFWS notes that the boat launch may require placement of additional gravel near the launch site.

Licensee Response: Niagara Mohawk will assess the need for additional gravel material and will maintain the boat launch as needed.

USFWS Comment 2nd paragraph: USFWS notes that Niagara Mohawk should provide a drawing indicating the dimensions of the proposed parking lot and identify the proposed area for expansion at the Soft Maple campground.

Licensee Response: Niagara Mohawk will provide this information on the as-built drawings.

USFWS Comment 3rd paragraph: USFWS notes that the location of the four restrooms should be indicated on a site map. If permanent facilities are planned, a design drawing of the facilities should be provided. Also Niagara Mohawk should identify whether a potable water source will be available to visitors and the location of the water source should be identified on the site map.

Licensee Response: Niagara Mohawk will provide as-builts denoting the locations of the four restrooms. Niagara Mohawk has not yet finalized its plans regarding the potable water source but will identify same on the as-builts if we decide to include a potable water source within the campground area.

USFWS Comment 4th paragraph: USFWS requests that Niagara Mohawk provide a draft copy of the proposed orientation sign to members of the BRAC for review and comment.

Licensee Response: Niagara Mohawk will provide a copy of the orientation sign to the BRAC.

USFWS Comment 5th paragraph: USFWS suggests that Niagara Mohawk provide a drawing indicating the dimensions of the proposed parking area at the abandoned gravel pit and identify the area for expansion of the parking lot. Also, that Niagara Mohawk should install signs with maps depicting the location of the bypass trail near the parking areas and at the overlook.

Licensee Response: Niagara Mohawk will provide as-built drawings of the proposed parking area and identify the area designated for expansion on same. Signs will be installed for the bypass trail and the overlook. Niagara Mohawk will consider a sign with a map for the bypass reach.

TAYLORVILLE DEVELOPMENT

USFWS Comment 1st & 2nd paragraphs: USFWS notes that the specific actions regarding the three phased approach at the Taylorville bypass area is unclear. The plan should specifically address which project amenities will be installed/constructed at this time and propose a schedule for the other phases. The trail extensions should be outlined on a map. USFWS comments that the map to be placed in the kiosk should be provided to the BRAC.
Licensee Response: Niagara Mohawk will further address the phased approach in the plan and will identify the trail extensions on the as-builts. Niagara Mohawk indicated that phases 2 and 3 would be installed on an as needed basis (which was discussed by the field trip participants.) Hence, a definitive time schedule is not available. Niagara Mohawk will provide a draft copy of the map to be placed in the kiosk to the BRAC.

BELFORT DEVELOPMENT

USFWS Comment: USFWS suggests that a design drawing of the fishing deck be included in the final design for the project.

Licensee Response: Niagara Mohawk will provide a drawing to be included in the as-built submittals.

Adirondack Park Agency comment letter of July 16, 1997

APA Comment 1st paragraph: Niagara Mohawk has no comment.

APA Comment 2nd paragraph: Niagara Mohawk has no comment

APA Comment 3rd paragraph: APA comments that the maps are difficult to read and perhaps clearer maps can be provided in the future. Additionally, the maps do not correctly reflect the FERC project boundary in all cases.

Licensee Response: Niagara Mohawk will provide as-builts denoting the locations of the recreational facilities and these drawings should be more legible. The FERC project boundary drawings will be revised to ensure that the recreational facilities are within the boundary.

APA Comment 4th, 5th & 6th paragraphs: APA takes exception to the process pursued by Niagara Mohawk in submitting the recreation plan. APA further notes that the plan was forwarded to selected parties (not BRAC) for comment at the same time as it was sent to FERC. APA notes that it did not consent to the process nor did it consent to the 14-day response period

Licensee Response: Niagara Mohawk pursued this approach to initiate FERC's expedient review and approval for 1997 construction. Niagara Mohawk omitted four potential BRAC entities from its June 11, 1997 mailing. These entities have since been provided with copies of the June 11, 1997 submittal to FERC.

Niagara Mohawk inadvertently stated that "All parties were in agreement with this approach....". This was an oversight as APA did not consent to this process.

In summary, Niagara Mohawk is still desirous of completing these recreational enhancements in the 1997 construction season. We hope these late comments/concerns have been adequately addressed to permit the Commission to issue timely approval of the Recreation Plan.

