

NEW YORK
STATE
DEPARTMENT
OF
HEALTH

Herman E. Hilleboe, M.D.
Commissioner

WATER POLLUTION
CONTROL BOARD



WAT
156-4
EIGCD
94-80934
C.2

**LAKE ONTARIO
DRAINAGE BASIN
SURVEY SERIES
REPORT NO. 3**

NEW YORK STATE
ARCHIVES
GOVERNMENT DOCUMENTS

EIGHTEENMILE CREEK DRAINAGE BASIN

And Other Tributaries Entering Lake
Ontario Between Niagara River and
Eighteenmile Creek

Recommended Classifications and Assign-
ment of Standards of Quality and Purity
for Designated Waters of New York State

D

WAT
156-4
EIGCD
94-80934
C.2

N. Y. S. L.

NEW YORK STATE LIBRARY



B00254495B

**LAKE ONTARIO
DRAINAGE BASIN
SURVEY SERIES
REPORT NO. 3**

EIGHTEENMILE CREEK DRAINAGE BASIN

And Other Tributaries Entering Lake
Ontario Between Niagara River and
Eighteenmile Creek

Recommended Classifications and Assignments of Standards of
Quality and Purity for Designated Waters of New York State

WATER POLLUTION CONTROL BOARD

HERMAN E. HILLEBOE, M.D., Chairman

KEITH S. McHUGH

J. BURCH McMORRAN

DON J. WICKHAM

HAROLD G. WILM, Ph.D.

A. F. DAPPERT, Executive Secretary

NEW YORK STATE DEPARTMENT OF HEALTH

HERMAN E. HILLEBOE, M.D., Commissioner

CONTENTS

	Page
Letter of Transmittal – Executive Secretary to Water Pollution Control Board	4
Letter of Transmittal – Chief, Water Pollution Control Section, New York State Department of Health, to Executive Secretary, Water Pollution Control Board	5
Map 1 – General Location	6
Introduction	
A. Purpose	7
B. Waters Index System	7
C. Conduct of Survey	7
1. Hydrology	7
2. Land Usage	7
3. Water Usage	7
4. Determination of Present Defilement	7
a. Field Studies	7
b. Laboratory Examinations	8
Present Survey	
A. General	8
B. Historical	9
C. Past Studies	9
D. Waters Index System	10
E. Hydrology of Surface Waters	10
1. Description of Drainage Basin	10
2. Stream Flow	11
3. Climatological Factors	11
F. Land Uses	12
1. Residential	12
2. Industrial	12
3. Agricultural	12
4. Recreational	12
G. Present Water Uses	13
1. Public Water Supply	13
2. Recreation and Bathing	13
3. Fishing and Fish Culture	13
4. Agriculture	13
5. Industrial Water Supply	13
6. Fire Protection	13
7. Power Development	14
8. Transportation	14
9. Waste Disposal	14
H. Potential Future Water Uses	14
I. Results of Stream Sampling	14
1. Effects of Waste Discharges	14
2. Interpretation of Analytical Data of Stream Samples	14
3. Results of Special Determinations on Stream Samples	15
4. Effects of Pollution on Fishery	16

CONTENTS (Concluded)

Page
4
5
6
7
7
7
7
7
7
7
7
8
8
9
9
10
10
10
11
11
12
12
12
12
12
12
13
13
13
13
13
13
13
13
14
14
14
14
14
14
15
16

J. Recommended Classifications	16
1. General	16
2. Explanation of Table 1	16

APPENDIX

A. Tables	
1. Recommended Classifications	17
2. Summary of Eighteenmile Creek Flow Data at Burt	24
3. Stream Flow Data for Eighteenmile Creek and Tributaries, and Barge Canal	25
4. Stream Sampling Stations	26
5. Municipal and Institutional Discharges	29
6. Industrial Waste Discharges	33
7A. Analytical Results, Samples Collected by Health Department	40
7B. Analytical Results, Samples Collected by Conservation Department	42
8. Temperature and Precipitation Data	43
B. Graphs	
1. D.O. and B.O.D., Eighteenmile Creek	45
2. Coliform Group Density, Eighteenmile Creek	47
3. D.O. and B.O.D., Barge Canal	49
4. Coliform Group Density, Barge Canal	51
5. Average Results of Stream Flow Measurements, Eighteenmile Creek	53
C. Maps	
1-General Location	6
2-Quadrangle Arrangement	55
G-3 se-Fort Niagara	57
G-4 sw-Sixmile Creek	57
G-4 se-Wilson	59
G-5 sw-Newfane	61
H-3 ne-Lewiston	63
H-4 nw-Ransomville	65
H-4 ne-Cambria	67
H-5 nw-Lockport	69
H-5 ne-Gasport	71



ANSELMO F. DAPPERT, M.S.S.E.
Executive Secretary

NEW YORK
STATE DEPARTMENT OF HEALTH
WATER POLLUTION CONTROL BOARD

84 HOLLAND AVENUE
ALBANY 8, N. Y.

BOARD MEMBER

HERMAN E. HILLEBOE, M. D.
Commissioner of Health

DANIEL J. CAREY
Commissioner of Agriculture

SHARON J. MAUHS
Commissioner of Conservation

EDWARD T. DICKINSON
Commissioner of Commerce

JOHN W. JOHNSON
Superintendent of Public Works

TO: MEMBERS OF THE NEW YORK STATE WATER POLLUTION CONTROL BOARD

Submitted herewith is the report on the survey and studies of the surface waters of a portion of the Lake Ontario Drainage Basin. This portion includes the Eighteenmile Creek subbasin and other tributaries of Lake Ontario entering between the hamlet of Olcott and the mouth of the Niagara River.

This report is intended to fulfill the requirements of Section 1209, Article 12 of the Public Health Law relating to the proper study of specific waters prior to the classification and assignment of water quality standards to such waters.

In the study, consideration was given to the factors mentioned in the law; namely, physical and hydrologic features of the waters, usage of the lands bordering such waters, past and present and probable future usage of the waters, and the extent of present defilement.

I have reviewed this report and concur in the proposed classifications and water quality standards as recommended. The adoption of classifications and assignment of quality standards to these waters will be dependent upon the action of the Board following the public hearing which will be scheduled to consider this matter.

Respectfully submitted,

A. F. Dappert, P.E.
Executive Secretary

December, 1957

D MEMBER
LEBOE. M. D.
of Health
EY
f Agriculture
UHS
F Conservation
KINSON
f Commerce
SON
of Public Works



STATE OF NEW YORK
DEPARTMENT OF HEALTH

BUREAU OF
ENVIRONMENTAL SANITATION
MEREDITH H. THOMPSON, DR. ENGRG.
ACTING DIRECTOR
84 HOLLAND AVENUE
ALBANY 8

AN E. HILLEBOE, M. D.
COMMISSIONER

DIVISION OF LOCAL HEALTH SERVICES
V. A. VAN VOLKENBURGH, M. D.
ASSISTANT COMMISSIONER

Mr. A.F. Dappert, Executive Secretary
Water Pollution Control Board
84 Holland Avenue
Albany 8, New York

Dear Mr. Dappert:

Re: Report on survey and studies of
Eighteenmile Creek and other
tributaries within the Lake
Ontario Drainage Basin

This report covers the survey and studies of the surface waters of Eighteenmile Creek and other tributaries entering Lake Ontario between Eighteenmile Creek and the Niagara River and includes a section of the Barge Canal within the area. The survey was made between May and August, 1956.

The field work and preparation of this report were under the direction of Mr. William J. Barnum, Senior Sanitary Engineer of this Section. Members of the field staff from this Department were: Mr. John J. Ring, Assistant Sanitary Engineer; Mr. William Ullmann, Senior Sanitary Chemist; Mr. Robert A. Jung, Sanitary Chemist; and Mr. Robert A. Ashfield, Junior Sanitary Chemist.

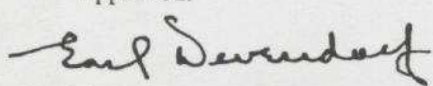
Field studies relating to fishery and fish life in the waters were made by Mr. Howard F. Dean, Aquatic Biologist; Mr. Earl F. Harris, Analytical Chemist; and Mr. Louis E. Redington, Temporary Chemist of the New York State Conservation Department. Mr. George E. Burdick of that Department prepared the material in the report on fishery and fish culture.

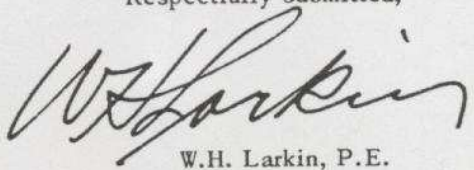
During the survey valuable advice and assistance were received from the staffs of the Buffalo Regional Office and the Lockport District Office of the State Department of Health.

Grateful acknowledgment is made of the assistance rendered by Mr. Joseph F. Ruppert, Chief Operator, and the staff of the Lockport Sewage Treatment Plant where our mobile laboratory unit was stationed. The officials of industrial establishments, municipalities, institutions, and state and Federal agencies were most cooperative in furnishing data for our studies.

The report includes recommended classifications for all surface waters within the designated subbasin. The recommendations have been made in accordance with the principle of best usage in the public interest and are submitted for the consideration of the Water Pollution Control Board.

Respectfully submitted,

Approved:

Earl Devendorf, P.E.
Director, Bureau of Environmental Sanitation

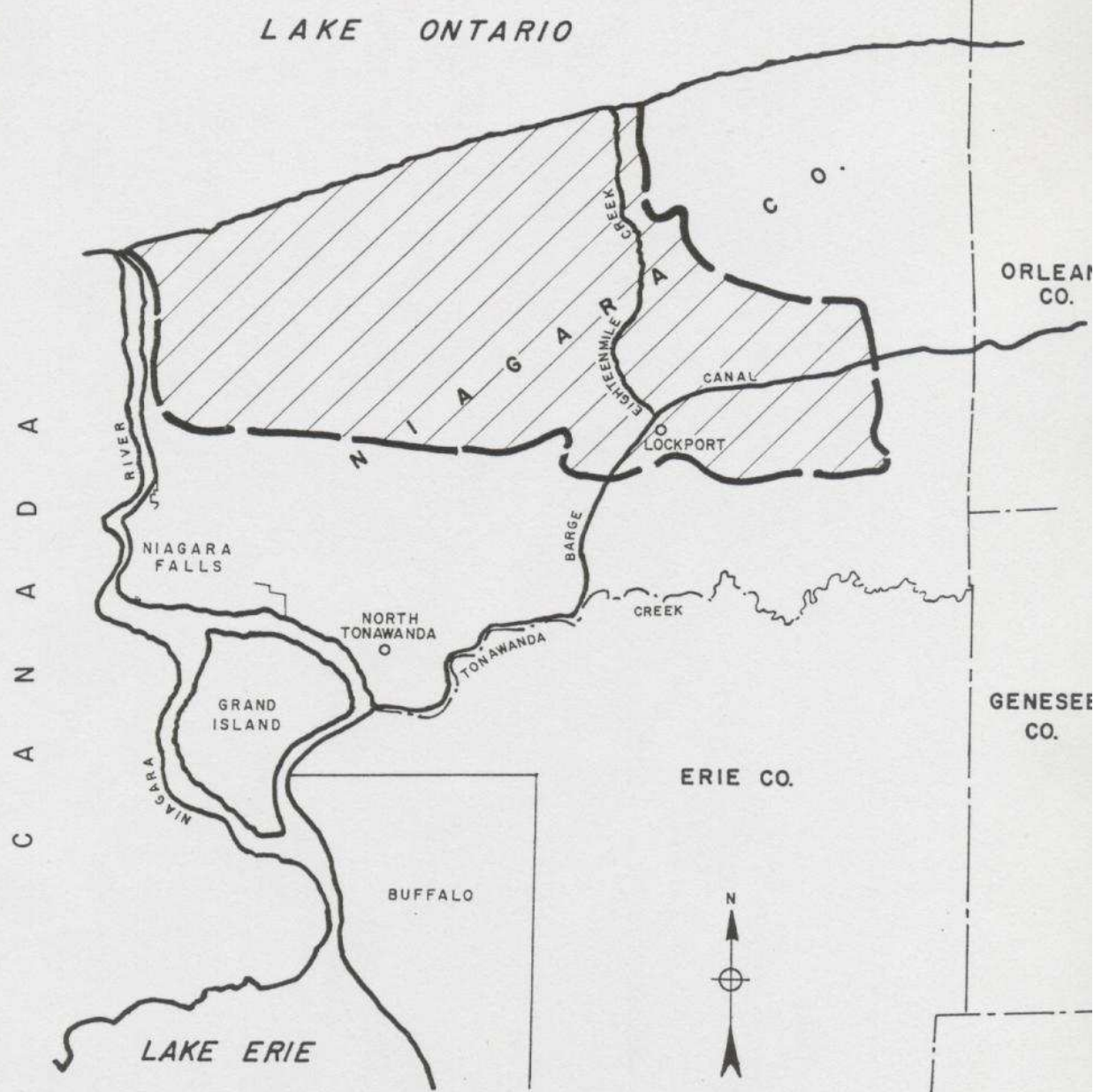

W.H. Larkin, P.E.
Chief, Water Pollution
Control Section

December, 1957



GENERAL LOCATION

MAP I



C
A
N
A
D
A

L A K E O N T A R I O

O R L E A N
C O.

E R I E
C O.

E R I E C O.

B U F F A L O

L A K E E R I E

S C A L E I N M I L E S



INTRODUCTION

A. PURPOSE

The purpose of these surveys and studies is to determine and give consideration to the factors mentioned in subdivision 3, Section 1209, Article 12 of the Public Health Law. These considerations must be given, under the provisions of this law, before any waters are classified or assigned standards of quality and purity.

B. WATERS INDEX SYSTEM

The numbering or index system used to identify specific waters of New York State was adapted from that used by the New York State Conservation Department in its Biological Survey series of reports on the watersheds of the state. The primary water of a drainage basin, a stream or large lake, is referred to by name or abbreviation. Ponds and lakes are numbered consecutively as they are encountered, such number being preceded by the letter "P". This system also involves the consecutive numbering of tributaries as they enter a stream, progressing upstream from the mouth. Tributaries of lakes or ponds are numbered consecutively as they enter, progressing clockwise around the lake or pond from its outlet or mouth.

To locate a specific point on a stream, a figure in parentheses is added following the waters index number. The "mileage index" indicates the distance in miles upstream from the mouth measured along the stream course.

C. CONDUCT OF SURVEY

During these surveys, data are collected for study and consideration in grouping the waters into the various proposed classifications.

1. HYDROLOGY

Hydrologic data including width, depth, hydraulic gradient and flow characteristics are noted at selected points including all stream sampling stations. The rate and volume of stream flow are determined from the records of gaging stations maintained by the United States Geological Survey. Hydro-power station records are also a source of stream flow data. Where additional flow information is desired, arrangements

are made with the United States Geological Survey for special stream measurements. The gradient of streams is determined by field reconnaissance and from the topographic maps published by the United States Geological Survey.

2. LAND USAGE

Information concerning the character and usage of the lands bordering upon the specific waters is obtained by reconnaissance. Additional information is obtained by consultation with local officials, local residents and representatives of industries and institutions.

3. WATER USAGE

Information on usage of waters for potable and industrial water supplies, the disposal of domestic, industrial and other wastes, and for fire protection is obtained by consultation with representatives of municipalities, industries, institutions and various official agencies. Information on usage of waters for recreation, swimming and transportation is gathered by field observation and consultation with official agencies. Data on usage of waters for fishery and fish culture are obtained from the New York State Conservation Department.

