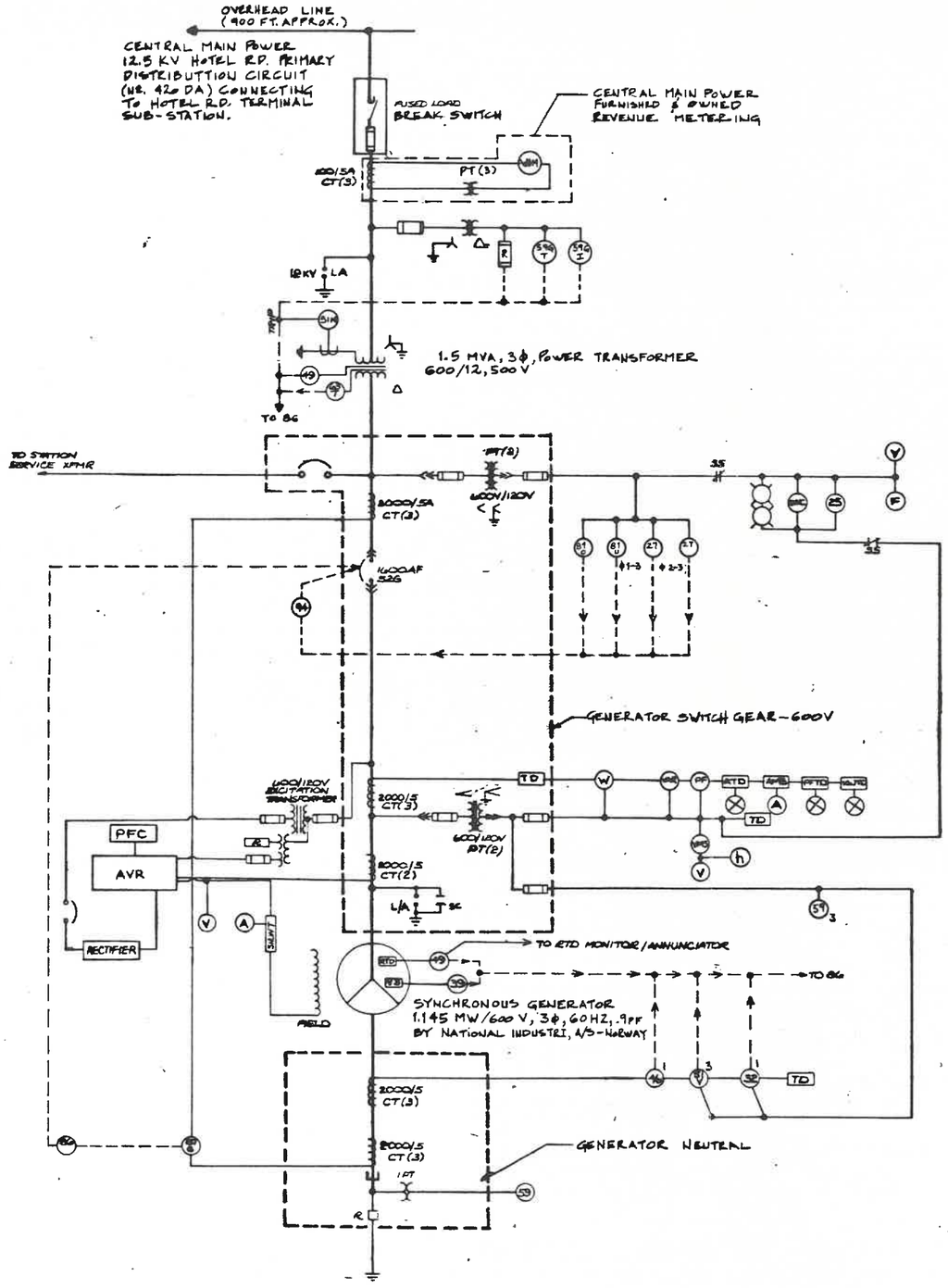
EXHIBIT F

GENERAL DRAWINGS OF PRINCIPAL PROJECT WORKS



LEGEND

25	SYNCHRONIZING CHECK DEVICE
27	UNDERVOLTAGE DEVICE
32	DIRECTIONAL POWER RELAY
39	MECHANICAL CONDITION MONITOR
40	FIELD FAILURE RELAY
46	REVERSE PHASE RELAY
49	THERMAL RELAY
50	INSTANTANEOUS OVERCURRENT RELAY
51	AC TIME OVERCURRENT RELAY
51G	GROUND OVERCURRENT RELAY
51N	NEUTRAL OVERCURRENT RELAY
51V	VOLTAGE RESTRAINED OVERCURRENT RELAY
52G	AC POWER GENERATOR CIRCUIT BREAKER
52L	AC POWER LINE CIRCUIT BREAKER
59	OVERVOLTAGE RELAY
63T	TRANSFORMER SUDDEN PRESSURE SWITCH
64F	FREQUENCY DETECTION RELAY
81/O	OVERFREQUENCY RELAY
81/U	UNDERFREQUENCY RELAY
86G	LOCKOUT RELAY - GENERATOR
86T	LOCKOUT RELAY - TRANSFORMER
87T	TRANSFORMER DIFFERENTIAL RELAY
87G	GENERATOR DIFFERENTIAL RELAY
94	TRIP RELAY - RESTART AFTER UTILITY VOLTAGE IS ESTABLISHED
A	AMMETER
AMS	AMMETER PHASE SELECTOR SWITCH
ATD	CURRENT TRANSDUCER
AVR	AUTOMATIC VOLTAGE REGULATOR
ETM	ELAPSED TIME METER - MAN RESET
F	FREQUENCY METER
KWTD	KILOWATT TRANSDUCER
PF	POWER FACTOR METER
PFC	POWER FACTOR CONTROLLER
PFTD	POWER FACTOR TRANSDUCER
R	GROUNDING RESISTOR
SYNC	AUTOMATIC SYNCHRONIZER
TD	TEST DEVICE
V	VOLTMETER
VAR	VOLT AMP REACTIVE METER
VMS	VOLTMETER PHASE SELECTOR SWITCH
W	WATTMETER
WHM	WATT-HOUR METER - WITH PULSE INITIATOR
h	ELAPSED TIME METER
RTD	RESISTANCE TEMPERATURE DETECTOR
VIB	VIBRATION DETECTOR
L.A.	LIGHTING ARRESTOR
P.T.	POTENTIAL TRANSFORMER
C.T.	CURRENT TRANSFORMER

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 28 DAY OF MARCH 1988.

LITTLEFIELD HYDRO COMPANY

BY

NO.	DATE	REVISIONS	BY	CHK	APP'D

CONSULTING ENGINEERS
MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON-KNUDSEN COMPANY
50 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

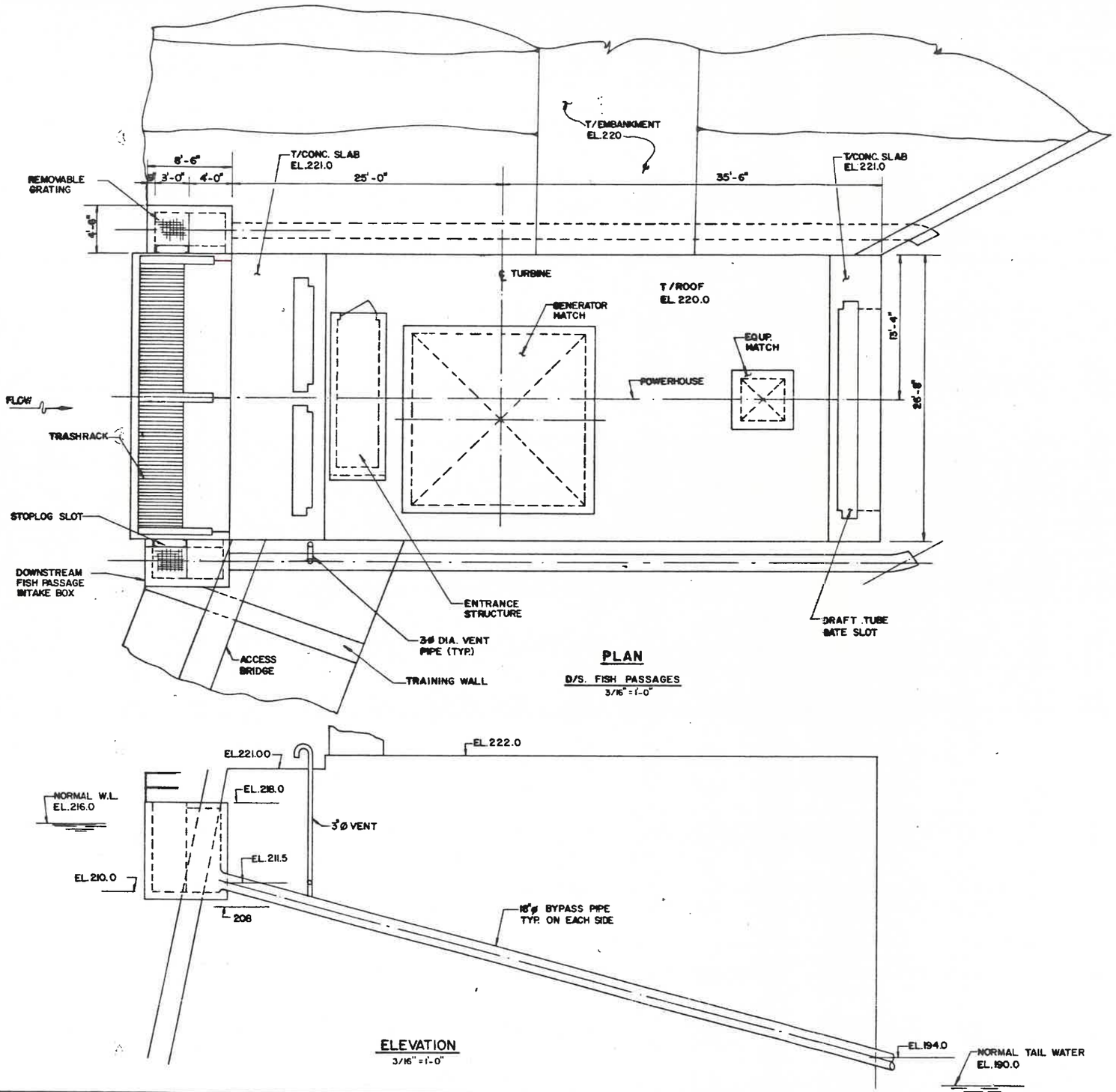
DESIGNED PLG	DRAWN GEL	CHECKED PLG	RECOMMENDED
DATE FEBRUARY 6, 1987			APPROVED

LITTLEFIELD HYDRO CO.

LITTLEFIELD HYDROELECTRIC PROJECT

SINGLE LINE DIAGRAM

FERC NO. EXIBIT F-5
SHEET OF REV.



THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 20 DAY OF MARCH 1987.

