APPLICATION TO

THE INTERNATIONAL JOINT COMMISSION

FOR

GRAND FALLS DIVERSION DIKE RECONSTRUCTION

SAINT CROIX RIVER

BAILEYVILLE, MAINE - SAINT JAMES PARISH, NEW BRUNSWICK

BY

GEORGIA-PACIFIC CORPORATION

WOODLAND, MAINE

1. The Georgia-Pacific Corporation, a corporation organized under the laws of the State of Georgia, and having its office and principal place of business at Georgia-Pacific Headquarters, 900 S.W. 5th Avenue, Georgia-Pacific Building, Portland, Oregon, 97209, hereby makes application to the International Joint Commission for approval of its proposed Grand Falls Diversion Dike Reconstruction Project on the Saint Croix River.

2. The name, title and post office address of the person to whom correspondence in regards to this application shall be addressed is as follows:

Mr. Kenneth Gordon
Georgia-Pacific Corporation
Woodland Division
Woodland, Maine 04694
Telephone: 207-427-3311 Ext. 1531

It is requested that copies of such correspondence be forwarded to Applicant's consultant and agent (see attached authorization):

Mr. Charles F. Ritzi
Kleinschmidt & Dutting
75 Main Street P.O. Box 76
Pittsfield, Maine 04967-0076
Telephone: 207-487-3328

3. The project is located in Baileyville, Washington County, Maine, United States of America and Saint James Parish, New Brunswick, Canada. The construction site is approximately 1100 feet upstream of the Grand Falls Powerhouse and 2400 feet downstream of the Grand Falls Dam.

4. The purpose of this project is maximum hydroelectric generation at the Applicant's Grand Falls Powerhouse facility. The Grand Falls Hydroelectric Station is presently unable to utilize approximately two feet of available head (the equivalent of 2-4% of annual power generation) because of a river bypass channel which impedes discharge from the powerhouse tailrace. If discharge from the Grand Falls Dam is confined to the main channel of the Saint Croix River, tailrace discharge will be unobstructed and this potential power generation will be realized. To accomplish this objective, Georgia-Pacific Corporation proposes to construct a permanent diversion dike at the head of the bypass channel. The project site and relevant features are shown in Drawing Sheet No. G-3.

The proposed dike will actually be a reconstruction of a similar rock crib structure which blocked the bypass channel until it was breached about 1952. Bypass channel erosion since the breaching has caused the formation of an accretion island just upstream of the powerhouse tailrace and filling of the tailrace channel. Four aerial photos are enclosed: photo no. 1 (1951) shows the original diversion dike intact; photo no. 2 (1974) shows the dike breached and the accretion island at high water; the accretion island is obvious at low water in photo no. 3 (1980); photo no. 4 was taken during powerhouse repair in 1981.

Tailrace capacity was reestablished during the Applicant's powerhouse repair project completed in October, 1981. Diverting flow from the bypass channel will permit maximum utilization of the generating capacity of this powerhouse and essentially eliminate future tailrace maintenance.

5. Project plans and details are shown in Drawing Sheet No. G-2. Major features are:

Since the new dike will be in the approximate location of the original dike, the remains of the old dike will be removed from the bypass channel. The reconstructed dike will be approximately 220 feet long with a 12 foot wide top. It will be placed on sound ledge or impervious soil.

Except for the upstream face, the dike will be constructed of 8-12 inch rock. The upstream face will incorporate the necessary water retention features but the dike is not intended to be

completely impervious; some leakage is anticipated. The upstream face will be protected against river flow

Three alternate designs are acceptable:

1) Gravelly, silty sand layer bedded on graded rock and protected by riprap.
2) Gravelly, silty sand layer overlain with filter fabric and protected by riprap.
3) Nylon-encased concrete armor with riprapped toe.

The design alternative chosen by the selected contractor will be the final project design.

The design elevation (167 feet) will provide two feet of freeboard above the estimated high water elevation (165 feet). Estimated high water is based upon anticipated dam discharge with no flow through the powerhouse. The dike will be overtopped only by exceptional dam discharge. The dike is designed to be overtopped.