4. DETERMINATION OF PRESENT DEFILEMENT

a. Field Studies

Prior to the survey a list of probable sources of waste discharges is compiled from the records of this Department and the Conservation Department. All probable sources of waste discharges are located and investigated. This includes a visit to each municipality or establishment where information is obtained and recorded relating to source of wastes, type of wastes, treatment provided, flow quantities and variations, location and size of outfalls, and effect on receiving waters. During this visit, arrangements are usually made for sampling.

In light of information on sources of wastes, sampling stations are established on the major

streams where stream samples are collected and observations are made. These stations are located to bracket significant sources of pollution and to enable the collection of data showing trends of degradation and recovery from effects of waste discharges. At each station, grab samples are collected for chemical and bacteriological examination. When time permits, two runs are made, at least one of which is at a time of low stream flows. Samples are also frequently collected from streams and ponds which are not known to be polluted, to check the quality of water.

Effluents are sampled to determine the character of the discharges, the effect of treatment where such is provided, and the effect of the wastes on the receiving waters. Grab or composite samples, representative of the quality of the wastes, are collected. When special determinations are to be performed, duplicate samples are collected, one in a container specially prepared for preserving the sample. Usually, during the same period of effluent sampling, samples are obtained from the receiving stream at points above and below the point of waste discharge.

In addition, the Conservation Department makes a "run" during a low flow period in which chemical and biological samples are collected and observations are made with specific regard to the effects of waste discharges on fish life and the suitability of the waters for fish propagation and other aquatic life.

b. Laboratory Examinations

Because certain properties and concentrations of materials in waters may change rapidly, some determinations are made immediately after collection of the sample. These include temperature, pH value, carbon dioxide and dissolved oxygen (D.O.) concentrations. In addition, qualitative observations are made as to color, odor, turbidity and appearance of the stream. Quantitative determinations of color, odor, turbidity, suspended matter, chlorides, alkalinity, hardness, the most probable number (M.P.N.) of coliform organisms, biochemical oxygen demand (B.O.D.) and certain special constituents are made soon after collection of the sample in a mobile labora-

tory located at some central point on the drainage basin.

Sampling schedules are so arranged that maximum time elapsing between collection of samples and delivery to the mobile laboratory for examination never exceeds six hours, generally averages three hours. For many of the determinations on industrial wastes which are not required to be made within a specific time limit, samples are shipped to, and the analytical determinations made by, either the Division of Laboratories and Research at Albany or the Conservation Department Pollution Laboratory at Rome.

Stream samples to be examined for D.O., B.O.D. are collected in a special sampling device arranged to avoid entrainment or solution of atmospheric oxygen. Stream samples for bacteriological examination are collected by means of a sampler which permits the filling of a sterile sample bottle without contamination. Bacteriological samples are immediately iced for transportation to the mobile laboratory. Sample wastes are collected in clean containers.

Examinations are made in accordance with the procedures given in the latest edition of "Standard Methods for the Examination of Water and Sewage" published by the American Public Health Association. When unusual chemical combinations are encountered, modifications of "Standard Methods" may be employed. The analytical procedures used, which are departures from the "Standard Methods", are available upon request.

PRESENT SURVEY

A. GENERAL

The area considered during the survey in this report was the Eighteenmile Creek Drainage Basin, and the drainage basins of the tributaries of Lake Ontario between Eighteenmile Creek and the Niagara River. Also included was that portion of the Barge Canal within the topographical limits of the Eighteenmile Creek Drainage Basin. These waters lie wholly within Niagara County. Map 1 locates the area

respect to major communities, political subdivisions and adjacent drainage basins.

The engineering field studies were begun on May 14, 1956, and laboratory studies were begun on May 21, 1956. These studies were concluded on August 3, 1956.

Headquarters for the survey were established at the Lockport District Office of the New York State Department of Health. The mobile laboratory unit was established at the Lockport City sewage treatment plant.

Biological field studies were performed by the Rome Pollution Laboratory of the State Conservation Department. The second series of stream samples were collected by this unit in conjunction with their biological investigations.

During the survey valuable assistance, advice, and information were received from officials and staff of municipalities, institutions, and industrial establishments as well as from departments and agencies of the state and Federal governments.

B. HISTORICAL

Development of this area dates from 1669 when LaSalle led an expedition which set up a base at the mouth of the Niagara River, although prior to that time European explorers and missionaries had passed through this region. The strategic site, now known as Fort Niagara, was used by LaSalle as a base for further exploration. Later, a succession of forts and trading posts occupied the site for control of traffic between Lake Erie and Lake Ontario and the portage around Niagara Falls.

This area was opened to further settlement in 1798 following the *Treaty of Big Tree* at Geneseo between the Senecas and the United States Government and the purchase of the Indian title to the great western tract of land by the Holland Land Company. Development was slow at first chiefly because of inadequate transportation. It was not until the construction of the Erie Canal that this area was opened to widespread settlement and its destiny was shaped. During the construction of the canal, settlements were established along its route;

Lockport was so founded by construction crews, which formed a community nucleus during the construction of locks at that locality. During 1825 the canal was opened to Buffalo, thereby nourishing the flow of commerce into that city and the growth of adjacent areas.

The canal made Lockport a natural site for early industrial development. The fall of the water around the locks was used for power production. Consequently, the mills in the early history of the city were located along the canal and Eighteenmile Creek, where direct use could be made of the flowing waters. The subsequent provision of railroad service and other refinements of travel and communication, and the construction of modern power transmission systems resulted in industrial dispersion and diversification and agricultural specialization. Lockport, like many other modern cities, has become the hub of an industrial-agricultural-residential complex.

C. PAST STUDIES

Investigations of stream pollution situations in the drainage basin have been principally concerned with the City of Lockport and its immediate vicinity. The State Board of Health and later the State Department of Health caused studies to be made of stream pollution resulting in nuisance conditions in the canal and Eighteenmile Creek at Lockport. Records of several such investigations, dating from 1882 to the present, have pointed out the unwholesome situations arising from the discharge of sewage and industrial wastes to these waters. The recommendations resulting from these studies gave temporary and local relief from immediate causes of complaint, but little progress was made toward an over-all cure. Finally, the State Department of Health in 1928 took the position that "... permanent relief could be obtained only by the interception and treatment of the city sewage." Such interception and treatment works were constructed about 1940.

"A Biological Survey of the Lake Ontario Watershed," published by the State Conservation

Department in 1939, referred to pollution of Eighteenmile Creek and its tributaries due to sewage and industrial waste discharges at Lockport. Referring to the lower section of Eighteenmile Creek, this report stated, "Serious pollution evident above Newfane Reservoir (P 178 a) was still noticeable below the dam. Probably it is to some extent harmful to the fish; it may to some degree explain the relative scarcity of fish in this locality".

The Pollution Unit of the State Conservation Department has made investigations of fish kills in streams in this drainage basin due to discharges of industrial wastes.

"Water Pollution Series, Report No. 10, North Atlantic Drainage Basins," published by the U. S. Public Health Service in 1951, referred to a number of municipal and industrial pollutional situations and pointed to the needs for waste treatment facilities.

D. WATERS INDEX SYSTEM

The general application of the waters identification system has been described previously herein.

The primary water of this survey, Lake Ontario, is referred to as "Ont." Eighteenmile Creek, the one hundred and forty-eighth tributary entering the lake, progressing clockwise around the lake from its outlet at the St. Lawrence River, is designated as "Ont. 148." East Branch Eighteenmile Creek, the third tributary entering Eighteenmile Creek upstream from its mouth, is designated "Ont. 148-3." The first tributary of East Branch Eighteenmile Creek is designated "Ont. 148-3-1." A stream sampling point on East Branch Eighteenmile Creek nine-tenths mile upstream from the mouth would be designated "Ont. 148-3 (0.9)." Where streams shown on the newer U.S.G.S. quadrangles, used in this report, did not appear on the older maps used in the development of the index system, such are designated by a supplementary "a", "b" or "c" following the number of the nearest downstream tributary.

It is noted that in the upper part of Eighteen-

mile Creek the waters index number was signed irrespective of the name of the stream. For instance, the first tributary entering Eighteenmile Creek from the west above Ont. 148-3 (East Branch Eighteenmile Creek) was designated Ont. 148. Consequently, above this point, sections of Eighteenmile Creek were given designations of Ont. 148-4 and Ont. 148-4. This explanation may be further clarified referring to Table 1 and Map H-5 nw.

In this area the Barge Canal is not a natural watercourse and is not included in the general waters index system and is simply identified by name. Each bridge over the canal has a designation consisting of the letter "E" and a number. The "E" identifies it as a bridge crossing the Erie Division of the Barge Canal and the consecutive number of the bridge proceeding westerly from the first at the Village of Waterford follows. Thus, Big Bridge at Lockport is E-203 or the two hundred and thirty-third bridge crossing the canal west of the first at Waterford. Points on the canal between bridges are located by a number in parentheses indicating the distance in miles westerly of the reference bridge.

E. HYDROLOGY OF SURFACE WATER

1. DESCRIPTION OF DRAINAGE BASIN

Eighteenmile Creek and the other tributaries of Lake Ontario included in this survey drain an area of 233 square miles. The area has a maximum width of about twenty-six miles in an east-west direction and a maximum north-south dimension of about thirteen miles. Most of the tributaries of the lake are small in size. The largest stream is Eighteenmile Creek, having a drainage area of about 93 square miles. Its source is about two miles southeast of Lockport, and the stream flows through the City of Lockport and then north to enter Lake Ontario at Olcott. A part of the stream channel in Lockport is a tunnel or sewered section. Among the tributaries entering Lake Ontario west of Eighteenmile Creek are Twelvemile Creek and East Branch Twelvemile Creek, which drain areas of 45 and 30 square miles, respectively.

The major topographical feature of the drainage basin is the Niagara escarpment, a ridge which extends across the basin and passes through Lewiston and Lockport. Between the ridge and Lake Ontario is the rather flat Ontario Plain. At Lockport both Eighteenmile Creek and its tributary, which courses through a ravine called "The Gulf", flow over the ridge cutting through dolomite strata and forming cascades. At Lockport, too, are the tandem locks of the Barge Canal which raise and lower craft over this ridge.

The Barge Canal is an artificial waterway and receives little drainage from within this basin. Eighteenmile Creek and its main tributary, East Branch Eighteenmile Creek, cross under the canal via culverts and both have their flows augmented by discharges from the Barge Canal.

2. STREAM FLOW

Gaging stations, for the collection of continuous discharge data, have never been established by the U.S. Geological Survey on any of the streams in the area covered by this report. However, flow records of Eighteenmile Creek at the Burt hydro-electric station have been made available by the Niagara Mohawk Power Corporation, and a summary of these records is appended as Table 2.

Most of the tributaries of Lake Ontario in this drainage basin are small and are completely dry during the summer months. Eighteenmile Creek, the only tributary in this basin having a definite year-round flow, owes much of its dry-weather flow to the waste discharges it receives along its course and to diversions from the Barge Canal.

Water is diverted from the canal at Lockport for purposes of supplying industrial users and for dilution of the effluent of the Lockport sewage treatment plant. The City of Lockport has a commitment from the New York State Department of Public Works permitting diversions from the canal not to exceed 125 c.f.s. during the period from May to October and not to exceed 75 c.f.s. during the period from November to April. The Lockport and Newfane Mill Owners Association

has a commitment from the same authorities permitting a diversion of 100 c.f.s. for use in the processing of paper products. These diversions to Eighteenmile Creek take place at the waste weir located about 300 feet west of the Exchange Street Bridge on the south side of the canal. A commitment from the canal authorities permits the Town of Hartland a maximum diversion of eight c.f.s. from the canal to augment the flow in East Branch Eighteenmile Creek for fire protection and agricultural purposes.

During the survey period, and concurrent with the stream sampling periods, special gagings were made by the U.S. Geological Survey at selected sites along Eighteenmile Creek and the Barge Canal. The results of these gagings are appended in Table 3. It is interesting to note that a definite reduction of flow occurs in Eighteenmile Creek between Clinton Street and the sewage treatment plant outfall in the City of Lockport. This effect is illustrated on Graph 5, appended, and may be at least partly accounted for by infiltration into fissured limestone strata or sewers.

The flow in Eighteenmile Creek in the section from Burt to the mouth experiences considerable diurnal fluctuation due to the operations of the hydro-electric station at Burt.

3. CLIMATOLOGICAL FACTORS

Appended is Table 8 which summarizes precipitation and temperature data for stations maintained by or for the United States Weather Bureau in the immediate vicinity of this drainage basin.

In general, the weather in this basin is dominated by its proximity to the Great Lakes which exert a moderating influence on extremes in temperature and also serve as a storm track for weather systems approaching from the west.

From Table 8 it may be noted that precipitation during July, August, and September, 1956, at the Lockport station was somewhat in excess of the long-term mean precipitation for these months.

Table 8 shows that mean monthly temperatures at Lockport for July, August, and September, 1956, were somewhat lower than the long-term averages for these periods.

Since the precipitation was higher than normal and the temperatures were lower than normal during the periods of stream sampling, we may deduce that the results of these stream sampling runs reflect a more favorable picture than we could normally expect. Therefore, results more critical than those obtained could be expected when the precipitation is normal or less, and when the temperature is normal or higher.

F. LAND USES

1. RESIDENTIAL

The estimated total population in the drainage basin, based on 1950 census figures, is 46,221 of which 33,740 or about three-fourths live in the Eighteenmile Creek Drainage Basin. Of the total, 30,500 or about two-thirds live in the incorporated communities and larger hamlets. A breakdown by land areas and estimated population is given in the following table:

<i>Subdivision of Drainage Basin</i>	<i>Land Area in Drainage Basin (sq. mi.)</i>	<i>Estimated Population</i>
T. Cambria	26.2	1,535
T. Hartland	8.5	441
T. Lewiston	25.2	3,275
Lockport City	7.1	25,133
T. Lockport	25.0	2,110
T. Newfane	35.8	4,708
T. Porter	31.3	3,474
T. Royalton	20.8	1,664
Tuscora Reservation	2.7	175
T. Wilson	<u>50.2</u>	<u>3,696</u>
Total for Drainage Basin	232.8	46,211

The most concentrated residential areas are located in the City of Lockport, the Villages of Youngstown, Lewiston and Wilson and the hamlets of Olcott, Newfane and Gasport. Other residential developments may be found in many small unincorporated communities besides the usual rural development associated with agriculture. The average population density of the basin is about 200 persons per square mile.

2. INDUSTRIAL

Lockport is a highly industrialized city with over 55 concerns are engaged in the process or manufacture of such products as chemicals, crushed stone, automotive parts, papers, felts, plastics, steel, cotton and wool, food, machinery and tools.

At Newfane and Burt may be found food processing and storage plants, a wool felt industry, a chemical plant, a machine and tool plant and some diversified small industry. Located at Gasport are several machine and tool plants, a number of cold storage establishments, and a vine works. At Wilson, are establishments for the processing of foods and related industry. Southwest of Ransomville at the U.S. Government Reservation are several industrial concerns which carry out operations under contract for various agencies of the Federal Government. Chemical manufacture and processing plants are also located at Elberta and Model City.

A network of good highways, the Barge Canal service and the nearby New York Thruway provide the area with transportation facilities for securing raw materials and for shipment of finished products.

3. AGRICULTURAL

The major agricultural pursuit in the basin is fruit growing. Extensive apple, peach, and cherry orchards are to be seen, particularly along the Ontario plain where climatological factors favor this type of agriculture. Fruit crops may be marketed immediately after harvest, cold-stored for later marketing, or canned.

Tomatoes are grown in quantity and are mostly processed and canned. The produce from large acreages in truck crops helps supply the nearby markets in the Buffalo-Niagara Falls Metropolitan area. There is some dairy and beef cattle farming for local markets.

4. RECREATIONAL

Recreational use of the land is most intensive along the Lake Ontario shore which is lined with beaches owned by clubs, associations and individuals. While many of these beaches are privately owned, a number are open to the public for a fee. A public beach is maintained at Krull Park at Olcott. Fort Niagara State Park provides facilities for picnicking and general recreation.