LITTLEFIELD HYDRO COMPANY

BY

3/16" = 1' scale 5 0 5 10 feet

NO.	DATE	REVISIONS	BY	CHK	APP'D		

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY
50 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

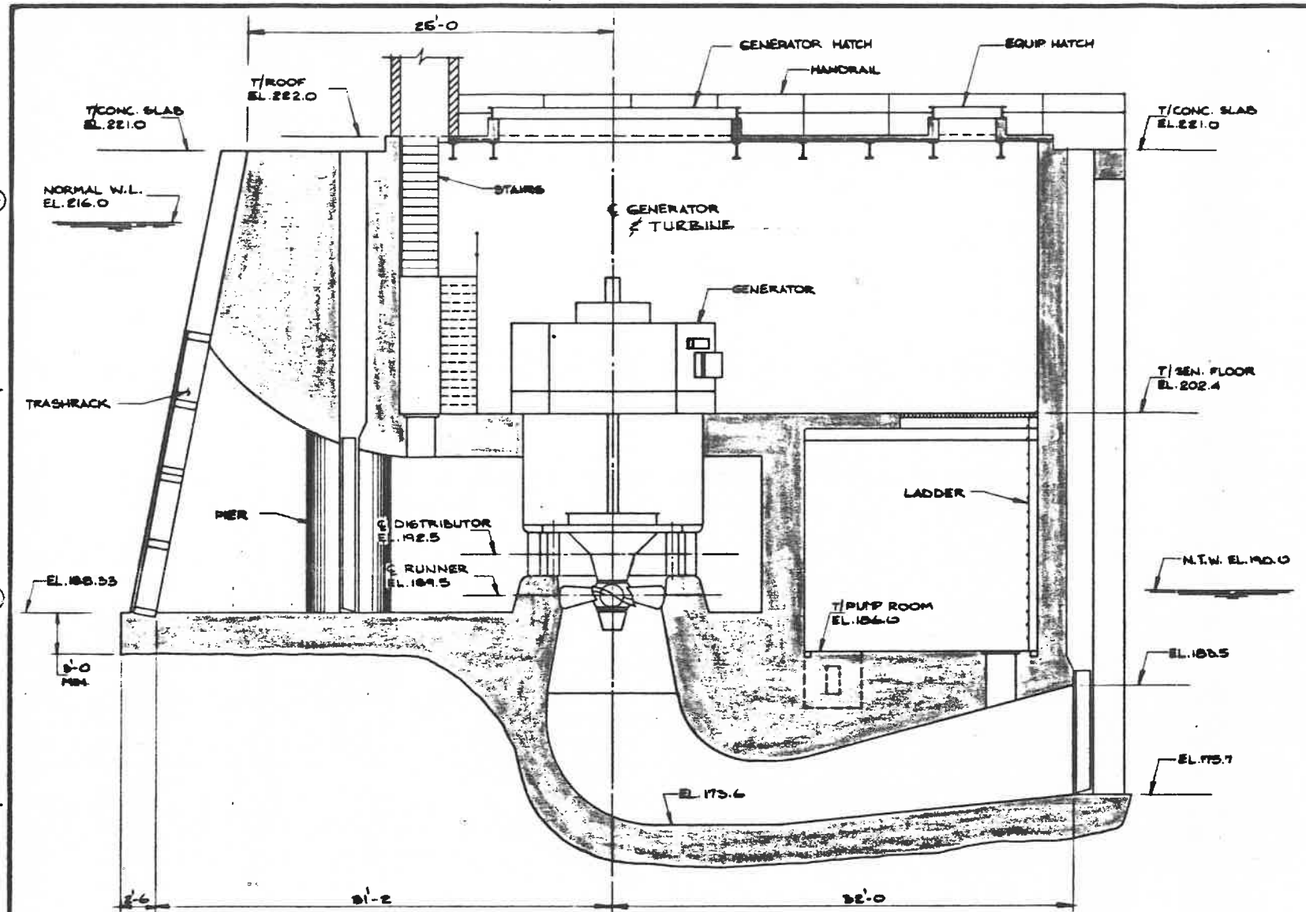
DESIGNED JPS | DRAWN SO. | CHECKED JPS | RECOMMENDED
DATE FEBRUARY 6, 1987 | APPROVED

LITTLEFIELD HYDRO CO.

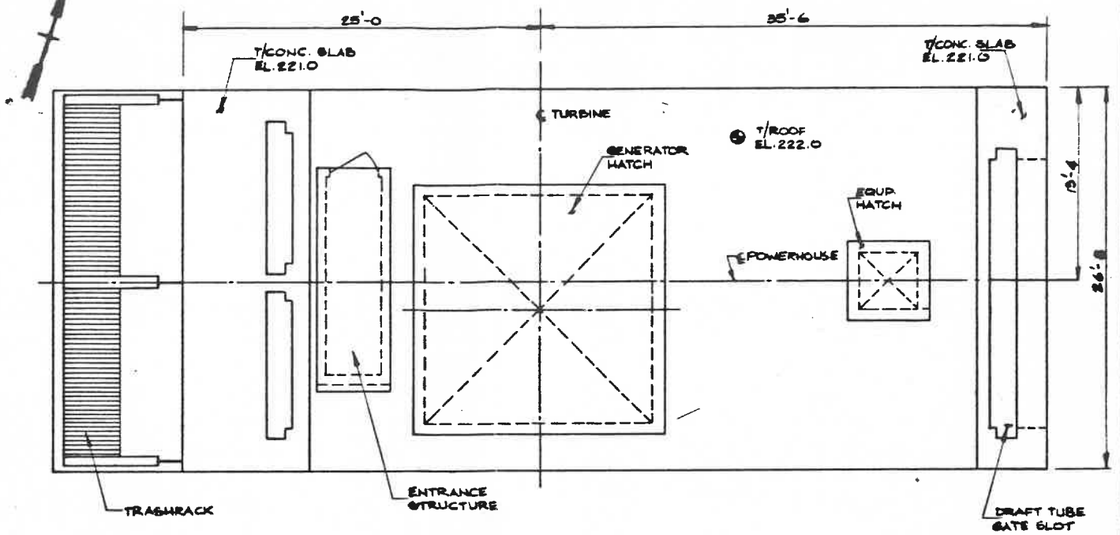
LITTLEFIELD HYDROELECTRIC PROJECT

DOWNSTREAM FISH PASSAGES PLAN & ELEVATION

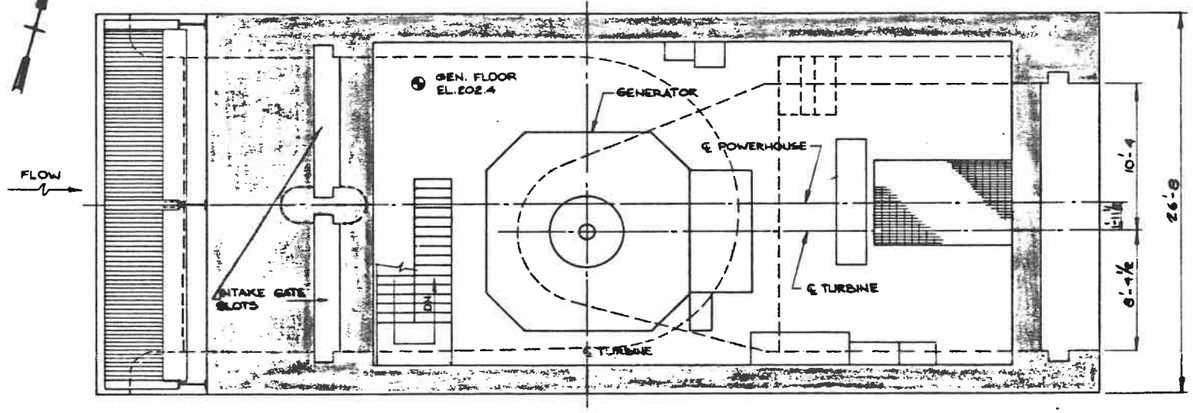
MKE NO. EXHIBIT F-4
SHEET OF REV.



SECTION



ROOF PLAN



GENERATOR FLOOR PLAN

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 20 DAY OF MARCH 1987.

LITTLEFIELD HYDRO COMPANY

BY

3/16" = 1'-0 5 0 5 10

NO.	DATE	REVISIONS	BY	CHK.	APP'D.

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY
50 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

DESIGNED JPS | DRAWN H. | CHECKED JPS | RECOMMENDED
DATE MAY 9, 1986 | APPROVED

LITTLEFIELD HYDRO CO.

LITTLEFIELD HYDROELECTRIC PROJECT
POWERHOUSE
PLAN AND ELEVATION

MKE NO. EXHIBIT F-3
SHEET OF REV.

TO MERROW ROAD

NEW POWERLINE
TO CENTRAL MINE POWER
12.5KV HOTEL CIRCUIT
ABOUT 900' TO TIE IN POINT

PROPOSED ACCESS ROAD

PARKING AREA
EL. 220

POLE MOUNTED METERING

PAD MOUNTED TRANSFORMER

DOWNSTREAM FISH PASSAGE

EXCAVATE INTAKE

NEW OGEE SPILLWAY
T/CREST EL. 208.0

T/ PROPOSED POWERHOUSE ROOF
EL. 222.0

EXCAVATE TAILRACE

EXCAVATE STREAM CHANNEL

T/ACCESS BRIDGE
EL. 222.0

NEEDLE BEAMS
W/STOPLOGS

EXISTING DAM MODIFIED AND REPAIRED
T/CREST EL. 213.0
T/FLASHBOARD EL. 218.0

NEW POND ELEVATION

EXISTING POND ELEVATION

T/NEW CONCRETE ABUTMENT
EL. 220.0

T/EARTH EMBANKMENT
DAM EL. 220.0

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 20 DAY OF MARCH 1987.

LITTLEFIELD HYDRO COMPANY

BY _____

1"=40 scale 40 0 40 80 feet

NO.	DATE	REVISIONS	BY	CHK.	APP'D.

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY
50 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

DESIGNED JPS | DRAWN SO. | CHECKED JPS | RECOMMENDED

DATE MAY 9, 1986 | APPROVED

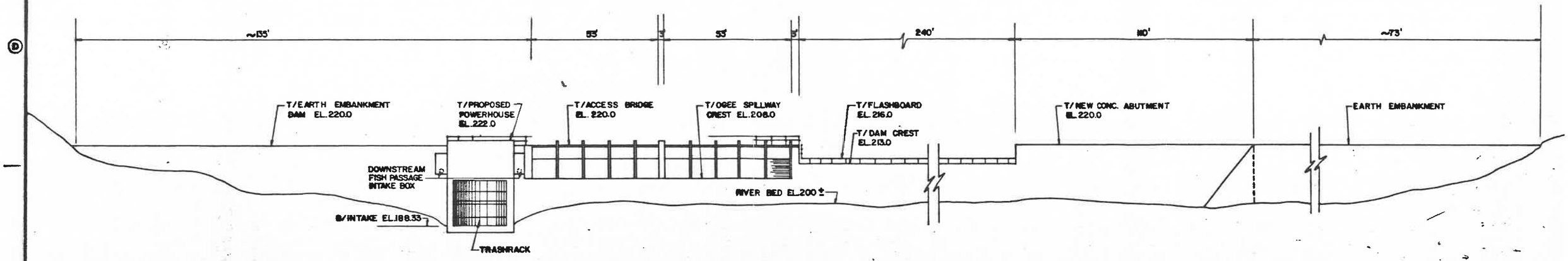
LITTLEFIELD HYDRO CO.

LITTLEFIELD HYDROELECTRIC PROJECT

SITE PLAN

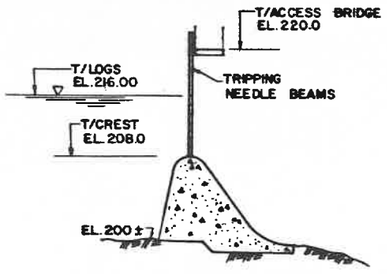
MKE NO. EXHIBIT F-1

SHEET OF | REV.



