ST. LAWRENCE
WATERWAY PROJECT

PLATES

TO

ACCOMPANY APPENDICES

C. D. & E.

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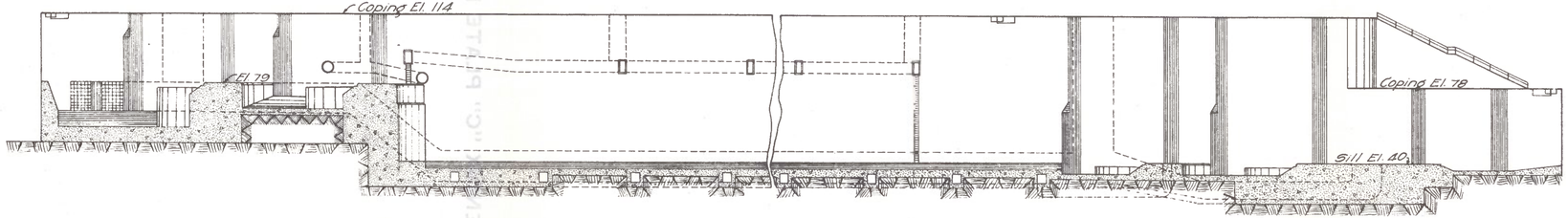
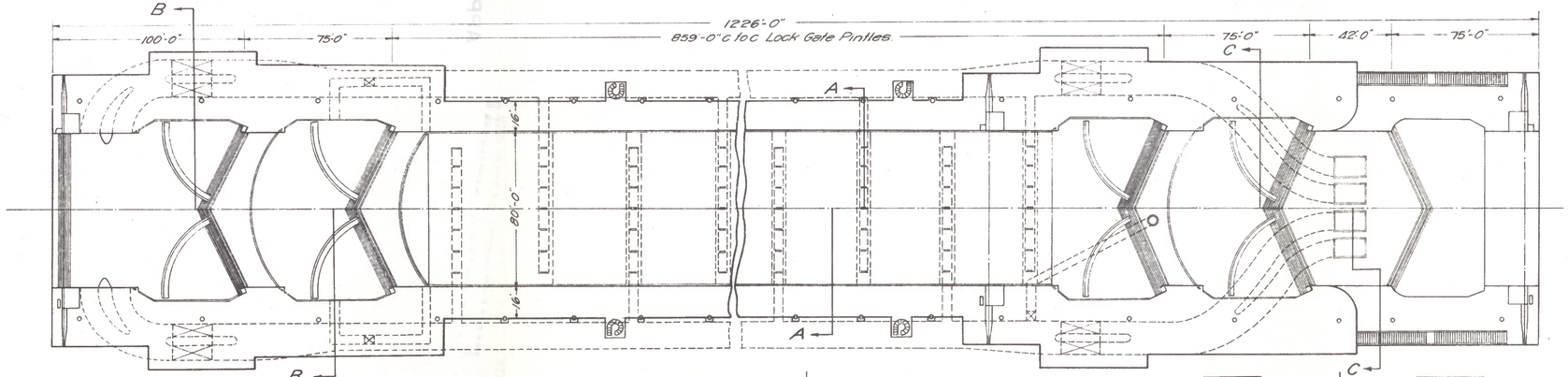
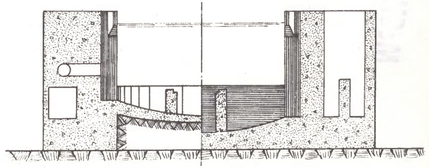
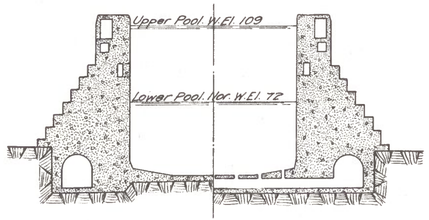


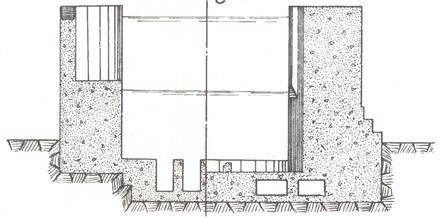




SECTION B-B



SECTION A-A



SECTION C-C

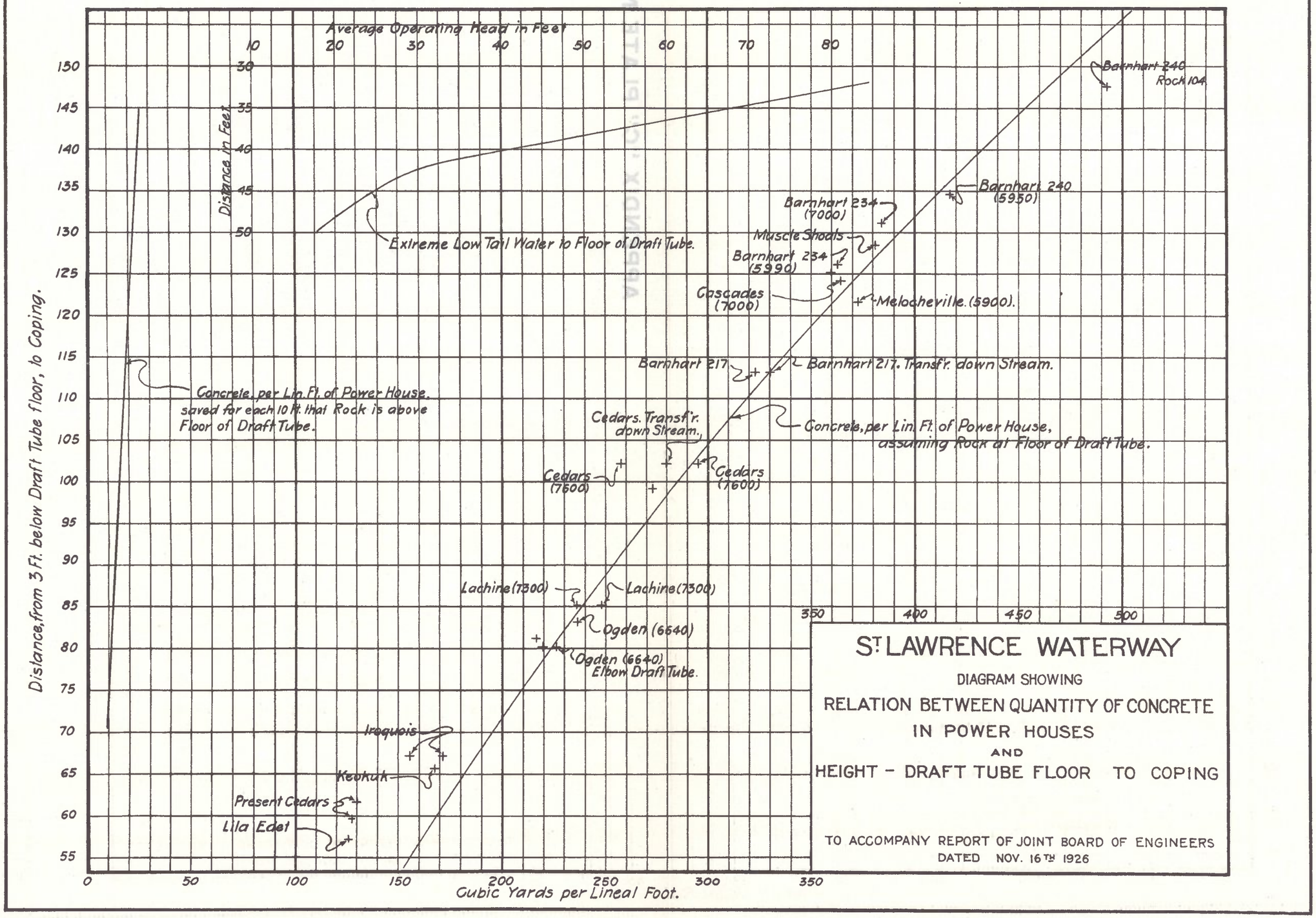
St. LAWRENCE WATERWAY

PLAN AND SECTIONS
SHOWING
PROPOSED CASCADES PT. LOCK

Scale of Feet

50 40 30 20 10 0 50 100

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.

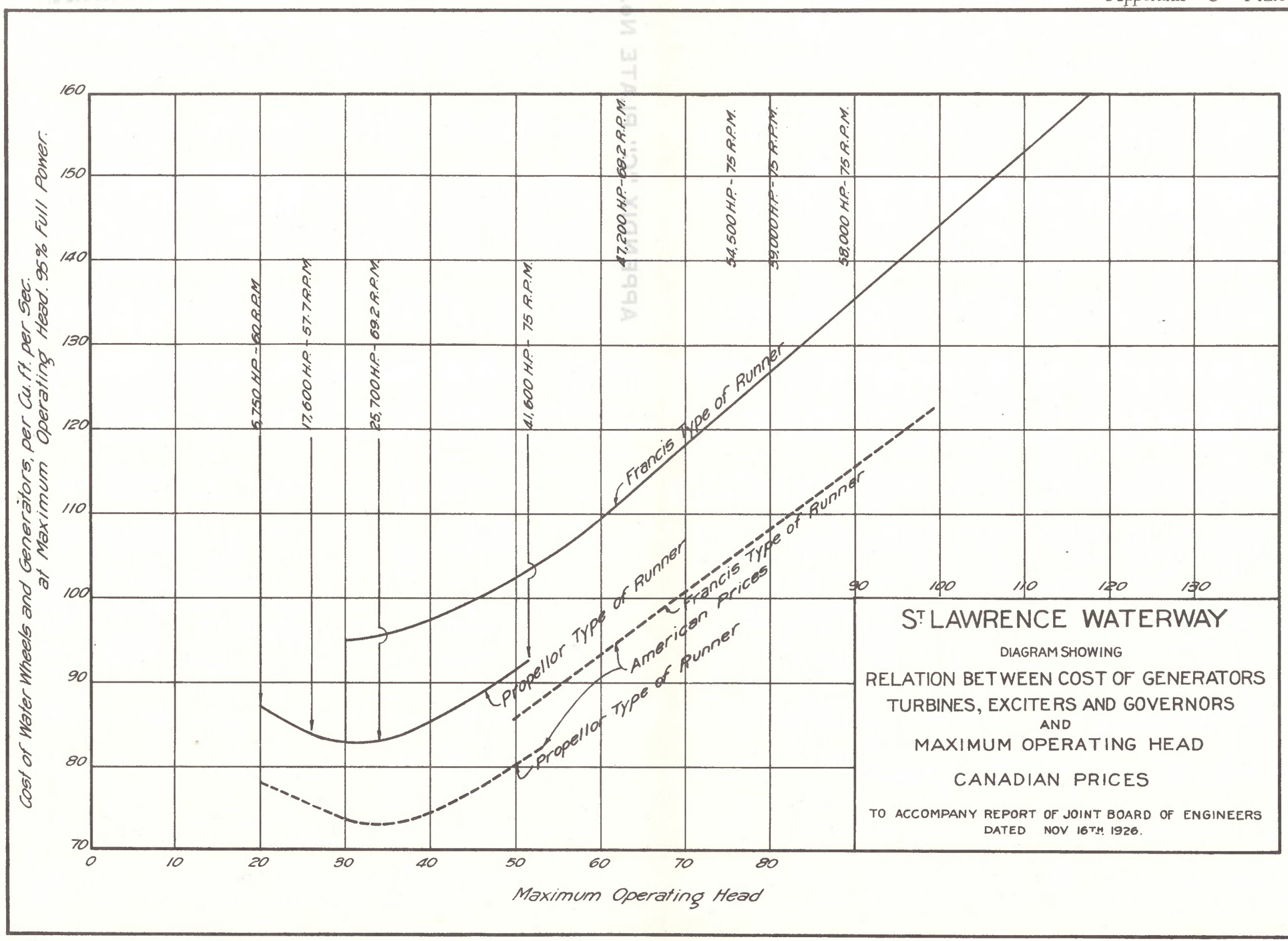


St. LAWRENCE WATERWAY

DIAGRAM SHOWING

RELATION BETWEEN QUANTITY OF CONCRETE IN POWER HOUSES AND HEIGHT - DRAFT TUBE FLOOR TO COPING

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926



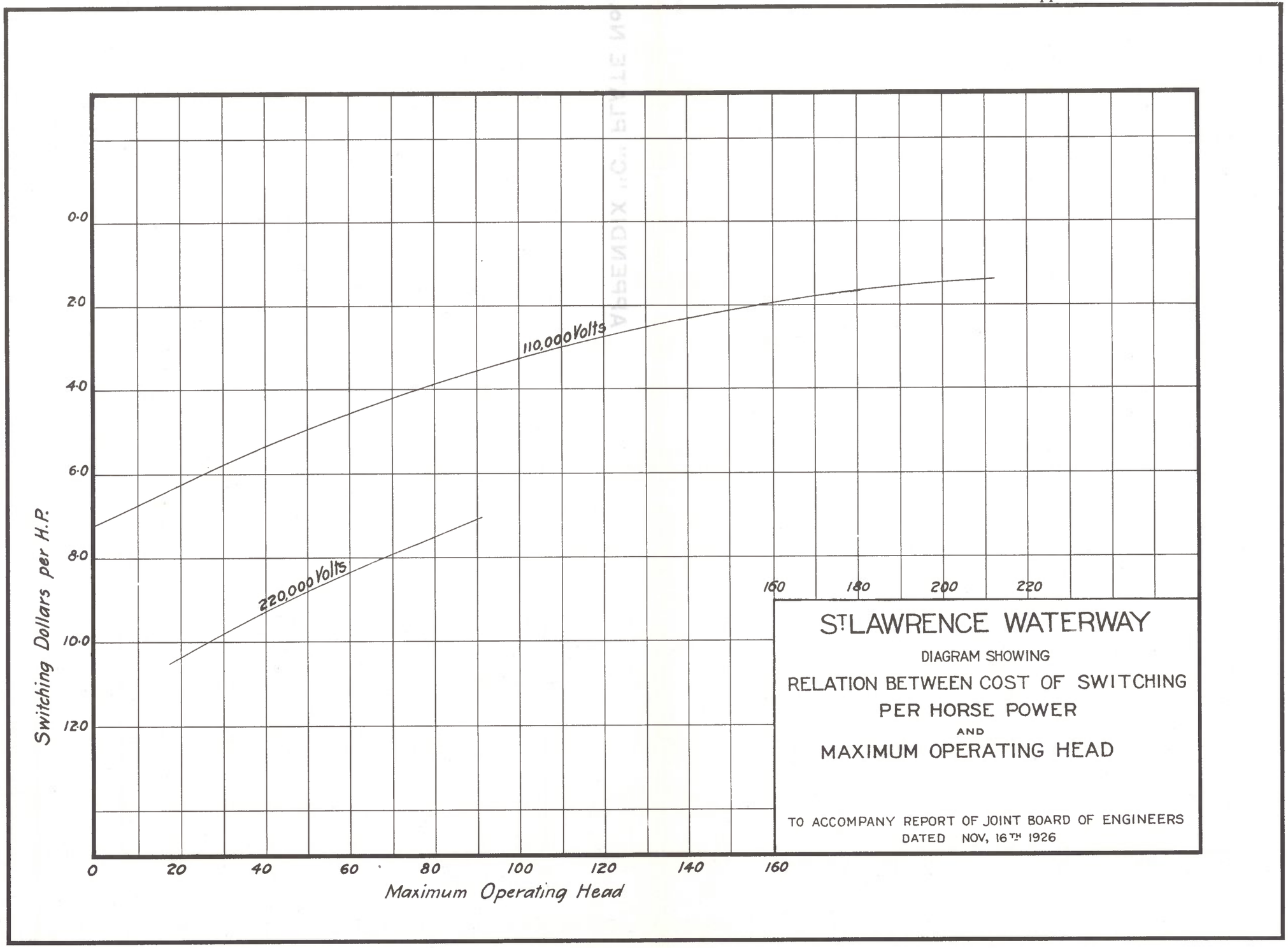
St LAWRENCE WATERWAY

DIAGRAM SHOWING

RELATION BETWEEN COST OF GENERATORS
TURBINES, EXCITERS AND GOVERNORS
AND
MAXIMUM OPERATING HEAD

CANADIAN PRICES

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV 16TH 1926.



St. LAWRENCE WATERWAY

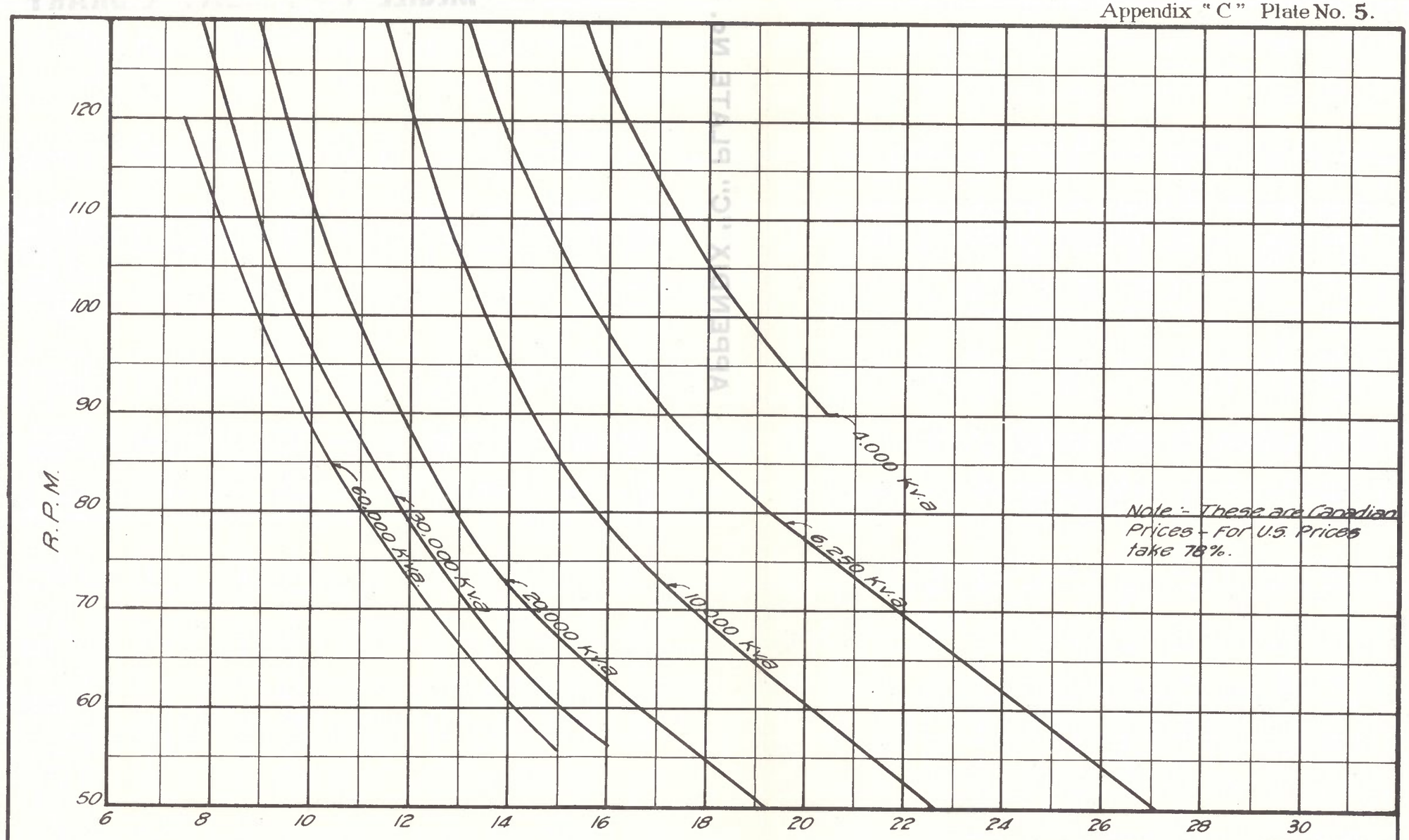
DIAGRAM SHOWING

RELATION BETWEEN COST OF SWITCHING PER HORSE POWER

AND

MAXIMUM OPERATING HEAD

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV, 16TH 1926



Cost of Generators per Kv.a and Exciters (38¢ per lb) in dollars.

ST LAWRENCE WATERWAY

DIAGRAM SHOWING

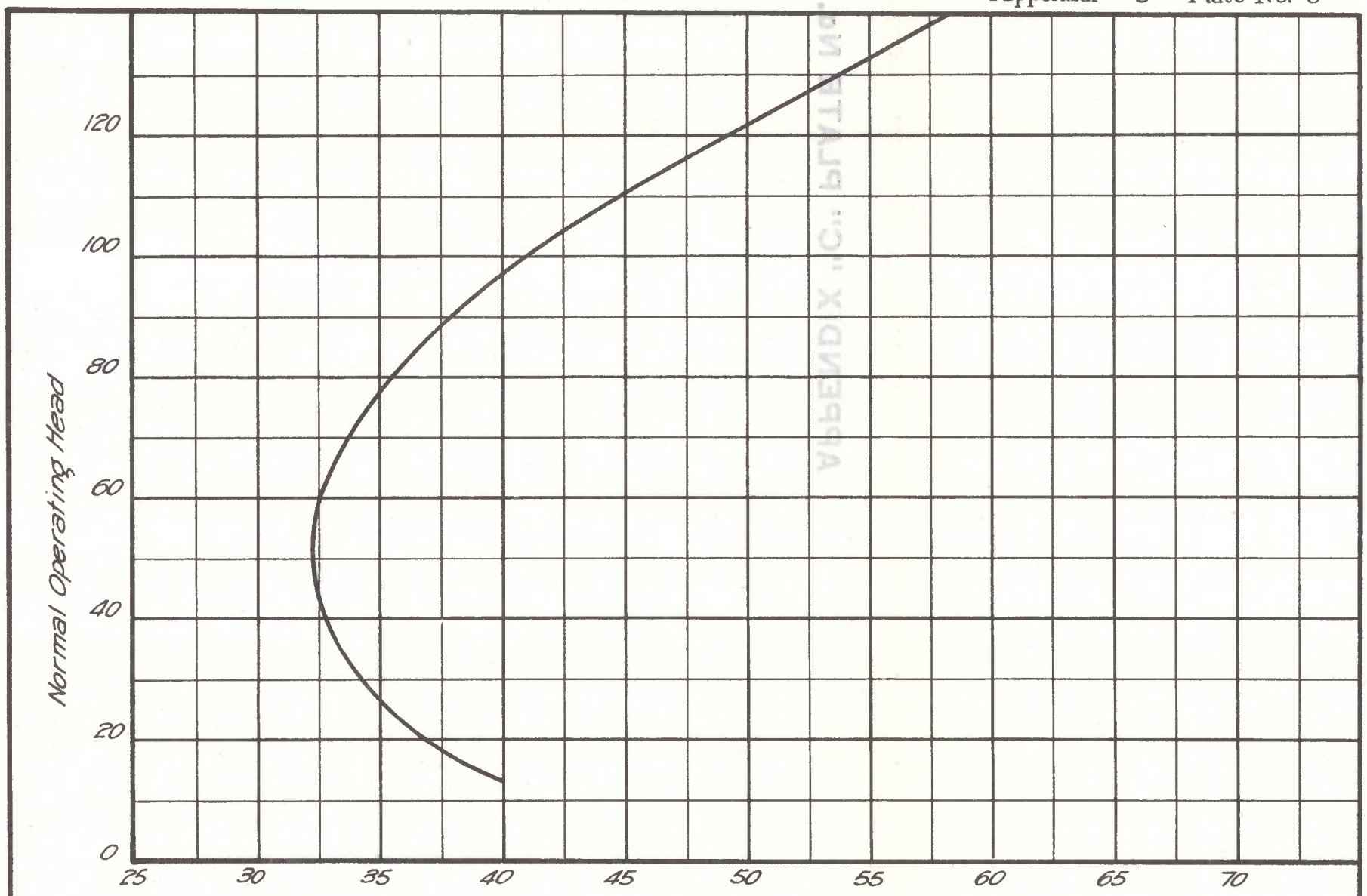
RELATION BETWEEN R.P.M.

AND

COST OF GENERATORS AND EXCITERS

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.

Appendix "C" Plate No. 6



Cost F.O.B. Shop per $\frac{H.P.}{1/10\ Head}$ of Turbines and Governors in dollars

Add 12½% for erection and freight.

St. LAWRENCE WATERWAY

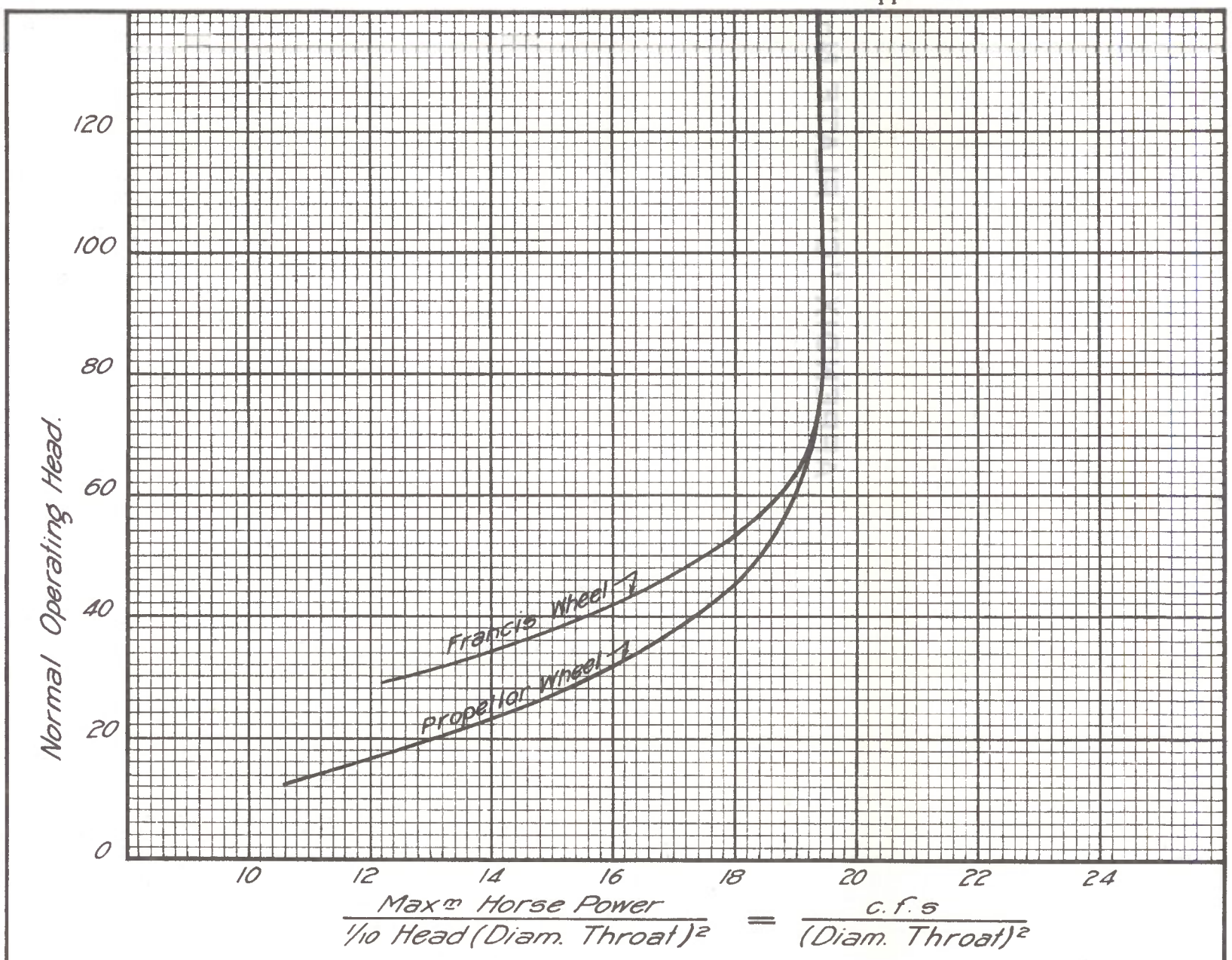
DIAGRAM SHOWING

RELATION BETWEEN HEAD

AND COST OF

TURBINES AND GOVERNORS

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.