Near the mouths of Eighteenmile, East Branch Twelvemile and Twelvemile Creeks are recreational developments used in conjunction with small-boat harbor facilities.

Private recreation parks are operated at Mirror Lake near Gasport, at Sandhurst Park Club west of North Ridge, and at Bedfords Beach located northeast of Wrights Corners. Club golf courses are operated at Lockport and northeast of Youngstown.

G. PRESENT WATER USES

1. PUBLIC WATER SUPPLY

None of the surface waters of the drainage basin is used as a primary source of supply for a public water system. An impoundment on East Branch Eighteenmile Creek (Ont. 148-3-P 182d) is used as an auxiliary source of supply for the water district serving Gasport. The City of Lockport uses the Barge Canal as an emergency source of supply. Other public supplies in the basin are derived from the Niagara River, Lake Ontario or the ground waters.

2. RECREATION AND BATHING

The waters near the mouths of Eighteenmile, East Branch Twelvemile, and Twelvemile Creeks are used for bathing and other uses incidental to pleasure boating.

Mirror Lake (Ont. 148-3-P 182 b) near Gasport, P 181 a located northeast of Wrights Corners and P 189c (Sandhurst Lake) located west of North Ridge are privately operated developments used for swimming and recreation.

P 190a through P 190f, a series of private ponds northwest of Pekin, are used for swimming and recreation.

3. FISHING AND FISH CULTURE

Eighteenmile Creek from the dam near Burt to the source is not considered to be fishing water, although prior to 1938 great northern pike and pikeperch were reported present in the reservoir formed by the dam. The substandard, if not actually lethal, condition of the stream as relates to fish life, particularly during periods of low stream flow, results from oxygen-demanding and toxic materials from the sewage and industrial discharges at Lockport. The Burt dam also forms a physical barrier to the passage of fish upstream on migration runs from Lake Ontario, when stream conditions are more favorable.

The backwater from Lake Ontario extends nearly to the dam at Burt and is populated at times with most of the species to be found in the shallow-water areas of Lake Ontario. Reported, bullheads, yellow perch, largemouth bass, rock bass, pikeperch and northern pike are present. Although some fishing is conducted in this area, catches are generally poorer than in the mouths of other less polluted streams. The two-and-a-half-mile length of estuarine water could become an important recreational facility in this area, with the proper adjustment of the pollutional loading on the stream and the reduction or elimination of toxic chemical waste discharges.

4. AGRICULTURE

Most of the waters in the basin, including that section of the Barge Canal east of Lockport, flow through or are adjacent to agricultural lands. These waters are used for livestock watering, spraying, irrigation, and other agricultural purposes. Many individuals and groups have obtained permits from the New York State Department of Public Works to draw water from the Barge Canal, especially for agricultural uses.

5. INDUSTRIAL WATER SUPPLY

At Lockport, Eighteenmile Creek is used as a source of water for paper-making operations by the Flintkote Company and the United Board and Carton Company. The Upson Company and Simonds Saw and Steel Company take water from the Barge Canal for industrial process use. Two isolated ponds, P 189a and P 189b, located north of the Barge Canal at Lockport are used for industrial water supply by Niagara Abrasive Company and Frontier Stone Products, Inc., respectively.

At Gasport, the Barge Canal and Mirror Lake provide cooling waters for cold storage plants and a vinegar plant.

6. FIRE PROTECTION

Eighteenmile Creek serves as a source for the auxiliary fire protection systems of the Lockport Felt Company plant at Newfane and the United Board and Carton Corporation plant at Lockport. The Barge Canal is the water supply source for the auxiliary fire protection systems of the Simonds Saw and Steel Company and The Upson Company plants at Lockport.

7. POWER DEVELOPMENT

Eighteenmile Creek is used by Niagara Mohawk Power Corporation at Burt for generation of electrical power. This automatically operated installation has an installed generator capacity of 1,000 kilowatts. At Lockport, the Niagara Mohawk Power Corporation hydro-electric plant utilizes flow in the canal in excess of requirements for navigation and operation of the locks. This plant has an installed generator capacity of 4,687 kilowatts. When the canal is drained in the winter, this station does not function. Canal water is also used to operate the New York State Department of Public Works generator stations to provide power for the operation of the locks. East Branch Eighteenmile Creek furnishes power through a waterwheel for operation of a feed mill northeast of Gasport.

8. TRANSPORTATION

The mouths of Eighteenmile, East Branch Twelvemile and Twelvemile Creeks have been developed as refuge harbors where small-boat and pleasure-craft anchorages may be found. No commercial-scale usage of these harbors is known.

The Barge Canal provides a low-cost water route for movement of bulk commodities. Of recent years, traffic is principally in oil and petroleum products, grain, fertilizer, scrap and other miscellaneous bulk materials. The canal also has an extensive private-pleasure-craft traffic. The navigation period is usually from April to December. During the winter period the canal is closed to traffic and partly drained to permit repair work.

9. WASTE DISPOSAL

The sewage and industrial wastes from most of the communities of the area are ultimately discharged into the surface waters of the drainage basin. However, the treated sewage and industrial wastes from the villages of Youngstown and Wilson and from a portion of the United States Government Reservation west of Ransomville are discharged to Lake Ontario and the Niagara River, which waters are not considered in this report. In Table 5, "Municipal and Institutional Discharges," and Table 6, "Industrial Waste Discharges," appended, is listed the pertinent information concerning each waste discharge situation.

H. POTENTIAL FUTURE WATER USES

Consideration has been given to the expanded use of the Barge Canal Waters for the supplemental irrigation of crops, especially in the agricultural regions east of Lockport.

It is not expected that other future uses differ materially from the present uses in immediate future. However, improvement in water quality, resulting from the adequate treatment of all sewage and industrial wastes charges, would permit the extension of present water-use zones.

I. RESULTS OF STREAM SAMPLING

1. EFFECTS OF WASTE DISCHARGES

Appended are Table 5, "Municipal and Institutional Discharges," and Table 6, "Industrial Waste Discharges," which include the effects of waste discharges on the receiving waters. In these tables, the effects are generally based on stream observation, although in a few instances the effects are described from the results of analytical data of samples collected either from the effluents or from points above and below outfalls.

2. INTERPRETATION OF ANALYTICAL DATA OF STREAM SAMPLING

In Tables 7A and 7B, appended, are listed the analytical results of tests made on samples collected at the stream sampling stations listed in Table 4 appended. In Table 7A, the columns headed "Appearance of Stream" are code letters and numbers which, by use of the key, identify the physical condition of the stream from the viewpoint of the observer at the station at time of the sampling. The data in the remaining columns of Table 7A, and the data in Table 7B are the results of laboratory tests on samples collected from the stream and related information of the sampling.

The quality of water in streams is of interest to many groups, and so a variety of tests is made and the results are included in the tables. Among the most important measures of stream defilement are dissolved oxygen, biochemical oxygen demand, and coliform density. Dissolved oxygen (D.O.) is expressed in parts per million (p.p.m.) and the five-day biochemical oxygen demand (B.O.D.) in parts per million measured at 20°C or 60°F. In the case of the Conservation Department results, the coliform density is expressed in the most probable number of organisms per one hundred milliliters (M.P.N.).

Graph 1 shows the D.O. and B.O.D. values and Graph 2 shows the logarithmic average results of the M.P.N. values of samples collected from Eighteenmile Creek. Similarly, Graph 3

Graph 4 illustrate the respective values in samples collected from the Barge Canal. The location of waste discharges is shown at the top of each graph. On the botton of each graph, landmarks are given for reference purposes.

As shown on Graph 1, high fluctuating values of the B.O.D. in and near Lockport have resulted from the various sewage and industrial waste discharges. The B.O.D. reached a high value of 22.2 p.p.m. at a point just below the Lockport sewage treatment plant. Below this point, this organic load was generally reduced as a result of natural purification. However, there were slight increases in the vicinity of Newfane and Burt, which reflected the discharges of organic wastes at these communities. Despite the high organic loading at Lockport, the values of the D.O. remained at unexpectedly high values in the stream section from the Clinton Street Bridge to the highway bridge (U.S. Route 104). This was, in part, due to the rapid reaeration of the water while cascading over low falls. At Jacques Road, the oxygen reached a low concentration of 1.2 p.p.m. Downstream from this point, the stream appeared to recover as shown by the gradual increase in the oxygen values. The supersaturated oxygen concentration at the impoundment near Burt was evidently caused by the photosynthetic action of the prolific growth of algae. Although this high oxygen concentration was found in the surface sample collected on the first run, a sample collected at a depth of 30 feet on the second run showed considerably lower oxygen values near the bottom of the impoundment, which partially accounts for the low oxygen value below the Power Dam. The diluting effects of lake waters influenced the dissolved oxygen concentration found at Olcott.

As illustrated in Graph 2, the M.P.N. values found at the various stream sampling stations show the trend of bacterial pollution resulting from discharges of sewage and other fecal matter. The peak density of coliform group organisms resulting from untreated municipal sewage discharges was found at the North Transit Road Bridge. Below this point, chlorine wastes from industrial plants caused a great reduction in the coliform concentration. A rise in the M.P.N. occurred in the section from Lockport downstream to the Ide Road Bridge at Newfane. This high coliform value was reduced after flow through the impoundment at Burt.

The Barge Canal has a rather low D.O. as it

enters the drainage basin, and it drops somewhat in Lockport due to sewage and industrial wastes received. East of Lockport City, there is a slight average improvement. These results are illustrated in Graph 3.

The coliform density of Barge Canal waters entering the drainage basin was of moderate order. There were fluctuations in the City of Lockport attributable to raw sewage discharges; but east of Lockport there was a decided drop and the coliform density was considerably lower as the canal flowed out of the basin. These results are illustrated in Graph 4.

3. RESULTS OF SPECIAL DETERMINATIONS ON STREAM SAMPLES

Determinations of special constituents in stream samples were made at points selected in light of knowledge of the wastes received from known discharges to the waters. Results of these determinations are not tabulated.

Determination of phenol concentrations in Eighteenmile Creek showed measurable concentrations at Lockport and some distance downstream attributable to discharges from a plastics plant.

Determination of cyanide and cyanuric chloride in Eighteenmile Creek failed to show the presence of measurable concentrations of these materials. A trace of cyanide was found in "The Gulf" immediately upstream from its entrance into Eighteenmile Creek and was attributable to discharges from an automotive parts plant.

Copper and chromium concentrations were determined and found to be significantly high at "The Gulf". Significant concentrations of copper were detected in Eighteenmile Creek, particularly near and downstream from the mouth of "The Gulf". These are attributable to the discharge from an automotive parts plant which discharges wastes to "The Gulf".

Free and total residual chlorine determinations were made on Eighteenmile Creek at sampling points downstream from two chemical plants at Lockport which were discharging wastes containing residual chlorine. Significant concentrations were found in the section immediately downstream from the points of discharge. This information is of importance in explaining the rapid disinfection of the stream accomplished in this stretch.

4. EFFECTS OF POLLUTION ON FISHERY

A major factor in Eighteenmile Creek is the oxygen content, which is minimal for the support of a desirable fish population in the section from Lockport down to the dam at Burt. At times, the oxygen concentration has been found to be at levels lethal to desirable fish species. Toxic substances from industrial discharges at or near lethal levels indicate a potential danger, especially when coupled with low oxygen levels which generally serve to increase the toxic effect.

Though there was a reduction in the oxygen level, conditions downstream from the Burt dam were not found to be as critical as in the upstream section.

There seems little justification for attempting to reclaim the section of the stream upstream from the Burt dam for fishing purposes, and it is doubtful if this could be accomplished unless a greater flow is released to the creek from the Barge Canal. However, unless conditions permitting the survival of fish life can be maintained in this section, it is improbable that the full potential of the more valuable estuarine waters near Lake Ontario can be realized.

J. RECOMMENDED CLASSIFICATIONS

1. GENERAL

The recommended classifications for the surface waters of Eighteenmile Creek and other tributaries of Lake Ontario covered in this report are given in Table 1 which follows this section. These recommendations are considered to represent the best usages of these waters in the public interest in light of the requirements of Article 12 of the Public Health Law, and are submitted for the consideration of the Water Pollution Control Board.

2. EXPLANATION OF TABLE 1

Waters Index Number – Identification of specific water under consideration in accordance with the system described under "Waters In System" and shown on the appended reference maps. Where such waters are named, the name is given here.

Character of District – A general description of the area bordering the water.

Condition of Waters – A general description of the condition of the waters with relation to pollution.

Present Usage – Includes a listing of known uses of the specific waters.

Best Usage – The single designation expressing the usage of the waters requiring the highest level of quality standards and considered to be in the best public interest.

Class – The letter designation indicating the recommended classification in accordance with the system adopted by the Water Pollution Control Board.

Comments – A brief summary of other information pertinent to the recommended classification of the waters under consideration.

Map Number – Refers to the appended map sheets on which the specific waters under consideration may be located.

TABLE 1
RECOMMENDED CLASSIFICATIONS

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Ont. 148 (Eighteenmile Creek) Mouth to N.Y. Route 18 bridge at Olcott	Residential, recreational, commercial	Polluted	Recreational boating, fishing, waste disposal	Fishing	C	Pleasure boat anchorages. Sewage discharged at Olcott	G-5 sw
Ont. 148 (Eighteenmile Creek) From N.Y. Route 18 bridge at Olcott to power dam at Burt	Residential, industrial, agricultural	Polluted	Fishing, agriculture, wastes disposal	Fishing	C	Lake fish spawning area. Wastes discharged at Olcott and Burt.	G-5 sw
Ont. 148 (Eighteenmile Creek) From power dam at Burt to Ide Road. (This section formerly designated as P 178 a).	Residential, agricultural	Slightly polluted	Fishing, agriculture, power, wastes disposal	Fishing	C	Pool for hydroelectric plant at Burt. Receives treated sewage from Newfane Sewer District.	G-5 sw
Ont. 148 (Eighteenmile Creek) From Ide Road to Trib. 4.	Residential, agricultural, industrial	Grossly polluted	Agriculture, auxiliary fire protection, wastes disposal	Agriculture	D	Receives textile wastes at Newfane	G-5 sw, H-5 nw
Ont. 148 From Trib. 4 to source.	Agricultural, residential	Natural	Agriculture	Agriculture	D	Wet-weather stream	H-5 nw, H-4 ne
a, b and tribs., c, d, e and tribs., 1 and tribs., 2 and tribs., 2a	Agricultural, residential, industrial, swampland	Natural	Agriculture	Agriculture	D	Small wet-weather streams	G-5 sw, H-5 nw
3 (East Branch Eighteenmile Creek) Mouth to P 182b	Agricultural, residential, woodland	Natural to Polluted	Fishing, agriculture, power, wastes disposal	Fishing	C	Receives treated sewage from Gasport. Water diverted from Barge Canal for dilution of Gasport sewage effluent. Grist mill near Gasport uses stream for power.	H-5 nw, H-5 ne
3 (East Branch Eighteenmile Creek) From P 182b to P 182d	Residential, industrial, agricultural, wooded areas	Natural	Source of water used for swimming pool, agriculture	Bathing	B	Flows into Mirror Lake	H-5 ne
3 (East Branch Eighteenmile Creek) P 182d to source	Agricultural, residential, wooded areas	Natural	Water supply, agriculture	Water Supply	A	Royalton Water District auxiliary water source	H-5 ne, H-5 nw
a, 1	Agricultural	Natural	Agriculture	Agriculture	D	Small wet-weather streams	H-5 nw
2 Mouth to Trib. 1	Agricultural	Natural	Fishing, agriculture	Fishing	C(T)*		H-5 nw

(T) refers to standards for trout waters

TABLE 1

RECOMMENDED CLASSIFICATIONS
(Continued)