DAM ELEVATION – LOOKING DOWNSTREAM

1"=40' scale 20 0 20 40 feet



SECTION A

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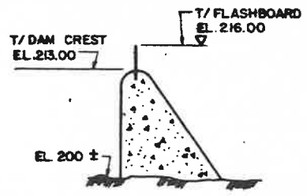

SECTION B

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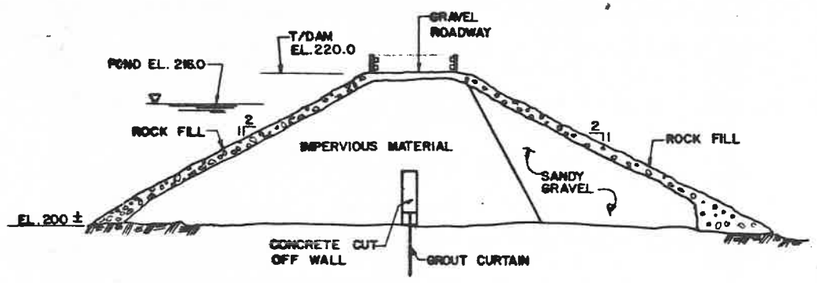


SECTION C

SECTION D (SIMILAR)

1"=10' scale 10 5 0 10 20 feet

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE UNDERSIGNED THIS 20 DAY OF MARCH 1987.

LITTLEFIELD HYDRO COMPANY

BY _____

NO.	DATE	REVISIONS	BY	CHK.	APP'D

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY
50 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

DESIGNED JPS | DRAWN SO. | CHECKED JPS | RECOMMENDED
DATE MAY 6, 1986 | APPROVED

LITTLEFIELD HYDRO CO.

LITTLEFIELD HYDROELECTRIC PROJECT

ELEVATION & SECTIONS

MKE NO. EXHIBIT F-2

SHEET OF REV.

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing Application for license for a Minor Water Power Project upon each person designated in the attached service list, by first class certified mail, postage paid.

Jason D. James
Agent for Littlefield Hydro Company

Dated at Greenwich, Connecticut, this 26th day of March, 1987.

Littlefield Hydroelectric Project Service List

Ms. Elizabeth Higgins
US Environmental Protection Agency
Region 1
JFK Federal Building
Boston, MA 02203

Mr. William Patterson
US Department of the Interior
Office of Environmental Project Review
1500 Custom House
165 State Street
Boston, MA 02109

Mr. Gordon Beckett
Department of the Interior
Fish and Wildlife Services
Ecological Services
P.O. Box 1518
Concord, NH 03301

US Department of the Interior
Fish and Wildlife Services
Suite 700
One Gateway Center
Newton Corner, MA 02158

Mr. Thomas E. Bigford
US Department of Commerce
National Marine Fisheries Service
Habitat Protection Branch
14 Elm Street
Gloucester, MA 01930

Mr. Derrill J. Cowing
US Department of the Interior
Geological Services
Water Resources Division
26 Ganneston Drive
Augusta, ME 04330

Mr. Joseph L. Ignazio
US Department of the Army
N.E. Division, Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

National Park Service
143 South Third Street
Philadelphia, PA 19106

Mr. Dana Paul Murch
State of Maine
Department of Environmental Protection
State House Station 17
Augusta, ME 04333

Mr. Norman Trask
State of Maine
Department of Inland Fisheries and Wildlife
284 State Street
State House Station 41
Augusta, ME 04333

Mr. Spencer Appolonio
State of Maine
Department of Marine Resources
State House Station 21
Augusta, ME 04333

Mr. Earle G. Shettleworth
State of Maine
Historic Preservation Commission
55 Capitol Street
State House Station 65
Augusta, ME 04333

Mr. Richard Anderson
State of Maine
Department of Conservation
State House Station 22
Augusta, ME 04333

Ms. Betsy Elder
State of Maine
Office of Energy Resources
State House Station 53
Augusta, ME 04333

State of Maine
Public Utilities Commission
State House Station 18
Augusta, ME 04333

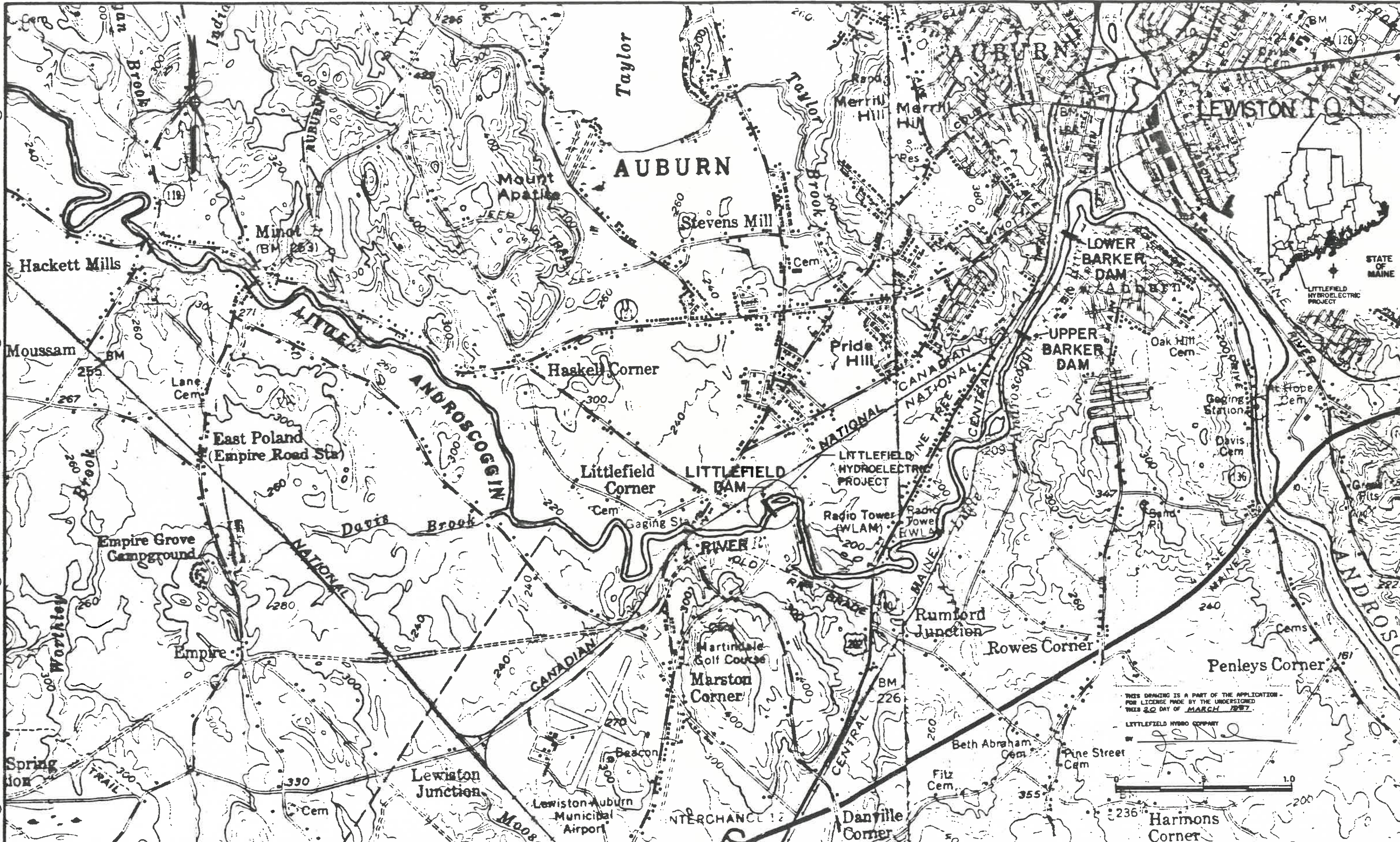
Mr. Roland Miller
City of Auburn
Auburn City Building
45 Spring Street
Auburn, ME 04210

Mr. Kenneth Beland
Atlantic Sea Run Salmon Commission
P.O. Box 1298
Bangor, ME 04401

State of Maine
Department of Transportation
Transportation Building
State House Station 16
Augusta, ME 04333

EXHIBIT G

PROJECT MAPS



MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY
50 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

DESIGNED JPS | DRAWN SO | CHECKED JPS | RECOMMENDED
DATE MAY 9, 1986 | APPROVED

NO | DATE | REVISIONS | BY | CHK | APPD

LITTLEFIELD HYDRO CO.

LITTLEFIELD HYDROELECTRIC PROJECT

GENERAL PROJECT LOCATION

EXHIBIT G-1

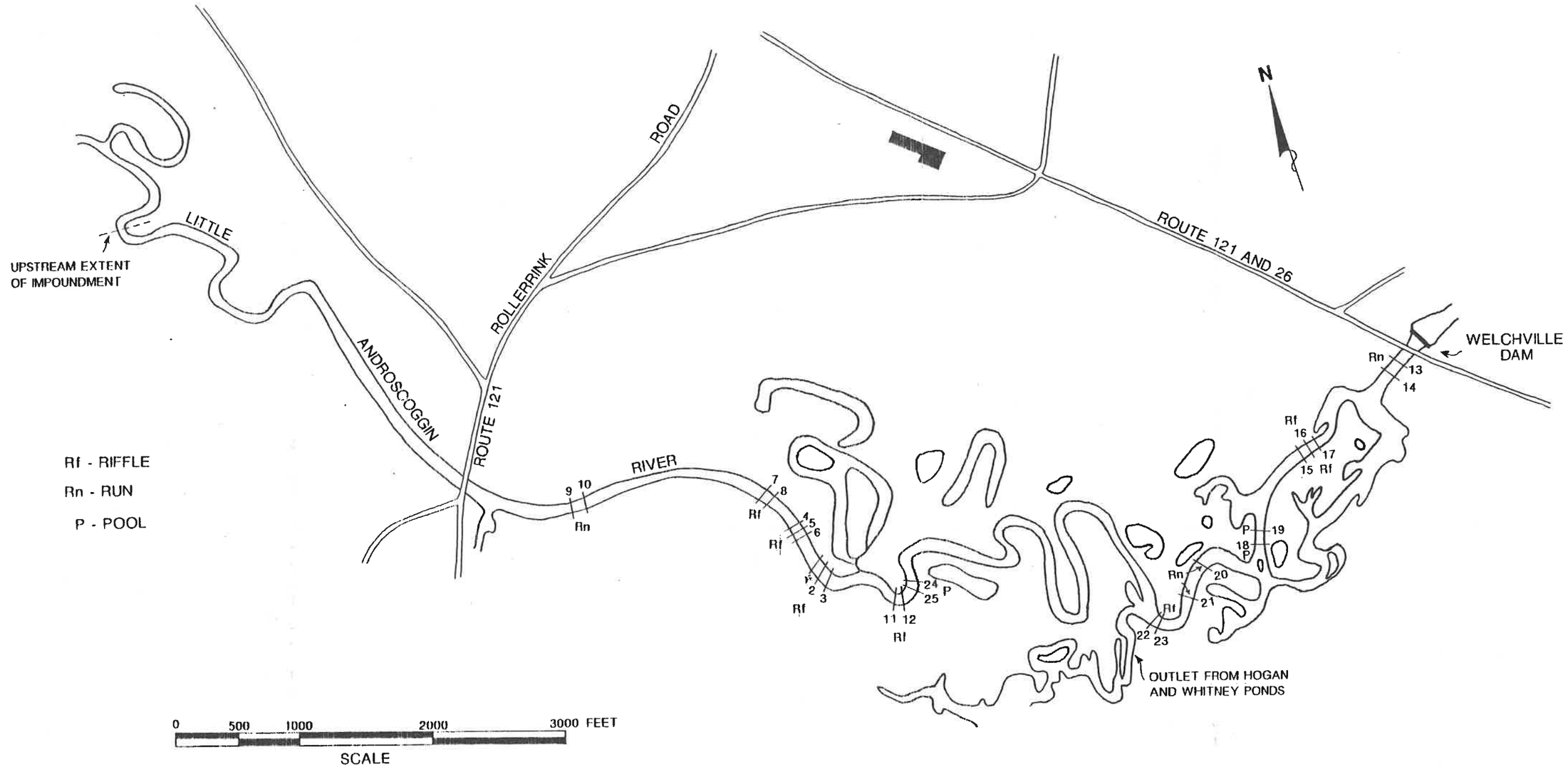


Figure 1. Transect locations for the habitat assessment of the Little Androscoggin River in the vicinity of the Welchville impoundment, Oxford, Maine.