If you have any questions, please contact Tom Skutnik at (315) 428-5564.

Very truly yours,

Sam S. Hirschey, P.E.
Manager,
Hydro Licensing & Regulatory Compliance

Enclosure:

xc: Mr. Len Ollivett, DEC, Watertown
Mr. Alex Velto, ADK
Ms. Betty Lou Bailey, ADK
Ms. Sherry Morgan, USFWS, Cortland
Ms. Lenore Kuwik, DEC, Albany
Mr. Bruce Carpenter, NYRU
Ms. Barbara Rottier, APA
Mr. Thomas Matias, Trout Unlimited
Mr. Pete Skinner, AWA
Mr. Kevin Mendik, NPS
Ms. Lisa Genier, Adirondack Council
Mr. John McHugh, Lewis County
Mr. Henry Cosselman , NYS Conservation Council
Mr. J. Mark Robinson, FERC
Mr. Jacob Niziol, NMPC
Mr. Tom Skutnik, NMPC

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Niagara Mohawk Power Corporation	)	Project No. 2645-062
	)	

ORDER APPROVING RECREATION PLAN

AUG 19 1997

On June 12, 1997, Niagara Mohawk Power Corporation, licensee for the Beaver River Project, FERC No. 2645, filed a recreation plan for Commission approval. The plan was filed pursuant to article 415 of the project license. 1/ Supplemental information was filed by the licensee on July 17 and July 29, 1997. The Beaver River Project is located on the Beaver River in the Towns of Croghan and Watson in Lewis County and in the Town of Webb in Herkimer County, New York. The project comprises eight developments spanning 18 miles. They are (in descending order) Moshier, Eagle, Soft Maple, Effley, Elmer, Taylorville, Belfort, and High Falls.

BACKGROUND

As part of the licensing process, a Settlement Offer was reached by the licensee and various resource agencies. The Settlement Offer filed on May 30, 1995, was the product of negotiations begun after the New York State Department of Environmental Conservation (NYSDEC), denied the Beaver River Project water quality certification (in 1992), which is a prerequisite to licensing. All intervenors in both the Commission proceeding and the certification proceeding were invited to participate in the negotiations. All licensing intervenors signed the Offer, except the City of Watertown and the Natural Heritage Institute. 2/ This Offer was approved in the project license and provisions of the Offer were incorporated into the license where appropriate.

1/ See Order Approving Settlement Agreement and Issuing New License. 76 FERC ¶ 61,152 (1996).

2/ The signatories to the Settlement Offer are the licensee, NYSDEC, the Adirondack Council, U.S. Fish and Wildlife Service, American Whitewater Affiliation, Adirondack Park Agency, New York State Council of Trout Unlimited, New York Rivers United, National Audubon Society, New York State Conservation Council, American Canoe Association, Association for the Protection of the Adirondacks, Adirondack Mountain Club, American Rivers, and the National Park Service.

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Article 415 of the project license requires the licensee to file a detailed plan for constructing, operating, and maintaining the recreational facilities identified in various documents reviewed during the licensing process, including the Settlement Offer. Article 415 identifies the whitewater flows and facilities that, at a minimum, are to be provided at the project's eight developments. In conjunction with provisions for each of the identified facilities, the plan was also to include: (1) site plan drawings; (2) the name of the entity responsible for operating and maintaining each facility; (3) a description of how persons with disabilities will be accommodated by the plan; (4) erosion control and sedimentation measures; and, (5) a schedule for constructing the facilities within one year of plan approval.

PROPOSED PLAN

The material filed on June 12, 1997, consists of the plan as it was submitted to the agencies for comment. The licensee provided the agencies 14 days to comment on the plan. After receiving comments, the licensee filed a revised plan with the Commission on July 17, 1997. This is the plan reviewed for consideration by this order.

The July 17 filing includes all of the information required by article 415. This filing states the licensee will provide the whitewater flows identified in article 415, as well as comply with the whitewater boating release periods. The plan further identifies the new recreational facilities that are to be provided at each development. The plan identifies minor modifications that were made to the required parking areas after consultation with the resource agencies and additional review of site usage. These modifications primarily involve providing fewer parking spaces at certain developments. The licensee believes the smaller parking areas will accommodate current demand at the project's remote developments. If a need for additional parking is identified in the future, the licensee states they will expand the parking areas as is considered necessary at that time.