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Ont. 148 (Eighteenmile Creek) 3 (East Branch Eighteenmile Creek) 2 From Trib. 1 to source	Agricultural, industrial, swampland	Natural to polluted		Agriculture	D	Receives wastes from Lockport Canning Co. and Wyndham Lawn Home	H-5 nw
	Agricultural, woodland Agricultural	Natural Natural	Fishing, agriculture Agriculture	Fishing Agriculture	C(T)* D		H-5 nw H-5 nw
1 Mouth to source 2, 2a	Agricultural, woodland swampland	Natural	Agriculture	Agriculture	D		H-5 nw H-5 ne
	2a, 2b, 2c and tribs., 3 and tribs., 3a, 3b and trib., 3c, 3d, 3e, 4 and trib., 4a and trib., 5 and tribs.	Natural					
P 181a	Recreational	Natural	Recreation	Recreation	B	Old gravel pit, used as private bathing beach	H-5 nw
P 182	Residential, agricultural, woodland	Polluted		Fishing		Mill power impoundment, mill abandoned	H-5 ne
P 182a	Agricultural	Polluted		Fishing	C	Impoundment provides water for powering operation of grist mill. Affected by sewage effluent from Gaspart plant	H-5 ne
P 182b (Mirror Lake)	Recreational, residential	Natural	Bathing, recreation, industrial water supply	Bathing	B	Developed as private recreation area	H-5 ne
P 182d	Wooded area, agricultural	Natural	Water supply	Water supply	A	Royalton Water District water source	H-5 ne
6 and tribs., P 182c, 7 and tribs., 8	Agricultural, woodland, swampland	Natural	Water supply, agriculture	Water supply	A	Royalton Water District water source	H-5 ne
	3a and trib.	Natural	Agriculture	Agriculture	D		H-5 ne
4 (Eighteenmile Creek) Mouth to Trib. 2		Grossly polluted		Agriculture	D	Receives wastes at Lockport	H-5 nw
	4 From Trib. 2 to source (The Gulf)	Polluted		Agriculture	D		

woodland
Agricultural, industrial, residential, ravine, woodland
polluted
Polluted
disposal
Agriculture, wastes disposal
Agriculture
Agriculture
Receives industrial discharges at Lockport
H-5 nw,
H-4 ne

TABLE 1
RECOMMENDED CLASSIFICATIONS
(Continued)

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Ont. 148 (Eighteenmile Creek) 4 (Eighteenmile Creek) 1	Agricultural, residential	Natural	Agriculture	Agriculture	D		H-5 nw
1a including P 183a	Industrial, woodland, abandoned quarry, steep embankment	Polluted	Drainage and waste disposal	Drainage	D	Receives wastes from industrial plant	H-5 nw
2 (Eighteenmile Creek) Mouth to source about 2 miles east of Lockport	Industrial, residential, ravine	Grossly Polluted	Industrial water supply, auxiliary fire protection, wastes disposal	Industrial water supply	D	Receives wastes from municipal sewers and treatment plant, and many industries. Receives dilution water from Barge Canal. Part of stream above canal is tunnelled.	H-5 nw
P 184a	Residential, industrial	Natural	Drainage	Drainage	D		H-5 nw
P 185a	Country Club Golf Course	Natural	Recreation	Recreation	B	Town and Country Club	H-5 nw
P 186, P 187	Industrial, residential	Grossly polluted	Industrial, water supply, wastes disposal	Industrial water supply	D	Industrial water supply impoundments	H-5 nw
2	Industrial, ravine, woodland	Natural to polluted	Industrial water supply	Industrial water supply	D	Receives water from Barge Canal	H-5 nw
2a and tribs., 3,4,5,6 and trib., 7	Residential, industrial, agricultural	Natural	Agriculture	Agriculture	D		H-5 nw
P 189a	Industrial	Polluted	Wastes disposal	Industrial water supply	D		H-5 nw
P 189b	Quarry	Polluted	Industrial water supply, wastes disposal	Industrial water supply	Exempt	Periodic discharges to municipal receiver	H-5 nw
4a, 4b and trib., 5 and tribs., 6 and tribs., 7	Farmland, woodland, open fields	Natural	Agriculture, sewage disposal	Agriculture	D	Trib. 5 receives treated sewage from Niagara Sanatorium	H-5 nw, H-4 ne
P 189c	Residential	Stagnant	Drainage	Drainage	D		G-5 sw

TABLE 7
RECOMMENDED CLASSIFICATIONS
(Continued)

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Ont. 148a and tribs., Ont. 148b	Residential, agricultural, woodland	Natural	Agriculture	Agriculture	D	Small or dry	G-5 sw
Ont. 149 (Hopkins Creek) Mouth to Lake Road	Agricultural, woodland, swampland	Natural	Fishing, agriculture	Fishing	C	Fish spawning area	G-5 sw
Ont. 149 (Hopkins Creek) From Lake Road to source and all tribs.	Agricultural, woodland and swampland	Natural	Agriculture		D	Small or dry	G-5 sw, G-4 se, H-5 nw, H-4 ne
Ont. 150 and tribs., Ont. 151 and tribs., Ont. 151a and trib., Ont. 151b and trib., Ont. 151c	Agricultural, woodlands	Natural	Agriculture	Agriculture	D	Small or dry	G-4 se
Ont. 152 (East Branch Twelvemile Creek) Mouth to N.Y. Route 18	Recreational, residential, swampland	Natural		Recreation	B	Includes Tuscarora Bay, Waterfront cottages and clubs, park area, small boat anchorage	G-4 se
Ont. 152 (East Branch Twelvemile Creek) From N.Y. Route 18 to source	Agricultural, residential, swampland	Natural	Agriculture	Agriculture	D	Small or dry	G-4 se, H-4 ne, H-4 nw
1 a and trib., 1, 2 and tribs. 1a through 7 and tribs.	Agricultural, woodland	Natural	Agriculture	Agriculture	D	Small or dry	G-4 se
	Agricultural, residential	Polluted	Agriculture	Agriculture	D	Receives raw sewage from Wilson. Stream small or dry	G-4 se
Ont. 152a (Twelvemile Creek) Mouth to N.Y. Route 18	Agricultural, woodland	Natural	Agriculture	Agriculture	D	Small or dry	G-4 se
	Agricultural, woodlands	Natural	Agriculture	Agriculture	D	Small or dry	G-4 se, H-4 ne, H-4 nw
Ont. 152a (Twelvemile Creek) Mouth to N.Y. Route 18	Recreational, residential, agricultural	Natural	Recreation, fishing, agriculture	Recreation	B	Waterfront cottages, small boat anchorage	G-4 se
	Residential, agricultural	Natural	Fishing, agriculture	Fishing	C	Small or dry	G-4 se
Ont. 152a (Twelvemile Creek) From a point 1.3 miles upstream from the mouth	Agricultural	Natural	Agriculture	jl-	D	Small or dry	G-4 se

Ont. 152a (Twelvemile Creek) From a point 1.3 miles upstream from the mouth to source

Agricultural

Natural

Agriculture

Agriculture

Small or dry

G-4 se,
G-4 sw,
H-4 nw

TABLE 1
RECOMMENDED CLASSIFICATIONS
(Continued)

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Ont. 152a (Twelvemile Creek) a and trib.	Agricultural, woodland, industrial	Some pollution	Agriculture, waste disposal	Agriculture	D	Small or dry. Receives wastes drainage from industrial plants at Elberta	G-4 sw, G-4 se
1 through 5 and trib.	Agricultural, residential, woodlands	Some local pollution	Agriculture, waste disposal	Agriculture	D	Small or dry. Receives raw sewage and treated sewage in vicinity of Ransomville	G-4 sw, G-4 se, H-4 ne, H-4 nw
P 189d	Recreational, woodland	Natural	Recreation	Recreation	B	Sandhurst Club Beach	H-4 ne
P 190a (Myers Pond)	Recreational, residential	Natural	Recreation	Recreation	B	Privately owned	H-4 nw
P 190b (Bonds Lake)	Recreational, residential	Natural	Recreation	Recreation	B	Privately owned	H-4 nw
P 190c through P 190f	Recreational, residential	Natural	Recreation	Recreation	B	Privately owned	H-4 nw
Ont. 152b through Ont. 153 and trib.	Agricultural, residential, woodland	Natural	Agriculture	Agriculture	D	Small or dry	G-4 se, G-4 sw
Ont. 154 (Sixmile Creek)	Agricultural, woodland	Natural	Agriculture	Agriculture	D	Small or dry	G-4 sw, H-4 nw
P 191 1 and trib., 2	Agricultural, swampland Agricultural, woodland	Natural Natural	Fishing, agriculture Agriculture	Fishing Agriculture	C D	Fish-spawning area Small or dry	G-4 sw G-4 sw
Ont. 154a through Ont. 155a and trib.	Agricultural, woodland	Natural	Agriculture	Agriculture	D	Small or dry. Cottages and summer homes along Lake Ontario	G-4 sw
Ont. 156 (Fourmile Creek) Mouth to Trib. 1	Agricultural, recreational	Natural	Fishing, agriculture	Fishing	C	Stream small	G-4 sw, G-4 se
Ont. 156 (Fourmile Creek) From Trib. 1 to source	Agricultural, woodland, residential	Natural to slightly polluted	Agriculture	Agriculture	D	Streams small or dry	G-4 se, H-4 ne

TABLE 1
RECOMMENDED CLASSIFICATIONS
(Continued)

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Ont. 156 (Fourmile Creek) a through 1b and tribs.		Natural	Agriculture	Agriculture	D		G-3 se, G-4 sw
1c		Natural with some pollution	Agriculture, waste disposal	Agriculture	D	Receives treated wastes from "Bell Test Center"	H-3 ne, H-4 nw
1	Agricultural	Natural	Agriculture	Agriculture	D		H-4 nw
2 and tribs.	U.S. Reservation, industrial	Polluted		Waste disposal	F	Serve as collection system for treated sewage and other wastes from "Bell Test Center." Treated by pH adjustment plant near mouth of stream.	H-4 nw
3	U.S. Reservation, industrial	Natural		Waste disposal	F	Mathieson Chemical Corp.	H-4 nw
4 Mouth to "N" Street	U.S. Reservation, industrial	Natural	Waste disposal	Waste disposal	F	Hooker Electrochemical Co.	H-4 nw
4 From "N" Street to source P 191a	U.S. Reservation, industrial	Natural	Drainage	Drainage	D		H-4 nw
5 and trib.	Agricultural, swampland	Natural	Agriculture	Agriculture	D		H-4 nw
	U.S. Reservation, industrial	Natural	Drainage	Waste disposal	F	Hooker Electrochemical Co.	H-4 nw
1d through 8c and tribs.		Natural with local pollution	Agriculture	Agriculture	D		H-3 ne, H-4 nw
Ont. 157 and tribs., including P 191b		Natural	Agriculture	Agriculture	D		G-3 se, H-3 ne
Ont. 157a	Park	Natural	Drainage	Drainage	D	Fort Niagara State Park	G-3 se

TABLE 1
RECOMMENDED CLASSIFICATIONS
(Concluded)

WATERS INDEX NUMBER	CHARACTER OF DISTRICT	CONDITION OF WATERS	PRESENT USAGE	BEST USAGE	CLASS	COMMENTS	MAP NO.
Barge Canal, From Wruck Road Bridge (E-219) to the lower level at Lock 34 including P 185 (Wide Waters), and P 184a	Farmland, residential, commercial and industrial	Slightly polluted	Fishing, navigation, industrial water supply, agriculture, wastes disposal	Fishing	C	Western end of the 60 mile level	H-5 ne, H-5 nw
Barge Canal, From the lower level at Lock 34 to the Erie-Niagara drainage basin topographical limit line extended across the canal	Industrial, residential and commercial	Polluted	Fishing, industrial water supply, power navigation, wastes disposal, emergency domestic water source, fire protection	Fishing	C	Classified waters westerly of this section	H-5 nw
Any other surface waters directly tributary to the Barge Canal within the topographical limits of the Eighteenmile Creek Drainage basin				Agriculture or Drainage	D		H-5 nw, H-5 ne

TABLE 2
SUMMARY OF EIGHTEENMILE CREEK FLOW DATA AT BURT

*Determined from Niagara Mohawk Power Corporation
Hydro-electric Station Records*

CALENDAR YEAR	DAILY AVERAGE FLOW (CFS)		MINIMUM AVERAGE SEVEN-CONSECUTIVE DAY FLOW	
	Maximum	Minimum	Period of Occurrence	Flow (cfs)
1930	2221	35	December 16-22	42
1931	531	35	January 5-12	49
1932	1637	35	December 15-21	49
1933	425	25	December 25-31	28
1934	946	25	February 14-20	26
1935	845	25	February 5-11	27
1936	2925	25	February 15-21	32
1937	997	25	December 9-15	42
1938	1767	10 **	November 7-13	27
1939	1060	25	December 21-27	30
1940	2001	25	February 2-8	33
1941	1195	15	May 9-15	42
1942	1915	33	December 15-21	46
1943	1142	46	June 20-26	49
1944	1322	48	December 5-11	82
1945	2160	25	June 22-28	49
1946	1159	25	March 26-April 1	48
1947	1739	25	February 22-28	65
1948	732	37	October 28 - November 3	56
1949	1084	45	September 11-17	78
1950	1192	10 **	November 4-10	76
1951 *	360	10	January 1-7	10
1952 *	500	30	December 24-30	61
1953 *	361	10	June 8-14	62
1954 *	335	10	February 21-27	10
1955 *	328	10	January 31 - February 6	15

** Record incomplete

* Flow figures from 1951 through 1955 do not include spillage

TABLE 3
STREAM FLOW DATA FOR EIGHTEENMILE CREEK AND
AND TRIBUTARIES, AND BARGE CANAL

From Discharge Measurements by U.S. Geological
Survey During Stream Sampling Periods

DAY FLOW w (cfs)	WATERS INDEX NUMBER AND DESCRIPTION OF STATION	SAMPLING PERIOD			
		July 16-19, 1956		Sept. 10-12, 1956	
		Date	Flow-cfs	Date	Flow-cfs
42	Ont. 148 (7.4) Eighteenmile Creek. Wading Station 250-400 feet upstream from Jacques Road Bridge.	17	87.7	10	107
49		18	76.7	11	118
49		19	79.9	12	104
28	Ont. 148-3 (0.9) East Branch Eighteenmile Creek. Wading station at the upstream side of U.S. Route 104 Bridge.	17	15.2	10	22.4
26		18	14.8	11	23.2
27		19	14.3	12	22.3
32	Ont. 148-4 (1.52) Eighteenmile Creek. From the upstream side of Stone Road bridge immediately downstream from the Lockport Sewage Treatment Pond and "The Gulf" (12.7 miles upstream from the mouth of Eighteenmile Creek).	17	80.7	10	84.3
42		18	76.9	11	85.9
46		19	75.5	12	80.1
49	Ont. 148-4 (1.73) Tributary of Eighteenmile Creek entering through "The Gulf". Wading station at the downstream side of Stone Road bridge.	17	3.90	10	4.12
32		18	4.35	11	4.75
49		19	4.31	12	4.27
65	Ont. 148-4-2 (0.1) Eighteenmile Creek. Wading station about 30 feet upstream from the Lockport Sewage Treatment Plant Outfall (13.0 miles up- stream from the mouth of Eighteenmile Creek).	17	62.1	10	67.3
56		18	60.4	11	68.4
78		19	59.1	12	65.3
76	Ont. 148-4-2 (1.24) Eighteenmile Creek. From the downstream side of the Clinton St. bridge (14.1 miles upstream from the mouth of Eighteen- mile Creek).	17	76.4	10	80.2
10		18	74.3	11	80.7
51		19	73.4	12	71.8
52	E-219 Barge Canal. At Wruck Road bridge east of Gasport	16	981		Not gaged
10	E-230 Barge Canal. At Exchange or Mill St. bridge in Lockport.	16	110		Not gaged
15	E-236 Barge Canal. At Summit St. bridge in Lockport.	16	1120		Not gaged