Ratio of $\frac{\text{c. to c. spacing}}{\text{Throat Diam.}}$ = { 3.0 Elbow Draft Tube
3.6 Moody " "

St LAWRENCE WATERWAY

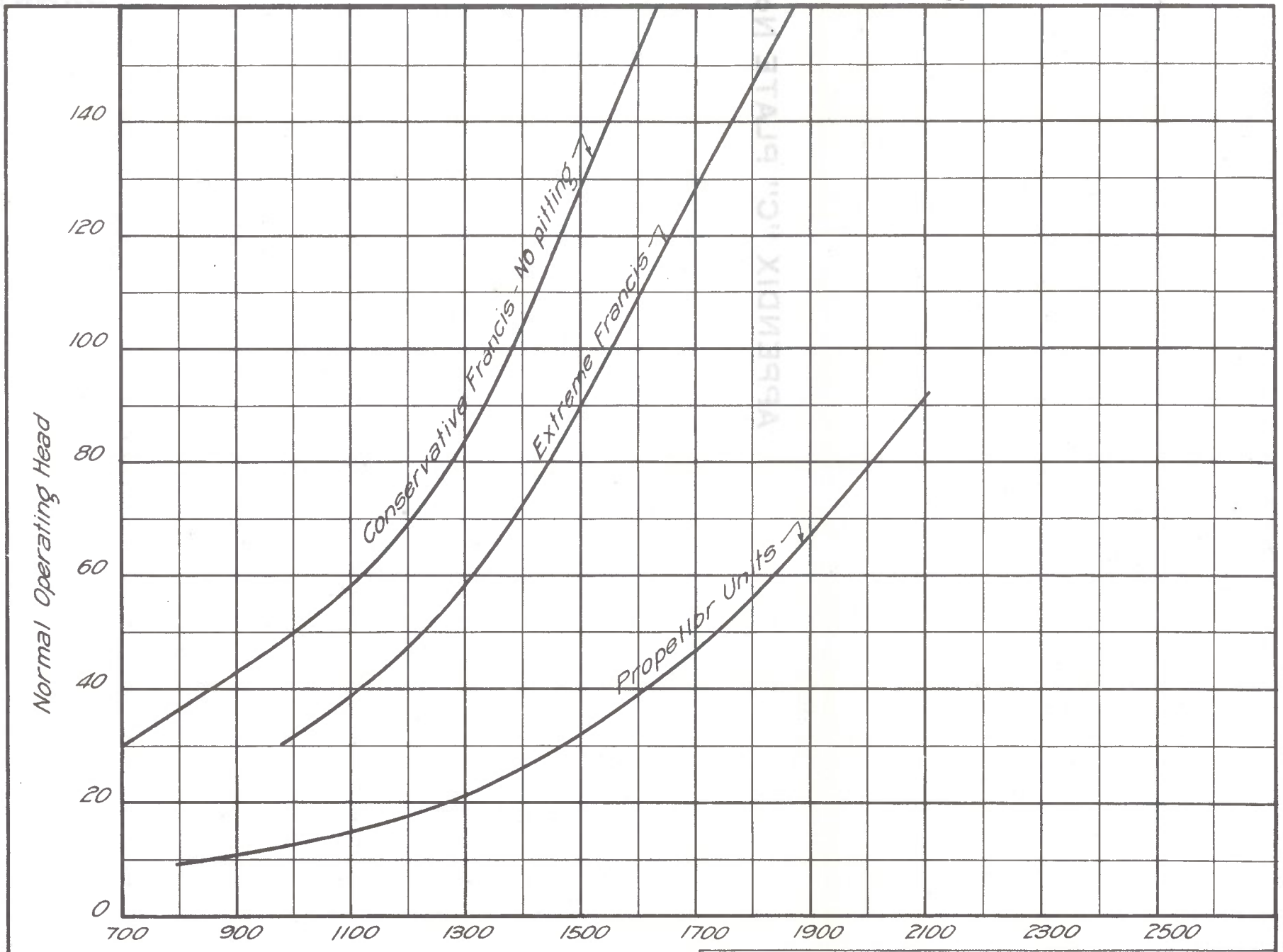
DIAGRAM SHOWING

RELATION BETWEEN HEAD

C.F.S PER UNIT

AND THROAT DIAMETER

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.



St LAWRENCE WATERWAY

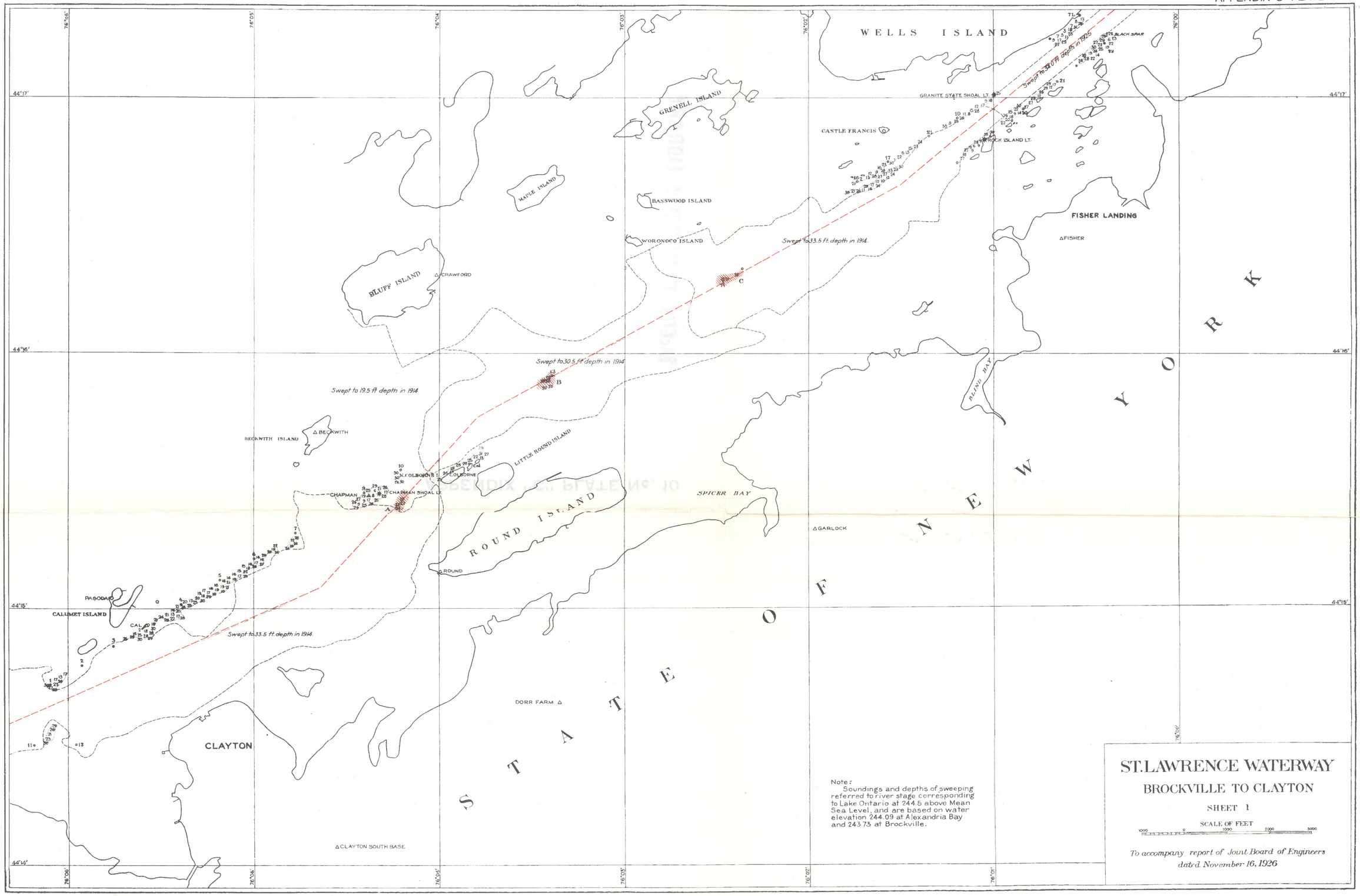
DIAGRAM SHOWING

RELATION BETWEEN HEAD

SPEED

AND THROAT DIAMETER

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH. 1926.



Note:
Soundings and depths of sweeping referred to river stage corresponding to Lake Ontario at 244.5 above Mean Sea Level, and are based on water elevation 244.09 at Alexandria Bay and 243.73 at Brockville.

ST. LAWRENCE WATERWAY

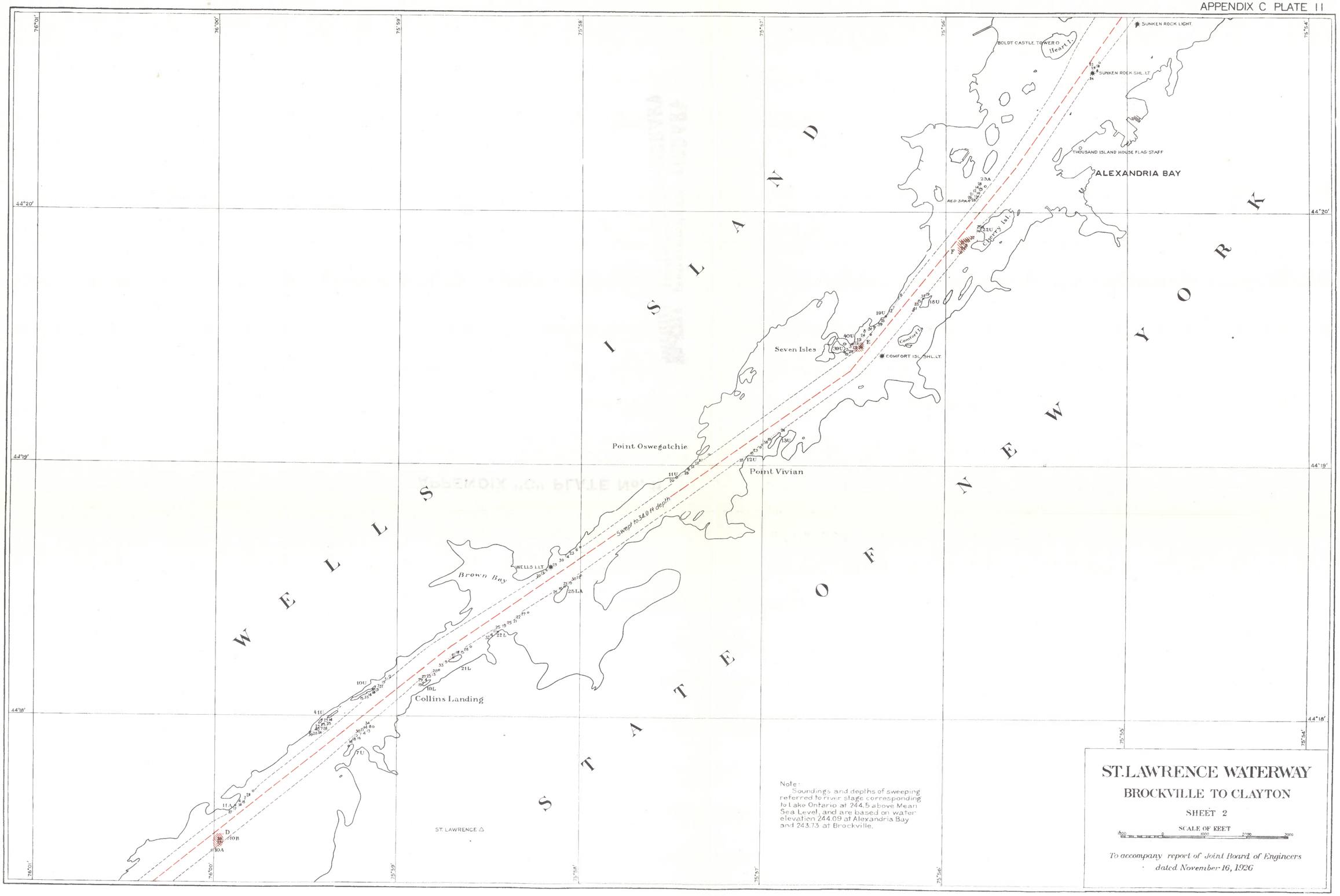
BROCKVILLE TO CLAYTON

SHEET 1

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926



Note:
Soundings and depths of sweeping referred to river stage corresponding to Lake Ontario at 244.5 above Mean Sea Level, and are based on water elevation 244.09 at Alexandria Bay and 243.73 at Brockville.

ST. LAWRENCE WATERWAY

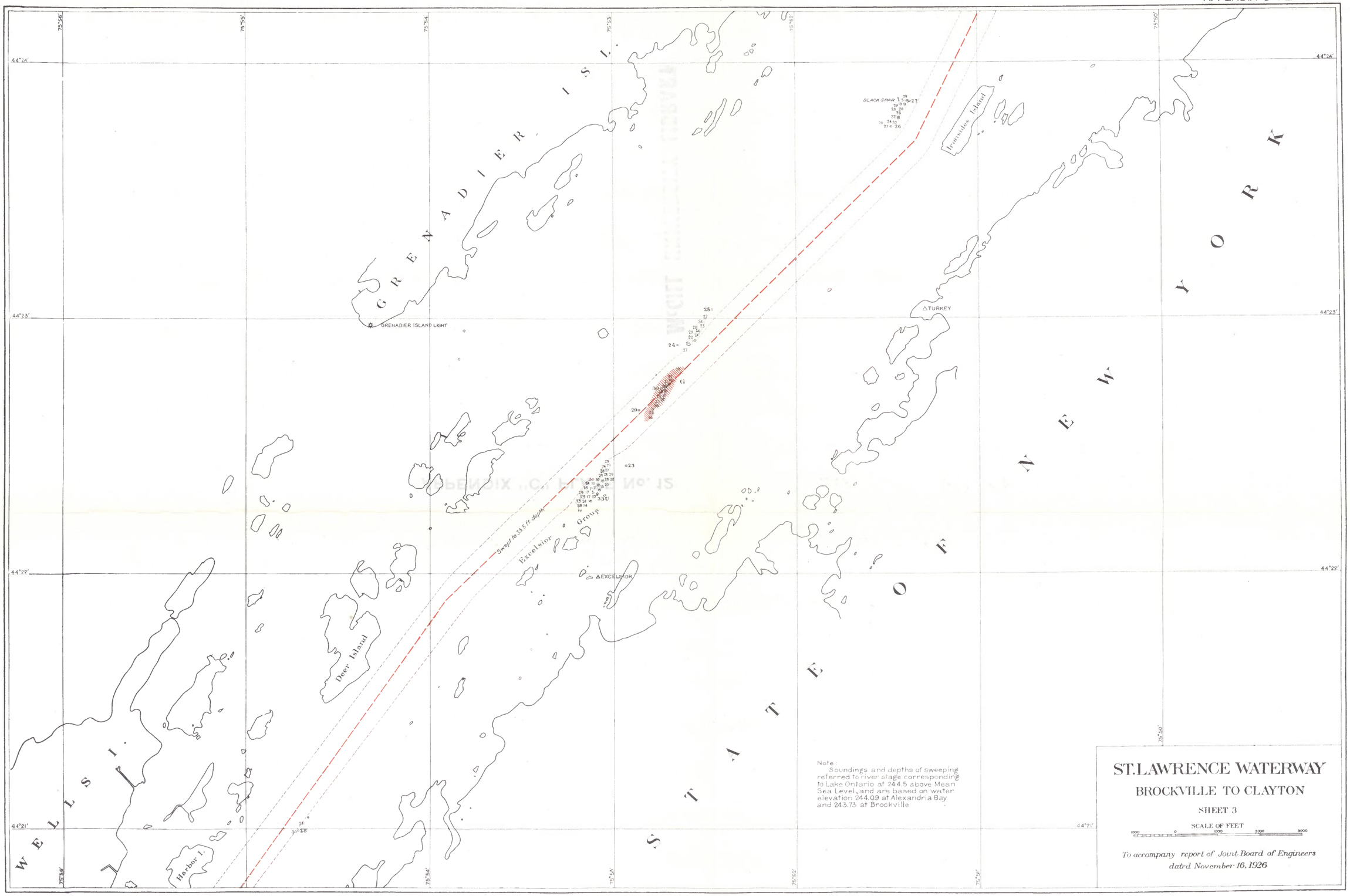
BROCKVILLE TO CLAYTON

SHEET 2

SCALE OF FEET

0 500 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926



Note:
Soundings and depths of sweeping referred to river stage corresponding to Lake Ontario at 244.5 above Mean Sea Level, and are based on water elevation 244.09 at Alexandria Bay and 243.73 at Brockville.

ST. LAWRENCE WATERWAY

BROCKVILLE TO CLAYTON

SHEET 3

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926

ONTARIO

NEW YORK

STATE OF

GRENADIER ISLAND

OAK ISLAND

75°52'
75°51'
75°50'
75°49'
75°48'
75°47'
75°46'
44°27'
44°26'
44°25'

GULL
DARK I.
CHERRY
CHIPPEWA BAY
LYONS, 1902
SISTER ISLANDS LIGHT
THIRD BROTHER
TUESDAY

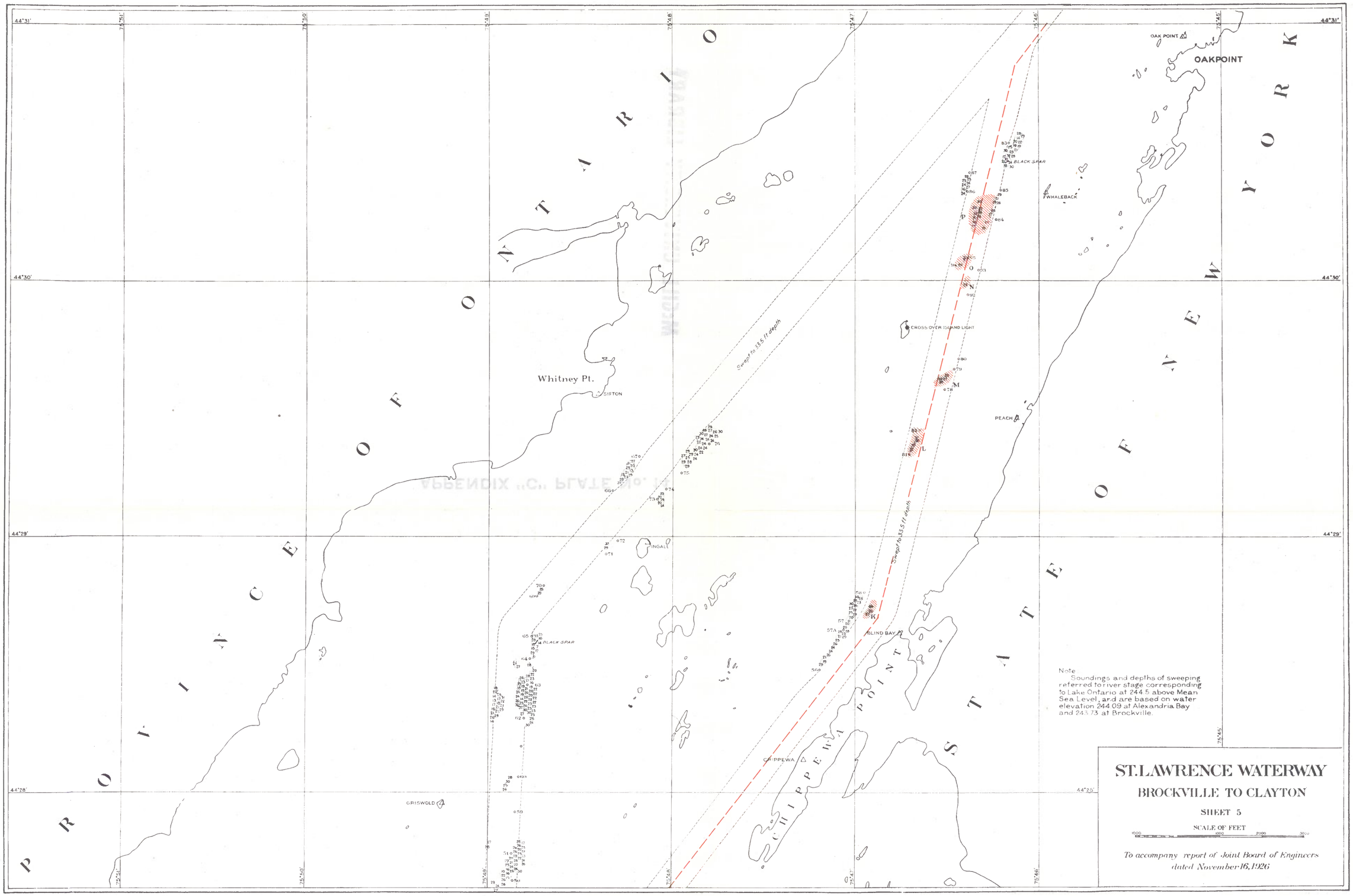
Swept to 33.5 ft depth

Note:
Soundings and depths of sweeping referred to river stage corresponding to Lake Ontario at 244.5 above Mean Sea Level, and are based on water elevation 244.09 at Alexandria Bay and 243.73 at Brockville

ST. LAWRENCE WATERWAY
BROCKVILLE TO CLAYTON
SHEET 4

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926



ST. LAWRENCE WATERWAY

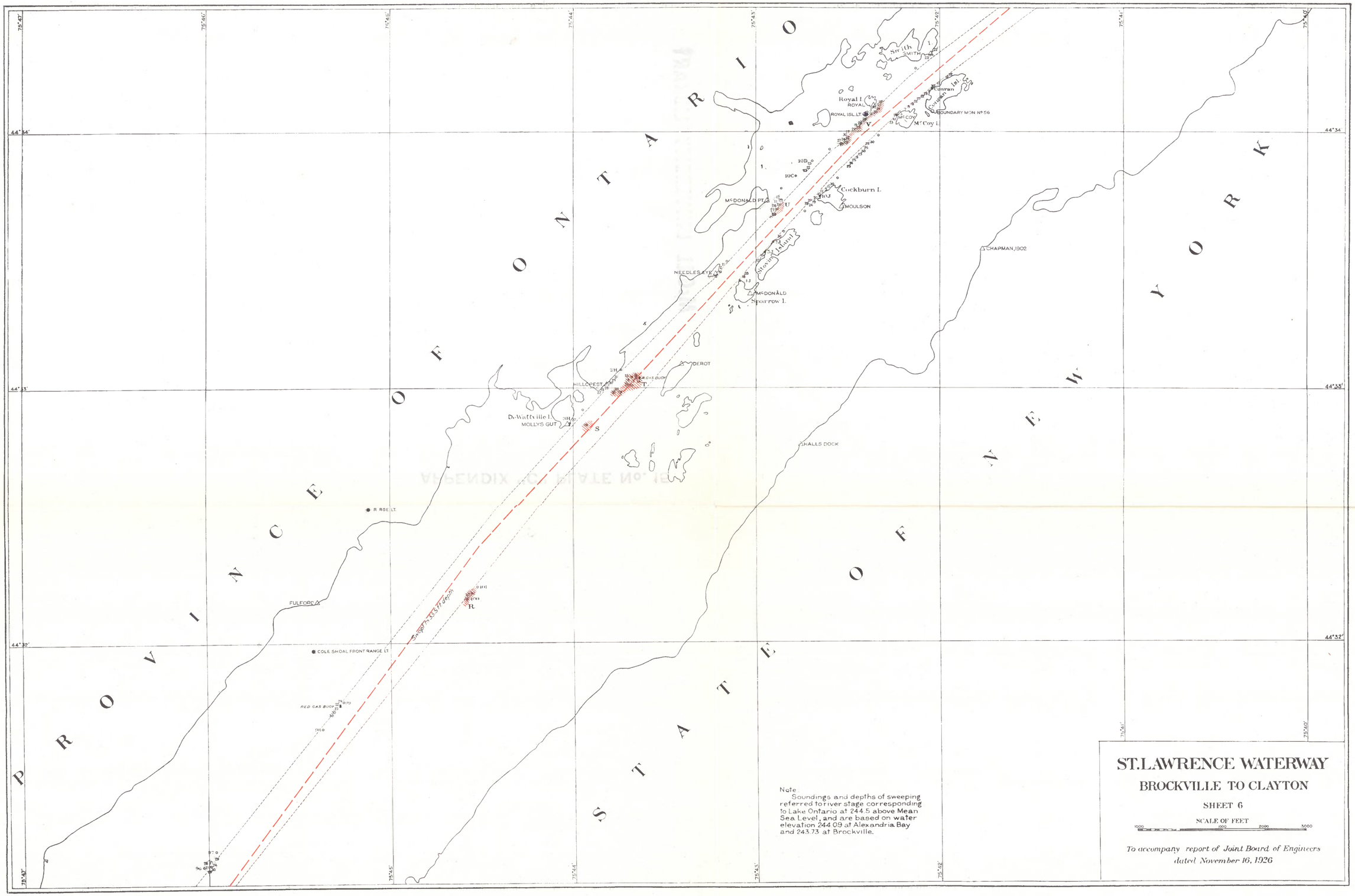
BROCKVILLE TO CLAYTON

SHEET 5

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926



Note
Soundings and depths of sweeping referred to river stage corresponding to Lake Ontario at 244.5 above Mean Sea Level, and are based on water elevation 244.09 at Alexandria Bay and 243.73 at Brockville.

ST. LAWRENCE WATERWAY
BROCKVILLE TO CLAYTON
SHEET 6

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926

PROVINCE OF ONTARIO

STATE OF NEW YORK

INDEX MAP

Scale of Miles

0 1 2 3 4 8 12 16

LAKE ONTARIO

ST. LAWRENCE RIVER

PRESCOTT

GRENADIER I.

IROQUOIS

MORRISTOWN

ALEXANDRIA BAY

WELLESLEY I.

GANANOQUE

Wolfe I.

Hickory I.

CAPE VINCENT

1 2 3 4 5 6 7

BROCKVILLE

MORRISTOWN

N.S. SPAR BUOY 18,102

38A 38 38B

Mc NAIR I.

BOUNDARY MON N°55

Swept to 30 ft depth

BROCKVILLE

SKELTON ISLAND LIGHT

Note

Soundings and depths of sweeping referred to river stage corresponding to Lake Ontario at 244.5 above Mean Sea Level, and are based on water elevation 244.09 at Alexandria Bay and 243.73 at Brockville

ST. LAWRENCE WATERWAY

BROCKVILLE TO CLAYTON

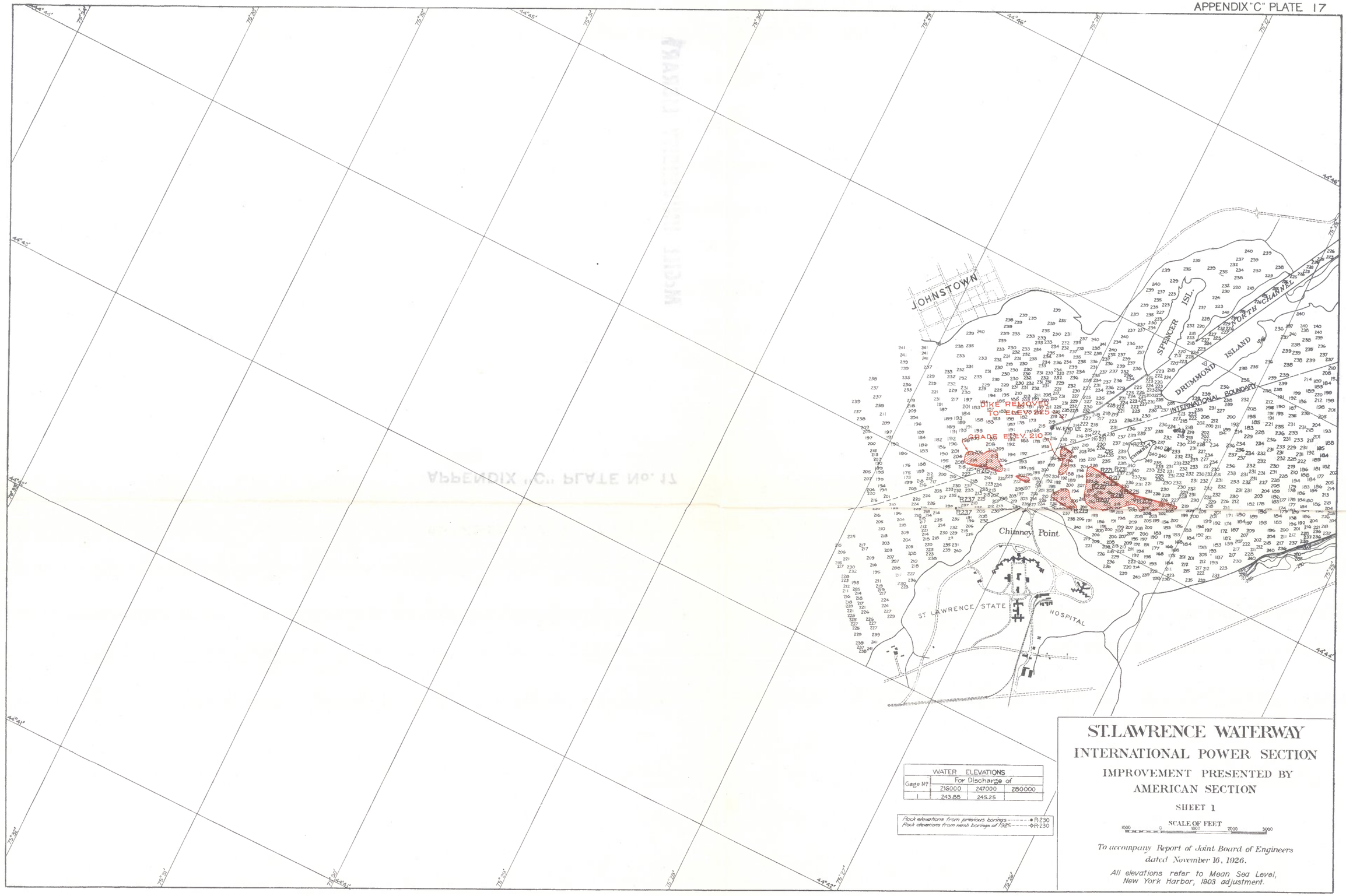
SHEET 7

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated November 16, 1926

APPENDIX "C" PLATE 17



WATER ELEVATIONS			
Gage N°	For Discharge of		
	216000	247000	280000
1	243.85	245.25	

Rock elevations from previous borings ---- • R.230
Rock elevations from mesh borings of 1925 ---- ◇R.230

ST. LAWRENCE WATERWAY

INTERNATIONAL POWER SECTION

IMPROVEMENT PRESENTED BY AMERICAN SECTION

SHEET 1

SCALE OF FEET
1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

PROVINCE OF ONTARIO

STATE OF NEW YORK

CANADIAN NATIONAL RY.