TABLE E-2

COMMON PLANT SPECIES (Continued)

Family con't.	Genus and/or Species
Evening-Primrose	Willow-herb
Water-Milfoil	Water-Milfoil
Parsley	Black Snakeroot, Sweet Cicely
Wintergreen	Pursh, One-flowered Pyrola, Shinleaf
Heath	Rhododendron, Pale Laurel, Bog-Rosemary, Lyonia, Leather-leaf, Trailing Arbutus, Sour-top Blueberry, Late Sweet Blueberry, Highbush Blueberry, American Cranberry
Primrose	Garden Loosetrife, Tufted loosetrife, Starflower
Gentian	Bartonia, Buckbean
Dogbane	Dogbane
Milkweed	Milkweed
Convolvulus	Bindweed
Mint	Dragonhead, False Dragonhead, Hemp-Nettle, Water-horehound
Nightshade	Ground-Cherry
Figwort	Verbascum, Toadflax, Dwarf Snapdragon, Hedge-Hyssop, False Pimpernel, Speedwell, Aureolaria
Bladderwort	Bladderwort
Madder	Bedstraw
Honeysuckle	Bush-Honeysuckle, Honeysuckle, Fly Honeysuckle, Twinflower, Wild Raisin, Arrow-wood
Bluebell	Lobelia
Composite	Goldenrod, Aster, Fleabane, Pussy's Toes, Cudweed, Cocklebur, Bur-Marigold, Coltsfoot, Ragwort, Thistle, Goats beard, Sow-Thistle, Lettuce, Rattlesnake-root, Hawkweed, Dandelion

E.1.2 Fish and Wildlife

Fishery resources of the Little Androscoggin River consist of both cold and warm water species. Excessive water temperatures (above 75 F) occur during hot summer months which restrict the cold water species (brook and brown trout) to a few areas where cold springs or seeps provide suitable temperatures. Warm water species include small and large mouth bass, chain pickerel, minnows, white suckers, yellow perch, bullheads and eels.

Although historically fisheries of the Little Androscoggin River have been severely reduced by pollution and blockage of fish migrations due to the introduction of dams, water quality is improving to the extent that restoration of historic fisheries appears feasible.

The State of Maine Department of Marine Resources (DMR) is presently involved in restoring anadromous fish runs to the lower Androscoggin and Little Androscoggin Rivers. Alewives and American shad are currently being stocked in the Little Androscoggin River in an attempt to establish sea-run populations of these species. This restoration project is associated with the Brunswick Hydroelectric Redevelopment Project (FERC 2284) on the Androscoggin River. Presently, adult fish are captured in the Androscoggin River at the head of tide in Brunswick and trucked to appropriate upriver spawning and nursery areas along the Little Androscoggin. Adult alewives have been stocked since 1983 into two lake systems, Marshall and Tripp Pond, which drain into the Little Androscoggin River above the Littlefield Dam. More recently, alewives have also been stocked in The Range Ponds, Whitney Pond, Hogan Pond, and Thompson Lake, all located above Littlefield Dam. American shad are being stocked in the riverine areas above Littlefield Dam. In addition, the Maine Department of Marine Resources, Department of Inland Fisheries and Wildlife, and the Atlantic Sea Run Salmon Commission are currently conducting studies and plans to establish anadromous populations of the Atlantic Salmon. These agencies are also studying inland species such as Brook Trout and Smallmouth bass in streams of the state where potentials for successful establishment of such fisheries are suitable. Finally, the U.S. Fish and Wildlife Service is currently conducting studies for an Environmental Impact Statement related to its Atlantic salmon restoration program for northeast coastal streams.

Wildlife expected to occur within the project site include the varieties of species found in the upland and wetland habitats of the surrounding area. White-tailed deer, squirrels, raccoon, woodchuck, beaver, mink, muskrat, wood-duck, black duck, mallard, mergansers, song-birds and amphibians are expected residents, while other water fowl such as woodcock and songbirds use the area during migrations. A list of the common animal species that may occur in the project area is provided in Table E-3.

No known endangered or threatened fish or wildlife species habitually inhabit the area. However, occasionally an individual transient bird species such as the bald eagle may be present. A 10-acre, open fresh-water area located about one mile upstream of the dam site contains aquatic vegetation of value to waterfowl. No state registered critical areas have been identified within or adjacent to the project boundaries.

E.1.3 Water Quality

The mainstem Little Androscoggin River, from the confluence of the Thompson Lake Outlet (Oxford) to the confluence with the Androscoggin River in the City of Auburn, has a water quality classification of "C" as determined by the Maine Department of Environmental Protection (DEP). The Littlefield Project is located within this segment of Class "C" waters. The dissolved oxygen standard of such waters shall not be less than 5 parts per million (ppm). Under Maine's revised water quality classification systm (38 MRSA Section 464 et Seq. 1986), Class "C" water, the third highest classification, is satisfactory for recreational boating, fishing, water contact recreation, and other uses; it is, however, inadequate for drinking water supplies. Several upstream municipalities are still in the planning stages of pollution abatement facility installation.

The water quality of the Little Androscoggin River in the vicinity of the Project is not monitored by either the DEP or the U.S.G.S. on any continuous basis. However, water quality data (i.e. dissolved oxygen and temperature) were collected along the Lower Little Androscoggin River by the DEP last summer and are provided in Appendix E-2. These data were collected in connection with fish and wildlife studies conducted by the Applicant (see Appendix E-1). The high dissolved oxygen readings indicate that existing water quality conditions are very good in the Project area.

Water quality in the river has improved significantly during the last several years because of upstream pollution abatement faciltities. Figure E-2 shows the existing water quality as well as existing and planned wastewater treatment facilities in the Androscoggin River Basin. Details of the municipal wastewater treatment facilities for Mechanic Falls, South Paris, and Norway, all of which are located upstream of the Littlefield site are provided in Appendix E-3. Appendix E-4 contains the DEP summary report of self-monitored parameters for municipal licenses for Paris and Norway.

The licensed industrial discharges into the Little Androscoggin River upstream of the site are provided in Appendix E-5. Appendix E-6 details the monitored water quality parameters for those licenses.

The Applicant has requested 401 Water Quality Certification from the DEP and the issuance of a general section 404 Permit from the US Army Corps of Engineers (See Appendix E-7, p.25).

TABLE E-3
COMMON ANIMAL SPECIES

Waterfowl

Canada Goose
*Mallard
*Black Duck
Green-winged Teal
Blue-winged Teal
*Wood Duck
*Ring-necked Duck
Common Goldeneye
Bufflehead
*Hooded Merganser
*Common Merganser

Other Birds

Double-crested Cormorant
*Great Blue Heron
*Green Heron
*Black-Crowned Night Heron
*American Bittern
*Goshawk
*Sharp-Shinned Hawk
*Cooper's Hawk
*Red-tailed Hawk
*Kestrel
*Broad-winged Hawk
Bald Eagle (Endangered)
*Osprey
Peregrine Falcon (Endangered)
*Ruffed Grouse
American Coot
*Ring-necked Pheasant
*Virginial Rail
*Sora
*Killdeer
*American Woodcock
*Common Snipe
*Spotted Sandpiper
Solitary Sandpiper
Great Black-backed Gull
Herring Gull
*Rock Dove
*Mourning Dove
*Black-billed Cuckoo
*Great Horned Owl
*Barred Owl
*Saw-whit Owl
*Whip-poor-will
*Common Nighthawk
*Chimney Swift
*Ruby-throated Hummingbird
*Belted Kingfisher
*Yellow-shafted Flicker
*Pileated Woodpecker
*Yellow-bellied Sapsucker
*Hairy Woodpecker
*Tree Swallow
*Bank Swallow
Rough-winged Swallow
*Barn Swallow
*Cliff Swallow
*Purple Martin
*Blue Jay
Common Raven
*Common Crow
*Black-capped Chicadee
*White-breasted Nuthatch
Red-breasted Nuthatch
*Brown Creeper
*House Wren
Winter Wren
*Mockingbird
*Catbird
*Brown Thrasher
*Robin
*Wood Thrush
*Hermit Thrush
*Swainson's Thrush
Gray-cheeked Thrush
*Veery
*Eastern Bluebird
Golden-crowned Kinglet
Ruby-crowned Kinglet
*Cedar Waxwing
Northern Shrike
*Starling
*Solitary Vireo
*Red-eyed Vireo
*Black and White Warbler
Tennessee Warbler
*Nashville Warbler
Parula Warbler
*Yellow Warbler
*Magnolia Warbler
Cape May Warbler
*Black-throated Green Warbler
*Black-throated Blue Warbler

* Birds commonly nesting in area.

TABLE E-3
COMMON ANIMAL SPECIES (Continued)

Other Birds

*Downy Woodpecker
*Eastern Kingbird
*Great Crested Flycatcher
Eastern Phoebe
Adler Flycatcher
*Olive-sided Flycatcher
*Least Flycatcher
Horned Lark
*Wilson's Warbler
Canada Warbler
*American Redstart
*House Sparrow
*Boblink
*Eastern Meadowlark
*Redwinged Blackbird
*Baltimore Oriole
*Rusty Blackbird
*Cowbird
*Purple Grackle
*Scarlet Tanager
*Cardinal
*Rose-breasted Grosbeak
*Indigo Bunting
*Evening Grosbeak
*Purple Finch
*Chestnut-sided Warbler
*Blackburnian Warbler
*Yellow-rumped Warbler
*Bay-breasted Warbler
Blackpoll Warbler
Ovenbird
*Northern Waterthrush
*Yellowthroat
Pine Grosbeak
Common Redpoll
*Pine Siskin
*American Goldfinch
*Rufous-sided Towhee
*Savannah Sparrow
*Slate-colored Junco
Tree Sparrow
*Chipping Sparrow
*Field Sparrow
White-crowned Sparrow
*White-throated Sparrow
Fox Sparrow
*Song Sparrow
Snow Bunting
*Vesper Sparrow

Common Mammals

Hairy-tailed mole
Starnose mole
Masked shrew
Smoky shrew
Water shrew
Short-tail shrew
Little Brown myotis
Small-footed myotis
Silver-haired bat
Eastern pipistrelle
Big brown bat
Red bat
Hoary bat
Black bear
Raccoon
Matren
Fisher
Short-tailed weasel
Long-tailed weasel
Mink
River Otter
Striped skunk
Red Fox
Gray Fox
Domestic Dog
Coyote
Domestic Cat
Bobcat
Woodchuck
Eastern chipmuk
Red squirrel
Northern flying squirrel
Beaver
Deer mouse
White-footed mouse
Southern bog lemming
Northern bog lemming
Red-backed vole
Pine vole
Muskrat
Norway rat
House mouse
Meadow jumping mouse
Woodland jumping mouse
Porcupine
Snowshoe rabbit
White-tailed deer
Moose

* Birds commonly nesting in area.