TABLE 4
STREAM SAMPLING STATIONS
(Sampling points designated by "A" on maps G-5 sw and H-5 nw)

NAME	MAP NO.	WATERS INDEX NUMBER	LOCATION	DESCRIPTION OF STREAM
Eighteenmile Creek	G-5 sw	Ont. 148 (0.2)	At the center of the steel truss bridge carrying N. Y. Route 18 over the stream at Olcott.	Width about 170 feet and depth about 7 feet. Muddy bottom not visible. Water brownish-green and turbid. Stream quiescent with no perceptible flow. Abundant aquatic vegetation.
Eighteenmile Creek	G-5 sw	Ont. 148 (1.8)	At the single-track trestle carrying the N. Y. C. R. R. over the stream at Burt and about 0.2 mile downstream from the Niagara Mohawk Power Corp. dam.	Width about 200 feet, depth about 4 feet. Water greenish-brown and turbid. Nonturbulent flow. Abundant aquatic vegetation.
Eighteenmile Creek	G-5 sw	Ont. 148 (2.4)	Between Burt and Newfane, at the steel girder bridge carrying the Wilson-Burt Road over the stream.	Width about 290 feet and depth about 25 feet. Bottom not visible. Water greenish-brown to pea green, turbid. Stream quiescent. Power dam impoundment. Heavy algae growth present.
Eighteenmile Creek	G-5 sw	Ont. 148 (4.1)	At concrete arch bridge carrying Ide Road over the creek at the west side of Newfane.	Width about 55 feet, depth about 2 feet. Bottom earth with stones and gravel. Water green to brownish-grey and turbid. Riffled section upstream and some pooling downstream. Green algae present.
Eighteenmile Creek	G-5 sw	Ont. 148 (5.0)	At concrete bridge carrying Ewings Road over the creek at the southwesterly part of Newfane.	Width 60 feet, depth 2-4 feet. Bottom rocky with stones and gravel. Water dark-green to brownish-grey and turbid. Fast flow with riffles upstream and downstream. Algal growth on rocks.
Eighteenmile Creek	G-5 sw	Ont. 148 (7.4)	At single lane steel truss bridge carrying Jacques Road over the creek about 2.1 miles north of Wrights Corners.	Width 65 feet with maximum depth of about 2.5 feet. Bottom sludge and rubble. Water greenish-brown to grey and turbid. Fast current. Algal growth on rocks. Sewage fungus present.
Eighteenmile Creek	H-5 nw	Ont. 148 (10.3)	At steel girder bridge carrying U.S. Route 104 (Ridge Road) over the creek, about 0.1 mile west of Purdy Road.	Width 40 feet, depth 2 to 3 feet. Bottom rocky with sludge deposits in slow current sections. Water grey to grey-brown and turbid. Very fast flow with some turbulence immediately downstream. Rocks covered with sewage fungus and algae.
East Branch Eighteenmile Creek	H-5 nw	Ont. 148-3 (0.9)	At concrete bridge carrying Route U.S. 104 (Ridge Road) over the creek about 0.9 mile west of Wrights Corners.	Width 25 feet, depth from 1 to 2 feet. Bottom rocky. Water slightly turbid and slightly brown to grey-brown in color. Fast flow with some riffles downstream.
Eighteenmile Creek	H-5 nw	Ont. 148-4 (1.14)	At concrete bridge carrying Stone Road over the creek immediately west of Purdy Road and north of the City of Lockport.	Width 50 feet, depth 2 feet. Bottom sand, rubble and sludge. Water grey to grey-brown and turbid. Fast flow with riffling. Floating and suspended solids present. Sewage odor.

Water grey to grey-brown and turbid. Fast flow with riffling. Floating and suspended solids present. Sewage odor.

At concrete bridge carrying Stone Road over the creek immediately west of Purdy Road and north of the City of Lockport.

TABLE 4
STREAM SAMPLING STATIONS
(Continued)

NAME	MAP NO.	WATERS INDEX NUMBER	LOCATION	DESCRIPTION OF STREAM
Eighteenmile Creek	H-5nw	Ont. 148-4 (1.52)	At timber bridge carrying Stone Road over the creek about 0.3 mile south of the junction with Old Niagara Road.	Width 35 feet, depth 3 feet. Bottom silt with some stones. Water grey to green-brown and turbid. Fast current. Suspended solids, sludge deposits, oil film and sewage odor present.
The Gulf	H-5nw	Ont. 148-4 (1.73)	At timber bridge carrying Stone Road over the stream a short distance north of the Lockport sewage treatment plant.	Width 12 feet, maximum depth 2 feet. Bottom silty with rocks. Color of stream varies from blue to yellow to green. Fast flow. Sewage fungus present.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (0.07)	Wading station 200 feet downstream from the outfall of the Lockport sewage treatment plant in the City of Lockport.	Width 30 feet, depth 2.5 feet. Bottom sand and mud. Water grey to grey-brown and turbid. Fast flow creating slight riffles. Sludge deposits present.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (0.27)	At steel and wood bridge over the creek at the entrance driveway from Jackson Street to the Cowles Chemical Co. plant in the City of Lockport.	Width 25 feet, depth 1 foot. Bottom stony with some sand. Water turbid and grey to greyish-brown. Turbulent flow with rapids. Chlorine odor and sewage fungus present.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (0.61)	At reinforced concrete bridge carrying North Transit Road over the creek in the City of Lockport.	Width about 15 feet. Bottom stony with large rocks. Water greyish-brown and turbid. Flow is very turbulent with rapids. Sewage fungus and green algae present.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (0.94)	At bypass flume where William Street crosses the creek at the rear of the Flintkote Co. plant in the City of Lockport.	Flume about 7 feet wide. Bottom silt and muck with stones. Water grey to greyish-brown and turbid. Sludge deposits and gas liberation. Upstream is industrial water supply impoundment. Turbulent flow through flume. Sewage fungus and green algae present.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (1.09)	At Olcott Street bridge over the creek at the rear of the United Board Carton Company plant in the City of Lockport.	Width 25 feet, depth about 2 feet. Bottom stony. Water grey to greyish-brown and turbid. Some sludge deposits and oil film. Turbulent flow.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (1.14)	At overflow spillway of impoundment at rear of United Board Carton Company plant in the City of Lockport.	Depth about 8 feet. Mud and sand bottom not visible. Water brown and turbid. Moderate flow. Impounded pool for industrial water supply. Sludge deposits and some oil film.
Eighteenmile Creek	H-5nw	Ont. 148-4-2 (1.24)	At concrete girder bridge carrying Clinton Street over the creek in the City of Lockport.	Width about 25 feet, depth about 5.5 feet. Water grey to brown and turbid. Marked sludge deposits in the stream bed. Fast flow. Upper part of impoundment for industrial water supply.
Barge Canal	H-5ne	E-219	At steel truss bridge carrying Wruck Road over the canal between Gasport and Middleport.	Width 110 feet, depth about 14 feet. Water turbid and grey-green to green-brown. Slow flow.

TABLE 4
STREAM SAMPLING STATIONS
(Concluded)

NAME	MAP NO.	WATERS INDEX NUMBER	LOCATION	DESCRIPTION OF STREAM
Barge Canal	H-5 nw	E-224	At steel truss bridge carrying Canal Road over the canal to the east of Lockport and west of Gasport.	Width 110 feet, depth about 14 feet. Water grey-green to green-brown and turbid. Slow flow.
Barge Canal	H-5 nw	E-230	At steel truss bridge carrying Exchange-Mill Street over the canal in the City of Lockport.	Width about 85 feet, depth about 14 feet. Water grey-green to grey-brown and turbid. Slow flow.
Barge Canal	H-5 nw	E-233	At the east end of Big Bridge carrying Main Street (N. Y. Route 31) over the canal in the City of Lockport.	Width about 85 feet, depth about 14 feet. Water grey-green to green-brown and turbid. Slow flow. Locks immediately downstream.
Barge Canal	H-5 nw	E-235	At steel truss bridge carrying Prospect Street (N. Y. Route 93) over the canal in the City of Lockport.	Width about 85 feet, depth about 14 feet. Water grey-green to green-brown and turbid. Slow flow.
Barge Canal		E-236	At steel truss bridge carrying Summit Street over the canal in the southwest part of the City of Lockport.	Width about 80 feet, depth about 14 feet. Water grey-green to greenish-brown and turbid. Slow flow.

TABLE 5
MUNICIPAL AND INSTITUTIONAL DISCHARGES

PLACE	POPULATION				COMMENTS	RECEIVING WATERS, WATERS INDEX NUMBER, AND EFFECTS ON RECEIVING WATERS
	Total	Sewered	Provided Treatment	Not Provided Treatment		
Olcott (U) Tn. Newfane	890	0	0	890	No approved disposal system constructed. Population increase experienced during summer months. An undetermined volume of sewage was discharged at the northeast and near the southwest abutments of the bridge carrying N. Y. Route 18 over the creek. In addition, there were multiple sewage discharges from residences.	Eighteenmile Creek Ont. 148 (0.15) Gross sewage solids, sludge deposits and septic sewage odors were present near the discharges.
	100 (Estimate)	0	0	100		
	1,850	1,830 (Estimate)	1,830	0		
	0	0	0	0		
Burt (U) Tn. Newfane	100 (Estimate)	0	0	100	No approved disposal system. Raw sewage and possibly septic tank effluents were discharged through storm sewers to a ravine at a point about 50 feet north of the railroad crossing on the westerly side of N. Y. Route 78.	Eighteenmile Creek Ont. 148 (1.7) Gross sewage solids, sludge deposits and a septic sewage odor were present in the ravine near the point of discharge. The effect of the sewage was masked by industrial wastes also discharged to the ravine.
	1,850	1,830 (Estimate)	1,830	0		
	1,830 (Estimate)	1,830	1,830	0		
	0	0	0	0		
Newfane S.D. No. 1 Tn. Newfane	1,850	1,830 (Estimate)	1,830	0	The sewage volume, treated by a primary treatment plant, included sewage from several industrial plants. Excessive infiltration was noted. Treatment by bar screens, grit chambers, primary clarifier, seasonally operated pre- and post-chlorination equipment, sludge digestion tanks and open sludge drying beds.	Eighteenmile Creek Ont. 148 (3.7) Effects of the treated effluent were not apparent because of the high turbidity of the stream.
	788	788	788	0		
	788	788	788	0		
	0	0	0	0		
Gasport Water and Sewer District No. 1 Tn. Royalton	788	788	788	0	A primary plant treated all domestic wastes and the wastes from several industrial plants. Treatment by bar screen or comminution equipment, Imhoff tank, seasonally operated post-chlorination equipment, and open sludge drying beds.	East Branch Eighteenmile Creek Ont. 148-3 (15.1) Sludge deposits, gas evolution, black discoloration were present near the outfall.
	788	788	788	0		
	788	788	788	0		
	0	0	0	0		
Niagara County Farm and Home Center Tn. Lockport	30 + visitors	30 + visitors	30 + visitors	0	All sewage was treated by a septic tank and a subsurface sand filter system. During most of the year wastes are absorbed into the ground. However, during a very short period of mid-August visitors may increase volume of sewage a thousand-fold with resulting discharge from the filter.	Tributary of East Branch Eighteenmile Creek Ont. 148-3-2 (2.4) No effluent was discharged at the time of the survey.
	30 + visitors	30 + visitors	30 + visitors	0		
	30 + visitors	30 + visitors	30 + visitors	0		
	0	0	0	0		

TABLE 5
MUNICIPAL AND INSTITUTIONAL DISCHARGES
(Continued)

PLACE	POPULATION		COMMENTS	RECEIVING WATERS, WATERS INDEX NUMBER, AND EFFECTS ON RECEIVING WATERS
Wyndham Lawn Home for Children Tn. Lockport	Total	75	Two small residences had systems disposing of sewage to the ground water. Sewage from the main building passed through a septic tank and a leaching cesspool, the overflow from which was discharged to the stream. Laundry wastes were discharged to the stream without treatment.	Tributary of East Branch Eighteenmile Creek Ont. 148-3-2 (2.8) At the point of discharge the waste effluent was noticeably turbid and created sludge deposits, sewage odors and discoloration.
	Sewered	75		
	Provided Treatment	75		
	Not Provided Treatment	0		
Lockport (C)	Total	25,133	Sewage and wastes from the community and a variety of industrial plants were treated in a primary plant having a grit chamber, a bar screen, two sedimentation tanks, seasonally operated post-chlorination equipment, two-stage heated sludge digestion tanks and open drying beds. Excessive infiltration occurred during storm flows. Treatment was affected by industrial wastes.	Eighteenmile Creek Ont. 148-4-2 (0.1) Contributed to the turbidity, odor and sludge deposits.
	Sewered	22,620		
	Provided Treatment	22,620		
	Not Provided Treatment	2,513		
Lockport (C) Mill Street Interceptor Overflow	Total	Varied	All or part of the untreated sewage and industrial wastes from the intercepting sewer were discharged at a point a short distance southwest of the intersection of Center and Mill Streets.	Eighteenmile Creek Ont. 148-4-2 (0.8) Sewage solids were present.
	Sewered	Varied		
	Provided Treatment	0		
	Not Provided Treatment	Varied		

TABLE 5
MUNICIPAL AND INSTITUTIONAL DISCHARGES
(Continued)

PLACE	POPULATION				COMMENTS	RECEIVING WATERS, WATERS INDEX NUMBER, AND EFFECTS ON RECEIVING WATERS
	Total	Sewered	Provided Treatment	Not Provided Treatment		
Lockport (C) Southwesterly Interceptor Overflow	Varied	Varied	Varied	0	Untreated sewage and industrial wastes were discharged from the intercepting sewer to the covered section of the stream.	Eighteenmile Creek Ont. 148-4-2 (1.38) The stream had a definite sewage odor and the appearance of dilute sewage.
	0	0	0	0		
	Varied	Varied	Varied	0		
	0	0	0	0		
Niagara County Health Camp, Tn. Lockport	100	100	100	0	All sewage was treated in a septic tank and subsurface sand filter system. The effluent was pumped to a drainage ditch. The camp operated during the summer only.	Eighteenmile Creek Ont. 148-4-2 (2.9) Heavy aquatic growth present in ditch.
	100	100	100	0		
	100	100	100	0		
	0	0	0	0		
Niagara Sanatorium Tn. Lockport	345	345	345	0	Population figures included 135 non-resident staff and 25 county government officials. All sewage was treated by a bar screen, septic tanks, open sand filters, and open sludge drying beds. Untreated laundry and kitchen wastes were discharged through storm sewers. Excessive infiltration occurred during storm flows.	Tributary of tributary of Eighteenmile Creek Ont. 148-5 (1.6) Objectionable conditions were present at storm sewer outlets where untreated wastes were discharged.
	345	345	345	0		
	345	345	345	0		
	0	0	0	0		
Wilson (V) Town Line Road Sewer	Not Estimated	Not Estimated	Not Estimated	0	Untreated sewage and probably food processing wastes were discharged at a point about 50 feet west of Lake St. Sewer serves the recently annexed portion of the village. Plans have been approved for a sewer extension to replace present sewer.	Tributary of East Branch Twelvemile Creek Ont. 152-1 (0.2) Gross sewage solids, sludge deposits and a strong septic sewage odor were present. When the stream was not flowing, pools of undiluted sewage created an odor nuisance.
	Not Estimated	Not Estimated	Not Estimated	0		
	Not Estimated	Not Estimated	Not Estimated	0		
	Not Estimated	Not Estimated	Not Estimated	0		