INTERNATIONAL BOUNDARY

CARDINAL

GALOP CANAL

DAM

DAM

DAM

DAM

GRADE ELEV. 215

GRADE ELEV. 210

GRADE ELEV. 215

GRADE ELEV. 210

GRADE ELEV. 217

GRADE ELEV. 217

GRADE ELEV. 200

GRADE ELEV. 200

WALL

DISCHARGE DITCH 2

RELOCATED HIGHWAY

TOP OF DIKE ELEV. 256.0 ±

TOUSSAINTS ISL.

PRESQU ISLE

Sparrowhawk Pt.

LOTUS I.

ISLE LALONDE

CROSS ISLAND

GALOP RAPIDS

AMERICAN GALOP RAPIDS

BUTTERNUT ISL.

LISBON

ST. LAWRENCE WATERWAY

INTERNATIONAL POWER SECTION

IMPROVEMENT PRESENTED BY AMERICAN SECTION

SHEET 2

SCALE OF FEET

1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

Rock elevations from previous borings ◆ R-168
Bottom of borings, not reaching rock ◆ 180
Rock elevations from core borings of 1925 ◆ R-180
Rock elevations from wash borings of 1925 ◇ R-180
Rock elevations found in excavation of canal ◆ R-180
Borings by Deep Waterway Board 1900, showing rock at high elevation under Sparrowhawk Point omitted as disproved by subsequent borings.
Rock elevations from wall drill ◆ R180

Gage Nº	WATER ELEVATIONS For Discharge of		
	216000	247000	280000
1	243.21	244.55	
2	242.07	243.42	
3	240.61	241.86	
4	238.54	239.58	
5	233.38	235.35	
6	231.4	233.1	235.1
7	242.96	244.37	
8	242.18	243.57	
9	242.68	244.01	
10	238.28	239.85	
11	236.67	238.45	
12	238.26	239.32	
13	235.13	236.98	
14	233.54	235.47	
15	233.3	234.9	237.1
16	231.5	233.2	235.2
17	230.4	231.9	233.9

ST. LAWRENCE WATERWAY
INTERNATIONAL POWER SECTION
IMPROVEMENT PRESENTED BY AMERICAN SECTION
SHEET 3

SCALE OF FEET
1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

WATER ELEVATIONS			
Gage N°	For Discharge of		
	216,000	247,000	280,000
1	230.2	231.9	233.6
2	227.0	228.89	230.9
3	226.4	228.0	230.0
4	226.2	227.6	230.0
5	224.6		
6	223.9	225.7	227.6
7	223.7	225.5	227.3
8	221.5	224.3	226.1
9		222.7	224.2
10		218.3	
11	216.6	218.5	220.3
12	213.2	215.0	216.6

Rock elevations from Deep Waterway Board 1900 borings shown thus ..... ⊙R-01
Rock elevations from Hydro-Electric borings ..... ⊙R-01
Rock elevations from previous borings ..... •R-01
Rock elevations from well drill 1925 ..... ◆R-11
Rock elevations from wash borings 1925 ..... ◇R-11
Rock elevations from core borings 1925 ..... ◈R-11
Bottom of borings not reaching rock ..... ⊕ 10

APPENDIX "C" PLATE 20

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216000	247000	280000
1		215.8	
2	211.9	213.76	215.4
3	210.5	211.8	213.5
4	208.0	210.0	211.4
5	207.3	209.4	210.6
6		209.2	210.5
7	205.8	207.2	208.4

Rock elevations from borings ----- • R 168
Bottom of borings not reaching rock ⊕ 180
International Boundary Monuments ----- ⊙

PROVINCE OF ONTARIO

STATE OF NEW YORK

EXTREME FLOWAGE LINE

GRAND TRUNK R.R. RELOCATION

HIGHWAY RELOCATION

MORRISBURG

MORRISBURG WEST BASE

MORRISBURG EAST BASE

TOP OF DIKE ELEV. 256.0

STORM WATER SUMP

DRAINAGE DITCH

HIGHWAY BRIDGE

GOOSE NECK ISLAND

DORAY ISL.

MURPHY ISLAND

CRYSLERS MON.

E. WILLIAMSBURG

CHESTER ISL.

STRAWBERRY ISL.

Cook Pt.

Wenwits Pt.

Bradford Point

BRADFORD

LAWRENCE

ALISON

Creek

TOWNSHIP LINE

WADDINGTON

RELOCATED HIGHWAY ELEV. 250

NORWOOD & ST LAWRENCE R.R.

RAILROAD RELOCATION

INTERNATIONAL BOUNDARY

ST. LAWRENCE WATERWAY

INTERNATIONAL POWER SECTION

IMPROVEMENT PRESENTED BY AMERICAN SECTION

SHEET 4

SCALE OF FEET

1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

PROVINCE OF ONTARIO

STATE OF NEW YORK

FARRAN POINT

AULTSVILLE

CROIL ISLAND

LONG SAULT ISLAND

DRAINAGE DITCH

TOP OF DIKE ELEV. 240

TOP OF DIKE ELEV. 240

TOP OF DIKE ELEV. 254.5

TOP OF DIKE ELEV. 240

HIGHWAY RELOCATION

HIGHWAY RELOCATION

RELOCATED HIGHWAY

RELOCATED HIGHWAY

RELOCATED HIGHWAY

TOP OF DIKE ELEV. 254.5

TOP OF DIKE ELEV. 254.5

EXTREME FLOWAGE LINE

LOUISVILLE LANDING

RICHARDS LANDING

MASSENA CANAL INTAKE

MASSENA POINT CANAL

DRAINAGE DITCH

Croil's Dump

WHALEN

GAGE Nº 11

GAGE Nº 12

Rock elevations from borings ----- • R 168

Bottom of borings not reaching rock -- ⊙ 180

International Boundary Monuments ---- ⊙

WATER ELEVATIONS

Gage Nº	For Discharge of		
	216000	247000	280000
1		206.4	207.5
2		206.4	207.6
3	204.8		
4	203.1		
5		202.5	203.3
6	204.3	206.4	207.4
7	200.7	202.1	
8		205.2	206.2
9	202.5	204.4	
10	200.8	202.3	203.1
11	200.65	201.75	
12	202.5	204.4	
13		204.1	

ST. LAWRENCE WATERWAY

INTERNATIONAL POWER SECTION

IMPROVEMENT PRESENTED BY AMERICAN SECTION

SHEET 5

SCALE OF FEET

1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

ST. LAWRENCE WATERWAY
INTERNATIONAL POWER SECTION
IMPROVEMENT PRESENTED BY AMERICAN SECTION
SHEET 6

SCALE OF FEET
1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216,000	247,000	280,000
1	200.5	201.6	202.65
2		200.0	
3		196.6	
4		196.6	197.7
5		195.1	
6		167.7	
7		182.6	
7A		177.1	
8		175.1	
9	170.3	171.4	172.6
10		174.6	
11	162.3	163.6	
12	161.1	162.0	
13	158.4	158.7	161.0

Rock elevations from previous borings +R 166
Bottom of borings not reaching rock +• 180
Rock elevations from well drill +R 150
Borings by Hydro-Electric +R 180
Rock elevations from core borings of 1925 +R 190
Rock elevations from wash borings of 1925 +R 190

PROVINCE OF ONTARIO

WALES

MOULINETTE

DICKINSONS LANDING

BERGEN LAKE

MILLE ROCHES

E.B. MAPLE GROVE

W.B. MAPLE GROVE

MAPLE GROVE

SHEEK ISLAND

BARNHART ISLAND

LONG SAULT ISLAND

SOUTH SAULT ISLAND

STATE OF NEW YORK

ROBINSON BAY

Hawkins Point

Robinson Creek

Dickenson Ll

ISL. WAGNERS

GRASSY I.

DRAINAGE DITCH

CONCRETE DROP

DRAINAGE DITCH

CONCRETE DROP

PROTECTED PRIMARY

TOP OF DIKE ELEV. 254.5

LOCK 45' WIDE - 14' DRAFT

RAIL CONNECTION TO POWER HOUSE

LOCK 21

CANAL

RAPIDS

INTERNATIONAL BOUNDARY

GRADE ELEV. 214

TOP OF DIKE ELEV. 254.5

DRAINAGE DITCH

DRAINAGE DITCH

RAILROAD CONNECTION TO POWER HOUSE

TOP OF DIKE ELEV. 254.5

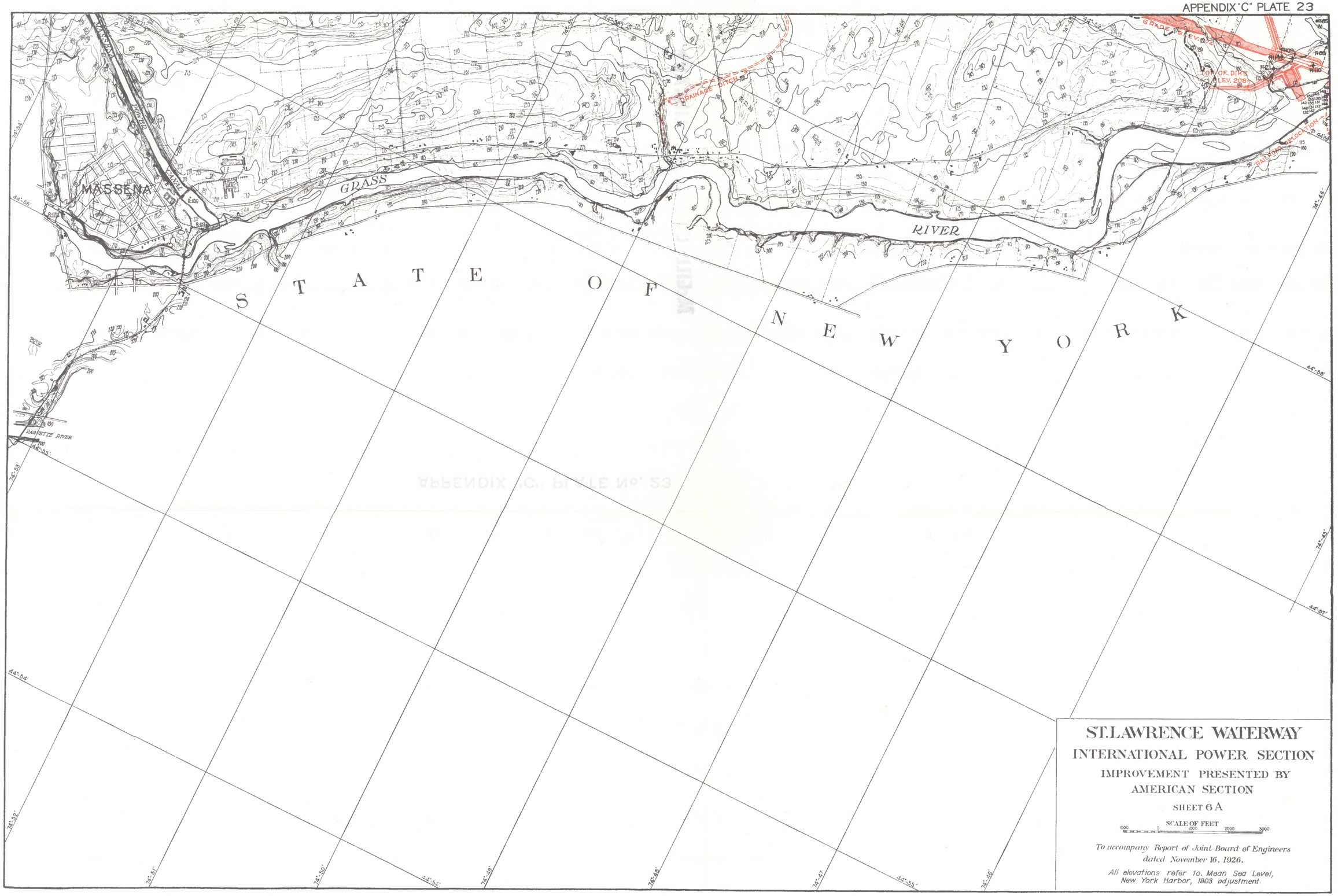
GRADE ELEV. 210

GRADE ELEV. 174

TOP OF DIKE ELEV. 205

MARSHALL POWER CANAL

CORNWALL



ST. LAWRENCE WATERWAY

INTERNATIONAL POWER SECTION

IMPROVEMENT PRESENTED BY AMERICAN SECTION

SHEET 6 A

SCALE OF FEET
1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

ST. LAWRENCE WATERWAY

INTERNATIONAL POWER SECTION

IMPROVEMENT PRESENTED BY AMERICAN SECTION

SHEET 7

SCALE OF FEET
1000 0 1000 2000 3000

To accompany Report of Joint Board of Engineers dated November 16, 1926.

All elevations refer to Mean Sea Level, New York Harbor, 1903 adjustment.

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216000	241000	280000
1	156.7	158.05	160.0
2	154.9	156.15	157.2
3	156.5		
4	153.4	155.2	156.1
5	152.8	153.7	154.6
6	152.45	153.56	154.26
7	152.25	153.2	154.1
8	152.1	153.1	154.0

Rock elevations from borings ---- ●R 160
Bottom of borings not reaching rock— ⊗ 150
International Boundary Monuments---- ⊕

PROVINCE OF ONTARIO

CORNWALL ISLAND

STATE OF NEW YORK

CORNWALL

MASSENA POINT

GRAND TRUNK RY. SYS.

NEW YORK & OTTAWA R.R. (INACTIVE)

CORNWALL CANAL

POLLY'S GUT

RAIL CONNECTION TO POWER HOUSE

STEEL ARCH R.R. BRIDGE

LOCK 18

LOCK 19

LOCK 20

GAGE Nº 1

GAGE Nº 2

GAGE Nº 3

GAGE Nº 4

GAGE Nº 5

GAGE Nº 6

GAGE Nº 7

GAGE Nº 8

COTTON MILLS

GRADE ELEV. 136

GRADE ELEV. 126

GRADE ELEV. 121

GRADE ELEV. 140

TOP OF ROCK DIKE ELEV. 160

OLD BRIDGE TO BE REMOVED

INTERNATIONAL BOUNDARY

RAILROAD RELOCATION

RACQUETTE RIVER

Farlanger's Point

HOG ISL.

THIRD I.

COLQUHOUN I.

SECOND I.

THE CRABS

FIRST I.

GRADE ELEV. 126

ST. REGIS ISL.

HEN ISL.

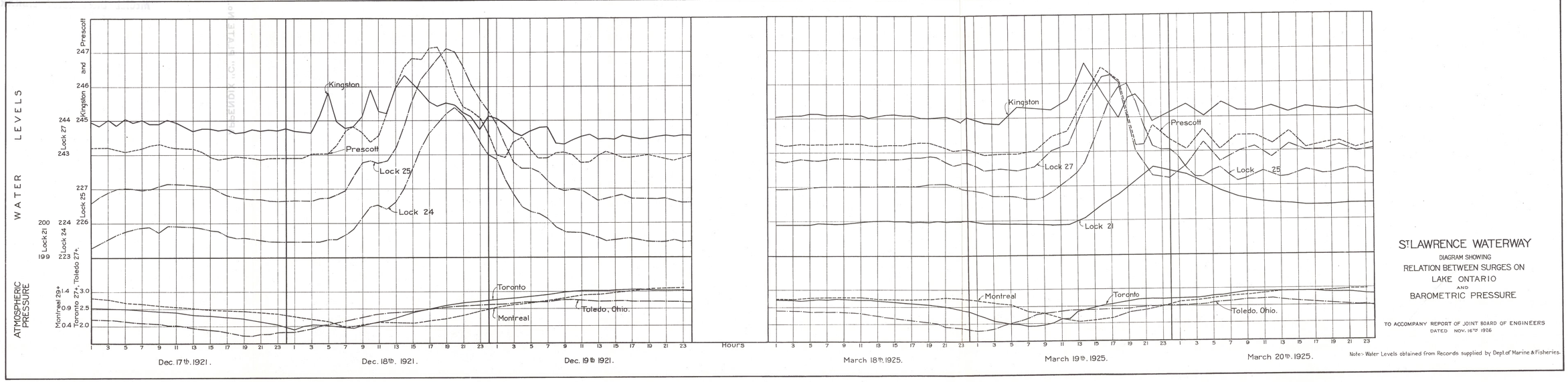
GRADE ELEV. 128

Andrew Ellicott

Origin

Boundary Mon. No. 2

ST REGIS



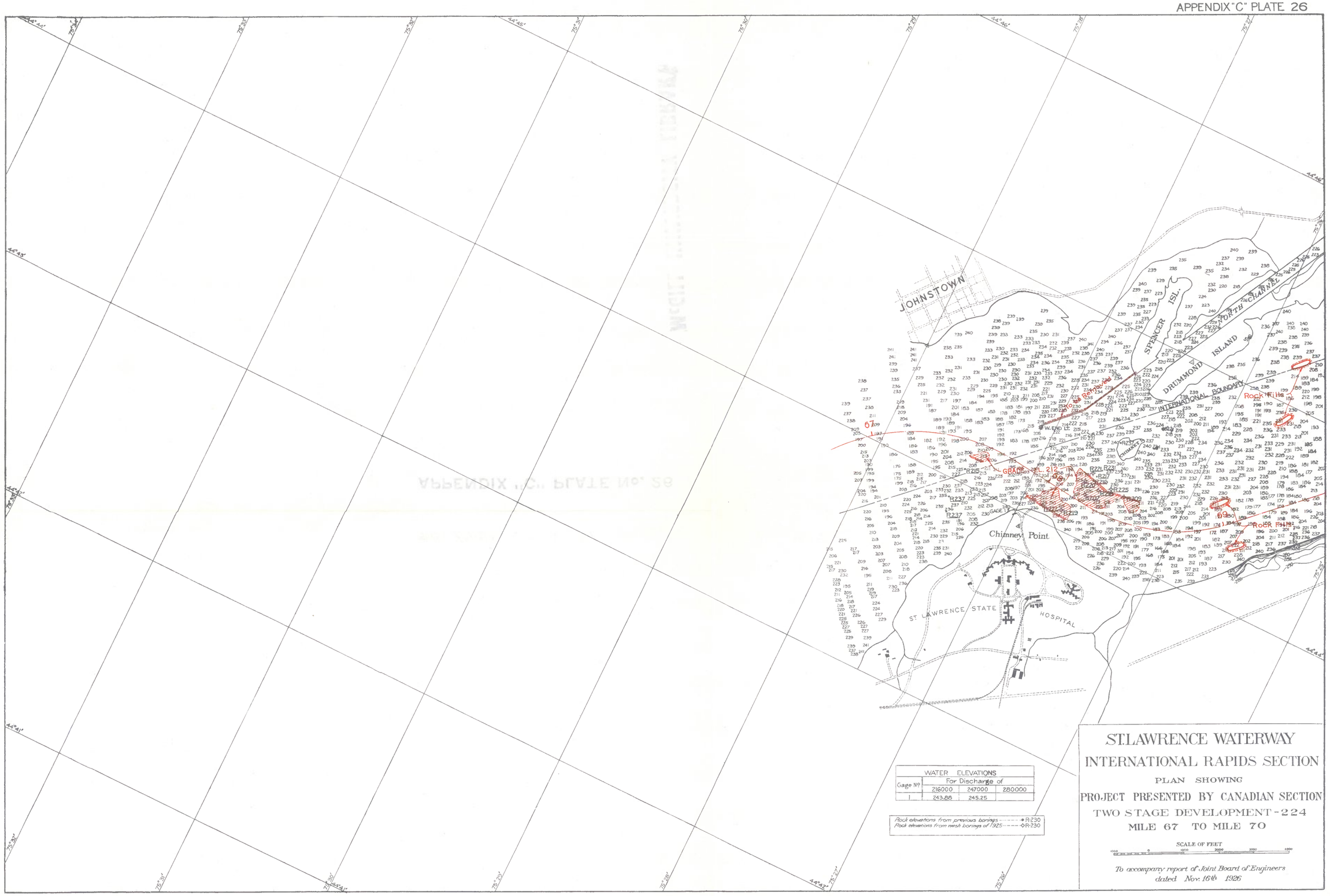
St. LAWRENCE WATERWAY

DIAGRAM SHOWING

RELATION BETWEEN SURGES ON LAKE ONTARIO AND BAROMETRIC PRESSURE

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS DATED NOV. 16TH 1926

Note:- Water Levels obtained from Records supplied by Dept. of Marine & Fisheries.



WATER ELEVATIONS			
Gage No	For Discharge of		
	216000	247000	280000
1	243.88	245.25	

Rock elevations from previous borings ——— ● R-230
Rock elevations from mesh borings of 1925 ——— ◇ R-230

ST. LAWRENCE WATERWAY

INTERNATIONAL RAPIDS SECTION

PLAN SHOWING

PROJECT PRESENTED BY CANADIAN SECTION

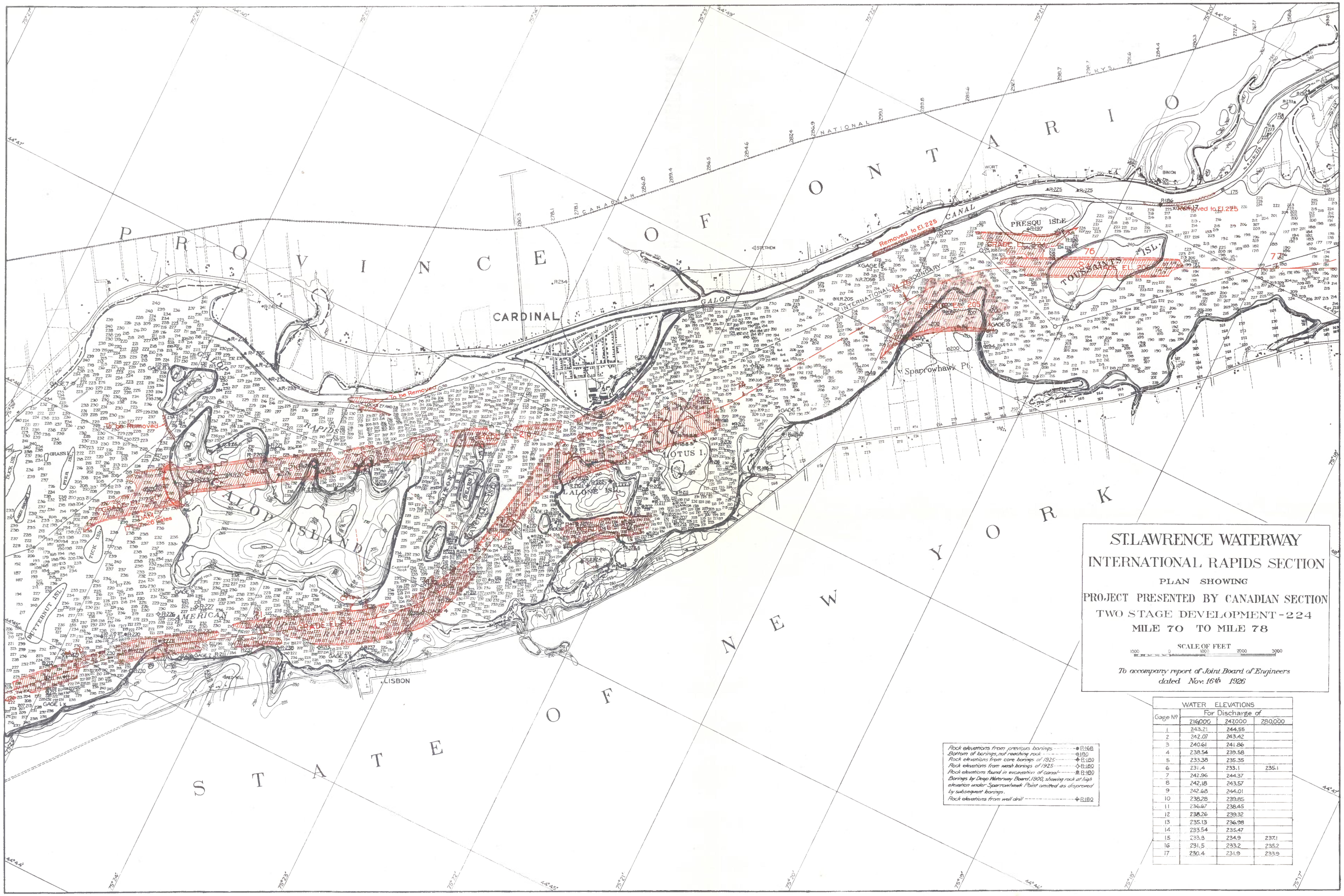
TWO STAGE DEVELOPMENT - 224

MILE 67 TO MILE 70

SCALE OF FEET

1000 0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926



WATER ELEVATIONS

Gage No.	For Discharge of 216,000	247,000	280,000
1	243.21	244.55	
2	242.07	243.42	
3	240.61	241.86	
4	238.54	239.58	
5	233.38	235.35	
6	231.4	233.1	235.1
7	242.96	244.37	
8	242.18	243.57	
9	242.68	244.01	
10	238.28	239.85	
11	236.67	238.45	
12	238.26	239.32	
13	235.13	236.98	
14	233.54	235.47	
15	233.8	234.9	237.1
16	231.5	233.2	235.2
17	230.4	231.9	233.9

PROVINCE OF ONTARIO

STATE OF NEW YORK

IROQUOIS

TILDEN

SHARPS

JINKS

WADDINGTON

Point Three Houses

Point Rockway

Iroquois Point

Big Brook

Sucker Brook

Little Sucker Brook

Brandy Brook

CANADIAN NATIONAL RYS

New Road

Railway Diversion

Highway Bk

Top of Bank El. 255

Drainage Ditch

POWERHOUSE
Inst. Cap. 300,800 H.P.

POWERHOUSE
Inst. Cap. 105,600 H.P.

OGDENSBURG

GRADE EL. 208

GRADE EL. 210

GRADE EL. 205

GR. EL. 205

GR. EL. 210

GR. EL. 208

OGDENSBURG LOCK
Coping Elev. 210.5
Sills 210.5

GAGE 1
GAGE 2
GAGE 3
GAGE 4
GAGE 5
GAGE 6
GAGE 7
GAGE 8
GAGE 9
GAGE 10
GAGE 11
GAGE 12

WATER ELEVATIONS			
Gage N°	For Discharge of		
	216,000	247,000	280,000
1	230.2	231.9	233.6
2	227.0	228.89	230.9
3	226.4	228.0	230.0
4	226.2	227.6	230.0
5	224.6		
6	223.9	225.7	227.6
7	223.7	225.5	227.3
8	221.5	224.3	226.1
9		222.7	224.2
10		219.3	
11	216.6	218.5	220.3
12	213.2	215.0	216.8

Rock elevations from Deep Waterway Board 1900 borings shown thus — DR-01
Rock elevations from Hydro-Electric borings — ‡R-01
Rock elevations from previous borings — •R-01
Rock elevations from well drill 1925 — ✦R-11
Rock elevations from wash borings 1925 — ☆R-11
Rock elevations from core borings 1925 — ✦R-11
Bottom of borings not reaching rock — ⊕ 10

ST. LAWRENCE WATERWAY

INTERNATIONAL RAPIDS SECTION

PLAN SHOWING

PROJECT PRESENTED BY CANADIAN SECTION

TWO STAGE DEVELOPMENT - 224

MILE 78 TO MILE 85

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216000	247000	260000
1		215.8	
2	211.9	213.76	215.4
3	210.5	211.8	213.5
4	208.0	210.0	211.4
5	207.3	209.4	210.6
6		209.2	210.5
7	205.8	207.2	208.4

Rock elevations from borings ----- R 168
Bottom of borings not reaching rock ⊙ 180
International Boundary Monuments ----- ⊗

P R O V I N C E O F O N T A R I O

S T A T E O F N E W Y O R K

MORRISBURG
MORRISBURG WEST BASE
MORRISBURG EAST BASE
CRYSLERS MON.
E. WILLIAMSBURG
CASSELMAN
Cook Pt.
Weaver Pt.
GOOSE NECK ISL.
DORAY ISL.
STRAWBERRY ISL.
CRYSLER ISL.
DRY ISL.
MURPHY ISLAND
ALISON
WADDINGTON
BRADFORD
Bradford Point
LAWRENCE
Storm Water Sump
Ditch
Highway Bridges
New Road
Highway Br.
Creek
NORWOOD & ST LAWRENCE R. R.
LOCK 23
GAGE Nº 1
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GAGE Nº 999
GAGE Nº 1000

ST.LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
PROJECT PRESENTED BY CANADIAN SECTION
TWO STAGE DEVELOPMENT - 224
MILE 85 TO MILE 92

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

PROVINCE OF ONTARIO

STATE OF NEW YORK

FARRAN POINT

AULTSVILLE

WHALEN

LOUISVILLE LANDING

RICHARDS LANDING

CROIL ISLAND

LONG SAULT ISLAND

GRASS ISL.