TABLE E-3

COMMON ANIMAL SPECIES (Continued)

Common Amphibians and Reptiles

Spotted Salamander
Red-spotted newt
Northern dusky salamander
Red-backed salamander
Spring salamander
Northern two-lined salamander
Blue-spotted salamander
Common American Toad
Snapping turtle
Stinkpot
Spotted turtle
Wood turtle
Eastern-painted turtle
Pickerel frog
Spring peeper
Gray treefrog
Bullfrog
Greenfrog
Wood frog
Northern leopard frog
Eastern garter snake
Northern ringneck snake
Northern black racer
Smooth green racer
Eastern milk snake
Northern brown snake
Red-bellied snake
Kingsnake

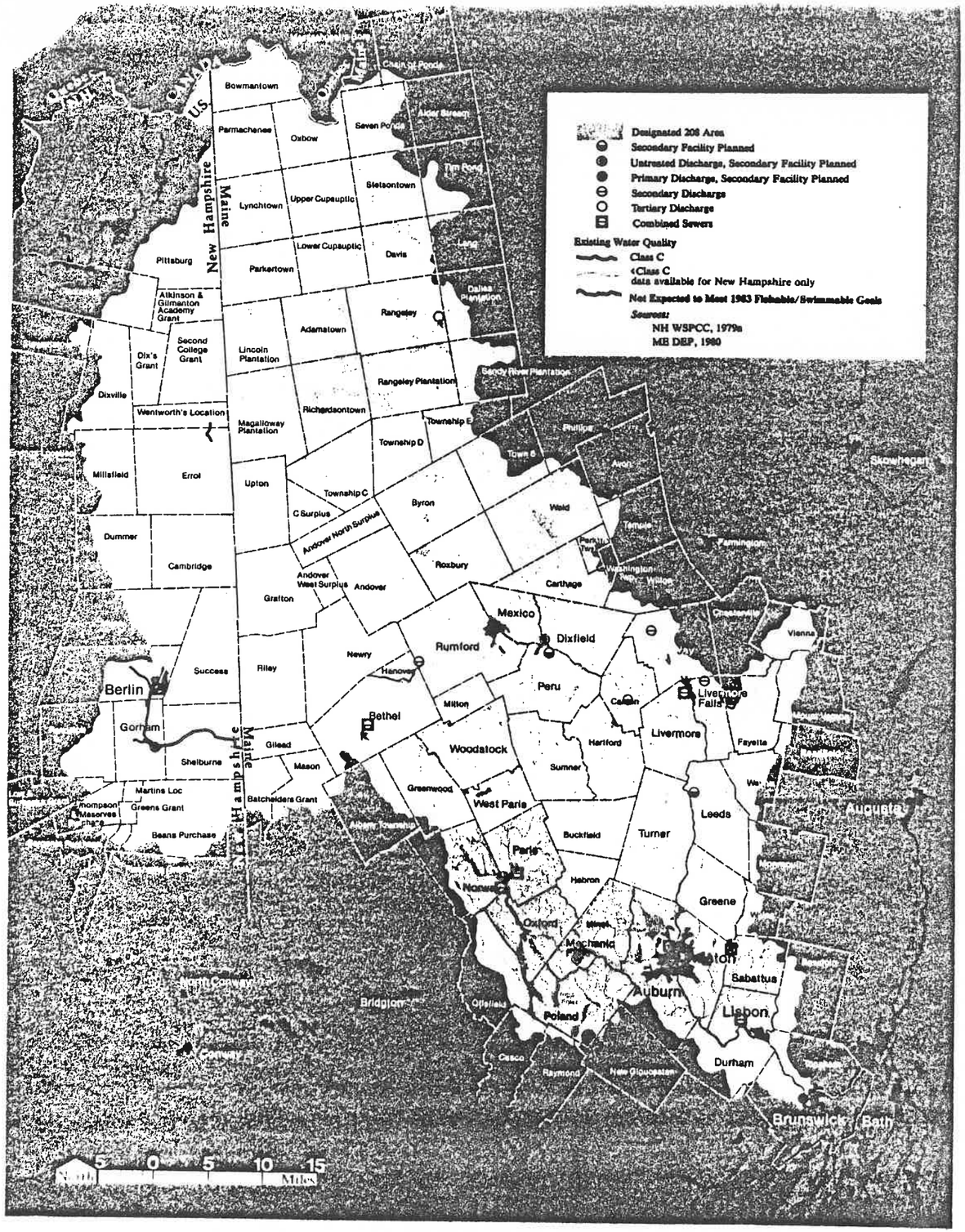


FIGURE E-2.

SOURCE: New England River Basins Commission, Androscoggin River Basin Overview, September 1981.

E.1.4 Water Quantity

Streamflow data for the Little Androscoggin River near Auburn, Maine is available for the period of record 1941-1982. The U.S. Geological Survey installed this gauge and initiated readings at the beginning of Water Year 1941 on October 1, 1940. The gauge was taken over by Maine Hydro Development Corporation (MHDC) and Union Water Power, a Central Maine Power Company subsidiary, in 1982.

The gauge, formerly U.S.G.S. Gaging Station #01058500, is situated on the right bank 100 feet upstream from the highway bridge at Littlefield, Maine. Flows are monitored from a drainage area of 331 square miles. The peak discharge at the gauge occurred on March 28, 1953 and was recorded to be 16,500 cfs. The minimum flow at the gauge occurred on October 14, 1949 and was recorded to be 14 cfs. Also noted in the gauge records was a discharge of 16,800 cfs for the March 20, 1936 flood. However, this discharge was estimated at the mouth of the river (drainage area of 354 square miles) from river stage measurements.

The flow in this river is regulated by the Pennesseewassee and Thompson Lakes and several hydroelectric powerplants above the gauging station. The Flow Duration Curve at the gauge, based on all days for the 42-year record prior to MHDC operating it, is shown in Exhibit A-1. The Littlefield Project is located approximately one-half mile downstream of the gauging station. The drainage area at the dam is about 331 square miles with no intervening inflow streams. The flow duration curve for the period of record at the gauge is representative of available generating flows at the project. The dam was breached during the March, 1936 flood, prior to the installation of the gauge.

E.1.5 Land Uses

The Littlefield Project is located on the Little Androscoggin River approximately 4.5 miles upstream of the river's mouth. The site is in the village of Littlefield Corner in the southwestern section of the City of Auburn.

The City of Auburn, Maine, encompassing approximately 65 square miles, is located in the southwestern part of the State approximately 30 miles southwest of Augusta and 30 miles north of Portland. Auburn is bordered by the Town of Turner to the north, the City of Lewiston to the east, the Towns of Durham and New Gloucester to the south, and the Towns of Poland and Minot to the West.

The lands surrounding the dam site and pool are generally undeveloped. The Martindale Golf Course is located on the easterly side of the project land. Three bridges span the Little Androscoggin River approximately one-half mile upstream of the dam: the Canadian National Railroad Bridge (downstream), the Old Trolley Bridge and the Old Hotel Road Bridge (upstream).

No residential structures are situated within the proposed project bounds. A few residential structures with small adjacent garden plots are located along Hardscrabble, Merrow, and Old Hotel Roads. These structures are about half a mile to a mile upstream of the dam site.

E.1.6 Recreational Uses

Congress, in 1965, passed the National Wild and Scenic Rivers Act to preserve selected, free-flowing rivers throughout the nation. An inventory, prepared by the Heritage Conservation and Recreation Service (HCRS), now administered by the National Park Service (NPS), designates potential river segments for inclusion on the National Wild and Scenic Rivers Inventory. The segment of the Little Androscoggin River, within or adjacent to the project bounds, is not included on, nor is it designated for inclusion in, the National Inventory.

The Class "C" water quality in the project area has historically restricted both the water contact recreational activities as well as angling opportunities. With the exception of the Martindale Golf Course, minimal recreational activity occurs in this area. Fishing and limited canoeing take place on the river now, with the reach between the railroad bridge and the dam preferable for fishing. There are no publicly maintained roads or trails that access the river in the project area. It is anticipated that as water quality conditions improve and fish abundance increases in the future, recreational fishing also will increase.

E.1.7 Historical and Archaeological Resources

The abandoned powerhouse at the site was built at the turn of the century and has physically deteriorated since the dam was breached. A prehistoric (Indian) archaeological site, (Maine Archaeological Survey No. 23.11), was discovered in either 1982 or 1983 within the Project boundary. This site will be reinundated by the rehabilitation of the Littlefield Dam.

The Applicant has conducted an archaeological survey (Phase I) of the Project area to identify any other existing or potential prehistoric archaeological sites. Those sites which were identified have been assigned the following Maine Archaeological Survey site numbers:

Site 1 assigned #23.15
Site 2 assigned #23.16
Site 3 assigned #23.17
Site 4 assigned #23.18
Site 5 assigned #23.19

"Informant reported" site was assigned site #23.20 in anticipation of its confirmation.

The Maine Historic Preservation Commission (MHPC) recommends the following excavation and testing areas for Phase II work:

- On site 1/23.15, a minimum of 20 meter square excavation to develop information sufficient to judge eligibility of the site to the National Register of Historic Places.

- On site 2/23.16, a minimum of 10 meter square in shovel testpitting to determine if any concentrations of cultural material can be identified and if any any unplowed deposits can be located.

- Site 3/23.17, a minimum of 20 meter square excavation to develop information leading to a determination of National Register eligibility.

- Possible sites 4/23.18 and /23.19, 10 shovel pits at each to develop further information of their cultural content.

- Excavation of 30 shovel testpits minimum in the area of the informant reported site (23.20) to confirm its presence and characterization.

- The Phase II field survey, to be conducted in the spring of 1987, will incorporate the recommendations of the MHPC. It will be directed toward determining the eligibility of archaeological sites for the National Register of Historic Places.

E.1.8 Scenic and Aesthetic Resources

The Littlefield Project spans the Little Androscoggin River about 4.5 miles upstream of its mouth. The site is located in an undeveloped area in the village of Littlefield Corner, within the southwestern section of the City of Auburn, Maine. The lands surrounding the dam site and pool are generally undeveloped. The project site is not visible from the major roads or highways, however, the site can be seen from portions of the Martindale Golf Course.

The abandoned hydro facility at the site has been inoperative since the March 1936 flood breached the dam's stone masonry wall adjacent to the southwestern spillway abutment. The site, reflecting the lack of maintenance and repair, detracts from the aesthetic qualities of the area.

No significant visual resources including parks, monuments, scenic vistas, etc., are present in the project area.