6. Present scheduling calls for startup about August 1, 1982. A 6-8 week construction period is anticipated.

7. The work will be carried out during the period of summer low flow and discharge from the Grand Falls Dam can be regulated to some degree. No cofferdamming should be necessary; in the event of unusual precipitation some minor cofferdamming using sandbags may be necessary.

Suitable material may be salvaged from the existing dike and

incorporated into the new construction. The remaining spoil will be stabilized at a contained upland site.

An approximately 600 foot long permanent access road will be built to the construction site.

8. In addition to International Joint Commission approval, the project will require these Federal, Provincial and State permits, approvals and leases:

a. A Section 404 (P.L. 92-500) Permit from the U.S. Army Corps of Engineers.

b. A Stream Alteration Permit from the Maine Department of Inland Fisheries and Wildlife.

c. A Water Quality Certification (Section 401, P.L. 92-500) from the Maine Department of Environmental Protection.

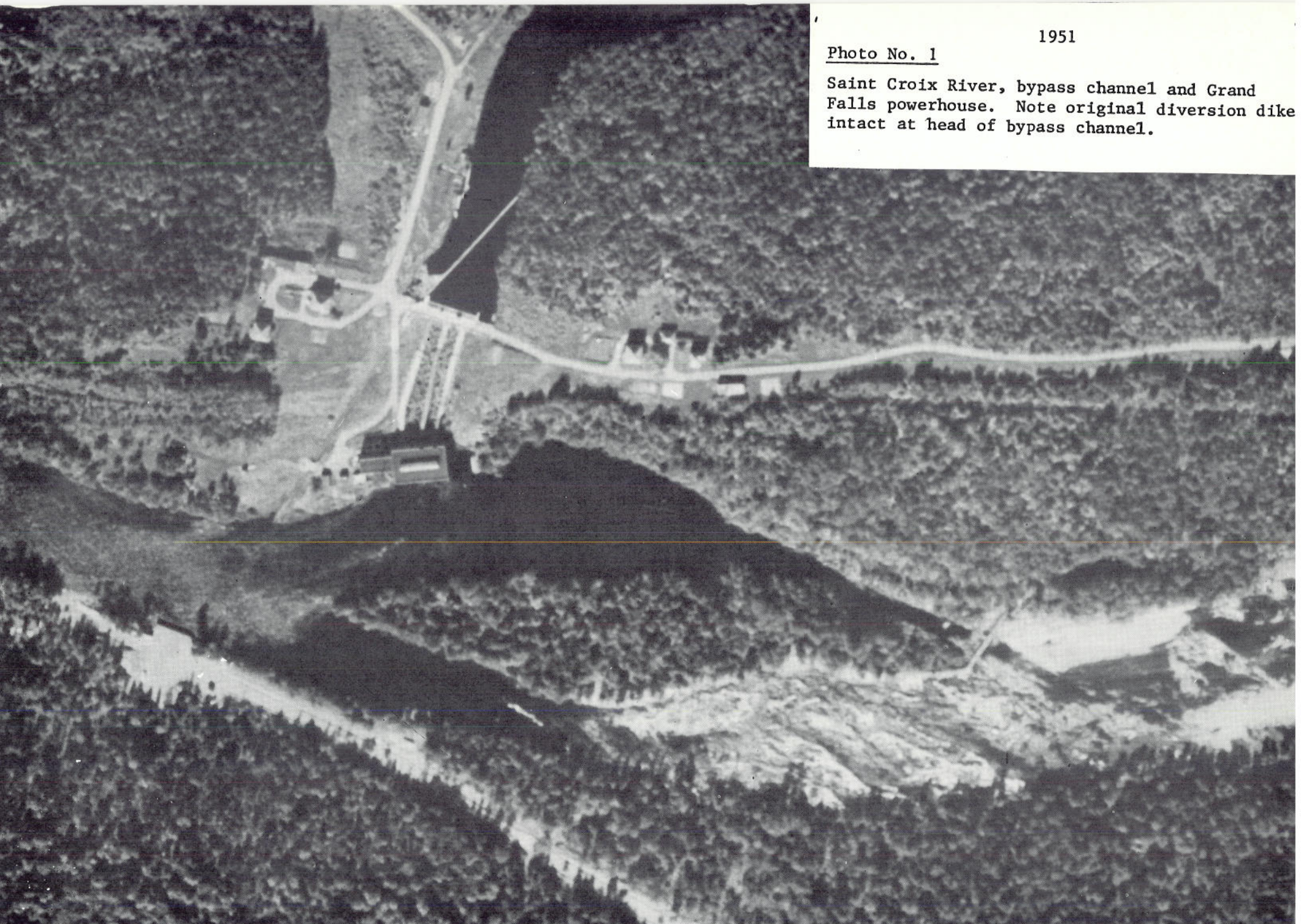
d. A lease for use of submerged land from the Maine Department of Conservation, Bureau of Public Lands.