Croil's Island

New Road

Top of Bank El. 236

Top of Banks El. 236

Massena Substation No. 3 - 50x26 Feet

GAGE Nº1

GAGE Nº2

GAGE Nº3

GAGE Nº4

GAGE Nº5

GAGE Nº6

GAGE Nº7

GAGE Nº8

GAGE Nº9

GAGE Nº10

GAGE Nº11

GAGE Nº12

Rock elevations from borings ---- • R 166

Bottom of borings not reaching rock -- ⊙ 180

International Boundary Monuments ---- ⊙

WATER ELEVATIONS

Gage Nº	For Discharge of		
	216000	247000	280000
1		206.4	207.5
2		206.4	207.6
3	204.8		
4	203.1		
5		202.5	203.3
6	204.3	206.4	207.4
7	200.7	202.1	
8		205.2	206.2
9	202.5	204.4	
10	200.8	202.3	203.1
11	200.65	201.75	
12	202.5	204.4	
13		204.1	

ST. LAWRENCE WATERWAY

INTERNATIONAL RAPIDS SECTION

PLAN SHOWING

PROJECT PRESENTED BY CANADIAN SECTION

TWO STAGE DEVELOPMENT - 224

MILE 92 TO MILE 100

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

APPENDIX "C" PLATE 31

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
PROJECT PRESENTED BY CANADIAN SECTION
TWO STAGE DEVELOPMENT - 224
MILE 100 TO MILE 107

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216,000	247,000	280,000
1	200.5	201.6	202.65
2	"	200.0	
3		196.6	
4		196.6	197.7
5		185.1	
6		187.7	
7		182.6	
7A		177.1	
8		175.1	
9	170.3	171.4	172.8
10		174.6	
11	162.3	163.6	
12	161.1	162.0	
13	158.4	159.7	161.0

Rock elevations from previous borings ·R 168
Bottom of borings not reaching rock ·R 150
Rock elevations from drill ·R 180
Borings by Hydro Electric ·R 160
Rock elevations from core borings of 1925 ·R 180
Rock elevations from wash borings of 1925 ·R 190

MASSENA

POWER CANAL

GRASS RIVER

STATE OF NEW YORK

Top of Bank El. 208

Top of Bank El. 208

GRASS RIVER LOCK
Coping El. 230
Sills El. 170 & 123

Fixed Ry. Br.

Bascule Rd. Bridge

RAQUETTE RIVER

44°-56'

74°-54'

74°-53'

44°-55'

44°-54'

74°-52'

74°-51'

74°-50'

44°-53'

74°-49'

74°-48'

74°-47'

44°-52'

74°-46'

74°-45'

44°-57'

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION

PLAN SHOWING

PROJECT PRESENTED BY CANADIAN SECTION

TWO STAGE DEVELOPMENT - 224

MILE 107 TO MILE 108

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
PROJECT PRESENTED BY CANADIAN SECTION
TWO STAGE DEVELOPMENT - 224
MILE 108 TO MILE 115

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

WATER ELEVATIONS			
Gage N°	For Discharge of		
	216000	241000	280000
1	156.7	158.05	160.0
2	154.9	156.15	157.2
3	156.5		
4	153.4	155.2	156.1
5	152.8	153.7	154.6
6	152.45	153.56	154.26
7	152.25	153.2	154.1
8	152.1	153.1	154.0

Rock elevations from borings ----- R 160
Bottom of borings not reaching rock -- @ 160
International Boundary Monuments ---- ⊕

PROVINCE OF ONTARIO

CORNWALL

GRAND TRUNK RY. SYS.

NEW YORK & OTTAWA RY.

CORNWALL CANAL

LOCK 19

LOCK 18

LOCK 17

LOCK 16

LOCK 15

GAGE N°1

GAGE N°2

GAGE N°4

GAGE N°6

GAGE N°7

GAGE N°8

Cornwall Girder Bridge

MASSENA POINT

SAINT LAWRENCE RIVER

COTTON MILLS

Farlinger's Point

HOG ISL.

COLQUHOUN I.

THIRD I.

SECOND I.

FIRST I.

THE CRABS

HEN ISL.

ST. REGIS ISL.

M.110

M.111

M.112

M.113

M.114

M.115

INTERNATIONAL BOUNDARY

Top of Rock Bank El. 150

GRADE EL. 126

N.Y.C.Ry. Diversion

RAQUETTE RIVER

Andrew Ellicott

Boundary Mon. No. 2

ST REGIS

STATE OF NEW YORK


ST. LAWRENCE WATERWAY
GENERAL PLAN
INTERNATIONAL RAPIDS SECTION
CHIMNEY PT. TO WEAVERS PT.
SHOWING
ALTERNATIVE PROJECT PRESENTED
(TWO STAGE DEVELOPMENT - 217)
Scale of Feet.
To accompany report of Joint Board of Engineers
dated Nov. 16th 1926
Note:- Water Levels shown are for a stage Corresponding to a discharge of 247,000 c.f.s.
PROVINCE OF ONTARIO
STATE OF NEW YORK
CAN. NAT. RY.
C.P. RY.
PRESCOTT
JOHNSTOWN
OGDENSBURG
RUTLAND
ST LAWRENCE STATE HOSPITAL
Chimney Point
Chimney I.
INTERNATIONAL BOUNDARY
Spencer I.
Drummond I.
Lame Squaw I.
Grass I.
Pier I.
Tick I.
Butternut I.
Adams I.
DAM
GALOP ISD.
GALOP RAPIDS
AMERICAN GALOP RAPIDS
LOCKS 27 AND 28
CARDINAL
LISBON
Dixon I.
Benedict
Twin I.
Lalone I.
Lotus I.
Sparrowhawk Pt.
GALOP CANAL
Presqu'isle
Toussaints I.
TILDEN
Iroquois Point
IROQUOIS
Drainage Ditches
Railway to be raised
New Road
LOCK 25
Cribs
M.80
Rockway Pt.
Point Three Points
Leishmans Point
OGDEN ISD.
RAPIDE PLAT
LOCK 24
MORRISBURG CANAL
MORRISBURG
LOCK 23
Canada I.
Clark I.
Dry I.
Murphy Is.
Doran Is.
Indian I.
WADDINGTON
Big Sucker Br.
Little Sucker Br.
Brandy Br.
Railway Diversion
NORWOOD & ST. LAWRENCE RY.
5½' x 4' Sewer
THE CHURCHES
Goose Neck I.
Temporary 14' Lock
MAIN DAM
ICE SLUICES
Croyler I.
POWERHOUSES Instal. Cap. 597,600 H.P.
Strawberry I.
M.90
E. WILLIAMSBURG
Weavers Pt.
Bradford Pt.
BRADFORD LOCK
WILSON HILL
Spur to Po. Ho.
Spur to Power House

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT PRESENTED
TWO STAGE DEVELOPMENT - 217
MILE 70 TO MILE 78

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

Gage No.	WATER ELEVATIONS For Discharge of 216000	247000	280,000
1	243.21	244.55	
2	242.07	243.42	
3	240.61	241.86	
4	238.54	239.58	
5	233.38	235.35	
6	231.4	233.1	235.1
7	242.96	244.37	
8	242.18	243.57	
9	242.68	244.01	
10	238.28	239.85	
11	236.67	238.45	
12	238.26	239.32	
13	235.13	236.98	
14	233.54	235.47	
15	233.3	234.9	237.1
16	231.5	233.2	235.2
17	230.4	231.9	233.9

Rock elevations from previous borings ---------- R168
Bottom of borings, not reaching rock ---------- B90
Rock elevations from core borings of 1925 ---------- R180
Rock elevations from wash borings of 1925 ---------- R180
Rock elevations found in excavation of canal ---------- R180
Borings by Dego Waterway Board, 1900, showing rock at high elevation under Sparrowhawk Point omitted as disproved by subsequent borings.
Rock elevations from well drill ---------- R180

PROVINCE OF ONTARIO

STATE OF NEW YORK

IROQUOIS

TILDEN

SHARPS

JINKS

WADDINGTON

Point Three Points

Point Rockway

Iroquois Point

Chrysler's Point

Top of Bank El. 255

Drainage Ditch

Drainage Ditch

Railway

New Road

New Road

N & St. L. Ry. Revision

GRADE EL. 207

GRADE EL. 200

GRADE EL. 210

GRADE EL. 215

GRADE EL. 210

GRADE EL. 210

GRADE EL. 215

Big Sucker Brook

Little Sucker Brook

Brandy Brook

WATER ELEVATIONS			
Gage N°	For Discharge of		
	216,000	247,000	250,000
1	230.2	231.9	233.8
2	227.0	225.69	230.9
3	226.4	228.0	230.0
4	226.2	227.8	230.0
5	224.6		
6	223.9	225.7	227.6
7	223.7	225.5	227.3
8	221.5	224.3	226.1
9		222.7	224.2
10		218.3	
11	216.6	216.5	220.3
12	213.2	215.0	216.8

Rock elevations from Deep Waterway Board 1900 borings shown thus ○R-01

Rock elevations from Hydro-Electric borings ⊕R-01

Rock elevations from previous borings •R-01

Rock elevations from well drill 1925 ◆R-11

Rock elevations from wash borings 1925 ◇R-11

Rock elevations from core borings 1925 ◆R-11

Bottom of borings not reaching rock ⊕ 10

ST. LAWRENCE WATERWAY

INTERNATIONAL RAPIDS SECTION

PLAN SHOWING

ALTERNATIVE PROJECT PRESENTED

TWO STAGE DEVELOPMENT - 217

MILE 78 TO MILE 85

SCALE OF FEET

1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216.000	247.000	280000
1		215.8	
2	211.9	213.76	215.4
3	210.5	211.8	213.8
4	206.0	210.0	211.4
5	207.3	209.4	210.6
6		209.2	210.5
7	205.8	207.2	208.4

Rock elevations from borings ---- • R 168
Bottom of borings not reaching rock ⊗ 180
International Boundary Monuments ---- ○

PROVINCE OF ONTARIO

PROVINCE OF NEW YORK

STATE OF

Can. Nat. Ry. Diversion

5½' x 4' Sewer

Top of Banks El 235

Top Power House 7

New Road

MORRISBURG

Storm Water Sump

Ditch

MORRISBURG WEST BASE

MORRISBURG EAST BASE

CRYSLERS MON.

JOS. SLUICES

Gate House

E. WILLIAMSBURG

Cook Pt.

Wampum Pt.

GOOSE NECK ISLAND

Temporary Rock Fill

POWERHOUSES
Instal. Cap. 897,600 H.P.

Bradford Point

BRADFORD

GRADE EL 212

GRADE EL 203

GRADE EL 195

GRADE EL 255

Top Bank Grade EL 255

Bridge Pier Coping EL 260

Sills EL 208

Spur to Power House

DORAY ISL.

MURPHY ISLAND

ALEXON

LAWRENCE

TOWNSHIP LINE

Cedar Creek

WARDSTON

New Road

Highway Bridges

N & St L Ry Diversion

NORWOOD & ST LAWRENCE R.R.

INTERNATIONAL BOUNDARY

ST.LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT PRESENTED
TWO STAGE DEVELOPMENT - 217
MILE 85 TO MILE 92

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

PROVINCE OF QUEBEC

STATE OF NEW YORK

FARRAN POINT

AULTSVILLE

CROIL ISLAND

Croil's Island

LONG SAULT ISLAND

LOUISVILLE LANDING

New Road

RICHARDS LANDING

MASSENA SUPPLY WEIR
3-50'x26'

MASSENA POWER CANAL

GAGE No 1

GAGE No 2

GAGE No 11

GAGE No 12

GAGE No 13

GAGE No 14

GAGE No 15

GAGE No 16

GAGE No 17

GAGE No 18

GAGE No 19

GAGE No 20

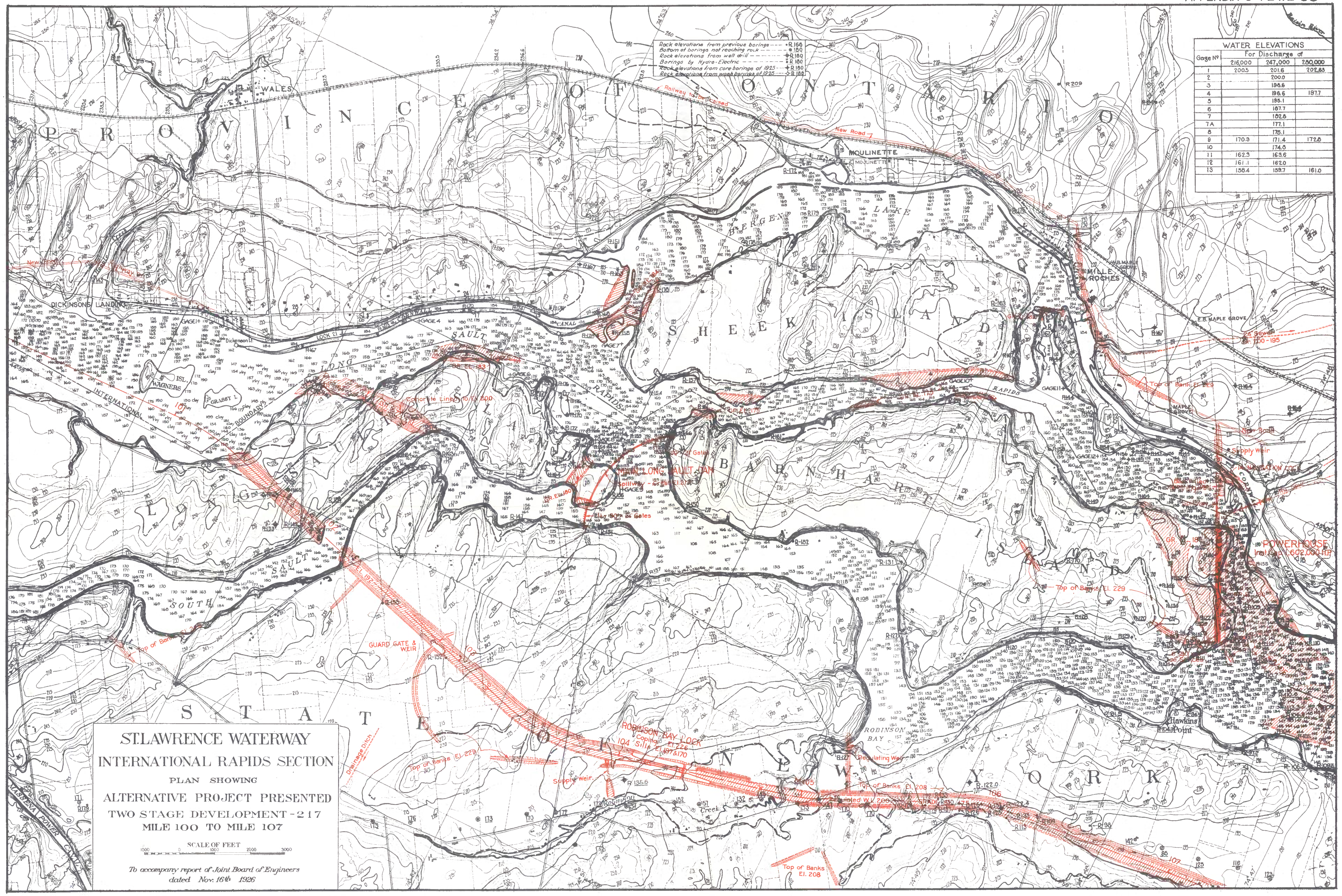
Rock elevations from borings ---- • R 168
Bottom of borings not reaching rock -- ⊙ 180
International Boundary Monuments ---- ⊙

WATER ELEVATIONS			
Gage No	For Discharge of		
	216000	247000	280000
1		206.4	207.5
2		206.4	207.6
3	204.8		
4	203.1		
5		202.5	203.3
6	204.3	206.4	207.4
7	200.7	202.1	
8		205.2	206.2
9	202.5	204.4	
10	200.8	202.3	203.1
11	200.65	201.75	
12	202.5	204.4	
13		204.1	

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT PRESENTED
TWO STAGE DEVELOPMENT - 217
MILE 92 TO MILE 100

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926



WATER ELEVATIONS

Gage No	For Discharge of 216,000	247,000	280,000
1	200.5	201.6	202.83
2		200.0	
3		198.6	
4		196.6	197.7
5		195.1	
6		187.7	
7		182.8	
7A		177.1	
8		175.1	
9	170.3	171.4	172.8
10		174.8	
11	162.3	163.6	
12	161.1	162.0	
13	158.4	159.7	161.0

ST LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT CONSIDERED
SINGLE STAGE DEVELOPMENT - 238
MILE 70 TO MILE 78

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

PROVINCE OF ONTARIO

STATE OF NEW YORK

CANADIAN NATIONAL

INTERNATIONAL BOUNDARY

CANAL

CARDINAL

GALOP

ALOU ISLAND

AMERICAN RAPIDS

LISBON

LOTUS I.

Sparrowhawk Pt.

PRESQU ISLE

TOUSSAINT ISL.

OSTRICH BAY

To be Removed

Removed to El. 225

Dam with Gates

Submerged Gates

Rock elevations from previous borings R-168
Bottom of borings, not reaching rock 180
Rock elevations from core borings of 1925 ..... R-180
Rock elevations from west borings of 1925 ..... R-180
Rock elevations found in excavation of canal R-180
Borings by Deep Waterway Board, 1900, showing rock at high elevation under Sparrowhawk Point omitted as disproved by subsequent borings.
Rock elevations from well drill R-180

Gage No.	WATER ELEVATIONS For Discharge of 216,000	247,000	280,000
1	243.21	244.55	
2	242.07	243.42	
3	240.61	241.86	
4	238.54	239.58	
5	233.38	235.35	
6	231.4	233.1	235.1
7	242.96	244.37	
8	242.18	243.57	
9	242.68	244.01	
10	238.28	239.85	
11	236.67	238.45	
12	238.26	239.32	
13	235.13	236.98	
14	233.54	235.47	
15	233.3	234.9	237.1
16	231.5	233.2	235.2
17	230.4	231.9	233.9

PROVINCE OF ONTARIO

STATE OF NEW YORK

IROQUOIS

TILDEN

SHARPS

JINKS

WADDINGTON

Point Three Houses

Point Rockway

Iroquois Point

Taylor Bank El. 292

Drainage Ditch

Railway to be raised

New Road

CANADIAN NATIONAL RYS.

GRADE EL. 205

GRADE EL. 210

GRADE EL. 215

GRADE EL. 208

GRADE EL. 230

GRADE EL. 310

GRADE EL. 305

Highway Bridge

N. & St.L. Ry. Diversion

Big Sucker Brook

Little Sucker Brook

Brandy Brook

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216,000	247,000	280,000
1	230.2	231.9	233.6
2	227.0	228.89	230.9
3	226.4	228.0	230.0
4	226.2	227.6	230.0
5	224.6		
6	223.9	225.7	227.6
7	223.7	225.5	227.3
8	221.5	224.3	226.1
9		222.7	224.2
10		219.3	
11	216.6	218.5	220.3
12	213.2	215.0	216.8

Rock elevations from Deep Waterway Board 1900 borings shown thus — 92-01

Rock elevations from Hydro-Electric borings — 28-01

Rock elevations from previous borings — +8-01

Rock elevations from well drill 1925 — 8-11

Rock elevations from wash borings 1925 — 8-11

Rock elevations from core borings 1925 — 8-11

Bottom of borings not reaching rock — 10

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT CONSIDERED
SINGLE STAGE DEVELOPMENT - 238
MILE 78 TO MILE 85

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

WATER ELEVATIONS			
Gage Nº	For Discharge of		
	216 000	247 000	280 000
1		215.6	
2	211.9	213.76	215.4
3	210.5	211.5	213.5
4	205.0	210.0	211.4
5	207.3	209.4	210.6
6		209.2	210.5
7	205.8	207.2	208.4

Rock elevations from borings ---- • R 168
Bottom of borings not reaching rock ⊕ 180
International Boundary Monuments ---- ⊙

PROVINCE OF ONTARIO

STATE OF NEW YORK

Railway Diversion
New Road
Drainage Ditch
Bottom width 4'
Gr 236
Storm Water Sump
Through Embankment
Bank Elevation
Highway Bridges
New Road
Highway Bridges
MORRISBURG
MORRISBURG WEST BASE
MORRISBURG EAST BASE
CRYSLERS MON.
E. WILLIAMSBURG
CASSELMAN
GOOSE NECK ISLAND
DORAY ISL.
MURPHY ISLAND
STRAWBERRY ISL.
CRYSLER ISL.
Bradford Point
BRADFORD
LAWRENCE
ALISON
Cook Pt.
Wemyss Pt.
Prescott Shoal
Edwards Creek
TOWNSHIP LINE
INTERNATIONAL BOUNDARY
GRAND TRUNK R.Y. SYS.
NORWOOD & ST LAWRENCE R.R.
GAGE Nº1
GAGE Nº2
GAGE Nº3
GAGE Nº4
GAGE Nº5
GAGE Nº6

ST.LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT CONSIDERED
SINGLE STAGE DEVELOPMENT - 2 38
MILE 85 TO MILE 92

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

PROVINCE OF ONTARIO

STATE OF NEW YORK

FARRAN POINT

AULTSVILLE

CROIL ISLAND

LONG SAULT ISLAND

LOUISVILLE LANDING

RICHARDS LANDING

WHALEN

New Road

Drainage Ditch
Bottom width 25'

Top of Banks El. 250

Bottom width 37'

Bottom width 52'

Top of Bank
El. 250

Rock elevations from borings ---- • R 168
Bottom of borings not reaching rock -- ⊙ 160
International Boundary Monuments ---- ○

WATER ELEVATIONS

Gage No	For Discharge of			
	216000	247000	280000
1		206.4	207.5
2		206.4	207.6
3	204.8		
4	203.1		
5		202.5	203.3
6	204.3	206.4	207.4
7	200.7	202.1	
8		205.2	206.2
9	202.5	204.4	
10	200.8	202.3	203.1
11	200.65	201.75	
12	202.5	204.4	
13		204.1	

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT CONSIDERED
SINGLE STAGE DEVELOPMENT - 238
MILE 92 TO MILE 100

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

APPENDIX "C" PLATE 43

ST. LAWRENCE WATERWAY
INTERNATIONAL RAPIDS SECTION
PLAN SHOWING
ALTERNATIVE PROJECT CONSIDERED
SINGLE STAGE DEVELOPMENT - 238
MILE 100 TO MILE 107

SCALE OF FEET
1000 0 1000 2000 3000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

Rock elevations from previous borings ---- +R 160
Bottom of borings not reaching rock ---- ● 150
Rock elevations from well drill ---- +R 180
Borings by Hydro-Electric ---- +R 180
Rock elevations from core borings of 1925 ---- +R 180
Rock elevations from mast houses of 1925 ---- +R 180

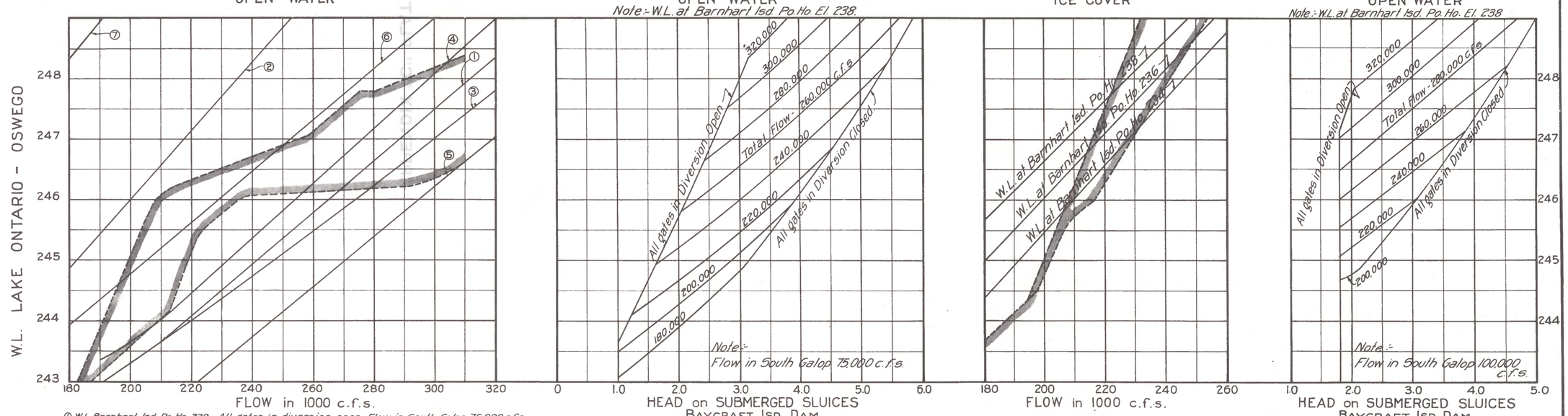
WATER ELEVATIONS

Gage Nº	For Discharge of		
	216,000	247,000	280,000
1	200.5	201.6	202.85
2		200.0	
3		198.6	
4		196.6	197.7
5		195.1	
6		187.7	
7		182.6	
7A		177.1	
8		176.1	
9	170.3	171.4	172.8
10		174.0	
11	162.3	163.6	
12	161.1	162.0	
13	158.4	159.7	161.0

PROVINCE OF ONTARIO

STATE OF NEW YORK

WALES
MOULINETTE
MILLE ROCHES
DICKINSONS LANDING
WAGNERS ISL.
GRASSY I.
CORNWALL ISLAND
BARNHART ISLAND
SOUTH LONG SAULT ISLAND
CROSS CHANNEL
ROBINSON BAY
Hawkins Point
Barnhart
Creek
Drainage Ditch Bottom width 57
Drainage Ditch Bottom width 56
Top of Banks, El 250
New Road
Supply Weir
Dikes
Top of Banks, El 220
Fill to El 240
Top of Banks El 250
GUARD GATE & WEIR
Top of Banks El. 250
Top of Banks El. 208
Regulating Weir
Top of Banks El. 208
Top of Banks El. 250
POWERHOUSE
Inst. Cap. 2425 000 H.P.
INTERNATIONAL BOUNDARY
WASHINGTON POWER CANAL
Drainage Ditch



All gates in Diversion closed All gates in South Galop open.			All gates in both dams open.		
W.L. Lake Ont.	Q- South Galop	H-Sub. Sluices	W.L. Lake Ont.	Q-South Galop	H-Sub. Sluices
244.44	100,000	1.8	243.65	75,000	1.0
245.60	110,000	2.15	244.30	80,000	1.15
246.90	120,000	2.55	244.95	85,000	1.3
248.05	130,000	3.0	245.65	90,000	1.45
249.00	138,000	3.4	246.40	95,000	1.6
			247.20	100,000	1.8
			247.80	108,000	2.1

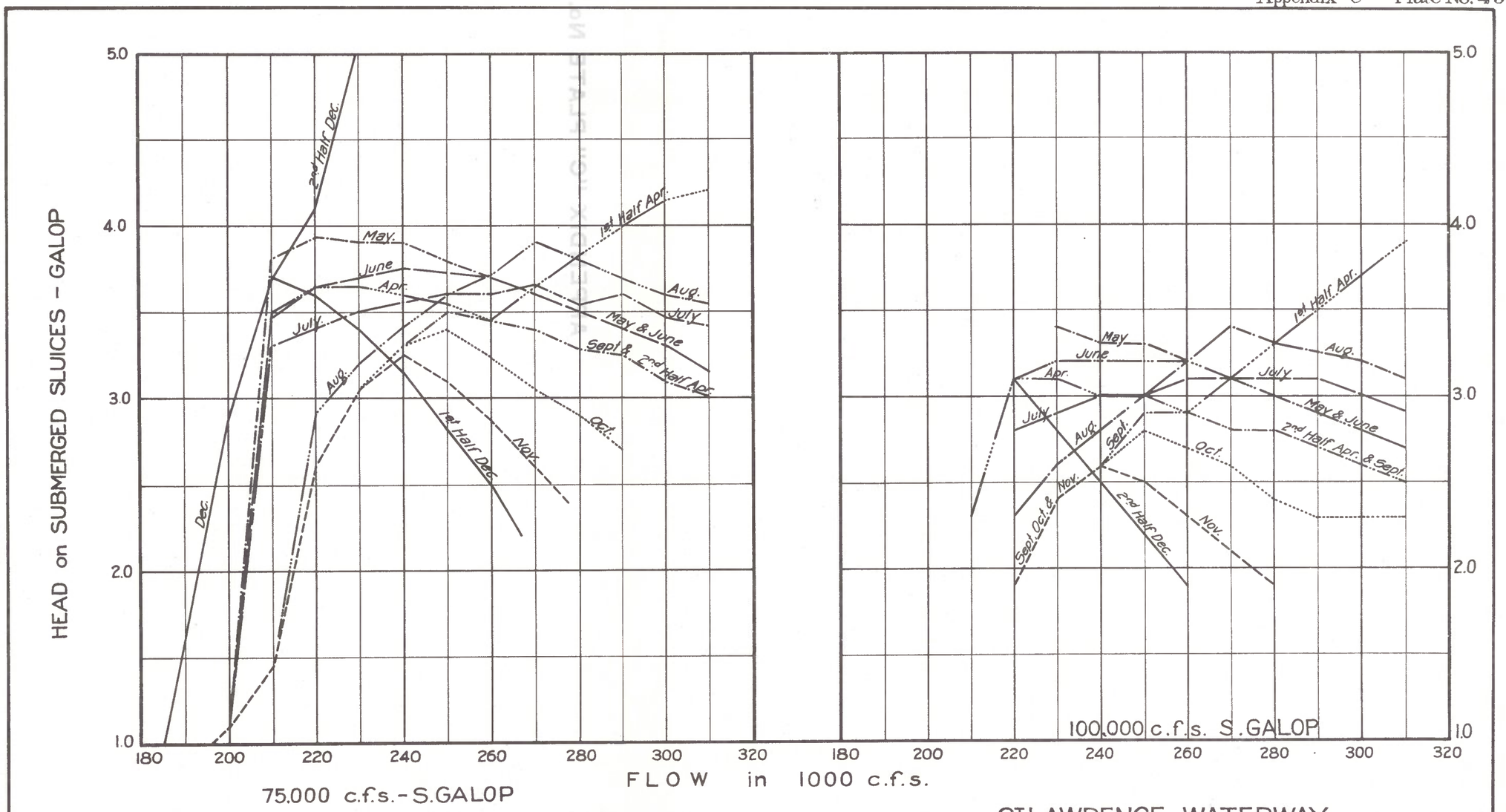
Note:- Shaded portion shows Range between Maximum and Minimum Discharges under regulation - April 1 to December.