The original configuration of the facility, characterized by the powerhouse being integral with the spillway structure, ensured that all inflows to the site were released in the downstream channel; i.e., no river diversions occurred. The breach returned the river more or less to its natural channel. The proposed structure will continue to contain flows within the channel and the site will operate run-of-river. Overall river aesthetics in the area should be enhanced by the presence of the impoundment created by the dam.

E.2 Environmental Impacts

The following subsections describe the expected environmental impacts from the proposed Littlefield Hydroelectric Redevelopment Project.

E.2.1 Impacts on Vegetative Cover

The impoundment above Littlefield Dam has not been in existence for over 50 years. Much of the area however that will once again be inundated is now flooded annually.

Backwater studies were conducted on the lower reach of the Little Androscoggin River to determine what effect the reconstruction of Littlefield Dam will have on the water surface profile (See Appendix E-8). The studies showed that the reconstruction of this site will create a 101-acre pool extending approximately 2.2 miles upstream of the dam. Figure E-3 shows the area that will be inundated by the reconstruction, assuming 3 foot flashboards are in place and a river flow of 600 cfs. The habitat types and corresponding acreages included in this area were identified previously in Figure E-1 and Table E-1. Approximately 59 percent of the 101 surface acre impoundment will cover areas which, except for higher elevation cropland, were previously inundated by annual river flooding. These areas will be relatively shallow, averaging three to four feet deep, and therefore characterized as Lacustrine - Littoral, which will support rooted aquatic vegetation and, in upper shallow fringe areas, emergent aquatic vegetation. The remaining 41 percent of the impoundment will be classified as Lacustrine - Limnetic, characterized as relatively deep and slower current velocity than riverine environment.

With respect to the effects of dam reconstruction on the 100 year flood conditions at Littlefield Dam, the water surface profile will increase 55 feet just upstream of the dam and decrease to 0.13 feet approximately 2500 feet upstream (See Figure E-4). The Applicant has submitted the necessary background technical data to The Federal Emergency Management Agency (FEMA) so that revised Flood Insurance Rate Maps and Flood Boundary and Floodway Maps for the affected area can be issued upon completion of the Project (See Appendix E-7, p.70). In addition to complying with the National floodplain regulations, the Applicant will also comply with the local shoreline regulations issued by the City of Auburn.

LEGEND

EXISTING POND LEVEL AT AVERAGE FLOW

NEW POND LEVEL AT AVERAGE FLOW

LITTLEFIELD DAM

0 1000 2000

SCALE FEET

MORRISON KNUDSEN ENGINEERS
LITTLEFIELD HYDROELECTRIC PROJECT
AUBURN, MAINE

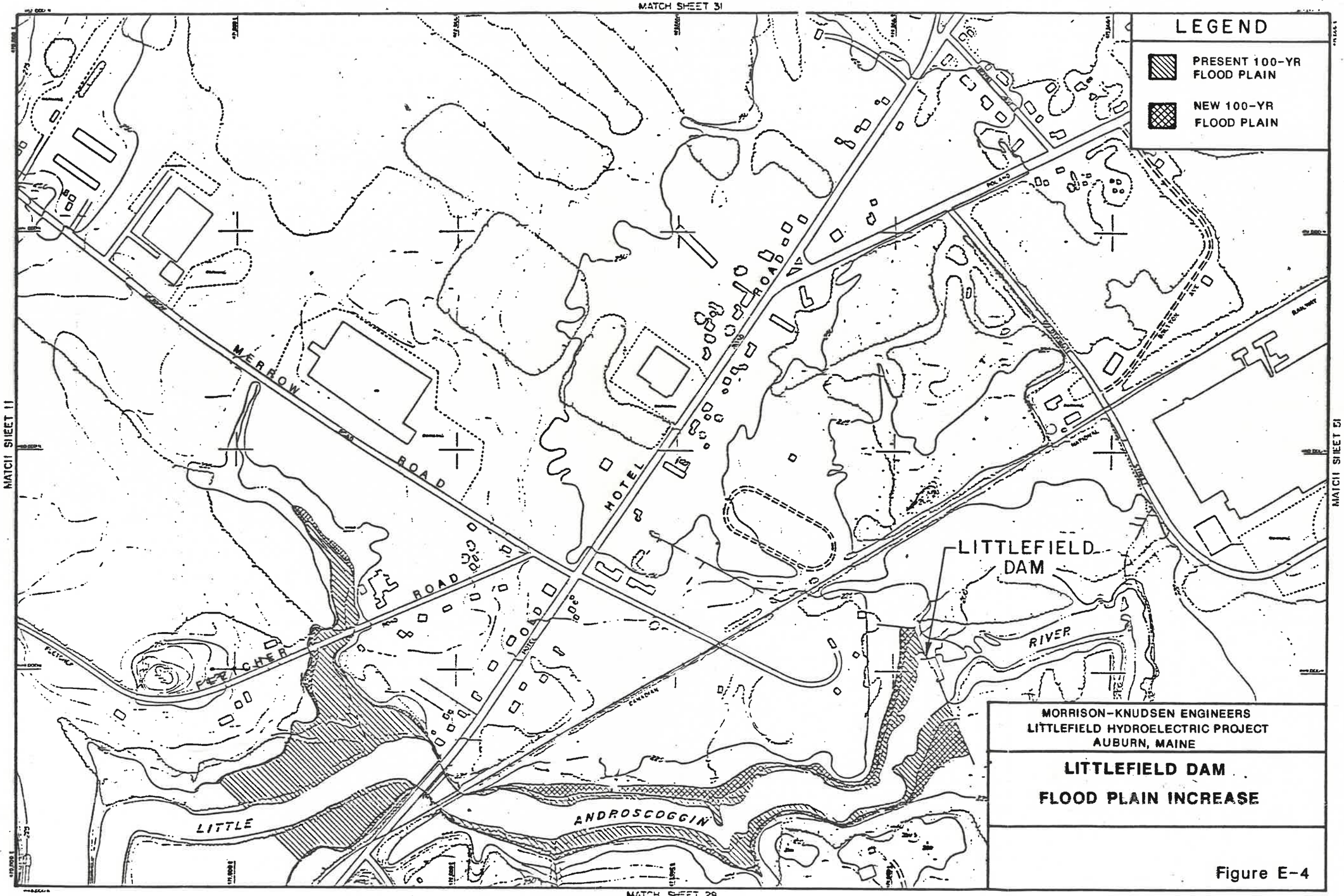
LITTLE ANDROSCOGGIN RIVER POND LEVEL INCREASE

Figure E-3

MATCH SHEET 31

MATCH SHEET 11

MATCH SHEET 51



MORRISON-KNUDSEN ENGINEERS
LITTLEFIELD HYDROELECTRIC PROJECT
AUBURN, MAINE

LITTLEFIELD DAM
FLOOD PLAIN INCREASE

Figure E-4

MATCH SHEET 29

200 0 200 400 600 800
FEET

DATUM - U S G S MEAN SEA LEVEL
5000-FOOT GRID BASED UPON MAINE COORDINATE SYSTEM (WEST ZONE)
5 FOOT CONTOUR INTERVAL

Except for one area, just upstream of of the dam, most of the area that will be permanently inundated consists of a narrow strip along the bank 20 to 40 feet wide. The banks are quite steep with much ledge at or near the surface. A few areas may extend back from the existing rivers edge as much as 200 feet. The area most acutely affected will be the old oxbow and low lands immediately above the Old Hotel Bridge. This area extends upstream about 4,200 feet with a maximum width of about 3,200 feet. Most of the 101 acres of total impoundment will be included in this area (approximately 80 acres with an average depth of water in the marsh of about 4 feet). This oxbow area will be converted from a shallow marsh to a deep marsh. Much of the aquatic plants in this area will be unaffected, as they would adapt themselves to live either partially or wholly submerged.

Because rivers can support a more limited flora than ponds, the vegetative cover displaced along the banks downstream of this pond should gradually be replaced by the more abundant aquatic plants.

Little change in the vegetative cover above the pond should be observed. Since no endangered species of flora have been identified in the area, the overall impact of the impoundment should prove beneficial.

One area in the immediate vicinity of the dam will require disturbance of the vegtative cover. This will be on the left bank where an access road, as an extension of Merrow Road, will be constructed to provide access to the powerhouse. The transmission line will be strung along this road terminating at the site of the old transformer station. Only the concrete slab floor of the latter will remain; however, its reuse is planned, thus no additional vegetative cover will be disturbed. Much of the tree cover has already been cut by others on the steep bank above the powerhouse. A considerable amount of toppings and limbings were left which will be removed. Only a few ferns and saplings are beginning to reappear through this brush. Thus only minimal disturbance of the vegetative cover for the construction of the project is anticipated. Upon completion of project construction, a more stabilized habitat should result.

E.2.2 Impacts on Fish & Wildlife

Consolidated Hydro, Inc., (CHI), the sole owner of the Littlefield Hydro Company, has considerable expertise in the development and operation of hydroelectric facilities. CHI is committed to the responsible use of renewable resources.

As a result of consultation with the U.S. Fish and Wildlife Service (FWS), Maine Departments of Inland Fisheries and Wildlife (MDIFW), Marine Resources (DMR), and the Atlantic Searun Salmon Commission (ASSC), CHI has made major changes to the proposed operation and design of the hydroelectric facility.

In response to Agency concerns that cycling (the originally proposed mode of operation) may cause an adverse impact on the downstream aquatic habitat during low flow, project operation was changed from a cycling mode to strict run-of-river, such that instantaneous inflow will equal instantaneous outflow.

In response to Agency concerns regarding fish impingement and entrainment, the equipment selection was changed from four Francis Turbines to one double regulated tube-type turbine.

It is recognized that significant impacts on existing and potential fishery resources could result from the rehabilitation of the Littlefield Dam and hydropower operation unless measures are included in the project plans, as necessary, to provide adequate fish passage, prevent degradation of water quality and compensate loss of instream riffle habitat. The applicant is committed to protecting these resources as discussed below.

The applicant has had several meetings and consultations with the state and federal agencies identified above to obtain their views and suggestions regarding potential impacts and possible solutions to potential problems related to the development of the Littlefield Project.

The agencies' concerns regarding these potential impacts are identified and interpreted as follows:

1. <u>Elimination of freeflowing characteristics of the river due to impoundment.</u>

The impoundment created by the project will result in a loss of 0.5 miles of existing riverine habitat comprising potential spawning area for the Atlantic salmon and American shad.

As a result of the Littlefield Dam breaching in 1936, riverine characteristics within the lower portion of the previous impoundment have returned. This is evidenced by exposure of a fast flowing riffle area extending approximately half a mile upstream from the Littlefield Dam to the railroad bridge. The river remains in a pool state upstream from the railroad bridge as the result of flow constriction by the bridge.

Riffle areas are essential for spawning of fish species such as American shad, Atlantic salmon, brook trout and other riverine fish. Riffles are also valuable fish food production areas and afford wading areas for angling. Losses of riffle areas would reduce the stream's capacity for spawning of anadromous and other riverine fish and limit the success of restoration for these species.

2. Cumulative Impacts

a. Restoration of anadromous fish could be hampered through an increased number of dams and hydropower units which cumulatively result in decreased fish passage success and increased mortality of downstream migrants.

b. Degradation of water quality could result from cumulative effects of increased impoundments due to reduction of natural stream aeration capacity and prolonged storage.

In addition, the fish and wildlife agencies recommended that the applicant perform assessments of fish and wildlife habitats that would be affected by the project, including a determination of mitigation measures needed to offset losses in habitat values and studies of angling opportunities. It was also recommended that the applicant provide conceptual level designs of facilities for downstream fish passage.