e. A Navigable Waters Protection Act Permit from the Canadian Department of Transport (Coast Guard).

f. A Watercourse Alteration Permit from the New Brunswick Department of the Environment.

Date: 5/4/82

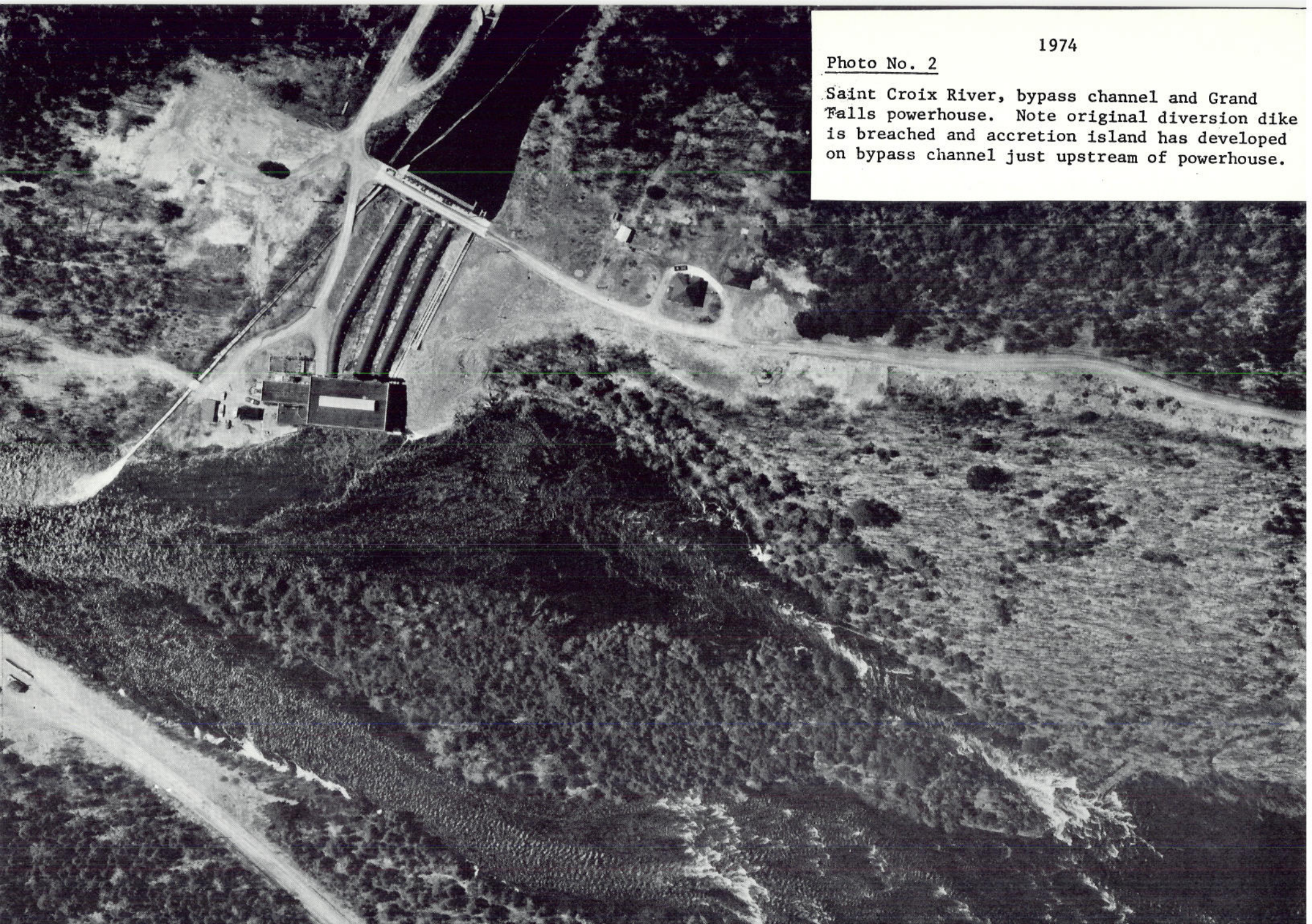
Kenneth E. Gordon
Chief Mechanical Engineer
Georgia Pacific Corporation