Note:- All gates in Control Dams open. Shaded portion shows Range between Maximum and Minimum Discharges under regulation for 2nd half Dec. Jan & Feb.

Note:- Computations made by Canadian Section.

St LAWRENCE WATERWAY
"238" SCHEME
DIAGRAM SHOWING RESULTS OF BACKWATER CALCULATIONS
Barnhart Isd. Powerhouse to Lake Ontario

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS DATED NOV. 16TH 1926.



Note :- Computations made by Canadian Section.

St. LAWRENCE WATERWAY
"238" SCHEME
Diagram showing the relation between
HEAD on SUBMERGED SLUICES at GALOP
and
FLOW under REGULATION
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.

CAN. NAT. RY.

CANADIAN NATIONAL RAILWAY

PROVINCE OF ONTARIO

PROVINCE OF QUEBEC

COLQUHOUN I.

Glengarry Pt.

Cranberry Pt.

Fraser Cr.

Fraser Pt.

SUMMERSTOWN

ST. REGIS I.

YELLOW I.

CLARK I.

RENSHAW I.

HAMILTON I.

ST. FRANCIS I.

SQUAW I.

STANLEY I.

LITTLE HOG I.

THOMPSON I.

ROUND I.

PLUM I.

SENECAL I.

CONTENT I.

Hopkins Pt.

Salmon River

M 115

116

M 120

GRADE EL 125

ST LAWRENCE RIVER

CORN

CANAL

BOBBIE I.

DICKERSONS

N

ST LAWRENCE WATERWAY
LAKE ST FRANCIS SECTION
PLAN SHOWING
PROJECT RECOMMENDED
MILE 115 TO MILE 124

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

PROVINCE OF ONTARIO

PROVINCE OF QUEBEC

CANADIAN NATIONAL RAILWAY

LANCASTER

SOUTH LANCASTER

BAINVILLE

Riviere aux Raisins

Nation R.

Salmon R.

THE CAIRN

GRAPE I.

Pte Mouillee

L. ST. FRANCIS

MILE 124

MILE 125

MILE 126

MILE 127

MILE 128

MILE 129

MILE 130

MILE 131

MILE 132

SQUAW I.

BUTTERNUT I.

ROSS I.

Beaver I.

Cedars Pt.

MARTIN I.

CAT I.

Rankin Pt.

Hankins Pt.

BUCHANAN I.

SENECAL I.

L. ST. LOUIS

Pte Dupuis

DUPUIS

LANQUETTE I.

Pte Dupuis

Pte Caumont

ST. ANICET

Riviere a la Graisse

Salmon R.

ST. LAWRENCE WATERWAY
LAKE ST. FRANCIS SECTION
PLAN SHOWING
PROJECT RECOMMENDED
MILE 124 TO MILE 133

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

CANADIAN NATIONAL RAILWAY

PROVINCE OF QUEBEC

Boundary Line — Province of Ontario and Quebec

Sutherland Cr.

Woods Cr.

Riviere Beaudet

ST ZOTIQUE

Hay Pt

LAKE ST. FRANCIS

Cairn GRADE EL 125.5

MILE 133 MILE 134 MILE 135 MILE 136 MILE 137 MILE 138 MILE 139 MILE 140 MILE 141

PORT LEWIS

PINSONNAULT I.

GRENADIER I.

FRANCES-BATTURS I.

Biron Pt.

HAY BAY

Pte. Saignouvrie

Ste Barbe Dyke

STE. BARBE

ST. LAWRENCE WATERWAY

LAKE ST. FRANCIS SECTION

PLAN SHOWING

PROJECT RECOMMENDED

MILE 133 TO MILE 141

SCALE OF FEET

0 1000 2000 3000 4000

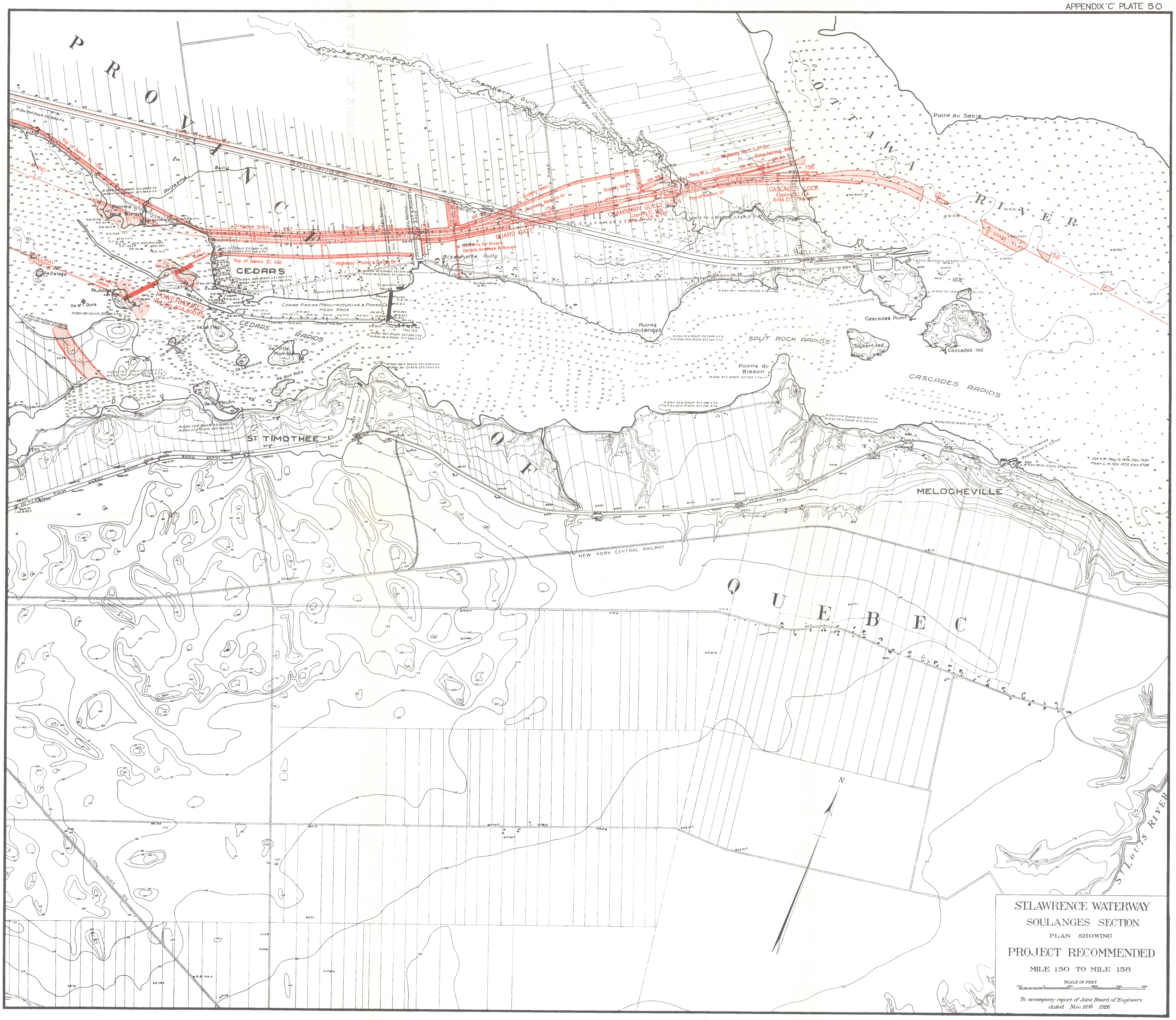
To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
PROJECT RECOMMENDED
MILE 141 TO MILE 150

SCALE OF FEET
1000 0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

COTEAU DU LAC
RIVER DELISLE
CANADIAN NATIONAL RAILWAY
COTEAU JCT.
COTEAU LANDING
ST. LAWRENCE RIVER
POINTE DIABLE
POINTE-DOMAINE
DE SALABERRY ISLAND
GRANDE ISLE
BELLERIVE
C.N.Ry. Diversion
VALLEYFIELD
Station
NEW YORK CENTRAL RAILWAY
CANADIAN NATIONAL RAILWAY
STE. CECILE ILE
Diversion of Riviere Delisle
Prisoners Isd.
Pig Isd.
Ile Leonard
Thorn Isd.
Maple Isd.
Giroux Isd.
McIntyres Isd.
Swan Isd.
Round Isd.
Clarkes Isd.
Grosse Pointe
Ile Grosse Pointe
Pointe du Milieu
Pte. Seigneuriale
Hungry Bay Dyke
St Barbe Dyke
Soft Rock
Hard Rock
Lock
Canal
Dyke
Ditch
Quarry
Cable Dales
Frankwater
Top El 161
Blockfilled Cribs
Top of Bank El 158
Top of Bank El 159
Grade El 121
Grade El 128
Grade El 129
Grade El 130
Grade El 131
Grade El 132
Grade El 133
Grade El 134
Grade El 135
Grade El 136
Grade El 137
Grade El 138
Grade El 139
Grade El 140
Grade El 141
Grade El 142
Grade El 143
Grade El 144
Grade El 145
Grade El 146
Grade El 147
Grade El 148
Grade El 149
Grade El 150
Grade El 151
Grade El 152
Grade El 153
Grade El 154
Grade El 155
111 to El 155
50' Grade El 127
50' Grade El 128
50' Grade El 129
50' Grade El 130
50' Grade El 131
50' Grade El 132
50' Grade El 133
50' Grade El 134
50' Grade El 135
50' Grade El 136
50' Grade El 137
50' Grade El 138
50' Grade El 139
50' Grade El 140
50' Grade El 141
50' Grade El 142
50' Grade El 143
50' Grade El 144
50' Grade El 145
50' Grade El 146
50' Grade El 147
50' Grade El 148
50' Grade El 149
50' Grade El 150
50' Grade El 151
50' Grade El 152
50' Grade El 153
50' Grade El 154
50' Grade El 155
Rock Outcrop
Government Wharf
Power House
Tailrace Pipes
Hwy Br.
Note: Percentages of flow in channels shown are those at Coteau Bridge



ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
PROJECT RECOMMENDED
MILE 150 TO MILE 158
SCALE OF FEET
To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST.LAWRENCE WATERWAY
SOULANGES SECTION

PLAN SHOWING
PROJECT RECOMMENDED
WITH SUBSEQUENT
DEVELOPMENT FOR POWER
MILE 150 TO MILE 158

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

PROVINCE OF ONTARIO

QUEBEC

ONTARIO

Chamberry Gully

Soulanges County

Drainage Ditch

Highway Br.

Supply Weir

Regulating Weir

CHAMBERRY GULLY LOCK
Concrete Lift
Sills El 116 & 79

CASCADES LOCK
Concrete Lift
Sills El 98 & 40

Top of Bank Elev

GRADE EL. 106

GRADE EL. 46

Top of Banks El 158

Pointe aux Bisons

Point au Sable

"POWERHOUSE"
Inst. Cap. 545000 H.P
5 - 50' x 26' Ice Sluices

POWERHOUSE
Inst. Cap. 1,030,400 H.P
50' x 26' Ice Sluices

STOP DAM

SPILLWAY
Crest El. 125

Cascades Point

Toybert Isd.

Cascades Isd.

Pointe Coulanges

SPLIT ROCK RAPIDS

Pointe du Bisson

CASCADES RAPIDS

Regulated W.L. El. 125

28 - 50'x26' Gates

Top El. 133

MELOCHEVILLE

Point au Moulin

Ile Ronde

Ile Moulin

Ile aux Noix

Ile Lamoine

Ile Perrault

Ile Juillet

Ile Delage

Ile aux Pins

Ile aux Chats

Ile aux Tourtes

Ile aux Cerises

Ile aux Vaches

Ile aux Ours

Ile au Foin

Ile au Chat

CEDARS

CEDARS RAPIDS

Ste TIMOTHEE

CEDAR RAPIDS MANUFACTURING & POWER Co.

HEAD RACE

To be removed for 3rd. Power Stage

Power House

Tail Race

Transformer House

Highway Br.

Highway Vert. Lift Br.

Highway Bascule Br.

Highway Fixed & Swing Br.

Concrete Gate House

Culverts for Rivers

Road Diversion

NEW YORK CENTRAL RAILWAY

CANADIAN PACIFIC RAILWAY

Station

CAN. NAT. RY.

St. LOUIS RIVER

Lock Entrance Canal

Ext. H.W. May 16 1876, Elev 75.87.
Mean L.W. Nov 1852, Elev 67.00

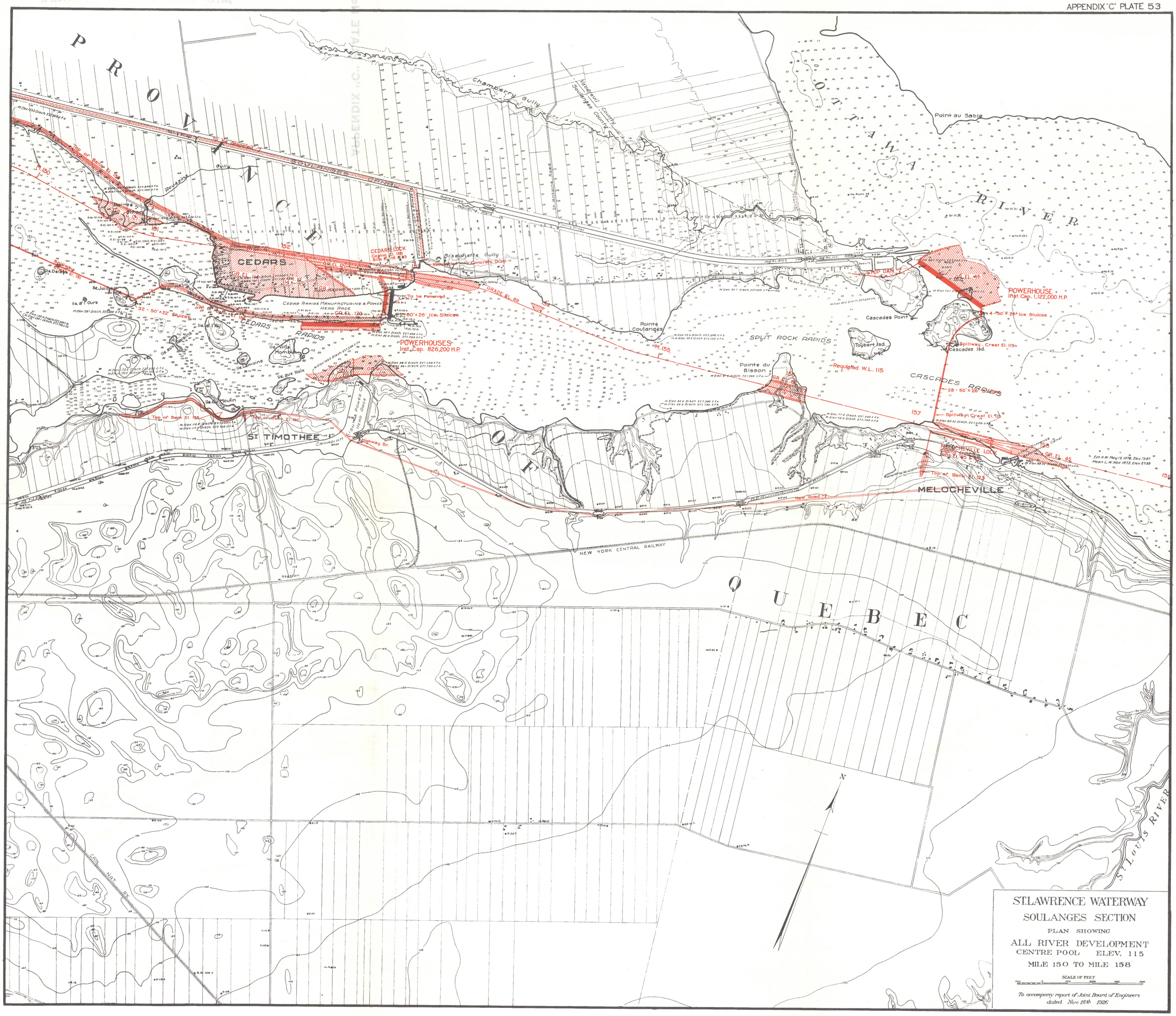
N

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALL RIVER DEVELOPMENT
CENTRE POOL ELEV. 115
MILE 141 TO MILE 150

SCALE OF FEET
0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

COTEAU DU LAC
RIVER DELISLE
CANADIAN NATIONAL RAILWAY
COTEAU JCT.
COTEAU LANDING
ST. LAWRENCE RIVER
LAKE ST. FRANCIS
HUNGRY BAY
DE SALABERRY ISLAND
GRANDE ISLE
BELLERIVE
C.N.Ry Diversion
VALLEYFIELD
NEW YORK CENTRAL RAILWAY
CANADIAN NATIONAL RAILWAY
Ste Cecile Jct.
Pointe Domaine
Pointe du Milieu
Pte. Seigneuriale
Grosse Pointe
Ile aux Pins
Prisoners Isd.
Pig Isd.
Thorn Isd.
Maple Isd.
Giroux Isd.
McIntures Isd.
Round Isd.
Quarkes Isd.
Breakwater Top Elev 61.5'
Blockfilled Cribs
Diversion of Rivers Delisle
Government Wharf
Soulanges Canal
Coteau du Lac Locks
Top of Bank El. 158
Hungry Bay Dyke
St. Barbe Dyke
Soft Rock
Hard Rock


PROVINCE OF QUEBEC
ONTARIO
Chamberry Gully
Soulanges County
Point au Sable
OTTAWA RIVER
Roussins Gully
CEDARS
CEDARS LOCK
Bissaillons Gully
STOP DAM
POWERHOUSE
Inst. Cap. 1,122,000 H.P.
4 - 50' x 26' Ice Sluices
Cascades Point
Pointe Coulanges
CEDAR RAPIDS MANUFACTURING & POWER CO. HEAD RACE
POWERHOUSES
Inst. Cap. 826,200 H.P.
SPLIT ROCK RAPIDS
Toybert Isd.
Cascades Isd.
Regulated W.L. 115
Pointe du Bisson
CASCADES RAPIDS
28 - 50' x 26' Sluices
Spillway Crest El. 115
MELOCHEVILLE LOCK
MELOCHEVILLE
ST TIMOTHEE
NEW YORK CENTRAL RAILWAY
Highway Br.
Station
CEN. NAT. RY.
St. Louis River
N
ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALL RIVER DEVELOPMENT
CENTRE POOL ELEV. 115
MILE 150 TO MILE 158
SCALE OF FEET
To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALL RIVER DEVELOPMENT
CENTRE POOL ELEV. 125
MILE 141 TO MILE 150

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALL RIVER DEVELOPMENT
CENTRE POOL ELEV. 125
MILE 150 TO MILE 158

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
NAVIGATION & POWER COMBINED
HUNGRY BAY – MELOCHEVILLE ROUTE
MILE 141 TO MILE 150

SCALE OF FEET 1000 0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

COTEAU DU LAC
RIVER DELISLE
CANADIAN NATIONAL RAILWAY
COTEAU JCT.
COTEAU LANDING
Pointe Diable
POWER HOUSE
St. Dominique Rd.
ST. LAWRENCE RIVER
Prisoners Isd.
Broad Isd.
Pointe Somaine
Ile Delage
Ile Leonard
Pig Isd.
Thorn Isd.
Maple Isd.
Giroux Isd.
McIntyres Isd.
Swan Isd.
Round Isd.
Clarkes Isd.
Cribs
CONTROL DAM
12-50'x15 Gates
Government Wharf
DE SALABERRY ISLAND
GRANDE ISLE
BELLERIVE
Ile aux Grosse Pointe
Grosse Pointe
VALLEYFIELD
Ste CECILE JCT.
NEW YORK CENTRAL RAILWAY
CANADIAN NATIONAL RAILWAY
LAKE ST. FRANCIS
HUNGRY BAY
Breakwater Top El. 161.5
Bascule Br.
HUNGRY BAY GUARD LOCK
Coping El. 159 & 155
Sills El. 120
Regulating Weir
7 - 50'x29 Gates
Pointe du Milieu
Hungry Bay Dyke
St. Louis Dyke
Pte. Seigneuriale
St. Barbe Dyke
Hungry Bay Dyke
H'way & Single Track Ry Swing Br.
N.Y.C.R.R. Diversion
Top Banks El. 159
GRADE EL. 114
Road Diversion

ST.LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
NAVIGATION & POWER COMBINED
HUNGRY BAY – MELOCHEVILLE ROUTE
MILE 150 TO MILE 159

SCALE OF FEET

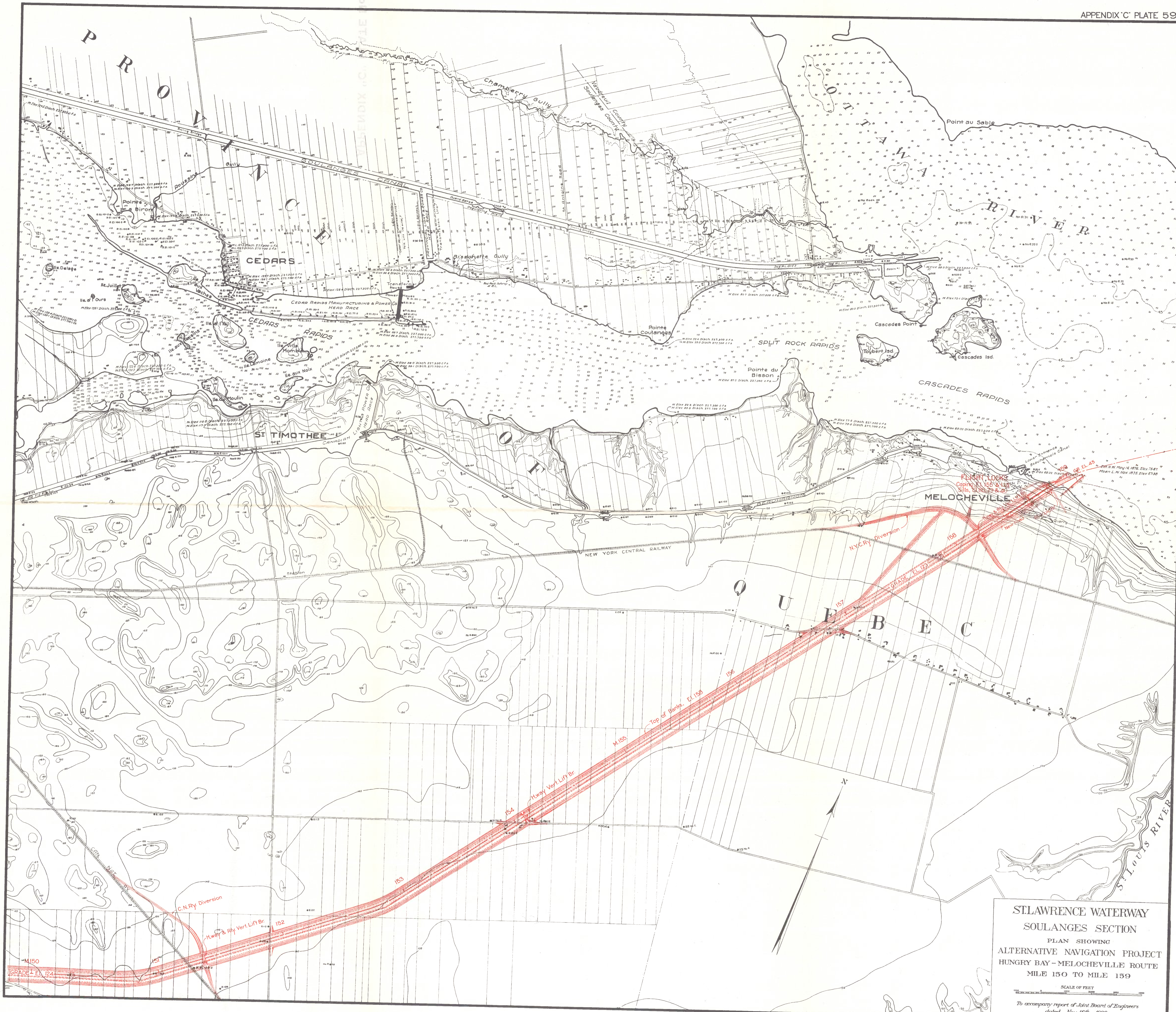
To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALTERNATIVE NAVIGATION PROJECT
HUNGRY BAY – MELOCHEVILLE ROUTE
MILE 141 TO MILE 150

SCALE OF FEET
0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

COTEAU DU LAC
RIVER DELISLE
CANADIAN NATIONAL RAILWAY
COTEAU JCT.
COTEAU LANDING
POWER HOUSE
Pointe à Diable
ST. LAWRENCE RIVER
Pointe-Domaine
Ile Delage
Prisoners Isd.
Gravel Isd.
Pig Isd.
Ile Leonard
Thorn Isd.
Maple Isd.
Giroux Isd.
McIntyres Isd.
Swan Isd.
Round Isd.
Clarkes Isd.
DE SALABERRY ISLAND
GRANDE ISLE
BELLERIVE
VALLEYFIELD
Ste CECILE JCT.
NEW YORK CENTRAL RAILWAY
CANADIAN NATIONAL RAILWAY
Ile Grosse Pointe
Grosse Pointe
Ditch
Breakwater Top El. 101.5
Bascule H'way Br.
HUNGRY BAY GUARD LOCK
Opening El. 139
Sill El. 120
Slippery Weir
Pointe du Milieu
Hungry Bay Dyke
Pte. Seigneuriale
St. Barbe Dyke
Hungry Bay Dyke
R'y & H'way Vert. Lift Br.
N.Y.C.R'y Diversion
Soft Rock & Hard Rock
GRADE EL. 124
New Road
BAY
HUNGRY



ST. LAWRENCE WATERWAY

SOULANGES SECTION

PLAN SHOWING

ALTERNATIVE NAVIGATION PROJECT

HUNGRY BAY – MELOCHEVILLE ROUTE

MILE 150 TO MILE 159

SCALE OF FEET

1000 0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALTERNATIVE NAVIGATION PROJECT
LATERAL CANAL ON NORTH SIDE
MILE 141 TO MILE 150

SCALE OF FEET
0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

RIVER DELISLE
CANADIAN NATIONAL RAILWAY
COTEAU JCT.
COTEAU DU LAC
COTEAU LANDING
Single Tr. Ry. Vert. Lift Br.
COTEAU DU LAC LOCK
Coping El. 158.5
Sills El. 120 & 116
Supply Weir
Top of Banks El. 158
Top of Dikes El. 161.5
Breakwaters Top El. 161.5
Backfilled Cribs
4 - 10'x12' Culverts
2 - 10' Culverts
Pointe Diable
Prisoners Isd.
Brown Isd.
Pig Isd.
Ile Leonard
Thorn Isd.
Maple Isd.
Giroux Isd.
McIntyres Isd.
Swan Isd.
Round Isd.
Clarkes Isd.
Grosse Pointe
Pointe du Milieu
Pte. Seigneuriale
Hungry Bay Dyke
St. Barbe Dyke
Hungry Bay Dyke
ST. LAWRENCE RIVER
Pointe Domaine
Ile Delage
DE SALABERRY ISLAND
GRANDE ISLE
BELLERIVE
VALLEYFIELD
Ste. Cecile de V.
NEW YORK CENTRAL RAILWAY
CANADIAN NATIONAL RAILWAY
Soft Rock
Hard Rock
LAKE ST. FRANCIS
HUNGRY BAY

PROVINCE OF QUEBEC

ONTARIO

ST. LAWRENCE WATERWAY
SOULANGES SECTION
PLAN SHOWING
ALTERNATIVE NAVIGATION PROJECT
LATERAL CANAL ON NORTH SIDE
MILE 150 TO MILE 159

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST. ANNE DE BELLEVUE

N. PACIFIC RAILWAY
NATIONAL RAILWAY

Bruce's Pt.