In response to recommendations by the federal and state fish and wildlife agencies, a study of potential project impacts on fish and wildlife habitats was conducted during the summer of 1986. The study was performed in accordance with specific assessment methods as prescribed by the U.S. Fish and Wildlife Services Habitat Evaluation Procedures (HEP). The complete study report is appended. (See Appendix E-1).

The HEP method requires evaluations of fish and wildlife habitat types in relation to models of life requirements (food, cover, breeding, etc.) of selected representative species. Fish and wildlife species selected by the fish and wildlife agencies and the Applicant's consultant for the HEP study were: Atlantic salmon, American shad, Alewife, Brook Trout and Smallmouth bass, Black duck and American Woodcock. Results of the study indicate that the project would provide a net increase of 199 percent in habitat for waterfowl and other aquatic-related wildlife, while woodcock habitat, in the forest and shrub areas of the flood plain, would be reduced by 12.2 acres. Some forested wetlands, suitable for Woodcock are expected to develop within the newly created annually flooded areas (above elevation 216' msl) which would compensate for some of the losses of existing habitat for this species. The Project would result in overall net increases in fishery habitat for Alewife (470 percent), Brook Trout (119 percent) and Smallmouth bass (246 percent). Spawning habitat for Atlantic salmon (2.3 acres) and American shad (2.2 acres), however, would be eliminated by this impoundment.

A mitigation plan to compensate for losses of stream habitats for Atlantic salmon and American shad has been developed by the Applicant which includes the creation of additional spawning and egg incubation areas at two new sites. Both sites are hydroelectric projects which are owned and operated by CHI. The mitigation areas include the Marcal Bypass Channel at the Mechanics Falls Dam and the Bypass Channel at the Barkers Mill Lower Dam (see Figures 3 and 4 in Appendix E-1). The mitigation plan provides for increased minimum instantaneous discharges of 20 cfs through the original stream channels from the Mechanics Falls site and from the Barkers Mill Lower Dam throughout the spawning and egg incubation periods of Atlantic salmon and American shad.

With respect to the proposed mitigation measures, the Agencies have expressed the following additional concerns:

1. The proposed flow durations at Mechanics Falls and Barkers Mill Lower Dam are too limited. Juvenile stages of Atlantic salmon and both juvenile and adult stages of brown trout will be expected to inhabit these sites year-round. (Atlantic-Sea Run Salmon Commission, Maine Department of Inland Fisheries and Wildlife).

2. Choice of Mechanic Falls and Barker Mill Lower sites as mitigation areas is not legitimate for shad habitat loss at the Littlefield site (Department of Marine Resources, U.S. Fish and Wildlife Service, Department of Inland Fisheries and Wildlife).

While the applicant recognizes that Atlantic salmon are different from other salmon and that Agency concerns pertaining to the proposed flow releases are valid, it is not economically feasible for the Applicant to provide continuous year-round flow at either site. Furthermore, the proposed flow releases were developed under the assumption that the fish, after hatching, will be able to move into pools immediately downstream from these areas. This assumption is believed to be valid, and the Applicant therefore believes that the proposed flow releases will indeed prove beneficial and provide compensation for the loss of riffle habitat. No mitigation measures providing compensation in full have been identified by the Agencies.

With respect to the appropriateness or legitimacy of the proposed mitigation measures, CHI is committed to providing the proposed flow durations and, as owner of the proposed mitigation sites, is willing to implement whatever procedures may be required by the fishery agencies and the FERC to make this proposal "legitimate".

Agency concerns pertaining to cumulative impacts and angling opportunities are addressed below and in Section E.2.3.

The Applicant recognizes that the numerous dams located along the Little Androscoggin River could impede the restoration of anadromous fish. The Littlefield Dam is the third dam upstream from the rivermouth and is one of eleven dams on the river. Barkers Mill Upper and Lower Dams are located approximately 3.1 and 3.6 miles downstream from the Littlefield Dam respectively (See Figure E-5). Immediately upstream from the Littlefield Dam are Hackett Mills and Mechanic Falls Dams, located approximately 5 and 9 miles upstream respectively. Of these four dams, two (Barkers Mill Lower and Mechanic Falls) do not have fish passage facilities. Hackett Mills and Barkers Mill Upper do provide downstream fish passage facilities.

Since present plans for fish restoration include trapping American shad and alewife at the downstream Brunswick Project and trucking them to upstream waters, a downstream passage facility at the proposed project is necessary. The Applicant is committed to providing the downstream fish passage facilities at Littlefield and has included their conceptual design in Exhibit F- 4. The Applicant does not believe that it is necessary to provide upstream fish passage at this time, however, for the following reasons:

1. Natural upstream migration of shad and alewives to the foot of the Littlefield dam is not possible since the Barker's Mill Upper and Lower dams, as well as dams at Lisbon Falls and above Brunswick, do not permit the natural upstream passage of these fish.

2. Whether fish were to be introduced above the Littlefield dam by natural migration or artificially by trucking, their further upstream migration will be blocked by the existing dams at Minot, Hackett Mills, Mechanic Falls and Welchville on the Little Androscoggin main thread and additionally, by the dams at the outlets of any of the lakes which will be their final destination. None of these dams have upstream fish passage facilities.

Should upstream fish passage facilities be required in the future by FERC, the Applicant is willing to consult with the appropriate Agencies to provide these facilities.

Finally, with respect to Agency concerns over the potential loss of angling opportunities from the Project, it is expected that angling opportunities for indigenous species should greatly increase as a result of expanded habitat areas provided by the project impoundment. Increases in habitat units related to these species are: alewife, 58.5; brook trout, 3.2; smallmouth bass, 26.0; amounting to a combined increase of approximately 173% over existing habitats for these species within the project site (See Appendix E-1). Equating habitat units with assumed species productivity translates to increased availablity of fish for harvest and therefore significantly greater angling opportunitites.

Construction Impacts

Construction impacts will be temporary and disturb only a minimum amount of wildlife habitat, primarily that of the smaller mammals, amphibians, and reptiles.

E.2.3 Impacts on Water Quality

The reactivation of the Littlefield Hydroelectric facility will change the 50 year regime of somewhat restricted flows through the breached dam to flows from a 101-acre impoundment with maximum depth of about 16 feet at the dam site. The impoundment will extend 2.2 miles upstream.

Water quality in the river has improved over the last several years because of the installation of upstream pollution abatement facilities; conditions are expected to continue improving since several other municipalities are planning to install pollution abatement facilities. As discussed in Section E.1.3, existing water quality conditions in the Littlefield Project are very good and the Project is not expected to significantly impact water quality. The proposed run-of-river operation, where inflow is equal to outflow, should provide a rapid pond flushing rate. The small size of the pond and rapid flushing rate should all but eliminate chemical and thermal stratification or sedimentation normally associated with larger and/or deeper impoundments. Potential eutrophication conditions should be minimal because of displacement of phosphorous and nitrogen concentrations required for algae blooms.

In addition, there will be no pollutant discharges from the Project facilities. No lavatory facilities are proposed for the powerhouse because the station will be automated. Trashrack debris will be removed and disposed of in a suitable off-site location.

There will be minor impacts on water quality resulting from construction activities at the Project site. Impacts during construction will be minimized as much as possible. Blasting of ledge will be necessary for the tailrace and some cofferdams will be required. Sitings will be carefully selected and the work will be accomplished during the lowest flow periods of the season. This should keep sedimentation to a minimum. River flows will be uninterrupted through the site during construction.

Accepted practices for sedimentation and erosion control will be incorporated into the project to minimize site runoff effects.

E.2.4 Impacts on Water Quantity

The Littlefield Hydroelectric Project will operate in a strict run-of-river fashion with instantaneous inflow equal to instantaneous outflow. There will be no impact on water quantity.

The City of Auburn draws its drinking water from a reservoir and is not likely to be affected by groundwater conditions in the project area. No change from current use, density, or legal classification will be made; therefore, there will be no impact on water use.

E.2.5 Impacts on Land Uses

The impoundment created by the project will eliminate forested and agricultural lands below elevation 216' msl. Approximately 59 percent of the 101 surface acre immpoundment will permanently cover areas which, except for higher elevation cropland, were previously inundated only by annual river flooding. No residential or lands with potential for development will be affected by recommissioning the dam and restoration of the impoundment to its historic level. The bridge crossings that are a half mile upstream of the dam site will not be affected as they were constructed prior to 1936.

In addition, the Martindale Golf Course is not expected to be adversely affected by the Project impoundment.

E.2.6 Impacts on Recreational Uses

Short term recreational impacts will occur during construction and will be limited to the area where civil work is being done. Impacts will be confined to fishing, canoeing and hiking. These impacts could be mitigated somewhat through the use of detours. Excavation in the tailrace area will have a temporary, negative impact on fishing, but proper use of cofferdams will minimize excess sedimentation from entering the river.

Over the long term the project will significantly enhance the recreational opportunities in the area. Public access not presently available, will be provided at the site for both angling and canoeing purposes. A canoe portage around the site will be provided. The canoe launch will be far enough downstream of the turbine draft tube exit so that potential tailrace turbulence will not constitute a safety hazard. Access to the tailrace area, normally considered prime fishing locations at dam sites, will also benefit anglers.

Finally, in response to the Maine Bureau of Parks and Recreation's concerns pertaining to the potential use of boats by persons fishing in the area, the Applicant will provide a boat launching facility at the site.

E.2.7 Impacts on Historical and Archaeological Resources

The development of the site calls for the rehabilitation of the existing site. No previously undisturbed area will be affected. However, the reinundation of the Project area may cause erosion at existing archaeological sites. The Applicant has conducted a Phase I study of the Project area. During the study, existing and potential American Indian sites were identified.

This study is currently under review by the Maine Historic Preservation Commission (MHPC). The Applicant has begun conducting a literature review and will conduct the Phase II field survey immediately after the proposed workplan has been approved by the SHPO. The purpose of the Phase II survey is to determine the eligibility of any of these sites to the National Register of Historic Places.

E.2.8 Impacts on Scenic and Aesthetic Resources

The reactivation of the Littlefield Power facility will provide positive visual impacts within the project area. Rehabilitation of the site features, which are in disrepair from the lack of maintenance, and restoration of the pool to its historic operating level, will provide improved aesthetics at the dam site as well as along the periphery of the pool.

Construction of a new powerhouse, canal, trashracks, and headgates will enhance the visual appearance on the left bank. No significant visual impacts are anticipated by upgrading the trail which will be used as a construction and permanent access road to the site, or from the installation of the transmission line interconnection. The impoundment will undoubtedly have the most significant impact, complimenting the scenic beauty of the general area.

Short-term customary construction impacts will occur that are typical of a project of this nature. These disruptions are expected to last no more than 24 months, however, they will be kept to a reasonable minimum. Because of the site's isolated location, little personal inconvenience should result.

E.3 Agency Consultation

Consultation with Federal, State, and local agencies concerning the rehabilitation of the Littlefield Hydroelectric Project began in late 1984, prior to the effective date of Commission Rule 4.38. As a result of early consultation, the equipment selection and mode of operation were changed. Originally four Francis Turbines had been proposed to be installed at the site. Now the Applicant proposes to install one double regulated tube-type turbine. The operation of the Project was changed from a limited cycling mode to strict run-of-river to reduce the effect of the Project on downstream aquatic habitat.