1951

Photo No. 1

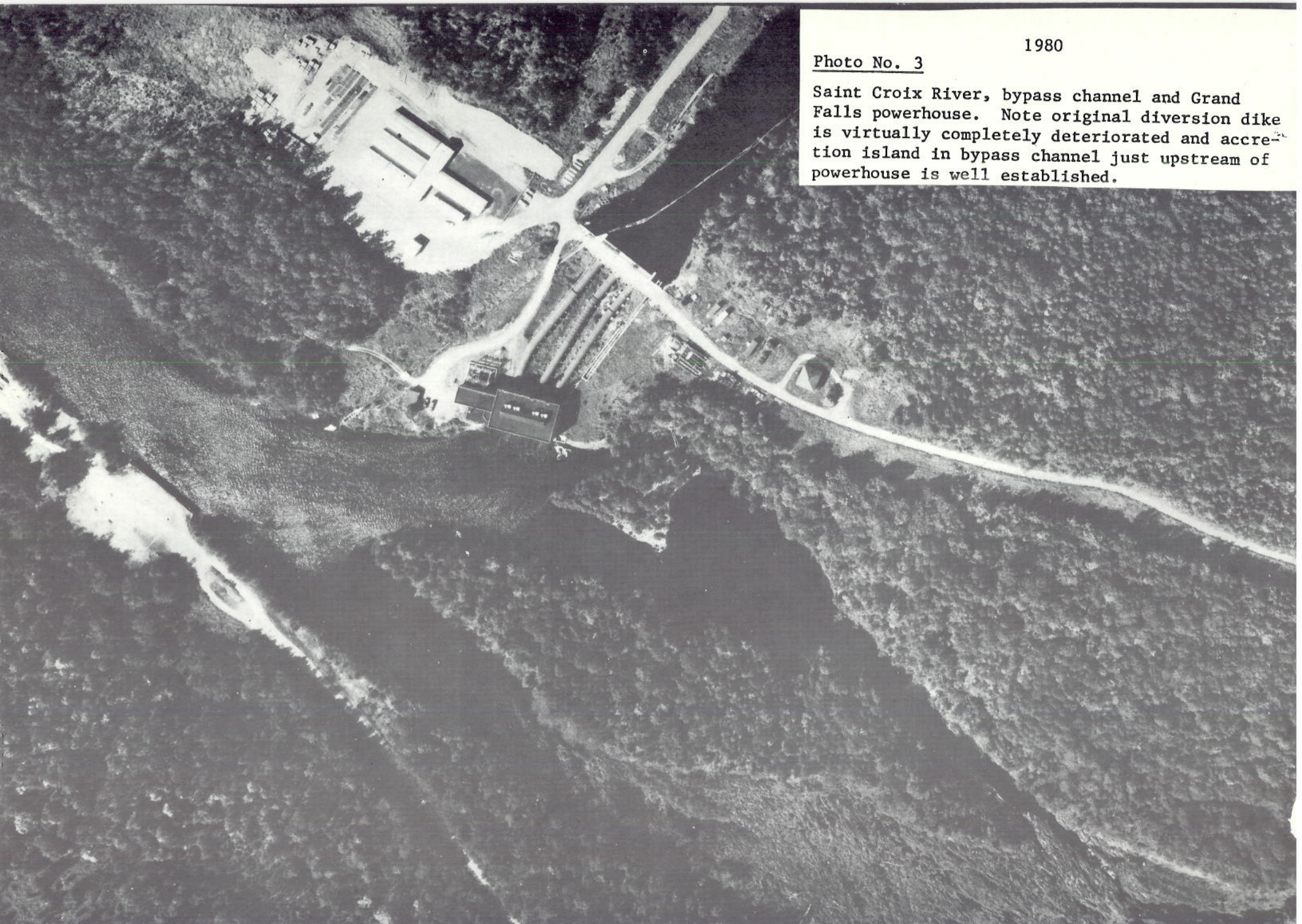
Saint Croix River, bypass channel and Grand Falls powerhouse. Note original diversion dike intact at head of bypass channel.