OTTAWA EAST BRANCH RIVER

LYNCH
OR
DOWKER'S I.

MADORE I.

Point du Domaine.

BEAUREPAIRE

Thompson's Pt.

BEACONSFIELD

Pointe Claire.

LAKE ST LOUIS

ILE PERROT

Pointe à Fournier

Windmill Point

Fortier Point

CASCADES I.

PAIX

DE LA

ILES

Herbert Point

St Louis Point

BEAUHARNOIS

NEW YORK CENTRAL R.R.

Shallow River

Ext H.W. May 16, 1876, Elev. 75.67
Mean L.W. Nov. 1895 Elev 67.38

M 158
M 160
M 162
M 164
M 166

ST.LAWRENCE WATERWAY
LACHINE SECTION
PLAN SHOWING
PROJECT RECOMMENDED
MILE 158 TO MILE 167

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

ST.LAWRENCE WATERWAY
LACHINE SECTION
PLAN SHOWING
PROJECT RECOMMENDED
MILE 167 TO MILE 176

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov 16th 1926

VALOIS BAY

Valois

Brownsburg

Allens Pt

Rock Dyke, Top El 77

DORVAL I.

DORVAL

LAKE ST LOUIS

Mile 168

Mile 170 Gate 2 El 45

Mile 171

Mile 164

Grade El 41

St Nicholas Isd

ST BERNARD OR NUN'S I.

Eastern Mouth Chateauguay River

Western Mouth Chateauguay River

Cote St Joseph

CHATEAUGUAY

CHATEAUGUAY BASIN

St Charles River

NEW YORK CENTRAL RY.

PROVINCE OF QUEBEC

QUEBEC

CAN. PAC. RY.

CAN. NAT. RY.

CAN. PAC. RY. (Main Line)

CAN. NAT. RY. (Old G.T.R. Main Line)

CAN. PAC. RY. (Montreal-Toronto Express Route)

CAN. PAC. RY. (Montreal-Ottawa Express Route)

WESTERN JCT.

SORTIN YARD C.P.R.

ST LUC JCT.

NORTH JCT.

SOUTH JCT.

MONTREAL WEST.

LACHINE

LACHINE CANAL

St Pierre River

To be Filled

Back Filled Crib

Double Track R.R. Vertical Lift Br.

New Road

Mile 175

2 Single Track R.R. Fixed Spans

6 @ 9' x 12' Sluices Culverts

176

Top of Bank El 124

Mile 177

Lachine Division

CONTROL DAM 17 - 50' x 20' GATES

GRAND CALUMET

Grade El 40

Top of Walls El 77

Bottom El 30

Bottom El 50

N

ST. LAWRENCE WATERWAY
LACHINE SECTION

PLAN SHOWING

PROJECT RECOMMENDED
WITH SUBSEQUENT
DEVELOPMENT FOR POWER
MILE 167 TO MILE 176

SCALE OF FEET

0 1000 2000 3000 4000

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

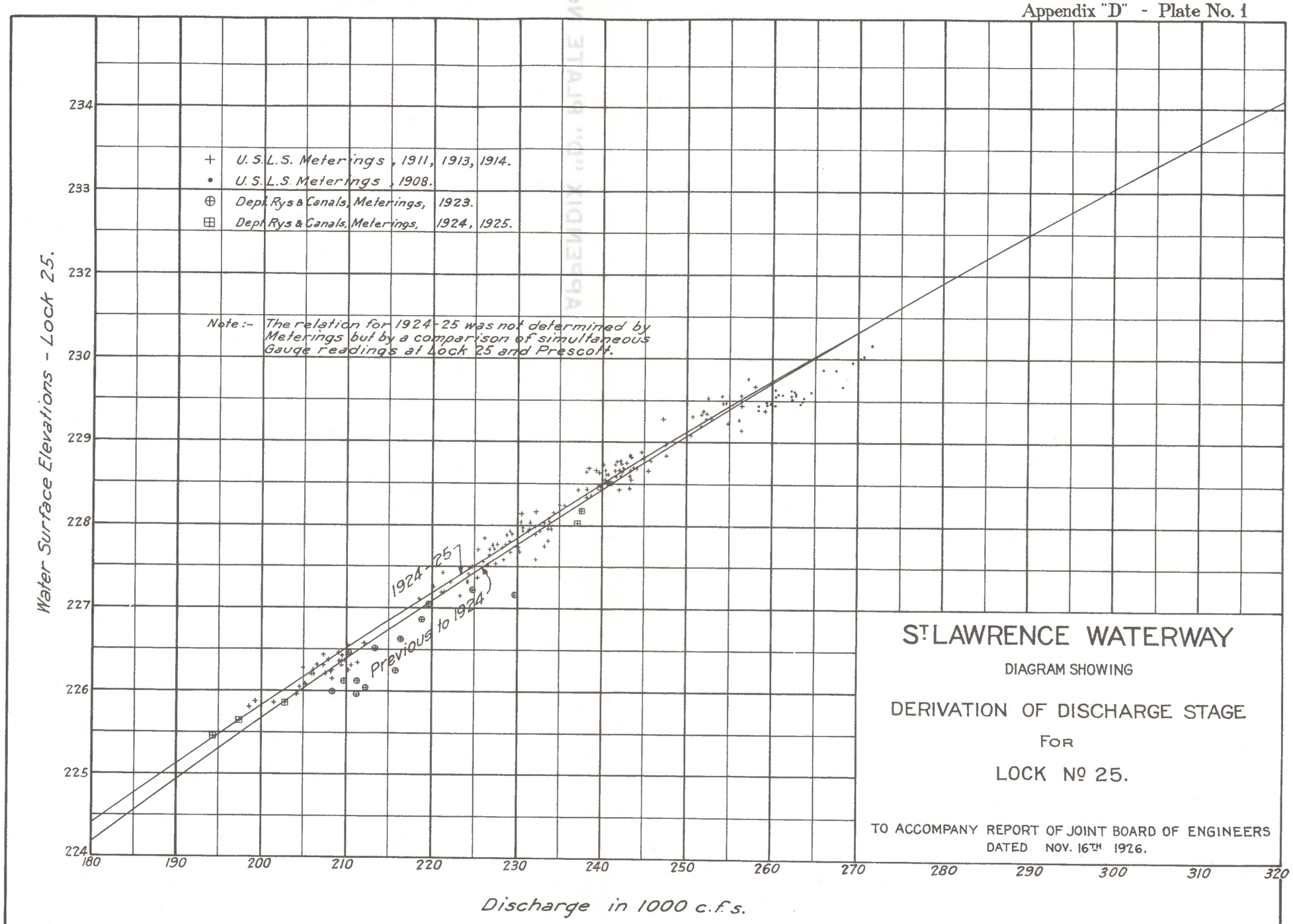
ST.LAWRENCE WATERWAY
LACHINE SECTION

PLAN SHOWING
PROJECT RECOMMENDED
WITH SUBSEQUENT
DEVELOPMENT FOR POWER
MILE 176 TO MILE 183

SCALE OF FEET

To accompany report of Joint Board of Engineers dated Nov. 16th 1926

Appendix "D" - Plate No. 1



St. LAWRENCE WATERWAY

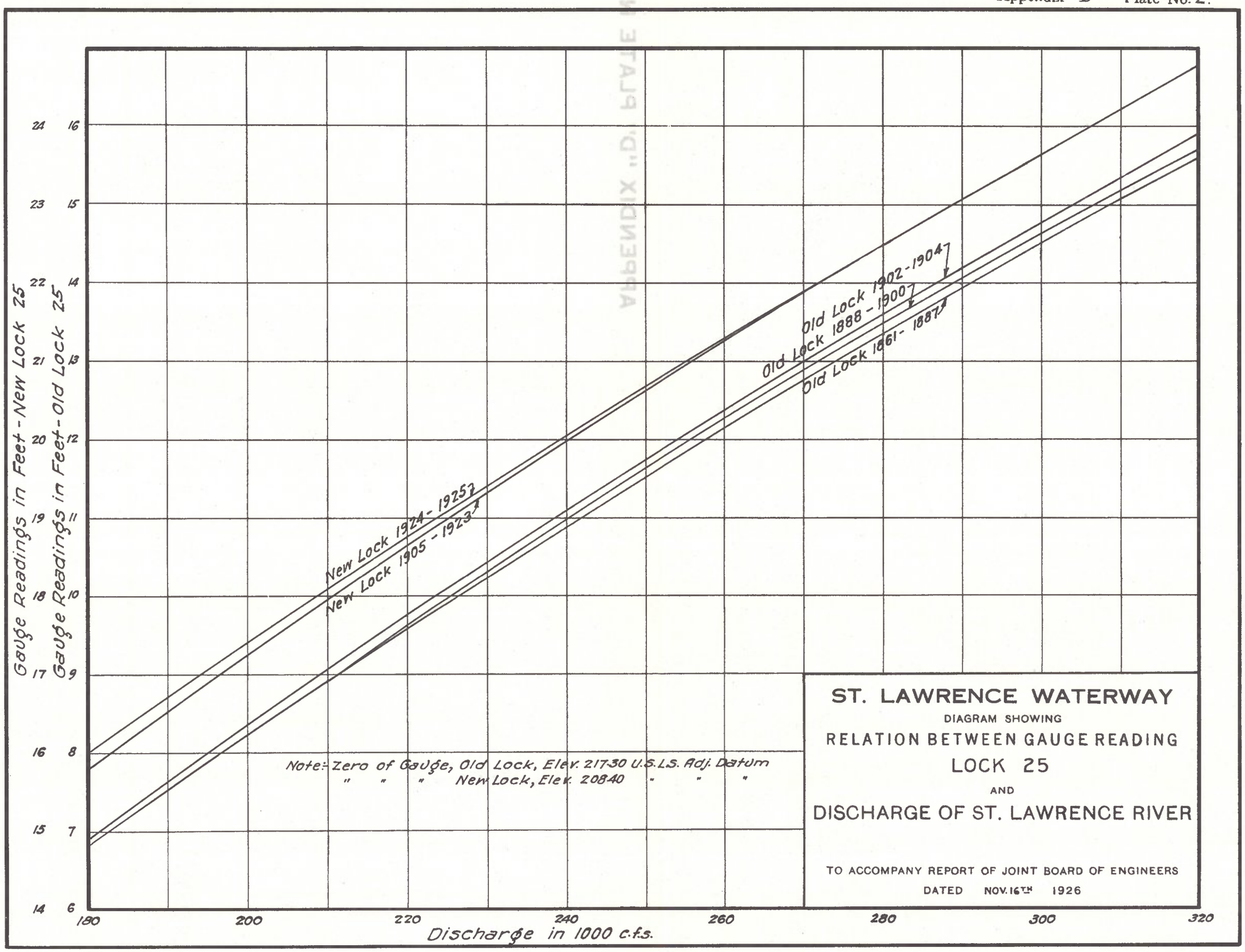
DIAGRAM SHOWING

DERIVATION OF DISCHARGE STAGE

FOR

LOCK Nº 25.

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.



ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

RELATION BETWEEN GAUGE READING

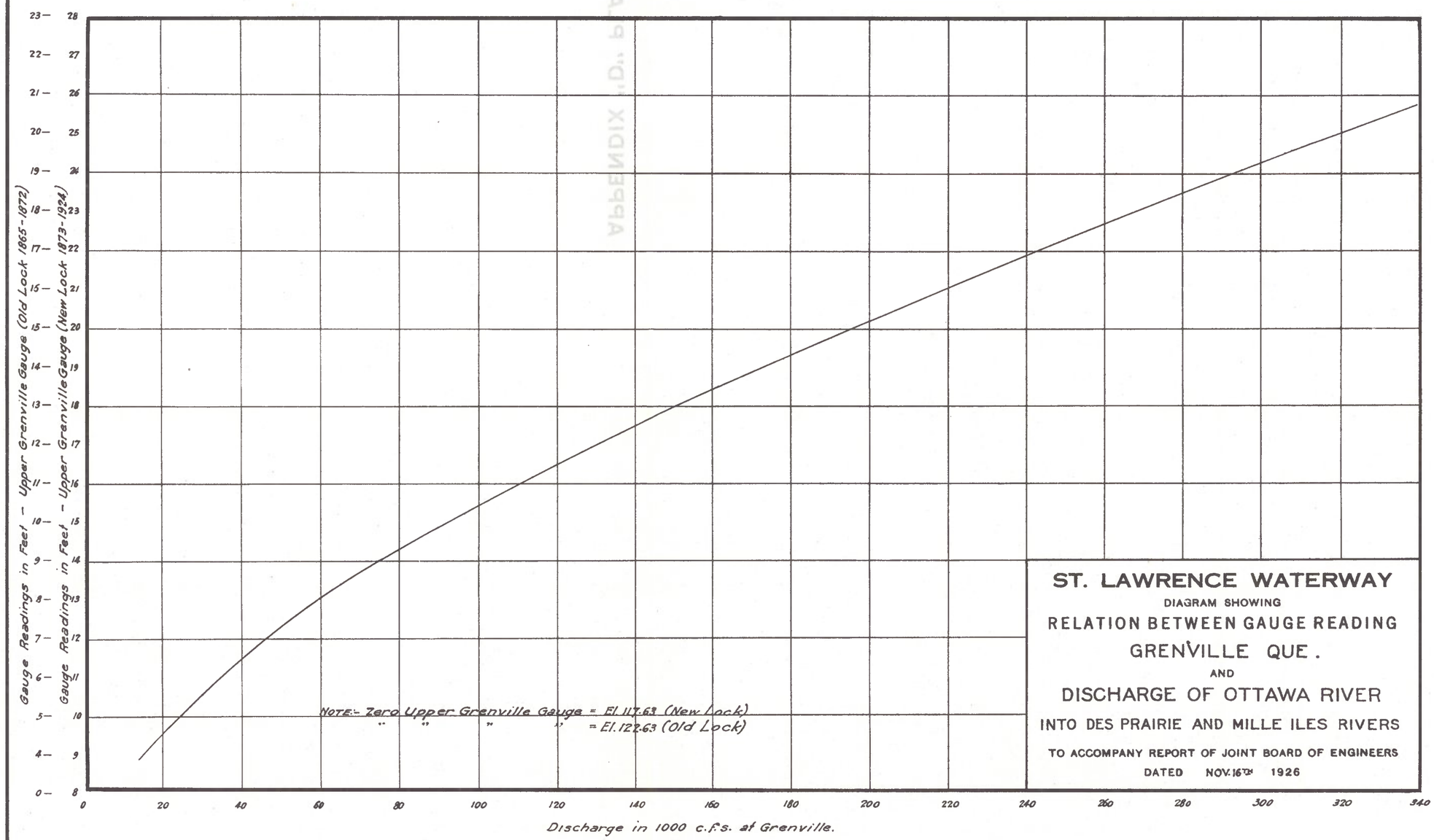
LOCK 25

AND

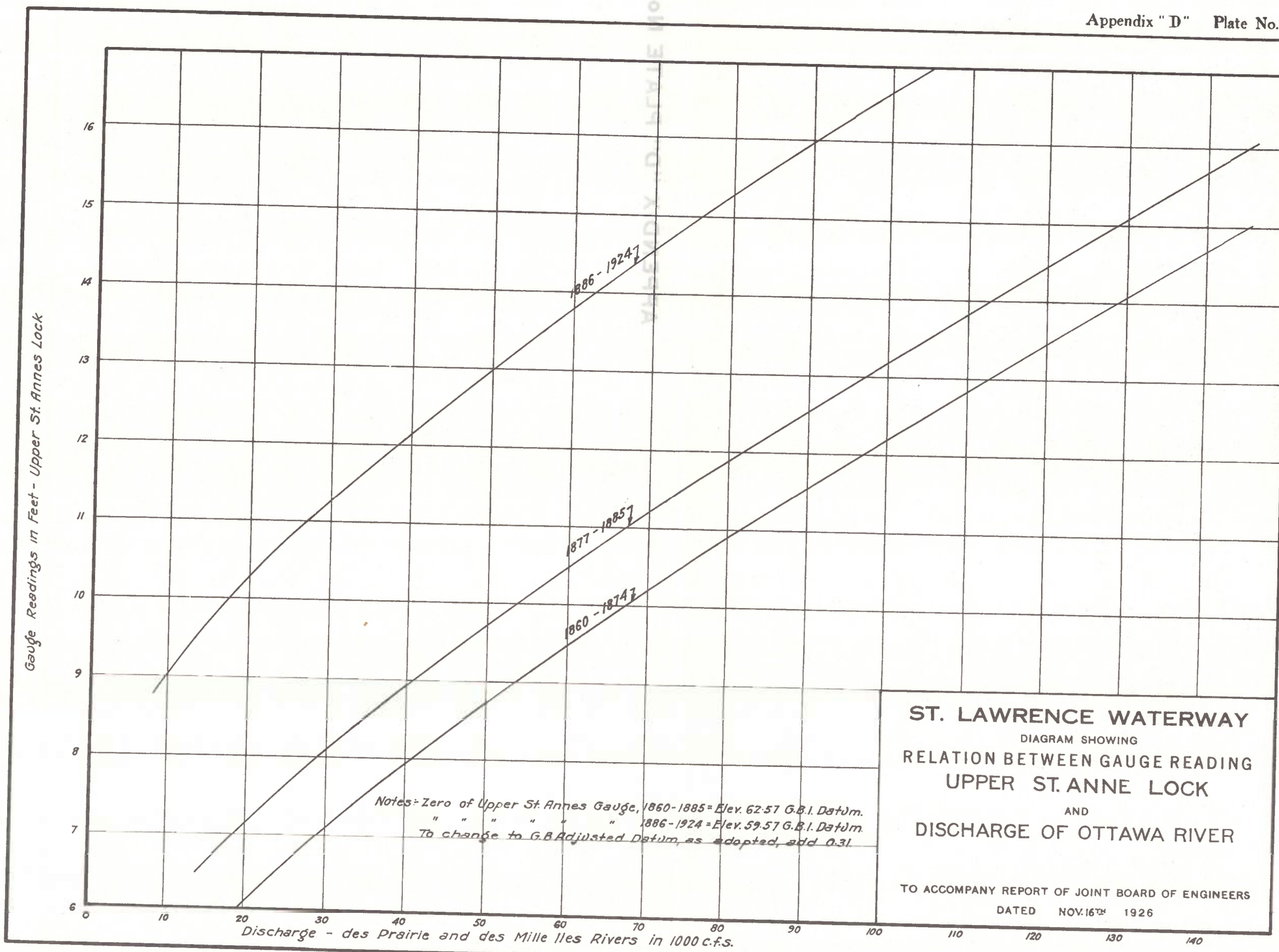
DISCHARGE OF ST. LAWRENCE RIVER

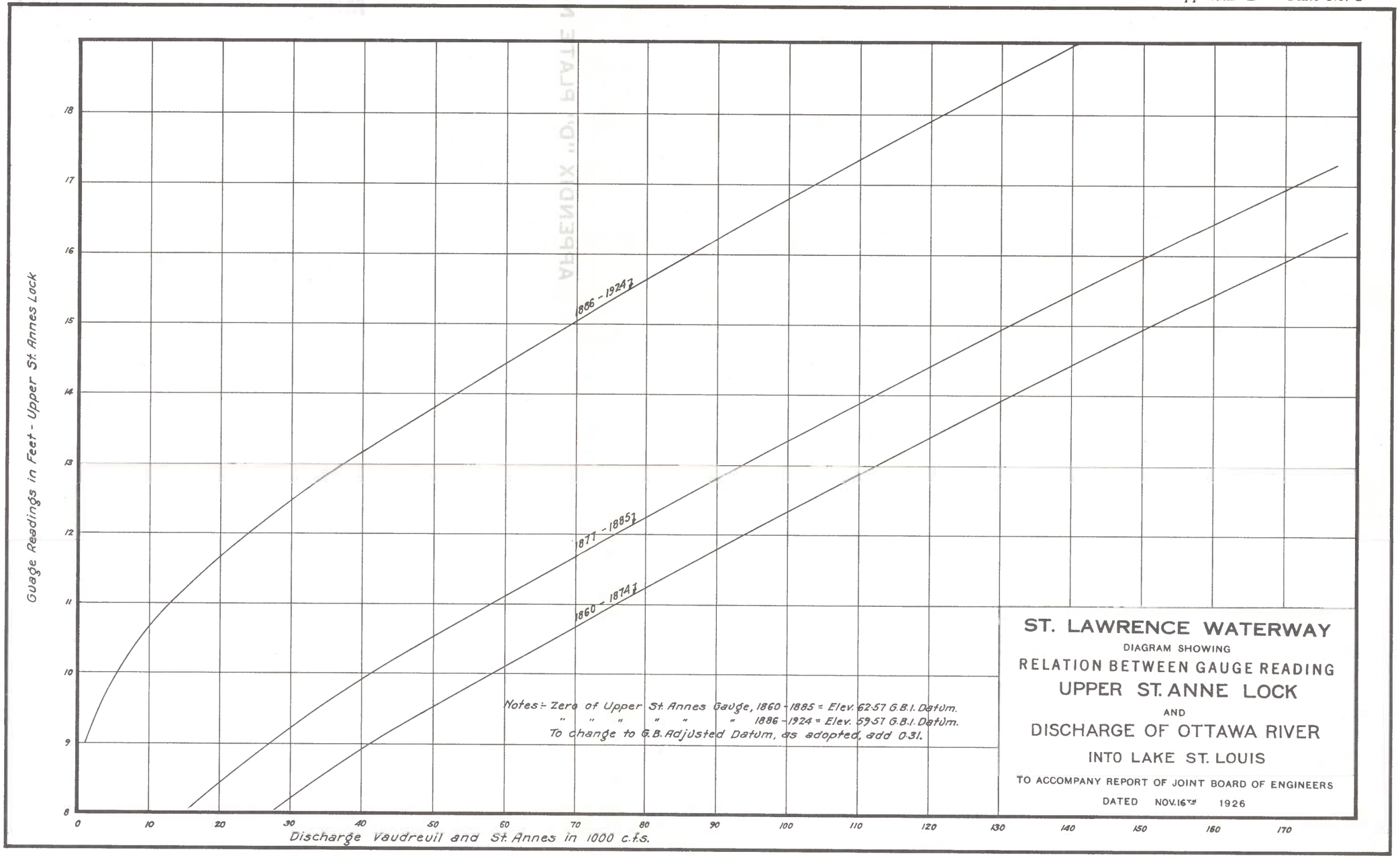
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS

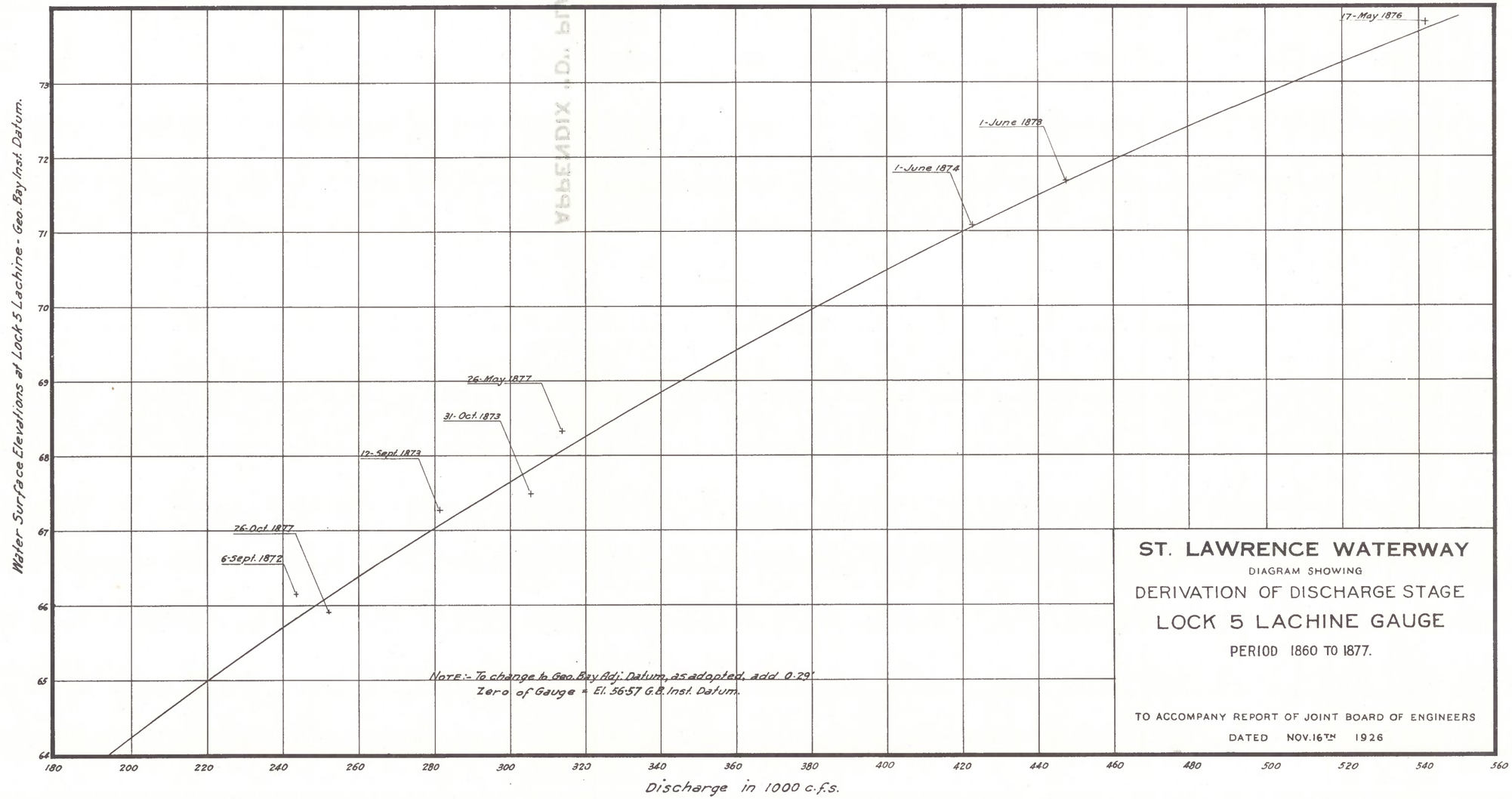
DATED NOV. 16TH 1926


Gauge Readings in Feet - Upper Grenville Gauge (Old Lock 1865-1872)
Gauge Readings in Feet - Upper Grenville Gauge (New Lock 1873-1924)
23 28
22 27
21 26
20 25
19 24
18 23
17 22
15 21
15 20
14 19
13 18
12 17
11 16
10 15
9 14
8 13
7 12
6 11
5 10
4 9
0 8
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340
Discharge in 1000 c.f.s. at Grenville.
NOTE:- Zero Upper Grenville Gauge = El. 117.63 (New Lock)
" " " " = El. 122.63 (Old Lock)
ST. LAWRENCE WATERWAY
DIAGRAM SHOWING
RELATION BETWEEN GAUGE READING
GRENVILLE QUE.
AND
DISCHARGE OF OTTAWA RIVER
INTO DES PRAIRIE AND MILLE ILES RIVERS
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926

Appendix "D" Plate No. 4.