In response to subsequent Agency consultation, the Applicant conducted studies and evaluations related to project impacts on the fish and wildlife habitats. The development of mitigation plans were also included in these studies (see Appendix E-1). A copy of the Draft License Application, which included the results of these studies, was submitted for Agency review in November, 1986.

The Fish and Wildlife Agencies are now requesting additional consultation. However, the Applicant believes that it has responded to Agency concerns to the best of it's ability and

can no longer delay in filing this license Application with the FERC. Realizing the importance of agency consultation in expediting the Licensing process, the Applicant delayed filing the license Application for over a year in order to conduct the studies requested by the Fish and Wildlife Agencies. This delay, however, has jeopardized the Applicant's power purchase sales agreement with Central Maine Power, which requires that project construction be completed and on-line by November, 1989. The Applicant believes it can no longer delay filing the license application without further jeopardizing the power sales agreement and ultimately the future of the Project.

Previous project correspondence is contained in Appendix E-7 of this report. The following section summarizes comments received.

E.3.1 Agency Comments

Maine Historic Preservation Commission

In their letter of September 24, 1984 (Shettleworth), the MHPC referenced that site #23.11, discovered by the Maine State Museum, was within the Project boundary.

Based on these comments a Phase I archaeological survey was performed and has recently been submitted to the MHPC. In their letters of July 31, 1986 and December 1, 1986 (Shettleworth), the MHPC requested a Phase II study based upon the preliminary findings of the Phase I study. MHPC also expressed concern that the geographic area surveyed in Phase I may have been inadequate. The Applicant acknowledges this inadequacy and has agreed to survey the area omitted from the Phase I survey during the Phase II survey. A contractor to do the Phase II study has already been selected. The study will commence as soon as the MHPC has reviewed and approved the workplan. Phase II is scheduled for completion by the spring of 1987.

Maine Department of Conservation

In their letters of September 24, 1984 (Baum) and December 10, 1986 (Anderson), the Department raised the issues of the need for boat access and a canoe portage trail around the dam. The Applicant feels that a canoe portage around the dam will be beneficial to canoeists and kayakers and will install one. The Applicant will also provide a boat launching facility.

United States Environmental Protection Agency

In their letter of October 15, 1984 (Higgins), the EPA expressed concern about downstream water quality during periods of cycling. The Applicant has changed its mode of operation to strict run-of-river in order to alleviate the concern of downstream water quality which was acknowledged in the EPA's December 13, 1985 (Higgins) letter. In both their letters the EPA expressed concern that the Applicant may need a general Section 404 permit from the U.S. Army Corp of Engineers. The Applicant has applied for the 404 permit.

United States Fish and Wildlife Service

In their letters of October 19, 1984 and December 31, 1986 (Beckett), the USFWS requested that HEP, IMIF, Cumulative Impact Assessment and Angling Opportunity Studies be done. Since the Applicant changed its mode of operation to run-of-river the USFWS stated that the Instream Flow Studies were no longer necessary (Beckett 11/27/85). The HEP Study has been conducted and is provided in Appendix E-1. It is also referred to in Exhibit E. The Applicant does not feel that Cumulative Impact Assessment and Angling Opportunities studies are necessary. A discussion of cumulative impacts and angling opportunities is included in Exhibit E, Section E.2.2.

National Marine Fisheries Service

The NMFS stated that the Applicant should supply adequate fish passage facilities in their October 19, 1984 letter (Bigford). The Applicant has incorporated a downstream migrant fish passage facility at the site into its design. The proposed passage facility has been approved by the fisheries for the Upper Barker Hydro Project (also owned by Consolidated Hydro, Inc.) on the Little Androscoggin River.

Maine Department of Environmental Protection

In their October 22, 1984 and January 29, 1987 letters (Murch) the DEP informed the Applicant of Statutory and Regulatory Requirements which the Applicant has noted. The DEP's other concerns and requests were: requested information regarding the impoundment, inundation maps, consultation with FEMA regarding flooding, flashboard information, concern of cycling mode, consultation with Maine Bureau of Parks and Recreation, description of site work and consultation with City of Auburn. The Applicant believes it has diligently pursued each item. Applicant will file concurrently with FERC and DEP for the final license.

Department of Inland Fisheries and Wildlife

In their December 19, 1984 letter (Trask), the DIFW stated that the application had not adequately addressed the effect of the Littlefield Project on fishery resources. As a result, the Applicant performed a HEP study which is referred to throughout this report and is contained in Appendix E-1. In their January 20, 1987 letter (Trask), the DIFW stated that the proposed mitigation was neither sufficient nor appropriate. They also recommended full mitigation in kind. The Applicant has responded to these concerns in Exhibit E, Section E.2.2.

Maine Department of Marine Resources

In their letters of January 30, 1985 and December 31, 1986 (Appollonio), the MDMR requested studies to assess:

1. The impacts of upstream and downstream losses on anadromous alewives and American shad by this project and other existing projects in the watershed.

2. How the applicant will mitigate for upstream and downstream losses caused by this project, and what provisions will be made for upstream and downstream passage of fish.

3. What will be the impact of inundation of riverine habitat in the project area on production of American shad and other riverine dependent species. How will there impacts be mitigated.

4. Identify potential fishing sites of American shad and address mitigation for lost angling sites.

5. Address how flows will be managed to maintain downstream aquatic resources.

6. Identify the cumulative impacts of Littlefield Dam, in conjunction with other existing dams upstream and downstream of the Project, on the anadromous fish runs in the basin. In addition the MDMR requested that the Applicant address responsibility for passing fish both upstream and downstream of the Project. They also questioned the legitimacy of the proposed mitigation measures.

The Applicant has addressed all of the above concerns in this report.

Department of the Army Corps of Engineers

In their November 26, 1985 letter (Ignazio) the Corps states that the operation change to run-of-river will have no impact on their responsibilities. The Applicant has requested a general Section 404 Permit from the Corps. In their letter of November 21, 1986, the Corps state that the proposed project will not affect their flood control activities, but that a Section 404 permit will be required. They also acknowledged the Applicant's request for the Section 404 permit.

Federal Emergency Management Agency

In their May 19, 1986 letter (Thomas) FEMA requested information about flood elevations with the reconstruction of the Littlefield Dam. That information has been gathered and recently submitted for FEMA's review.

Atlantic Sea Run Commission

In their December 10, 1986 letter, the ASSC requested a schematic map detailing the location of Atlantic salmon spawning and nursery substrate and commented that the proposed mitigation proposal was flawed with respect to its proposed release of mitigation flows. The Applicant does not feel that a schematic map detailing the location of spawning and nursery substrate is necessary. The Applicants response to the proposed flaws in the release of mitigation flows is addressed in Section E.2.2.

United States Geological Survey

In their December 19, 1986 letter, the USGS commented that the flow duration curve shown in Figure 1 of the HEP Study should have been based on the entire period of available record (1941-1982), rather than on the period 1941-1978. The calculated flow figures in Table 1 should also be revised . The Applicant has revised Figure 1 and Table 1 of the HEP Study, accordingly.

E.3.2 Agencies Contacted to Date:

The following agencies have been contacted to date. Correspondence with these agencies is included in Appendix E-7.

US Environmental Protection Agency
Region 1
JFK Federal Building
Boston, MA 02203

Contact: Donald Cooke (617) 223-1739

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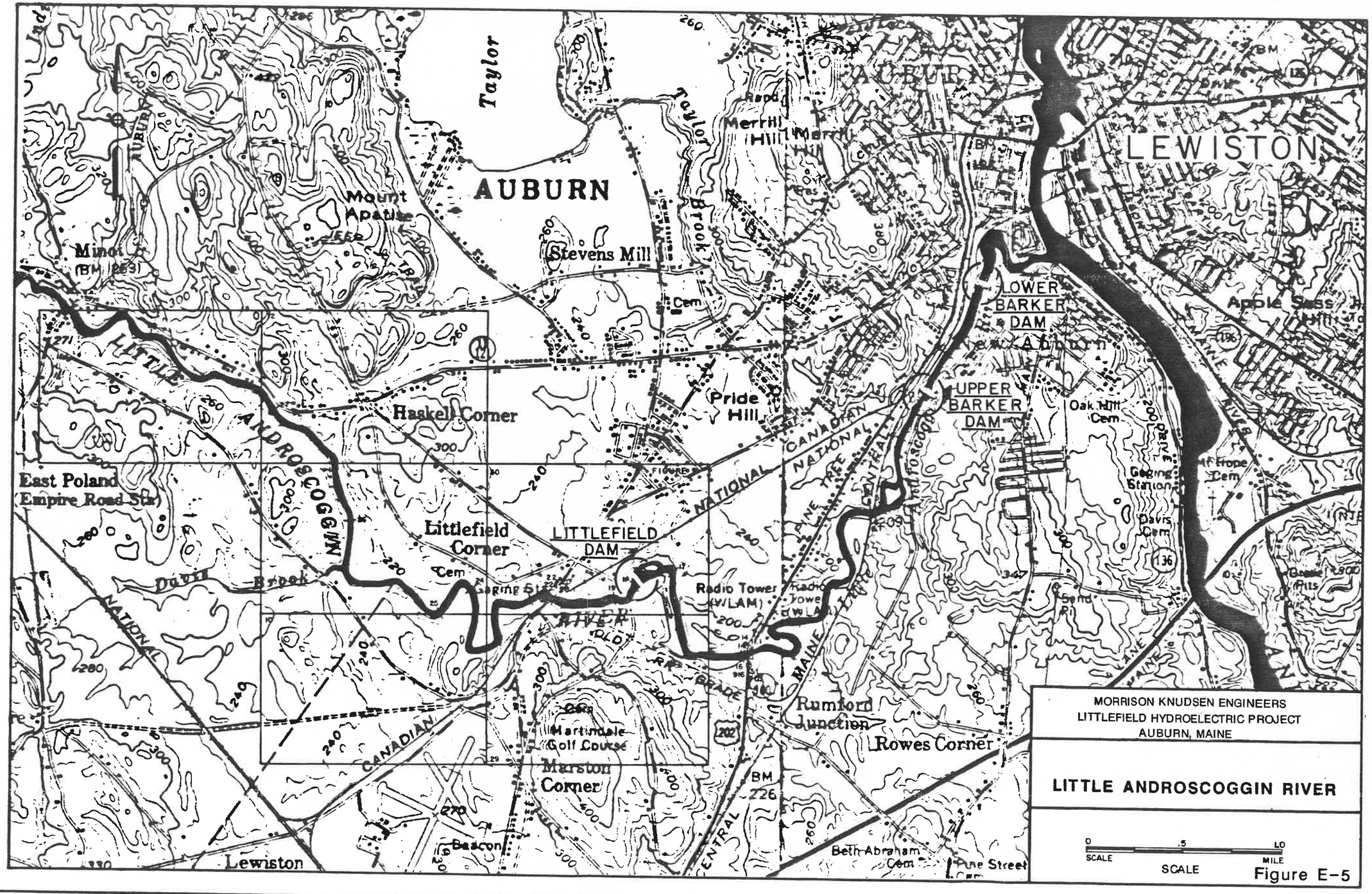

MORRISON KNUDSEN ENGINEERS
LITTLEFIELD HYDROELECTRIC PROJECT
AUBURN, MAINE

LITTLE ANDROSCOGGIN RIVER

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SCALE

Figure E-5