1974

Photo No. 2

Saint Croix River, bypass channel and Grand Falls powerhouse. Note original diversion dike is breached and accretion island has developed on bypass channel just upstream of powerhouse.



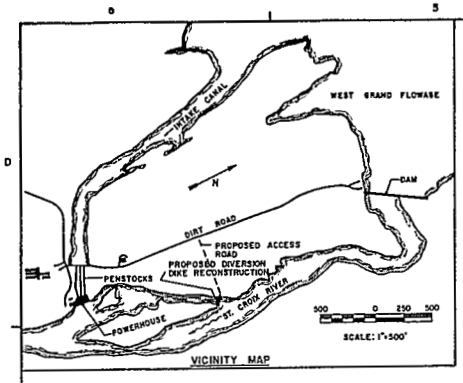
1980

Photo No. 3

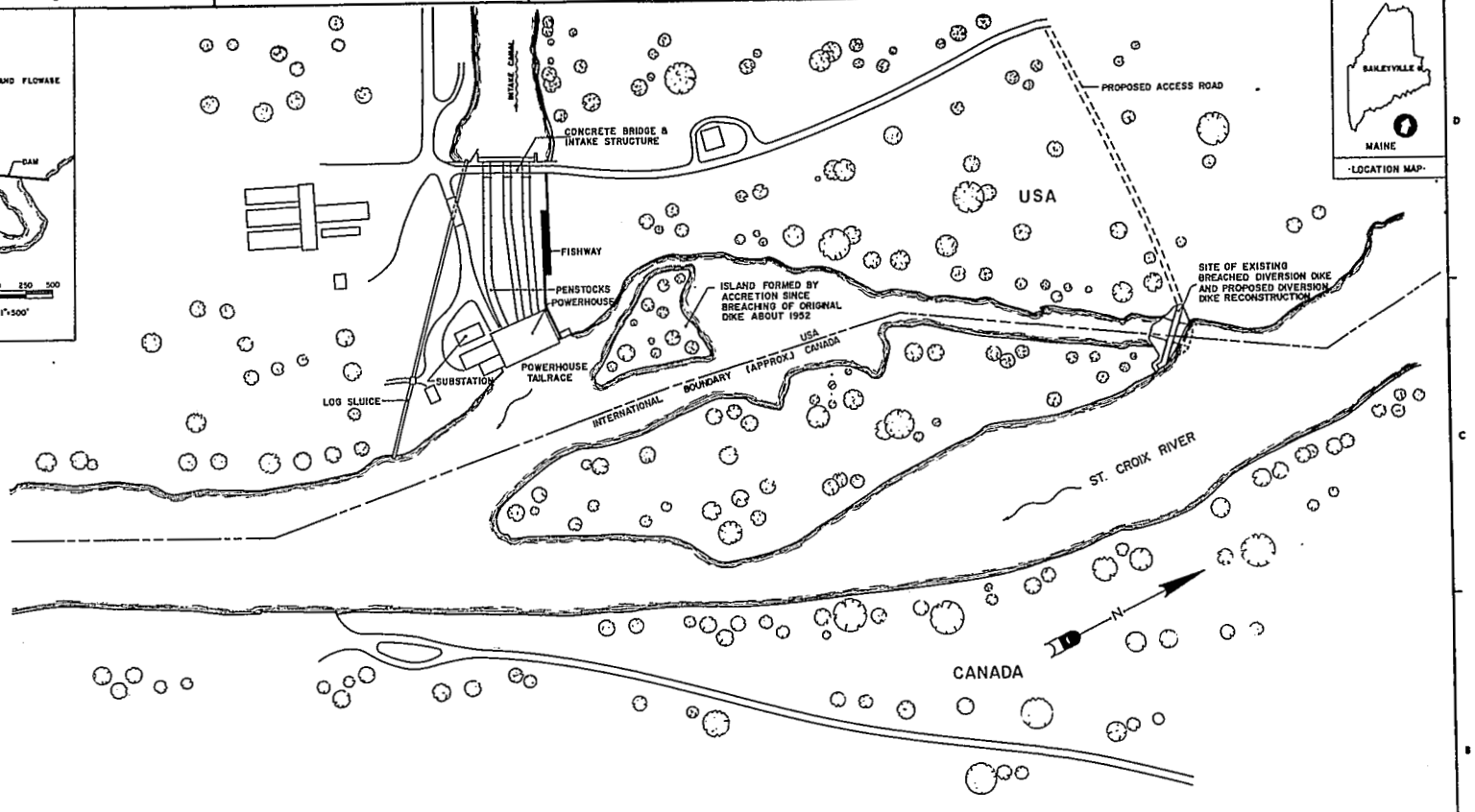
Saint Croix River, bypass channel and Grand Falls powerhouse. Note original diversion dike is virtually completely deteriorated and accretion island in bypass channel just upstream of powerhouse is well established.