Guage Readings in Feet - Upper St. Annes Lock
18
17
16
15
14
13
12
11
10
9
8
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
Discharge Vaudreuil and St. Annes in 1000 c.f.s.
1886 - 1924
1877 - 1885
1860 - 1876
Notes:- Zero of Upper St. Annes Gauge, 1860 - 1885 = Elev. 62.57 G.B.I. Datum.
" " " " " " 1886 - 1924 = Elev. 59.57 G.B.I. Datum.
To change to G.B. Adjusted Datum, as adopted, add 0.31.
ST. LAWRENCE WATERWAY
DIAGRAM SHOWING
RELATION BETWEEN GAUGE READING
UPPER ST. ANNE LOCK
AND
DISCHARGE OF OTTAWA RIVER
INTO LAKE ST. LOUIS
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926



ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

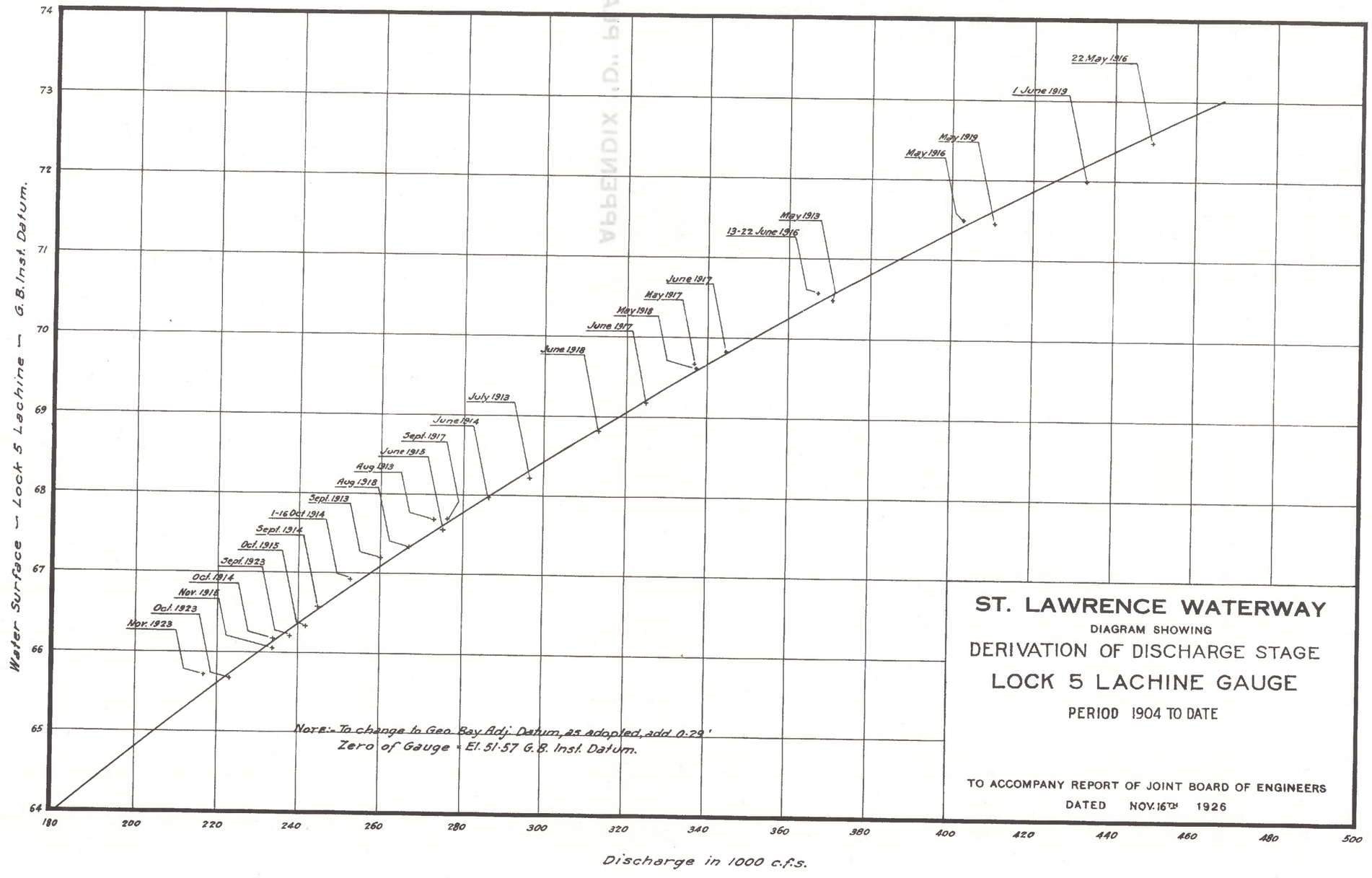
DERIVATION OF DISCHARGE STAGE

LOCK 5 LACHINE GAUGE

PERIOD 1860 TO 1877.

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS

DATED NOV. 16TH 1926



ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

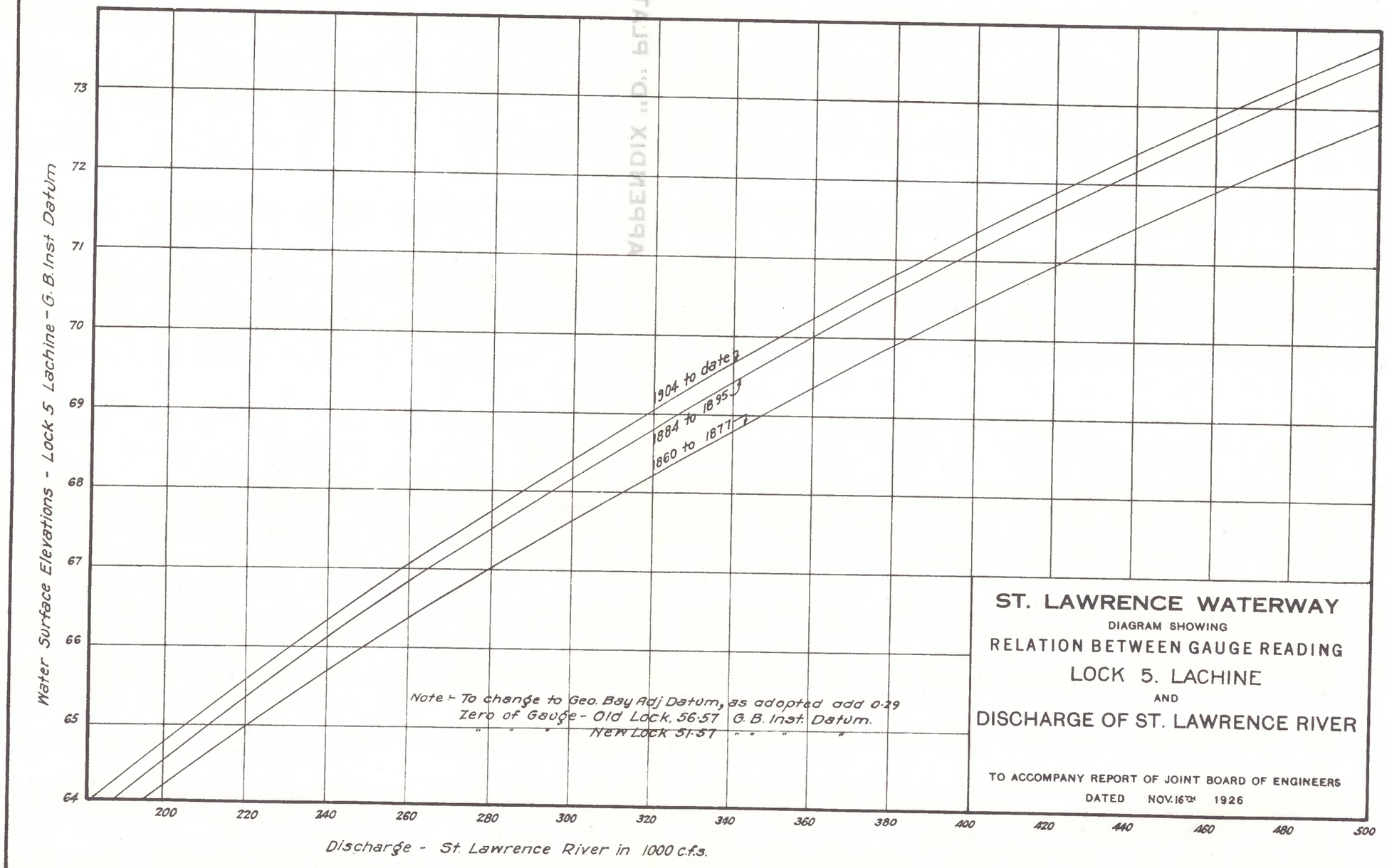
DERIVATION OF DISCHARGE STAGE

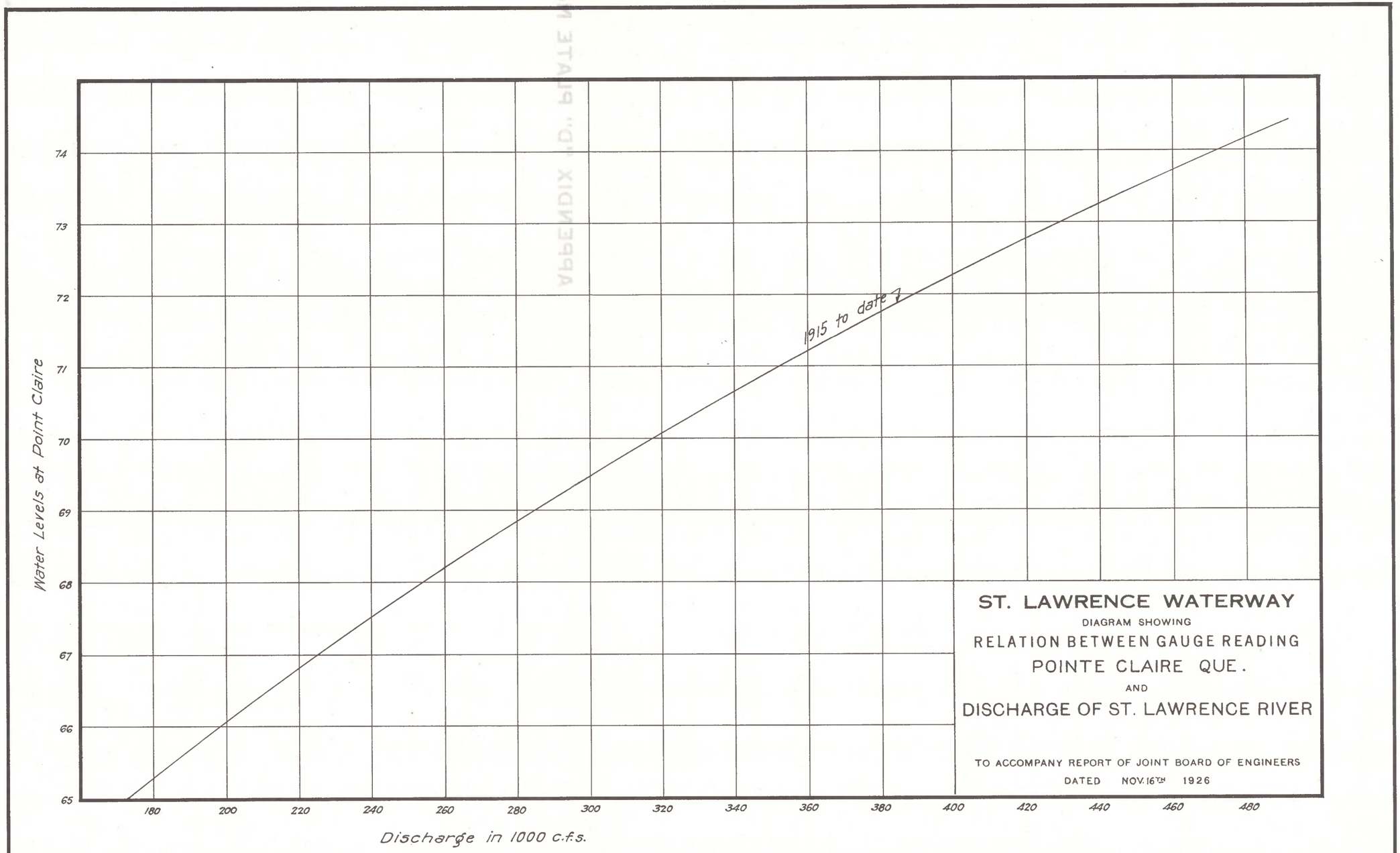
LOCK 5 LACHINE GAUGE

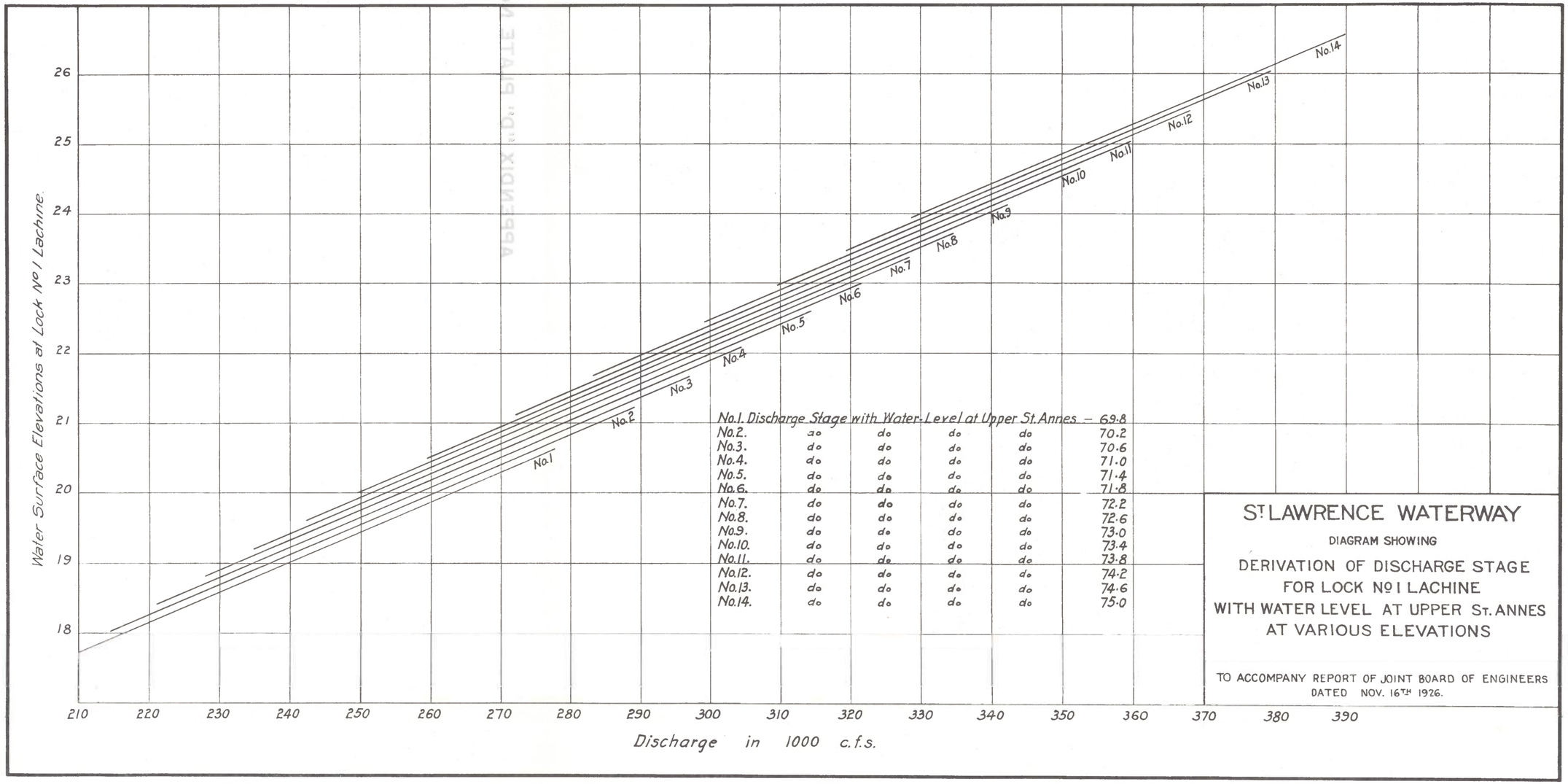
PERIOD 1904 TO DATE

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS

DATED NOV. 16TH 1926


Water Surface Elevations - Lock 5 Lachine - G.B. Inst Datum
73
72
71
70
69
68
67
66
65
64
1904 to date
1884 to 1895
1860 to 1877
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
Discharge - St. Lawrence River in 1000 c.f.s.
Note - To change to Geo. Bay Adj Datum, as adopted add 0·29
Zero of Gauge - Old Lock, 56·57 G.B. Inst. Datum.
" " " New Lock 51·57 " " " "
ST. LAWRENCE WATERWAY
DIAGRAM SHOWING
RELATION BETWEEN GAUGE READING
LOCK 5. LACHINE
AND
DISCHARGE OF ST. LAWRENCE RIVER
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926


Water Levels at Point Claire
74
73
72
71
70
69
68
67
66
65
1915 to date
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
Discharge in 1000 c.f.s.
ST. LAWRENCE WATERWAY
DIAGRAM SHOWING
RELATION BETWEEN GAUGE READING
POINTE CLAIRE QUE.
AND
DISCHARGE OF ST. LAWRENCE RIVER
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926



No.1. Discharge Stage with Water-Level at Upper St. Annes – 69·8

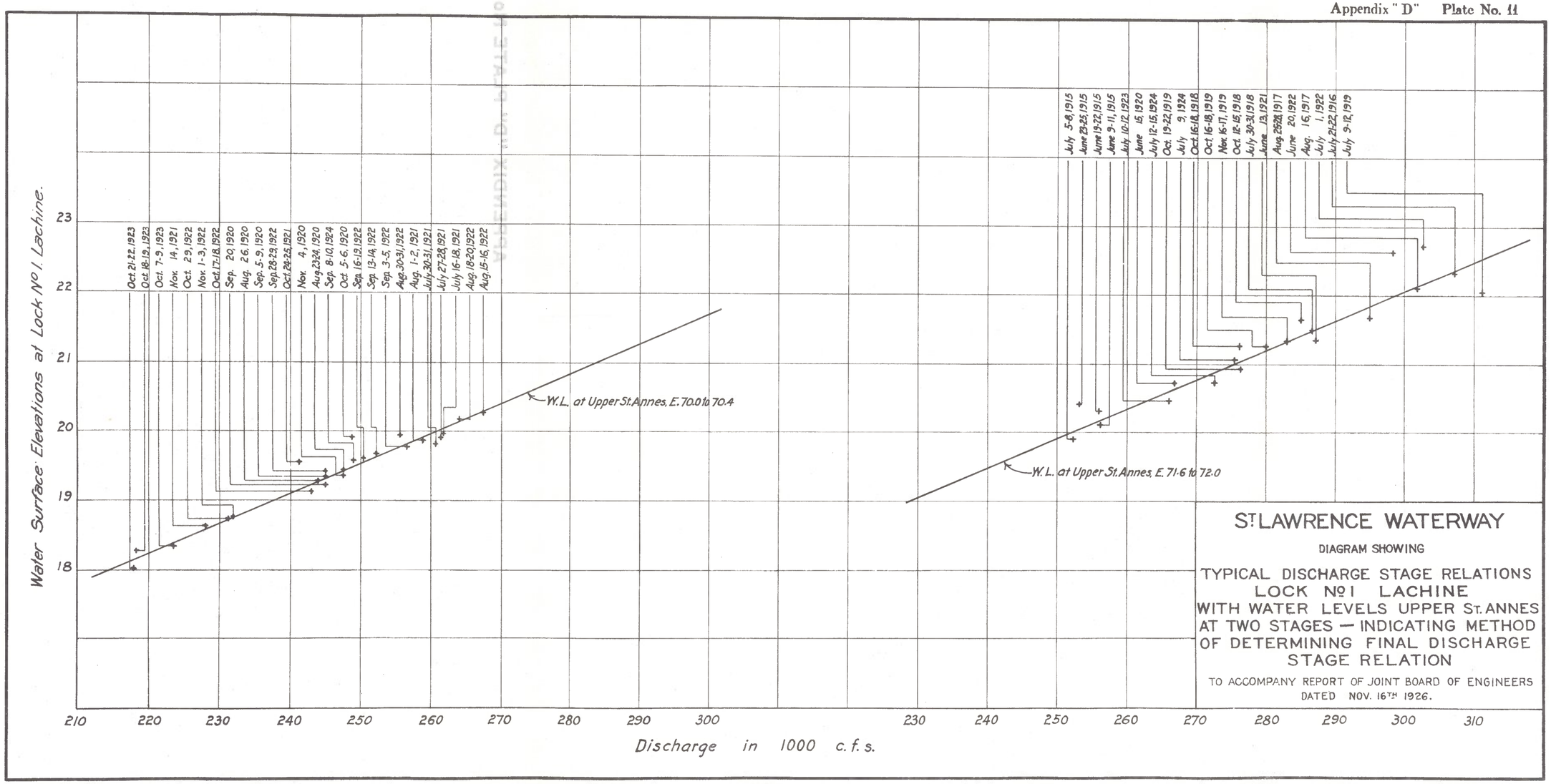
No.2.	do	do	do	do	70·2
No.3.	do	do	do	do	70·6
No.4.	do	do	do	do	71·0
No.5.	do	do	do	do	71·4
No.6.	do	do	do	do	71·8
No.7.	do	do	do	do	72·2
No.8.	do	do	do	do	72·6
No.9.	do	do	do	do	73·0
No.10.	do	do	do	do	73·4
No.11.	do	do	do	do	73·8
No.12.	do	do	do	do	74·2
No.13.	do	do	do	do	74·6
No.14.	do	do	do	do	75·0

St. LAWRENCE WATERWAY

DIAGRAM SHOWING

DERIVATION OF DISCHARGE STAGE
FOR LOCK Nº 1 LACHINE
WITH WATER LEVEL AT UPPER St. ANNES
AT VARIOUS ELEVATIONS

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.



St LAWRENCE WATERWAY

DIAGRAM SHOWING

TYPICAL DISCHARGE STAGE RELATIONS LOCK No 1 LACHINE WITH WATER LEVELS UPPER St. ANNES AT TWO STAGES — INDICATING METHOD OF DETERMINING FINAL DISCHARGE STAGE RELATION

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS DATED NOV. 16TH 1926.

Note :- The discharges shown are made up as follows
1. Discharge at Pte. Claire.
2. Discharge of the Milles Iles and Des Prairies Rivers.
3. 1860/16,200 Discharge of St Maurice for Drainage Area.
4. One-half Discharge Richileau } Backwater effect.
5. One-third Discharge St. Maurice }

Water Surface Elevations at Varennes.

24
23
22
21
20
19
18
17
16
15

240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540

Estimated Discharge in 1000 c.f.s which would produce stages shown.

St LAWRENCE WATERWAY

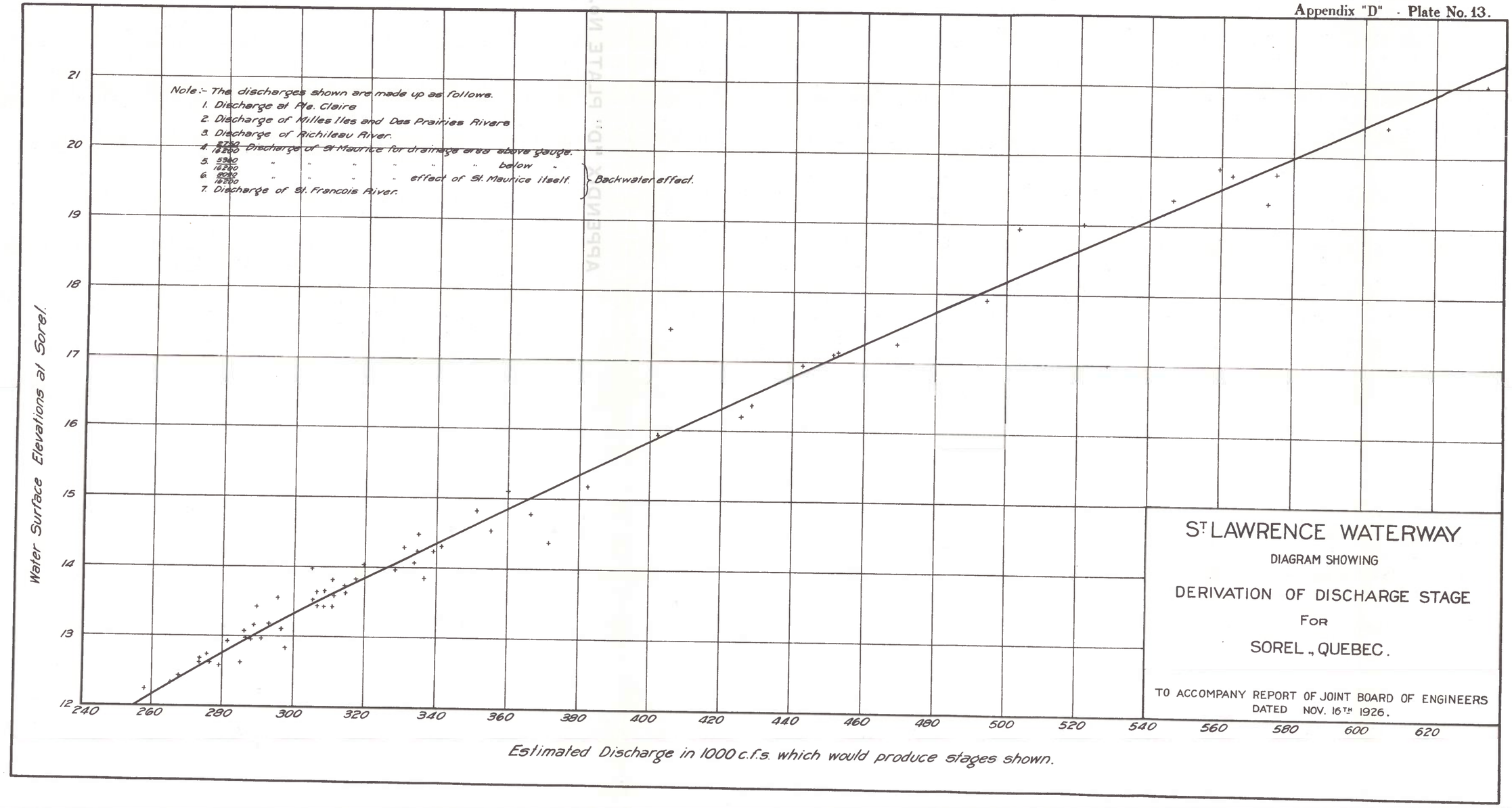
DIAGRAM SHOWING

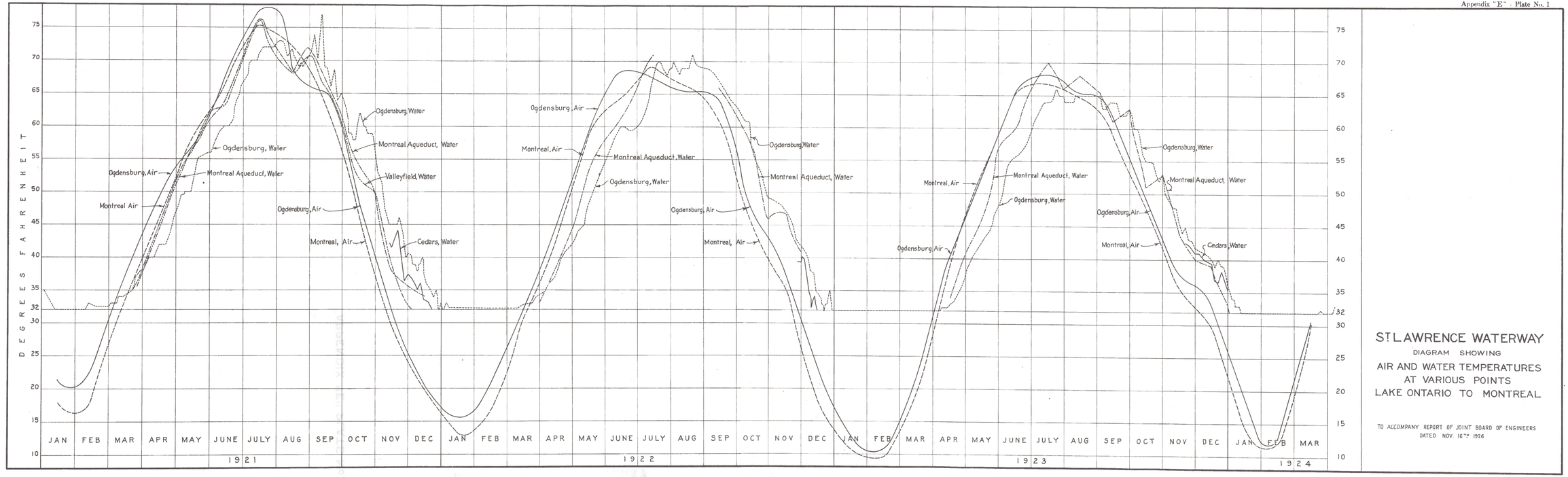
DERIVATION OF DISCHARGE STAGE

FOR

VARENNES, QUEBEC

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.