TABLE 5
MUNICIPAL AND INSTITUTIONAL DISCHARGES
(Concluded)

PLACE	POPULATION				COMMENTS	RECEIVING WATERS, WATERS INDEX NUMBER, AND EFFECTS ON RECEIVING WATERS
	Total	Sewered	Provided Treatment	Not Provided Treatment		
Ransomville General Hospital Tn. Porter	Total	75			The main disposal system consisted of a septic tank and a covered sand filter system. Two smaller disposal systems consisted of septic tanks and absorption trench systems. Enlargement of the hospital was anticipated.	Tributary of Twelvemile Creek Ont. 152a-3 (1.3) Heavy algae growth was present.
	Sewered	75				
	Provided Treatment		75			
	Not Provided Treatment			0		
Ransomville (U) Tn. Porter	Total		573		No approved sewerage system. Septic tank effluents, and possibly some raw sewage, were discharged from storm sewers to the roadside ditch along the northerly side of New Road just east of Curtiss Avenue.	Tributary of Twelvemile Creek Ont. 152a-3 (1.6) Sludge deposits, sewage odors and discoloration were present.
	Sewered		0			
	Provided Treatment		0			
	Not Provided Treatment			573		
Lockport (C) Incinerator	Total			5	Sewage, yard drainage and boiler water were discharged to the canal through a culvert and ditch.	Barge Canal E236 (0.1) Black septic liquid was present in the ditch at the bank of the canal.
	Sewered			5		
	Provided Treatment			0		
	Not Provided Treatment			5		
Lockport (C)	Total			Varied	An undetermined volume of raw sewage and industrial wastes were discharged to the canal through multiple municipal sewers. In addition, there were a number of private sewers which also discharged untreated wastes.	Barge Canal sewage solids were observed in the vicinity of these outlets.
	Sewered			Varied		
	Provided Treatment			0		
	Not Provided Treatment			Varied		

TABLE 6
INDUSTRIAL WASTE DISCHARGES

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS, WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Olcott (U) Tn. Newfane	Baker and Phillips	Vinegar and cider	Floor drainage, bottlewash water, applewash, sediment from vinegar tanks and tank-soak water	None provided	Eighteenmile Creek Ont. 148 (0.4)	Deposits of sewage solids and a septic sewage odor were present at the sewer outlet on bank. Solids were present in stream at waste discharge point.
Burt (U) Tn. Newfane	Cadet Chemical Corp.	Organic Peroxides	Chemical process - ing and storm drainage	None provided	Eighteenmile Creek Ont. 148 (1.7)	White sludge deposits and floating white foam were present at waste discharge point.
Burt (U) Tn. Newfane	Burt Cold Storage Plant	Cold storage of fruits. No processing	Cooling water and sanitary	Satisfactory sub - surface disposal system	Eighteenmile Creek Ont. 148 (1.8)	
Burt (U) Tn. Newfane	Cocker Saw Co. Inc.	Circular wood - cutting saws	Grinder cooling water and sanitary	Septic tank in common with Cocker Saw Co. Inc. wastes	Eighteenmile Creek Ont. 148 (1.8)	
Burt (U) Tn. Newfane	Kramp Cold Storage Co.	Cold storage of fruits. No processing.	Condenser cooling Sanitary	Septic tank in common with Burt Cold Storage Plant wastes	Eighteenmile Creek Ont. 148 (1.86)	

TABLE 6
INDUSTRIAL WASTE DISCHARGES
(Continued)

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Newfane (U)	Lockport Felt Co. Inc.	Papermakers felts	Wool scouring and textile finishing	None provided	Eighteenmile Creek Ont. 148 (4.3)	Solids and discoloration were present
Hartland (U)	Wolfe Lumber Mill	Lumber	Sanitary Log - washing	None (Part dis- charged to municipal sewers) None provided	East Branch Eighteenmile Creek Ont. 148-3 (10.8)	Periodic discharges were not observed.
Tn. Lockport	Lockport Canning Co.	Canned fruits and vegetables	Sanitary Food processing	Septic tank and leaching beds Wastes were pumped to lagoon from which liquids may overflow drain or leach to receiv- ing waters	Tributary of East Branch Eighteenmile Creek Ont. 148-3-2 (2.6)	Solids, sludge deposits and greyish discoloration were present.
Gasport (U) Tn. Royalton	Speas Company	Vinegar	Mother of vinegar, press and rack washings Tank - soap water Sanitary	Settling tank and sodium nitrate treatment None provided Part to sewers and part to septic tank	Tributary of tributary of East Branch Eighteenmile Creek Ont. 148-3-5-1 (1.2)	None - plant was not operating during survey.

TABLE 6
INDUSTRIAL WASTE DISCHARGES
(Continued)

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS, WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Gasport (U) Tn. Royalton	Sweeney Cold Storage, Inc.	Cold storage of fruit. No processing	Cooling water Sanitary	None provided Privy	Tributary of tributary of East Branch Eighteenmile Creek Ont. 148-3-5-1 (1.4)	
Lockport (C)	Harrison Radiator Division, General Motors Corp., Plant No. 2	Heat transfer products, including automobile radiators	Storm, cooling, testing waters	None provided - part discharged to municipal sewers	The Gulf Ont. 148-4 (3.9)	Grey-white solids deposits, a periodic milky appearance and green discoloration were present. Chromium, copper, fluoride, and oil were present below outfalls.
Lockport (C)	The Cryovac Company Division, W.R. Grace and Company.	Plastic food packaging bags	Radiator, soldering and flushing, rolling mill, boiler blow-down and softener backwash Sanitary	Oil separator To municipal sewers	Tributary of Eighteenmile Creek Ont. 148-4-1a (0.4)	Stale septic sewage odor, sludge deposits and scum accumulations were present.
Lockport (C)	Norton Laboratories Inc.	Custom-molded plastics	Injection-mold cooling water, hydraulic press-closing water, bearing-cooling water Sanitary	None provided Two septic tanks in parallel	Eighteenmile Creek Ont. 148-4-2 (0.2)	Accumulations of gross sewage solids present on bank at sewage outfalls.
Lockport (C)	Cowles Chemical Company	Industrial chemicals and cleaners	Chemical processing and dye Sanitary	None provided None provided	Eighteenmile Creek Ont. 148-4-2 (0.3)	Solids deposits and discoloration were present.

TABLE 6
INDUSTRIAL WASTE DISCHARGES
(Continued)

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS, WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Lockport (C)	Nilek Chemicals, Inc.	Cyanuric chloride	Chlorinator water and alkalai from scrubbers. Sanitary	None provided No information on treatment or disposal	Eighteenmile Creek Ont. 148-4-2 (0.4)	Possibly periodic cyanide and chlorine concentrations were present.
Lockport (C)	Van DeMark Chemical Co., Inc.	Silicon, titanium and zirconium tetrachlorides phosgene	Spent acid, caustic from scrubber, cooling water and floor drainage. Sanitary	None provided	Eighteenmile Creek Ont. 148-4-2 (0.5)	Brownish sludge deposits, periodic milky discoloration and foaming were present. Increased silica, titanium and zirconium concentrations. Chlorine was present.
Lockport (C)	The Flintkote Company	Automotive and roofing felts	Paper machine, stock-thickener overflow, white-water chest overflow, bearing cooling water, and ash and dust collection Sanitary	Save--all unit on paper machine wastes None provided	Eighteenmile Creek Ont. 148-4-2 (0.9)	Brown discoloration and increased turbidity present. Increased B.O.D., suspended solids concentrations.
Lockport (C)	United Board and Carton Corp.	Boxboard and wallboard liner	Paper machine, white-water cistern overflow, color-tank drainage, and wash waters. Sanitary	None provided Part to municipal sewer, part untreated to stream	Eighteenmile Creek Ont. 148-4-2 (1.15)	Whitish discoloration was present near the outlets and at times the stream was highly colored due to discharge of dye. Sewage solids were present near the sewage outlets.
Lockport (C)	White's Transportation	Truck terminal, no manufacture	Truck cleaning waters Sanitary	None provided None provided	Eighteenmile Creek Ont. 148-4-2 (1.25)	

TABLE 6
INDUSTRIAL WASTE DISCHARGES

(Continued)

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Tn. Lockport	Randleigh Farm	Pasteurized milk and dairy products	Milk plant operations Sanitary	None provided Septic tank and absorption trench system. Absorption system may be by-passed.	Eighteenmile Creek also called "state ditch" Ont. 148-4-2 (4.5)	Sludge deposits with gassing and black color were present at the discharge.
Lockport (C)	Niagara Abrasive Company, Inc.	Reclaimed abrasive grain	Experimental washings of abrasive grain Sanitary	Settling in sluiceway Septic tank	Isolated Pond Ont. 148-4-3-P 189a	
Tn. Wilson	Solvay Process Division of Allied Chemical and Dye Corp. (Elberta Plant)	Aluminum chloride	Softener backwash Sanitary	None provided. Wastes from Annex Chemical Co. Inc. plant discharged through same outlet. Septic tank and leaching system discharged to roadside ditch.	Drainage ditch tributary to Ont. 152a-a	Turbid white liquid was pooled and white solids deposits were present in the ditch near the softener drain pipe. Black septic tank effluent was pooled in ditch at front of plant.
Tn. Wilson	Annex Chemical Co. Inc.	Phosgene	Spent caustic solution, sink wastes Sanitary	None provided. Discharge was through the outlet serving the Solvay Process Division of Allied Chemical and Dye Corp. (Elberta Plant). (Common sanitary facilities with above noted plant.)	Drainage ditch tributary to Ont. 152a-a	Turbid, white liquid was pooled and white solids deposits were present in the ditch near the outlet.

TABLE 6
INDUSTRIAL WASTE DISCHARGES
(Continued)

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS, WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Tn. Porter	U.S.A.F. Plant No. 38, (Bell Test Center)	Testing Grounds U.S.A.F. (No manufacture)	Acid spillage, flush and cleaning waters Sanitary	pH control with lime application Unit disposal systems consisting of one or two septic tanks with a sub- surface sand filter	Drainage channels tributary to Fourmile Creek Ont. 156-1c-2 and tributaries	Settleable solids present. Increased total solids content.
Tn. Porter	Hooker Electro - chemical Company, Model City Plant	(Classified information)	Possible overflow of untreated sewage and waste from out- fall sewer at en- trance of treatment plant.	None	Tributary of tributary of Fourmile Creek Ont. 156-1c-4 (0.4)	No waste overflow and stream dry during observation.
Tn. Lewiston	Whitmor Chemicals, Inc.	Oxygenated hydrocarbons (corrosion preventatives)	Gas-scrubbing and cooling waters Sanitary	None provided None provided	Tributary of tributary of Fourmile Creek Ont. 156-2-7 (0.6)	Gross sewage solids and accumu- lations of oil and grease were present in the vicinity of the waste discharge.
Tn. Lewiston	Model City Cold Storage Co.	Cold storage (no processing)	Condenser cooling waters. Sanitary	None provided Privy	Tributary of tributary of Fourmile Creek Ont. 156-2-7 (0.7)	No waste discharge during observa- tion.
Lockport (C)	Frontier Stone Products Inc. and Frontier Dolomite Concrete Products Corp.	Crushed stone, bituminous concrete, concrete block, agricultural lime	Sand and stone wash water and cooling water Sanitary	Plain settling in quarry pits. Effluent periodically pumped to canal through municipal storm drain. Subsurface disposal system	Barge Canal E-236 (0.1)	Accumulation of silt deposits and turbid water at outlets to ponds. Effluent pump was not operating during observation.

TABLE 6
INDUSTRIAL WASTE DISCHARGES
(Concluded)

LOCATION	INDUSTRY	PRODUCT	TYPE WASTE	TREATMENT	RECEIVING WATERS, WATERS INDEX NUMBER	EFFECT ON RECEIVING WATERS
Lockport (C)	Simonds Saw and Steel Company	Tool and special alloy steel bars and sheets	Pickling liquor, cooling and bearing cooling waters, boiler water Sanitary	Oil separator To municipal sewers	Barge Canal E-235 (0.6)	Slight oil film and slight darkening of the waters near outfall.
Lockport (C)	The Upson Co.	Wallboard	Whitewater tank overflow, Save-All wastes, screen wastes, bearing water, flyash Sanitary	Bar racks and sedimentation tank. To municipal sewers	Barge Canal E-235 (0.3)	Brownish discoloration was present near the outfall.
Gasport (U) Tn. Royalton	Dobbins Cold Storage	Cold storage of fruit (no processing)	Spent cooling water and sink drainage	None provided	Barge Canal E-222 (0.4)	
Gasport (U) Tn. Royalton	Speas Company	Vinegar	Tank-soaking waters	None provided	Barge Canal E-222 (0.3)	
Gasport (U) Tn. Royalton	Bordwell Cold Storage	Cold storage of fruit (no processing)	Cooling water	None provided	Barge Canal E-220 (0.7)	No discharge during observation.

TABLE 7A
ANALYTICAL RESULTS
Samples Collected by Health Department

Sampling Station	Waters Index and Milk Number	Date	Time	Appearance of Stream				Suspended Matter *	Temperature °C.	pH Value	Carbon Dioxide ppm	Oxygen ppm	% Saturation	B.O.D. - 5 day at 20°C - ppm	Chlorides - ppm	Hardness - ppm	Coliform Group Organisms MPN per 100 ml.
				Color **	Odor ***	Turbidity*	Suspended Matter *										
Ont. 148 (0.2)		7/19/56	11:35 AM	GBr-3	0	3	3	23	7.2	9.0	6.8	78.3	4.4	45.0	184.0	2,300	
Ont. 148 (1.8)		7/19/56	11:15 AM	GBr-3	0	3	3	22	7.0	13.0	2.8	31.7	4.0	43.0	196.0	2,300	
Ont. 148 (2.4)		7/19/56	10:10 AM	Pg-4	0	3	3	---	8.7	0.0	23.6	282.0	4.0	46.0	164.0	2,300	
Ont. 148 (4.1)		7/19/56	9:55 AM	BrGr-3	0	3	3	---	7.4	6.0	7.6	84.6	9.6	53.0	192.0	230,000	
Ont. 148 (5.0)		7/19/56	9:40 AM	BrGr-3	0	3	3	---	7.2	7.0	6.6	73.4	6.4	57.0	200.0	2,300	
Ont. 148 (7.4)		7/19/56	9:15 AM	Br-3	0	3	3	---	7.2	10.0	1.2	13.1	10.8	50.0	184.0	930	
Ont. 148 (10.3)		7/18/56	11:45 AM	GrBr-3	0	3	3	---	7.2	6.0	6.2	71.4	17.4	45.0	184.0	230	
Ont. 148-3(0.9)		7/18/56	---	GrBr-3	0	2	2	22	8.2	0.0	11.4	131.0	2.4	30.0	204.0	930	
Ont. 148-4(1.14)		7/18/56	11:10 AM	GrBr-4	0	4	3	---	6.8	8.0	8.4	96.8	16.2	46.0	184.0	23	
Ont. 148-4(1.52)		7/18/56	10:40 AM	GBr-4	0	4	3	---	6.8	15.0	8.6	99.1	15.8	43.0	196.0	230	
Ont. 148-4(1.73)		7/18/56	10:00 AM	Y-3	0	2	2	---	5.6	194.0	10.2	111.0	---	135.0	172.0	43	

EIGHTEENMILE CREEK AND TRIBUTARIES

**** Color**
 Br-Brown or brownish
 G-Green or greenish
 Gr-Grey or greyish
 Pg-Peagreen
 Y-Yellow or yellowish

***** Odor**
 Ar-Aromatic
 Ch-Chemical
 E-Earthy
 Mu-Musty
 Sw-Sweetish

TABLE 7A
ANALYTICAL RESULTS
Samples Collected by Health Department
(Concluded)