The primary difference between the requirements of article 415 and the filed plan pertain to trash receptacles. Article 415 identifies the number of trash receptacles that are to be provided by the licensee at each site. In the July 17 filing the licensee states it does not intend to provide trash receptacles at the project, with the exception of the Soft Maple campground. The licensee states most governmental and privately owned recreational sites in the area have a "carry in--carry out" policy, as this policy is considered most suitable for the remote location of the facilities in the area. In addition, the

licensee states the Settlement Offer does not include any specific reference to trash receptacles.

Page 11 of the filed plan specifically identifies how the plan will meet the needs of persons with disabilities. The facilities which will accommodate persons with disabilities include parking areas, restrooms, picnic tables, trails, and the fishing deck to be provided at the Belfort development. The erosion control and sedimentation measures to be employed during construction are identified in the June 12 filing. This information indicates the licensee will use a combination of hay bales, silt fences, and reseeding/revegetating.

The July 17 filing states the licensee will be the entity responsible for the operation and maintenance of the recreational facilities identified in the plan. This filing further states the licensee intends to complete construction of all facilities by mid-December 1997.

AGENCY CONSULTATION AND COMMENT

Article 415 requires the licensee to consult with the Beaver River Advisory Council, or BRAC, on the proposed plan. This council was provided for in the Settlement Offer as an organization which would oversee and manage the Beaver River Fund. 3/ To this date, the BRAC has not been formalized. The licensee therefore submitted the recreation plan to all the parties which signed the Settlement Offer. 4/ Letters of response were submitted by the NYSDEC, Adirondack Mountain Club (AMC), New York Rivers United (NYRU), American Whitewater Association (AWA), U.S. Fish and Wildlife Service (FWS), Adirondack Park Agency (APA), and the state chapter of Trout Unlimited.

The July 17 filing includes the licensee's response to comments submitted by NYSDEC, AMC, NYRU, AWA, and Trout Unlimited. The July 29 filing responds to the comments filed by FWS and APA.

Most of the agency comments refer to specific wording changes within the recreation plan. A large number of the

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3/ This fund is further established by the Settlement Offer. It is to be used by BRAC for ecosystem protection, natural resource stewardship, public education, facility maintenance, and applied research necessary to improve public access and outdoor recreational resources in the Beaver River corridor.

4/ See Footnote 2.

recreational areas, including the removal of litter and debris that occurs at each site.

As stated, the licensee has appropriately addressed the concerns regarding the drawings of the recreation facilities. Within 90 days of completing construction of the facilities, as-built exhibit drawings should be filed for Commission approval. These drawings should appropriately show the facilities as constructed and their relation to the project boundary. More detail regarding the as-built drawings is stipulated in the ordering paragraph requiring the drawings.

In addition to the above, Commission staff believes the licensee has appropriately addressed the needs of persons with disabilities and proposed suitable erosion control and sedimentation measures. The construction deadline of December 1997 is also considered appropriate for the level of facilities to be constructed. The plan, as filed on July 17, 1997, and supplemented by material filed on July 29, 1997, should therefore be approved.

The Director orders:

(A) The recreation plan filed on July 17, 1997, and as supplemented by material filed on July 29, 1997, is approved and made part of the license for the Beaver River Project. With this approval, the licensee shall complete construction of the approved facilities by December 31, 1997.

(B) Within 90 days of completing construction, or by March 31, 1998, the licensee shall file as-built drawings of the approved recreation facilities. These drawings should show the facilities as-built and should not show any "proposed" or "future" facilities. The filed drawings should include an overall site plan which shows the location of each area in relation to other project works/facilities, and individual site plans for each specific recreation area. Detailed construction drawings of amenities such as foot bridges, restrooms, and picnic tables need not be included. The individual site plans should be of an appropriate scale to show the location of each facility within a given site. The individual site plans should further include the project boundary where appropriate.

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 CFR § 385.713.

Joseph D. Murphy

Kevin P. Madden
Acting Director
Office of Hydropower Licensing