Note:- The discharges shown are made up as follows.
1. Discharge at Pte. Claire
2. Discharge of Milles Iles and Des Prairies Rivers
3. Discharge of Richilieu River.
4. 8280 / 18200 Discharge of St Maurice for drainage area above gauge.
5. 5940 / 16280 " " " " " " below "
6. 6040 / 18200 " " " " effect of St. Maurice itself.
Backwater effect.
7. Discharge of St. Francois River.
Water Surface Elevations at Sorel.
21
20
19
18
17
16
15
14
13
12
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
600
620
Estimated Discharge in 1000 c.f.s. which would produce stages shown.
ST LAWRENCE WATERWAY
DIAGRAM SHOWING
DERIVATION OF DISCHARGE STAGE
FOR
SOREL, QUEBEC.
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926.

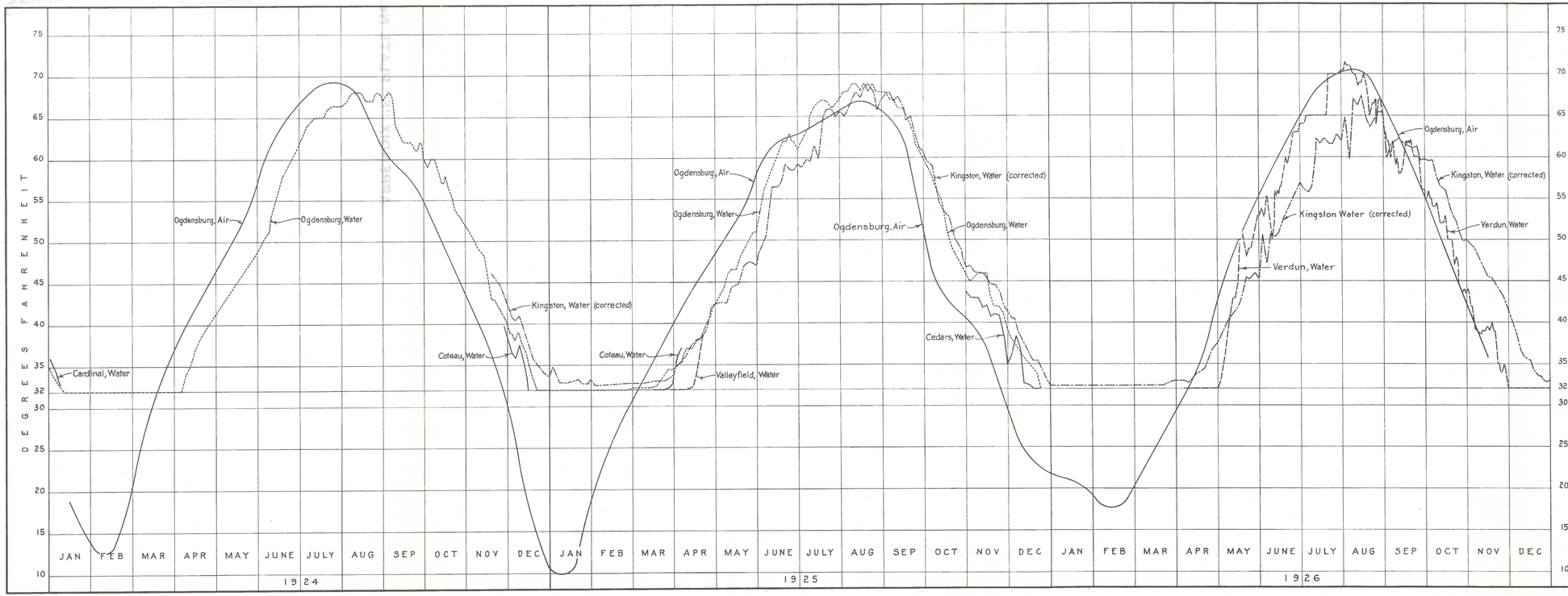


ST LAWRENCE WATERWAY

DIAGRAM SHOWING

AIR AND WATER TEMPERATURES AT VARIOUS POINTS LAKE ONTARIO TO MONTREAL

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926

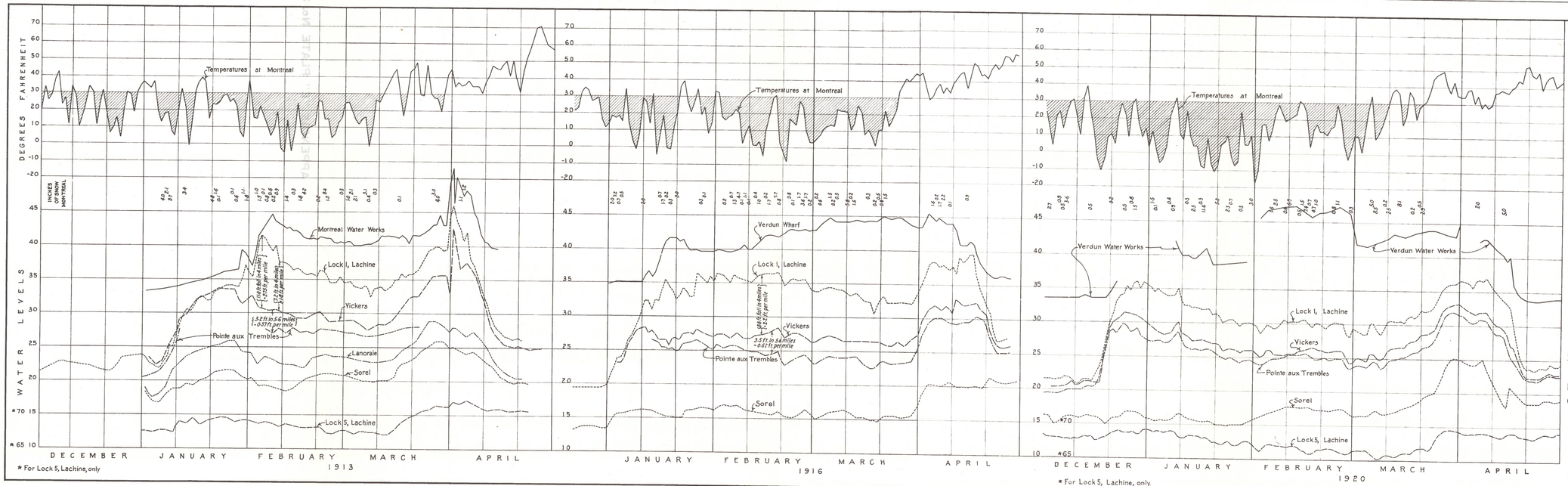


ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

AIR AND WATER TEMPERATURES AT VARIOUS POINTS LAKE ONTARIO TO MONTREAL

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV. 16TH 1926

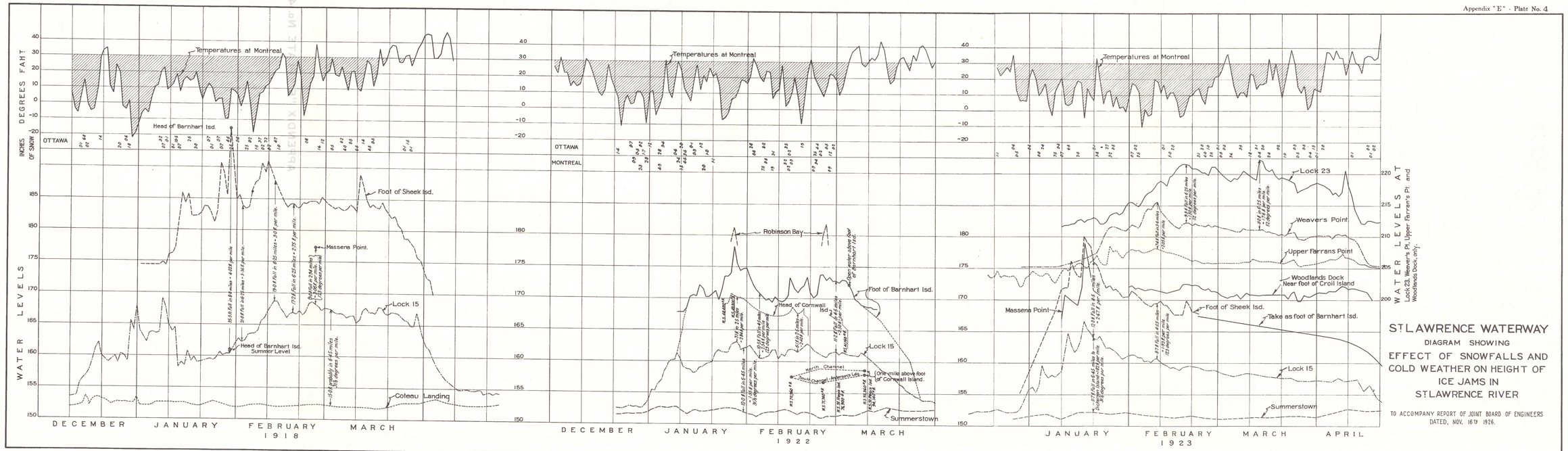


ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

EFFECT OF SNOWFALLS AND COLD WEATHER ON HEIGHT OF ICE JAMS IN ST. LAWRENCE RIVER

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS DATED NOV. 16TH 1926

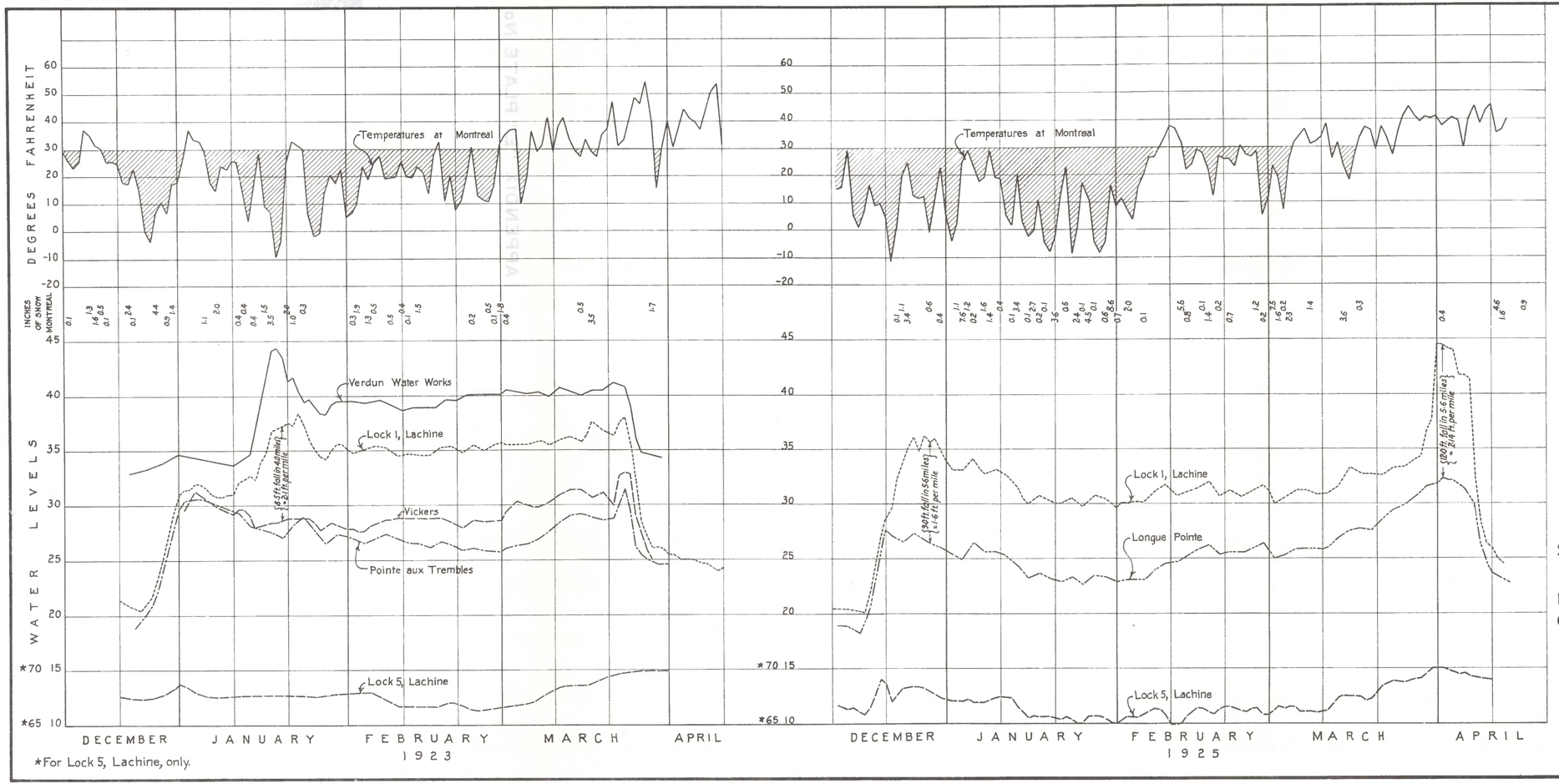


St. LAWRENCE WATERWAY

DIAGRAM SHOWING

EFFECT OF SNOWFALLS AND COLD WEATHER ON HEIGHT OF ICE JAMS IN St. LAWRENCE RIVER

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS DATED, NOV. 16TH 1926.



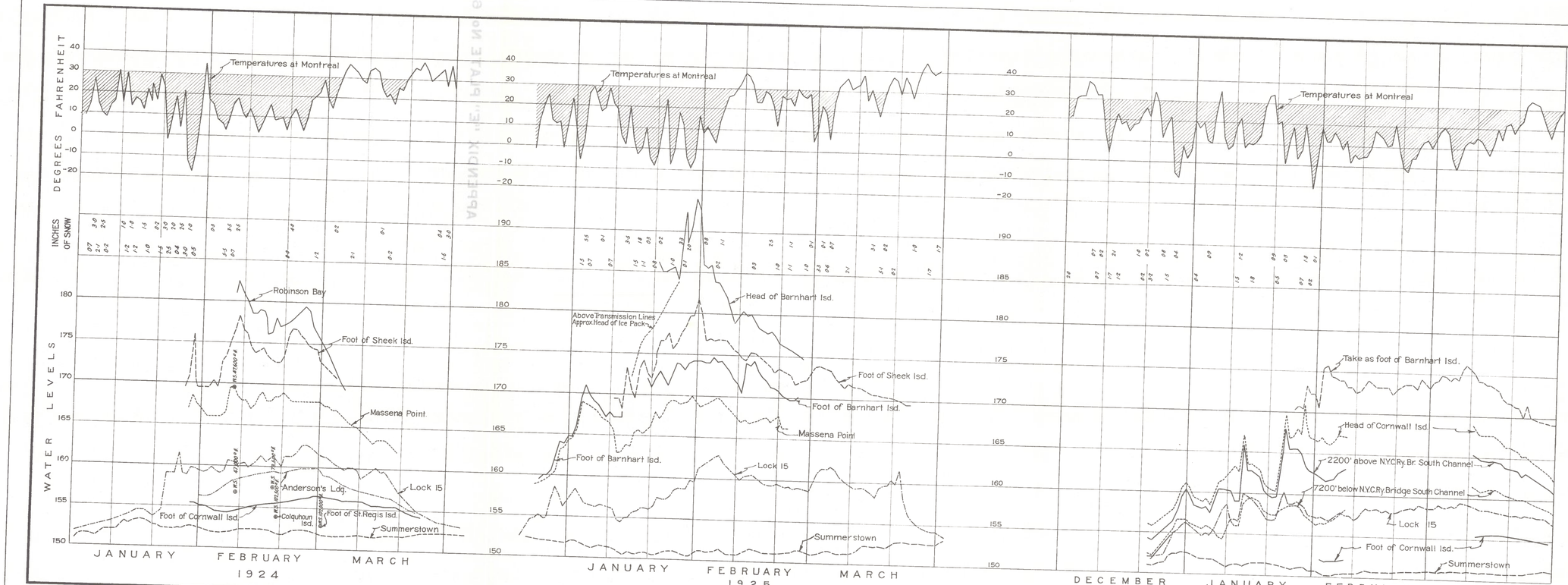
*For Lock 5, Lachine, only.

ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

EFFECT OF SNOWFALLS AND COLD WEATHER ON HEIGHT OF ICE JAMS IN ST. LAWRENCE RIVER

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS DATED NOV. 16TH 1926.

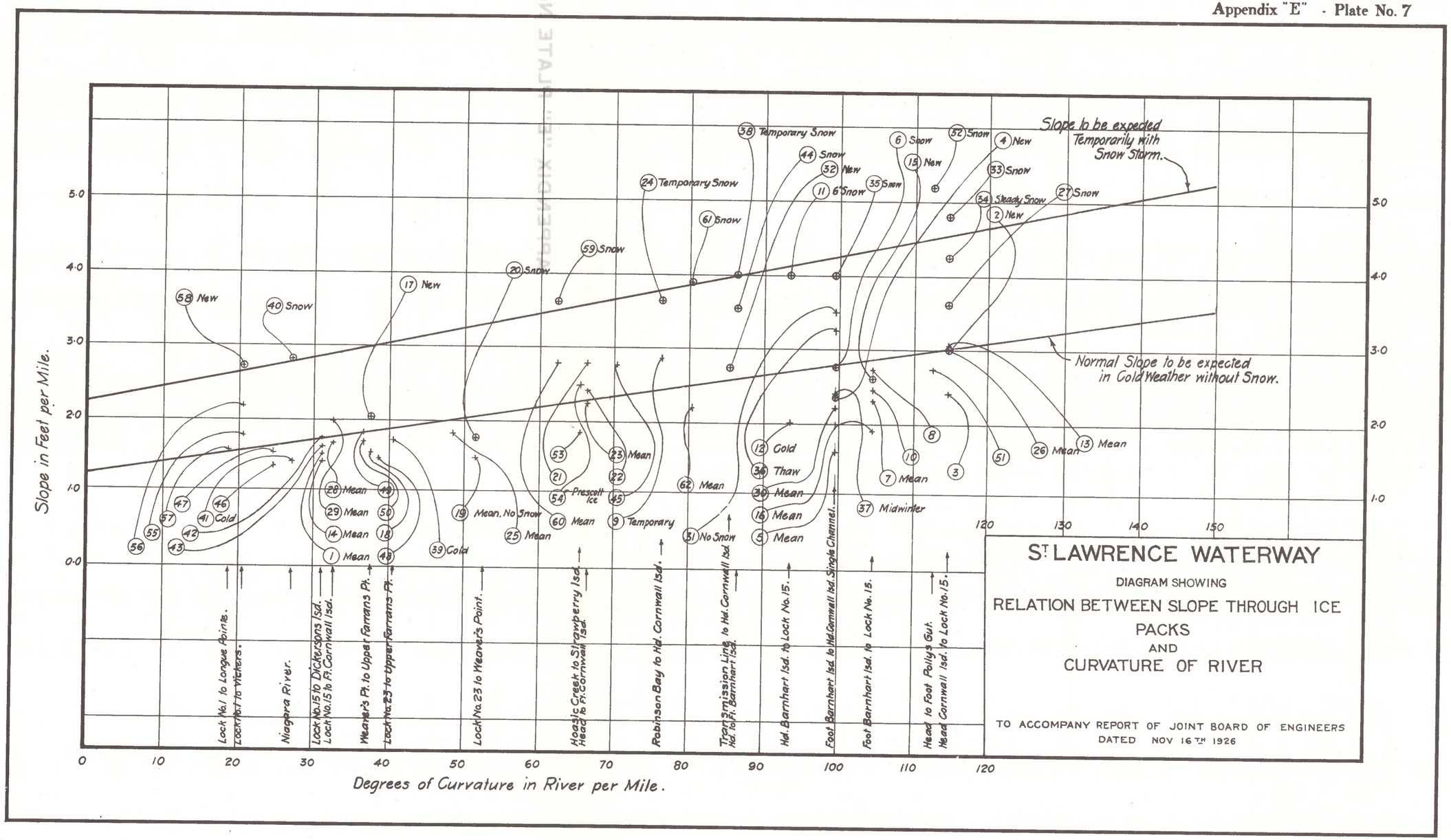


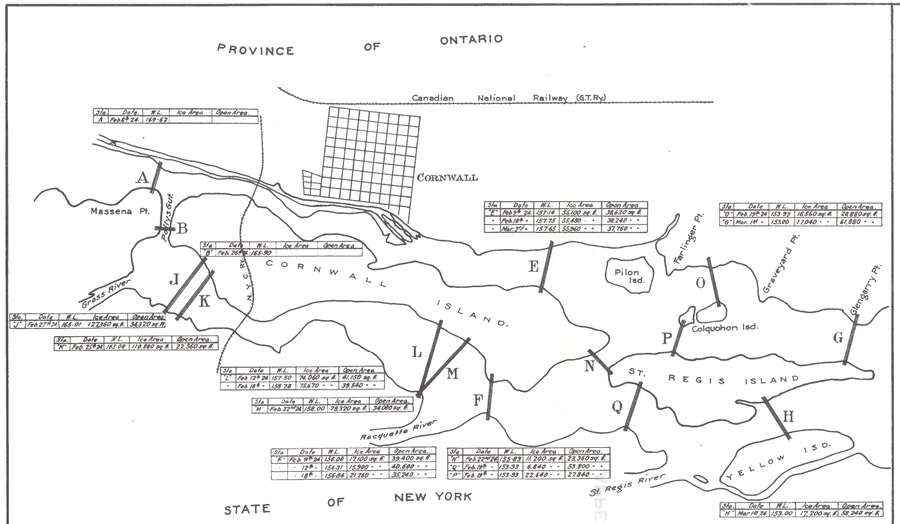
ST. LAWRENCE WATERWAY

DIAGRAM SHOWING

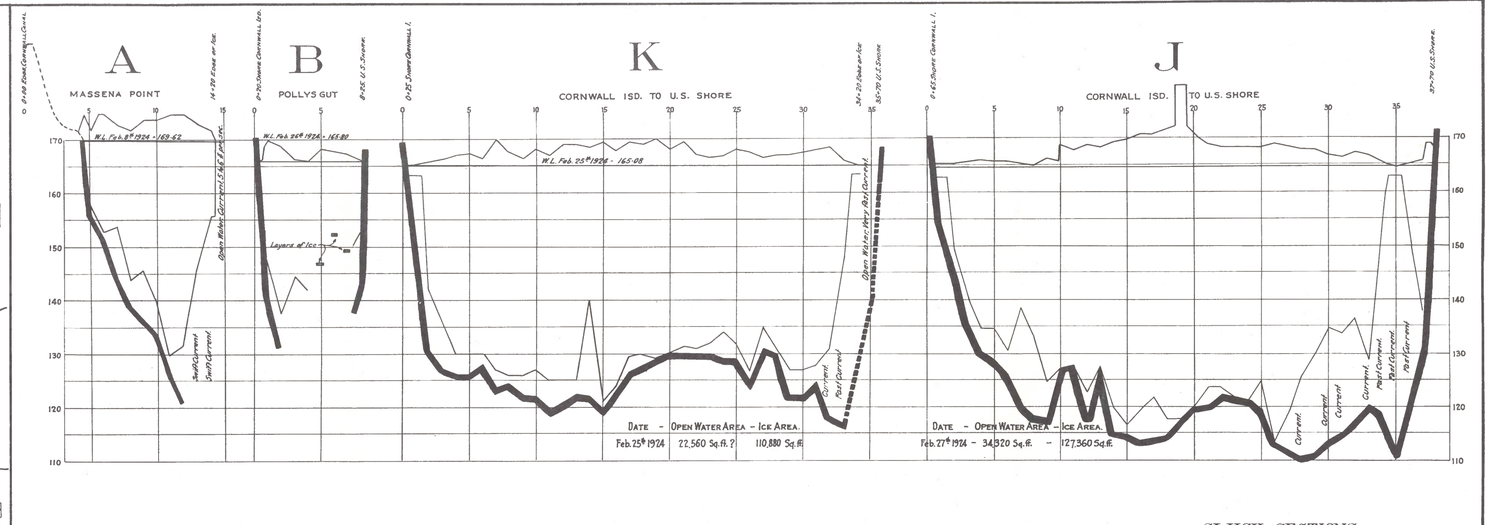
EFFECT OF SNOWFALLS AND COLD WEATHER ON HEIGHT OF ICE JAMS IN ST. LAWRENCE RIVER

TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED, NOV. 16TH 1926


Slope to be expected Temporarily with Snow Storm.
Normal Slope to be expected in Cold Weather without Snow.
Slope in Feet per Mile.
Degrees of Curvature in River per Mile.
0.0
1.0
2.0
3.0
4.0
5.0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Lock No.1 to Longue Pointe.
Lock Not to Vickers.
Niagara River.
Lock No.15 to Dickersons Isd.
Lock No.15 to Ft. Cornwall Isd.
Weaver's Pt. to Upper Farrans Pt.
Lock No.23 to Upper Farrans Pt.
Lock No.23 to Weaver's Point.
Hoople Creek to Strawberry Isd.
Head to Ft. Cornwall Isd.
Robinson Bay to Hd. Cornwall Isd.
Transmission Line to Hd. Cornwall Isd.
Hd. to Ft. Barnhart Isd.
Hd. Barnhart Isd. to Lock No.15.
Foot Barnhart Isd. to Hd. Cornwall Isd. Single Channel.
Foot Barnhart Isd. to Lock No.15.
Head to Foot Polly's Gut.
Head Cornwall Isd. to Lock No.15.
58 New
40 Snow
17 New
20 Snow
59 Snow
24 Temporary Snow
61 Snow
38 Temporary Snow
44 Snow
32 New
11 6" Snow
6 Snow
15 New
35 Snow
52 Snow
4 New
33 Snow
34 Steady Snow
27 Snow
2 New
56
55
57
43
42
47
46
41 Cold
28 Mean
29 Mean
14 Mean
1 Mean
48
18
50
19 Mean. No Snow
39 Cold
25 Mean
53
21
54 Prescott Ice
60 Mean
23 Mean
22
45
9 Temporary
62 Mean
31 No Snow
12 Cold
36 Thaw
30 Mean
16 Mean
5 Mean
37 Midwinter
7 Mean
10
8
3
51
26 Mean
13 Mean
ST LAWRENCE WATERWAY
DIAGRAM SHOWING
RELATION BETWEEN SLOPE THROUGH ICE PACKS
AND
CURVATURE OF RIVER
TO ACCOMPANY REPORT OF JOINT BOARD OF ENGINEERS
DATED NOV 16TH 1926

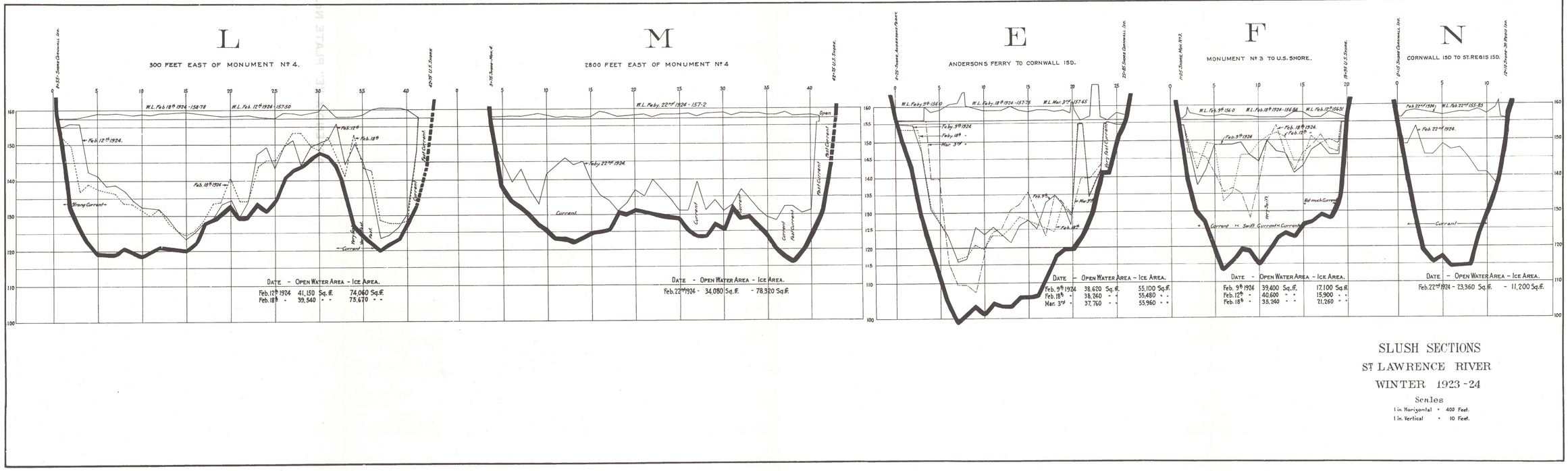


KEY PLAN
showing
LOCATION OF SLUSH SECTIONS
Scale - 1 in = 3040 ft.



SLUSH SECTIONS
ST LAWRENCE RIVER
WINTER 1923-24

Scales
1 in. Horizontal = 400 Feet.
1 in Vertical = 10 Feet.



SLUSH SECTIONS
ST LAWRENCE RIVER
WINTER 1923-24

Scales

1 in. Horizontal = 400 Feet.

1 in. Vertical = 10 Feet.