Photo No. 4 1981

Saint Croix River, bypass channel upstream of Grand Falls powerhouse during powerhouse repair.



VICINITY MAP



·LOCATION MAP·

NOTE: ALL ELEVATIONS U.S.G.S. DATUM

100 0 100 200 300 400 500
SCALE IN FEET

E-8565-0524

GEORGIA PACIFIC CORPORATION
WOODLAND, MAINE

GRAND FALLS POWERHOUSE
DIVERSION DIKE RECONSTRUCTION

AREA PLAN

BARLEYVILLE, MAINE & SAINT JAMES PARISH, NEW BRUNSWICK

KLEINSCHMIDT & DUTTING
CONSULTING ENGINEERS
PITTSFIELD, MAINE

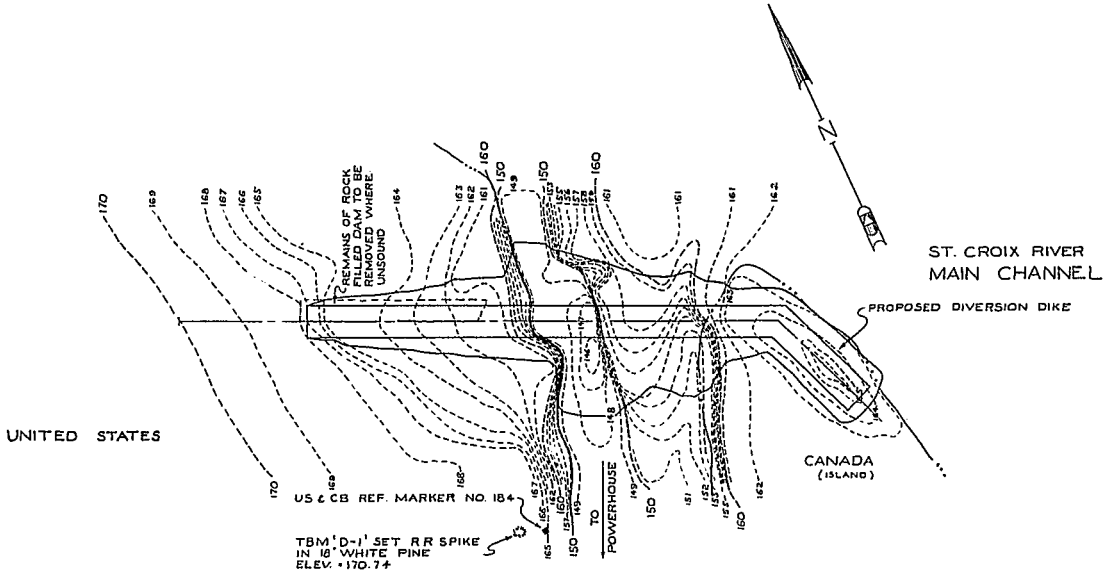
SHEET NO. G-3

1009-40-003

Date	Chkd.	Revision
Drawn by: GSV/DAV	Date: 4-21-81	
Checked by: DAVE	Date: 4-28-81	
Approved by: [illegible]	Date: 5-29-81	
Scale: PLAN, 1"=100'		

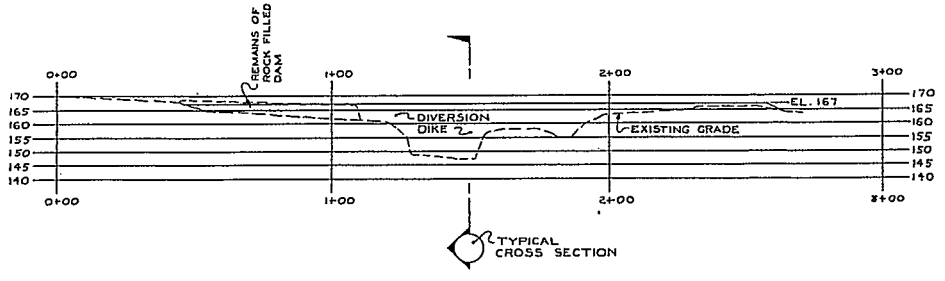