Sampling Station	Waters Index Number and Mileage Index	Date Collected	Time	Appearance of Stream				Color - ppm	Odor ***	Turbidity ppm	Suspended Matter *	Temperature °C.	pH Value	Carbon Dioxide ppm	Dissolved Oxygen - ppm	% Saturation	B.O.D. - 5-day at 20°C - ppm	Chlorides ppm	Alkalinity - Total ppm	Hardness ppm	Coliform Group per 100 ml.
				Color ***	Odor ***	Turbidity*	Suspended Matter *														
EIGHTEENMILE CREEK AND TRIBUTARIES (Concluded)																					
Ont. 148-4-2(0.07)		7/18/56	9:10 AM	GrBr-3	0	3	3	---	SwAr-3	75	3	21	7.7	3.0	9.2	102.0	22.2	40.0	116.0	192.0	4,300
Ont. 148-4-2(0.27)		7/17/56	12:05 PM	GrBr-3	SwAr-2	3	3	---	SwAr-2	60	3	24	7.1	1.0	7.6	89.1	21.6	46.0	110.0	200.0	230,000
Ont. 148-4-2(0.61)		7/17/56	11:30 AM	GrBr-3	SwAr-3	3	3	---	SwAr-2	50	3	23	7.7	1.0	7.4	85.2	17.5	31.0	115.0	200.0	>11,000,000
Ont. 148-4-2(0.94)		7/17/56	11:10 AM	GrBr-3	0	3	3	30	SwAr-2	40	3	23	7.7	1.0	8.0	92.2	12.3	29.0	116.0	200.0	2,300
Ont. 148-4-2(1.09)		7/17/56	10:50 AM	GrBr-3	SwAr-2	3	3	30	SwAr-2	40	3	22	7.7	1.0	8.2	92.9	14.1	30.0	118.0	220.0	9,300
Ont. 148-4-2(1.14)		7/17/56	10:30 AM	Br-3	SwAr-2	3	3	25	SwAr-2	23	3	22	7.7	2.0	7.6	86.1	13.5	29.0	116.0	200.0	3,900
Ont. 148-4-2(1.24)		7/17/56	9:10 AM	Br-3	SwAr-2	3	3	25	SwAr-2	23	2	22	7.7	1.0	8.2	92.9	3.8	30.0	117.0	212.0	9,300
BARGE CANAL																					
Barge Canal E219		7/16/56	12:00 N	GBr-3	0	3	3	20	Ar-2	20	2	22	7.6	2.0	6.0	68.0	2.2	25.0	110.0	200.0	4,300
Barge Canal E224		7/16/56	11:30 AM	GBr-3	0	3	3	20	Ar-2	25	2	22	7.4	5.0	4.4	49.8	3.9	26.0	115.0	220.0	7,500
Barge Canal E230		7/16/56	11:00 AM	GBr-3	0	3	3	25	Ar-2	50	2	22	7.4	4.0	4.0	45.3	2.6	24.0	110.0	204.0	23,000
Barge Canal E233		7/16/56	10:30 AM	GBr-3	0	3	3	25	SwAr-2	40	2	22	7.4	3.0	3.6	40.8	3.4	24.0	107.0	204.0	9,300
Barge Canal E235		7/16/56	10:00 AM	GBr-3	0	3	3	25	Ar-2	50	2	22	7.4	5.0	3.6	40.8	2.8	23.0	108.0	196.0	23,000
Barge Canal E236		7/16/56	9:30 AM	GBr-3	0	3	3	20	Ar-2	60	2	22	7.5	4.0	4.0	45.3	4.0	24.0	110.0	200.0	9,300

TABLE 7B
ANALYTICAL RESULTS
Samples Collected by Conservation Department

Sampling Station	Waters Index Number and Mileage Index	Collection Date	Time	Turbidity*	Air Temperature	Water Temperature	pH Value	Carbon Dioxide ppm	Dissolved Oxygen ppm	BOD - 5 day at 60°F - ppm	Ph.	Alkalinity ppm	M.O.	Coliform Group	Organisms MPN per 100 ml.	Depth of Sample feet
Ont. 148 (0.2)		9/12/56	1:15 PM	2	78	68	7.2	5.0	2.2	> 2.2	---	140.0		2,300		6.0
Ont. 148 (2.4)		9/12/56	12:30 PM	2	77	69	7.4	6.0	5.2	2.6	---	156.0		430		30.0
Ont. 148 (4.1)		9/12/56	12:10 PM	2	77	67	7.4	4.0	6.8	5.0	---	140.0		43,000		3.5
Ont. 148 (5.0)		9/12/56	11:15 AM	2	72	66	7.4	5.0	7.0	3.2	---	136.0		2,100		2.5
Ont. 148 (7.4)		9/12/56	10:45 AM	3	77	66	7.2	5.0	2.6	> 2.6	---	140.0		230		2.5
Ont. 148 (10.3)		9/12/56	10:00 AM	3	68	68	7.3	4.0	6.8	> 6.8	---	140.0		430		1.5
Ont. 148-3 (0.9)		9/12/56	10:15 AM	1	67	64	7.9	1.0	8.8	5.0	---	156.0		430		0.5
Ont. 148-4 (1.14)		9/12/56	9:30 AM	3	68	68	7.4	3.0	8.0	> 8.0	---	136.0		75		1.5
Ont. 148-4 (1.52)		9/11/56	1:30 PM	2	77	69	7.3	5.0	8.4	> 8.4	---	120.0		64		4.5
Ont. 148-4 (1.73)		9/11/56	1:10 PM	2	76	69	4.9	106.0	7.2	3.0	---	12.0		93		1.5
Ont. 148-4-2 (0.07)		9/11/56	1:00 PM	3	75	69	7.3	4.0	7.6	> 7.6	---	136.0		930		1.5
Ont. 148-4-2 (0.27)		9/11/56	12:30 PM	3	75	69	7.6	4.0	8.4	0.6	---	120.0		150		1.5
Ont. 148-4-2 (0.61)		9/11/56	11:15 AM	3	65	67	7.8	3.0	8.4	> 8.4	---	130.0		930,000		1.5
Ont. 148-4-2 (0.94)		9/11/56	11:00 AM	3	65	67	7.6	3.0	8.0	> 8.0	---	132.0		93,000	Surface	
Ont. 148-4-2 (1.09)		9/11/56	10:15 AM	3	66	68	7.6	4.0	8.4	> 8.4	---	124.0		9,300	3.0	
Ont. 148-4-2 (1.14)		9/11/56	10:00 AM	2	67	65	7.2	4.0	8.2	7.0	---	144.0		93,000	9.5	
Ont. 148-4-2 (1.24)		9/11/56	9:30 AM	2	67	66	7.7	3.0	8.0	7.0	---	130.0		21,000	2.5	
BARGE CANAL																
E-219		9/5/56	9:00 AM				7.1	3.0	3.6	0.4	---	32.0		2,300		
E-224		9/5/56	9:50 AM				7.3	4.0	4.0	1.8	---	28.0		9,300		
E-230		9/5/56	10:20 AM				7.1	5.0	3.7	1.3	---	36.0		21,000		
E-233		9/5/56	11:00 AM				7.2	4.0	3.5	1.5	---	40.0		4,300		
E-235		9/5/56	11:20 AM				7.2	3.0	3.3	1.3	---	40.0		24,000		
E-236		9/5/56	11:45 AM				7.2	3.0	3.6	1.2	---	144.0		4,300		

* Intensity
1. Slightly Turbid
2. Turbid
3. Extremely Turbid

Intensity
 1. Slightly Turbid
 2. Turbid
 3. Extremely Turbid

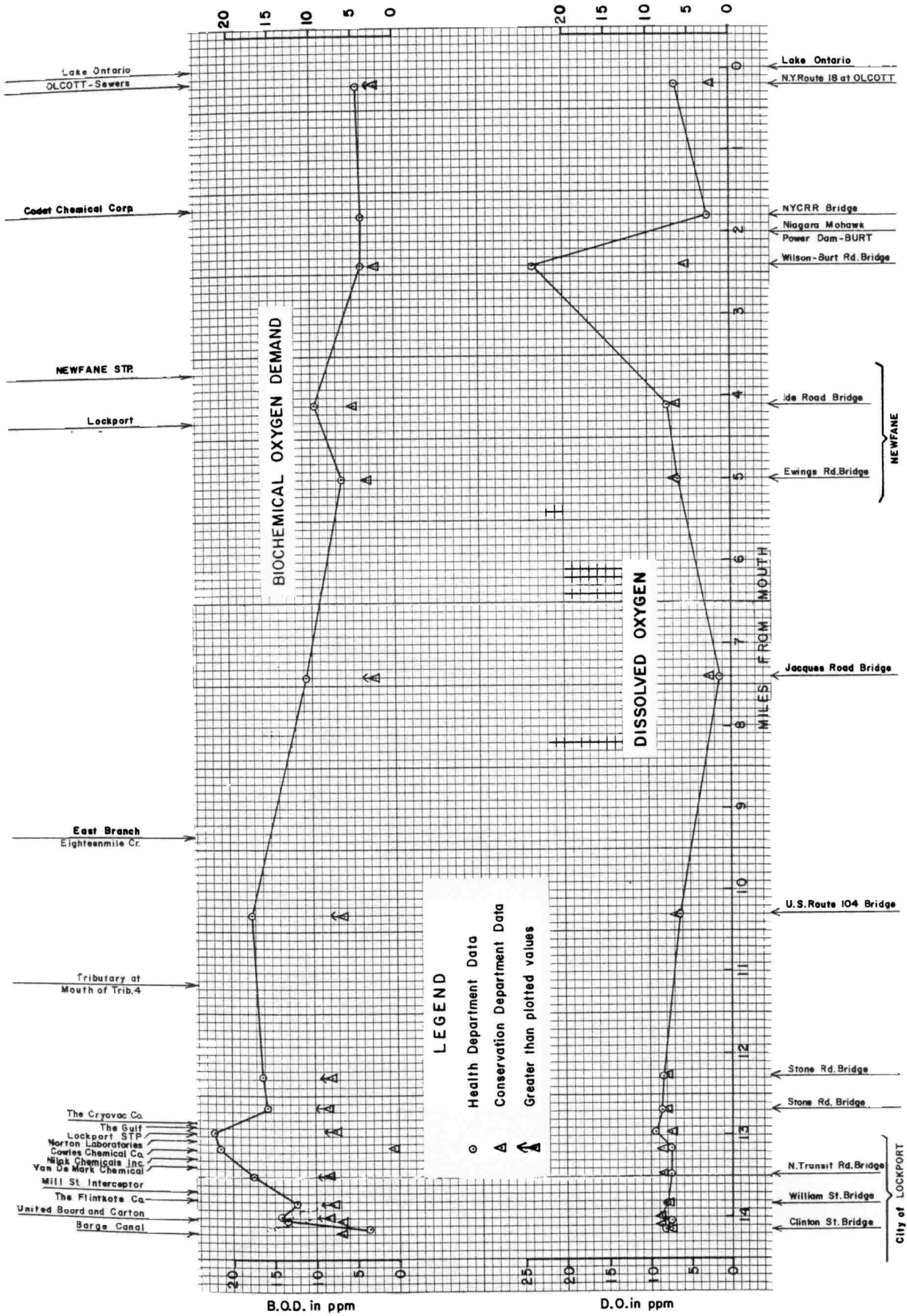
TABLE 8
 TEMPERATURE AND PRECIPITATION DATA
 From Records of United States Weather Bureau

Station	Monthly Total Precipitation (inches)										Total Annual Precipitation (inches)	
	June		July		August		September		1956	Long-term mean	1956	Long-term mean
	1956	Long-term mean	1956	Long-term mean	1956	Long-term mean	1956	Long-term mean				
Barker 4NE	2.07	-----	1.89	-----	5.79	-----	3.04	-----	29.11	-----	29.11	-----
Lewiston 1N	0.69	-----	4.63	-----	6.39	-----	2.78	-----	34.97	-----	34.97	-----
Lockport 2NE	1.18	2.36	3.15	2.69	5.75	2.96	3.56	2.91	35.96	31.75	35.96	31.75
Wilson 2NE	0.89	-----	2.00	-----	6.93	-----	2.94	-----	30.17	-----	30.17	-----

Station	Monthly Mean Temperature (°F)										Annual Mean Temperature (°F)	
	June		July		August		September		1956	Long-term mean	1956	Long-term mean
	1956	Long-term mean	1956	Long-term mean	1956	Long-term mean	1956	Long-term mean				
Lewiston 1N	67.2	-----	69.9	-----	69.6	-----	60.0	-----	48.7	-----	48.7	-----
Lockport 2NE	66.2	66.3	68.1	71.4	68.5	69.6	58.2	62.4	46.9	47.9	46.9	47.9

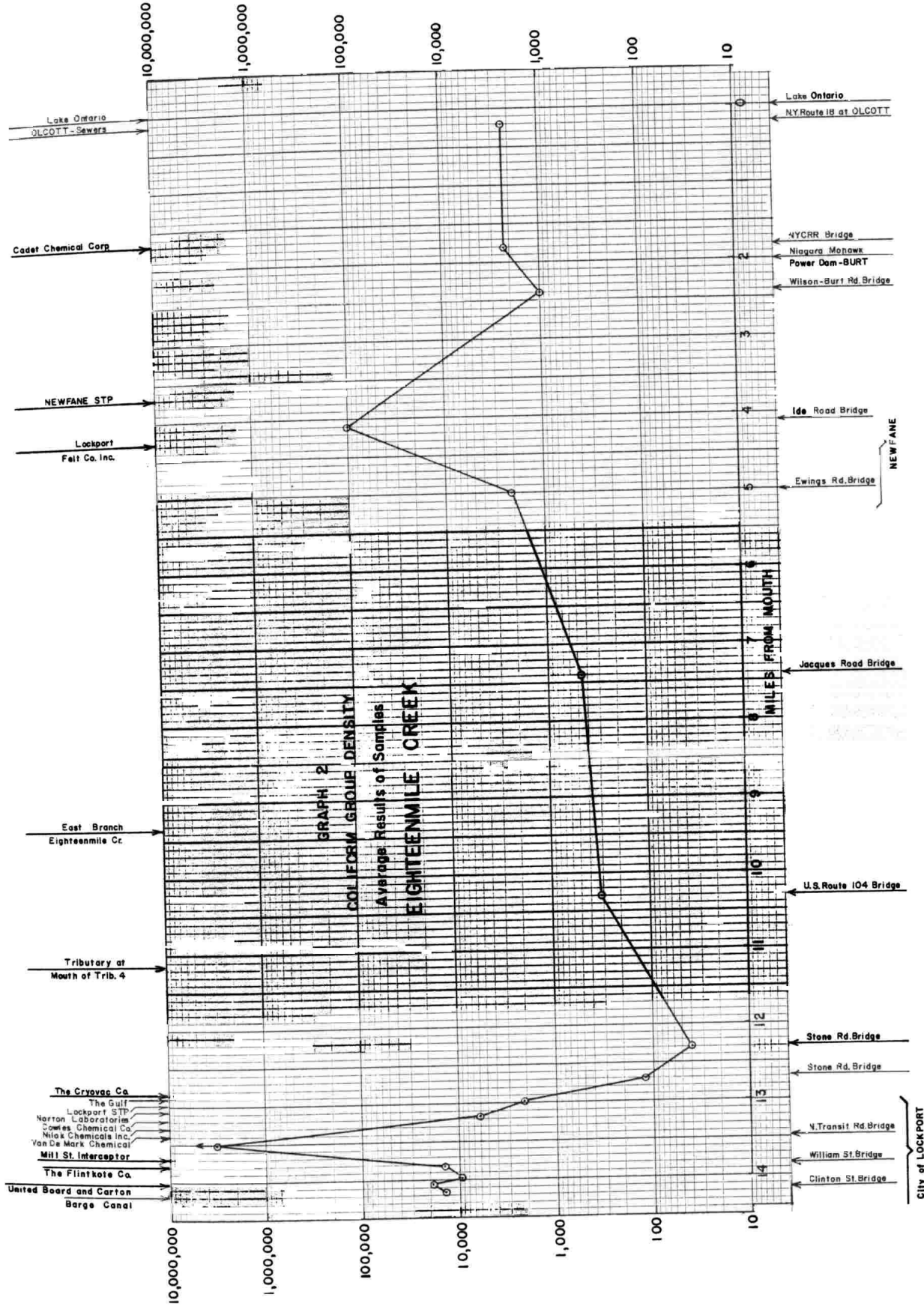
Notes on Weather Stations:

- (1) Barker 4NE - 16 years of precipitation record.
- (2) Lewiston 1N - 40 years of temperature record (not continuous).
 - 35 years of precipitation record (not continuous).
- (3) Lockport 2NE - 65 years of temperature record.
 - 71 years of precipitation record.
 - long-term means represent average for the period from 1931 to 1955.
- (4) Wilson 2NE - 16 years of precipitation record.