STATE OF MAINE STEPHEN L. CHAPMAN 2372 PROFESSIONAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER #10448 G. A. Sm 1981



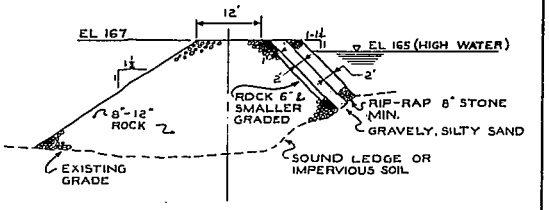
PLAN

SCALE: 1" = 20'

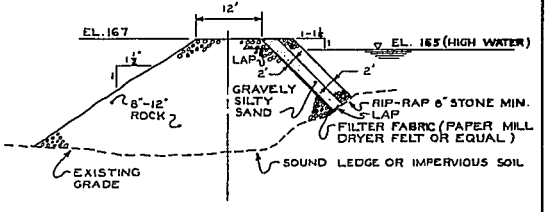


℄ PROFILE

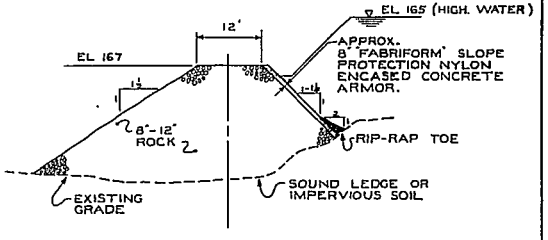
SCALE: 1" = 20'



ALTERNATE 1



ALTERNATE 2



ALTERNATE 3

TYPICAL CROSS SECTIONS

SCALE: 1" = 10'

NOTE:
ALL ELEVATIONS U.S.G.S. DATUM.

Date	Chkd	Revision
Drawn by: RRF	Date: 3-17-82	
Checked by: SEC	Date: 3-29-82	
Approved by: DHE	Date: 3-29-82	
Scale: AS SHOWN		

GEORGIA PACIFIC CORPORATION
WOODLAND, MAINE

GRAND FALLS DIVERSION DIKE RECONSTRUCTION

PLAN & DETAILS

KLEINSCHMIDT & DUTTING
CONSULTING ENGINEERS
PITTSFIELD, MAINE

SHEET NO. G-2

1009-40-002