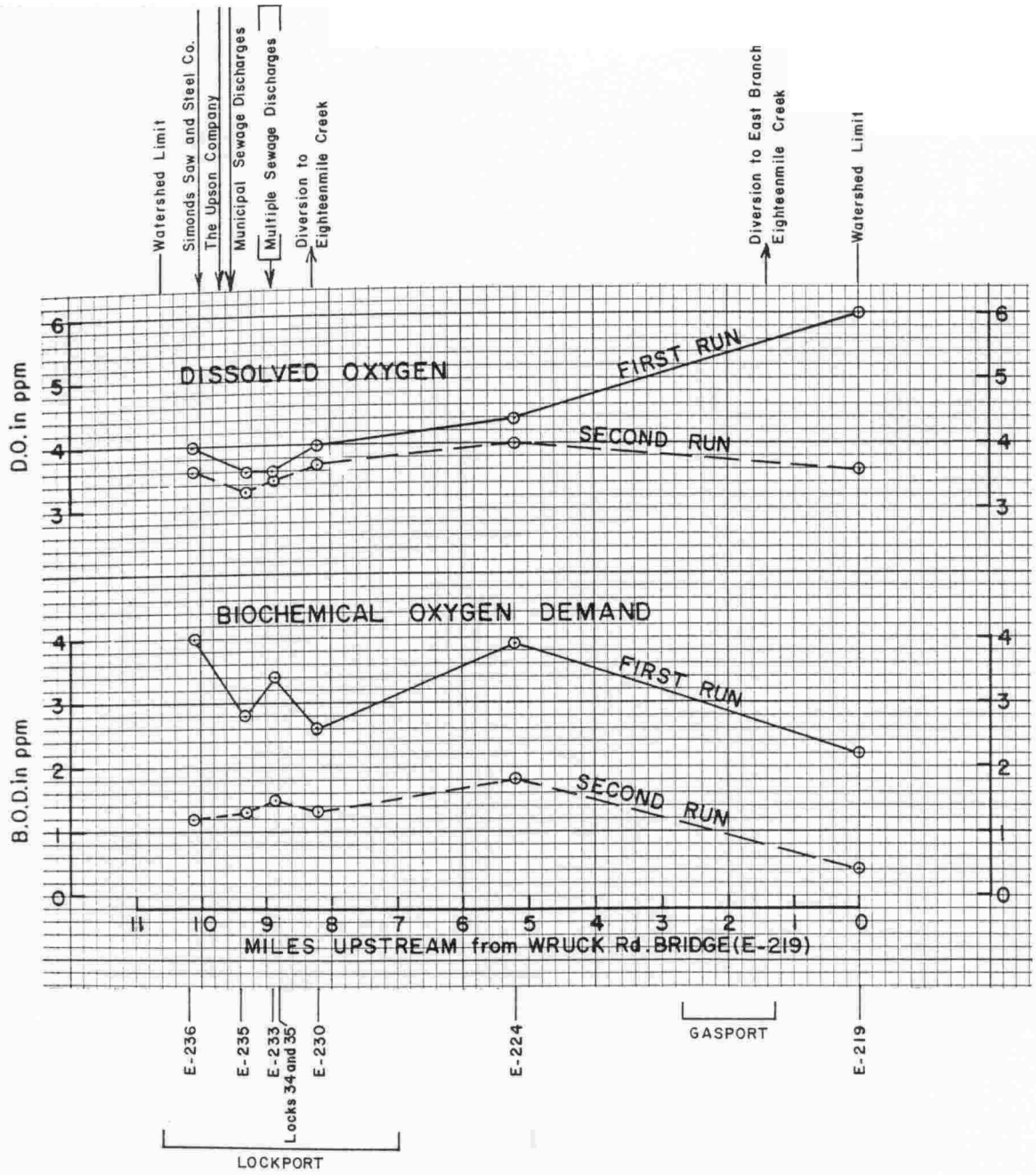
D.O. and B.O.D. — EIGHTEENMILE CREEK

GRAPH



COLIFORM GROUP DENSITY - EIGHTEENMILE CREEK

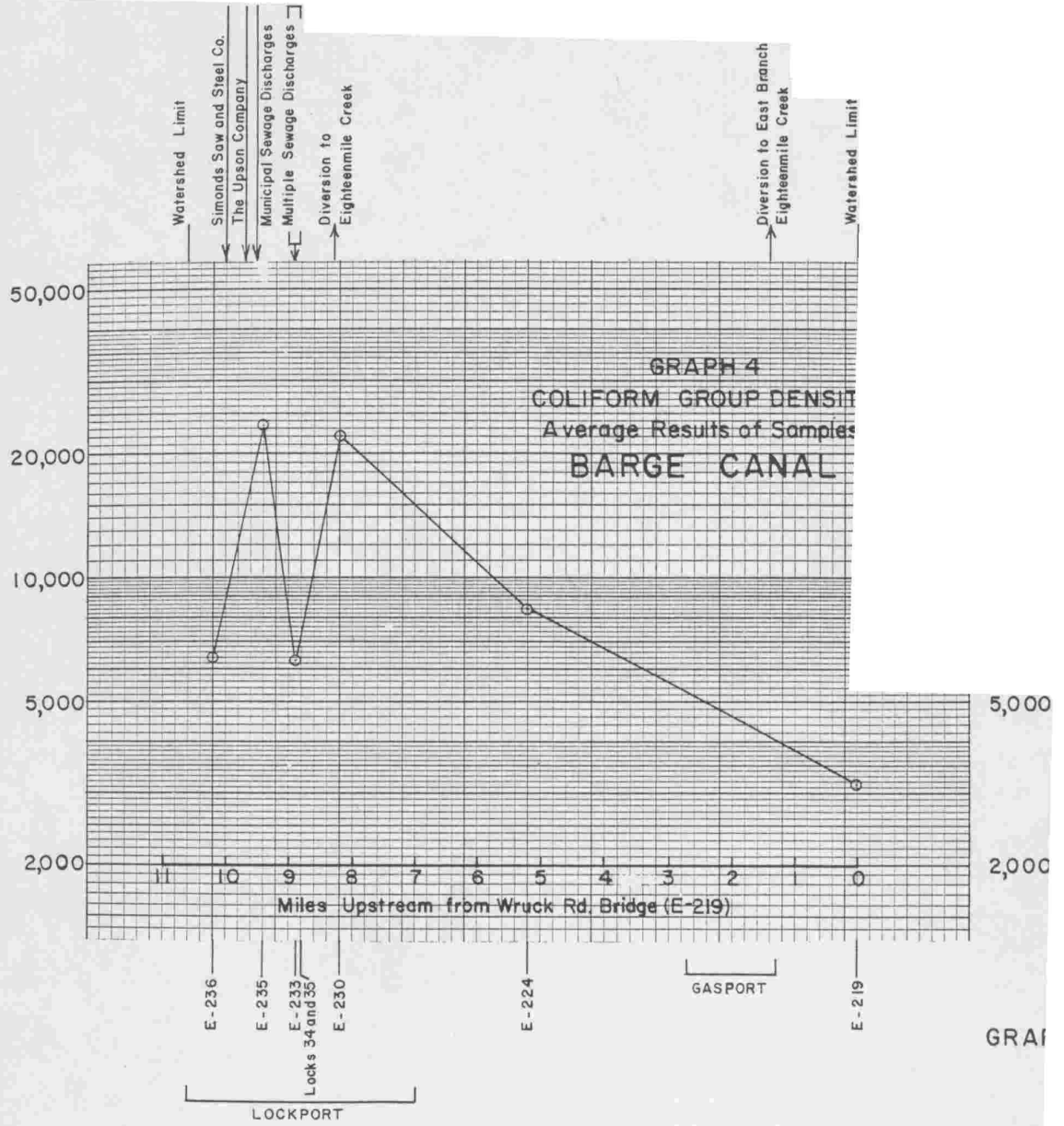
COLIFORM GROUP ORGANISMS — DENSITY (MPN per 100 ml.) GRAPH 2



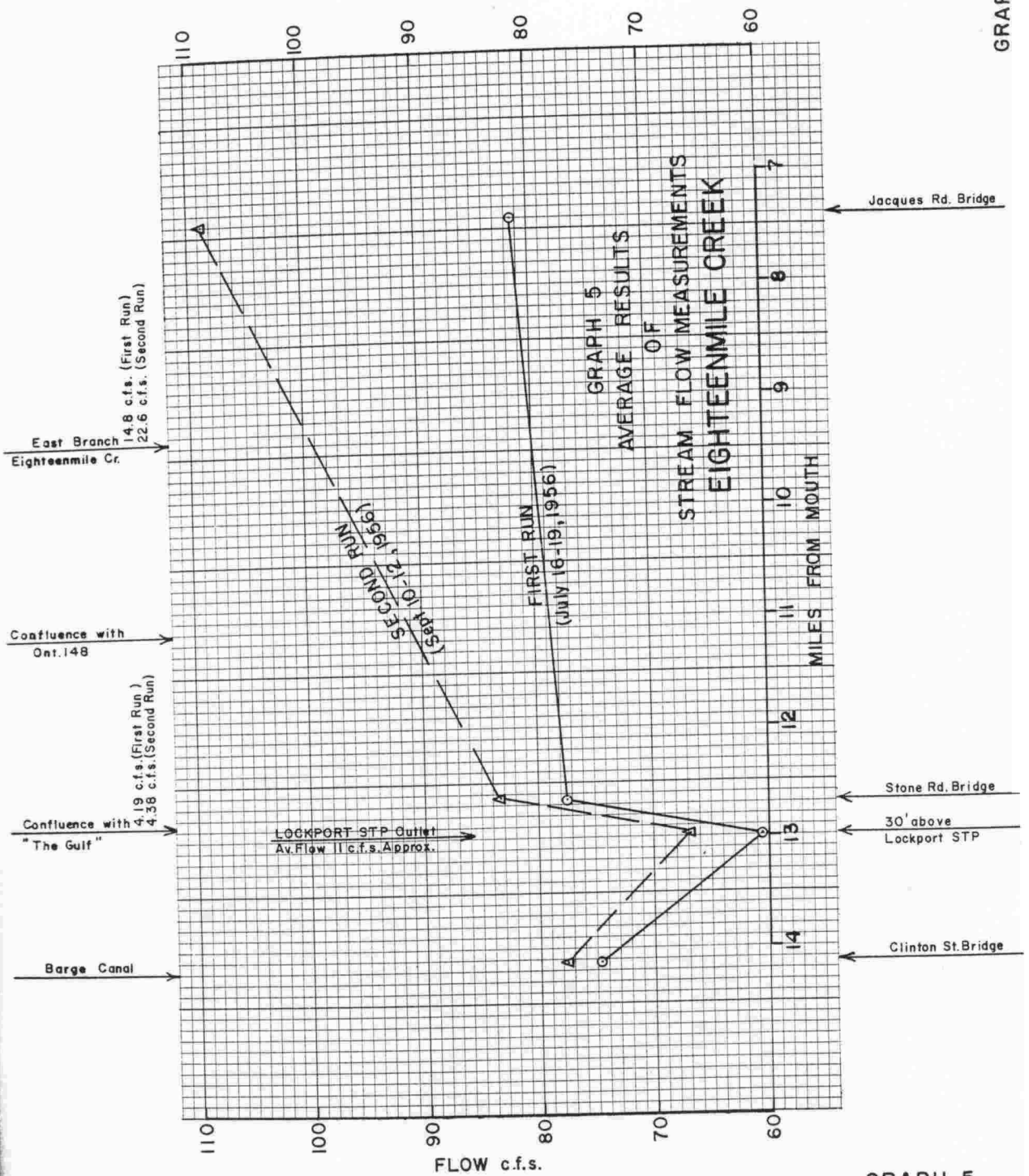
D.O. and B.O.D. — BARGE CANAL

GRAPH 3

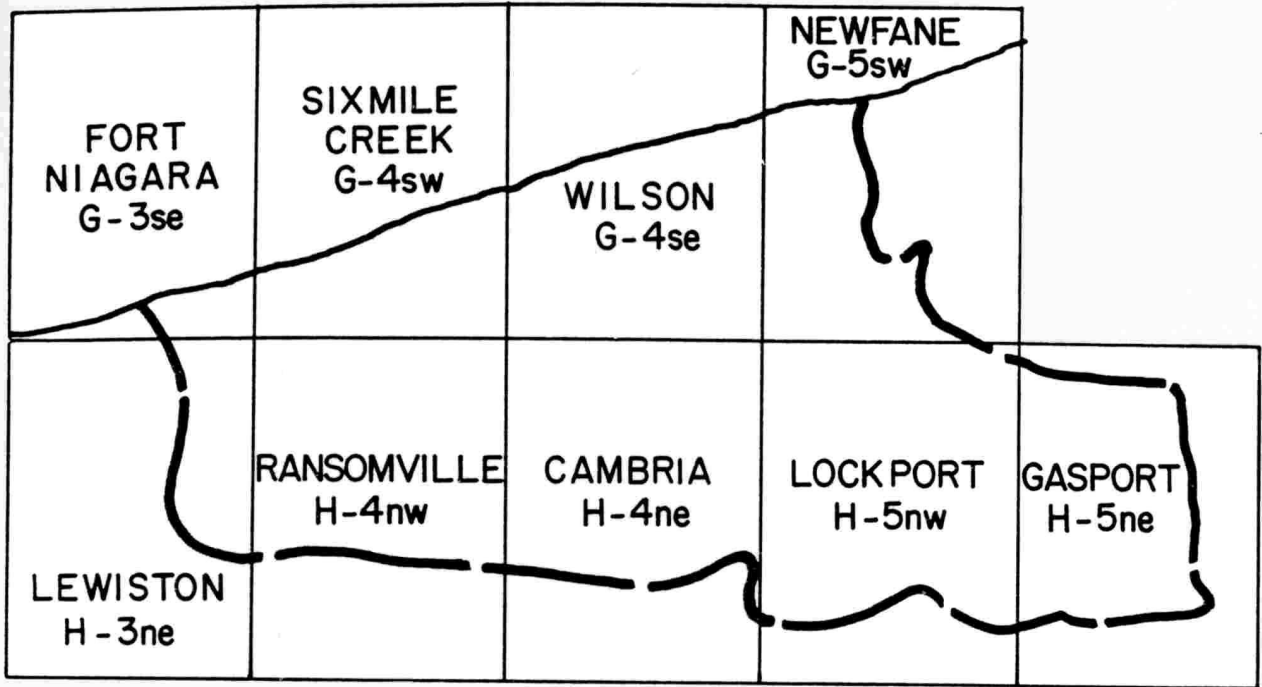
COLIFORM GROUP ORGANISMS - DENSITY (M.P.N. per 100 ml.)

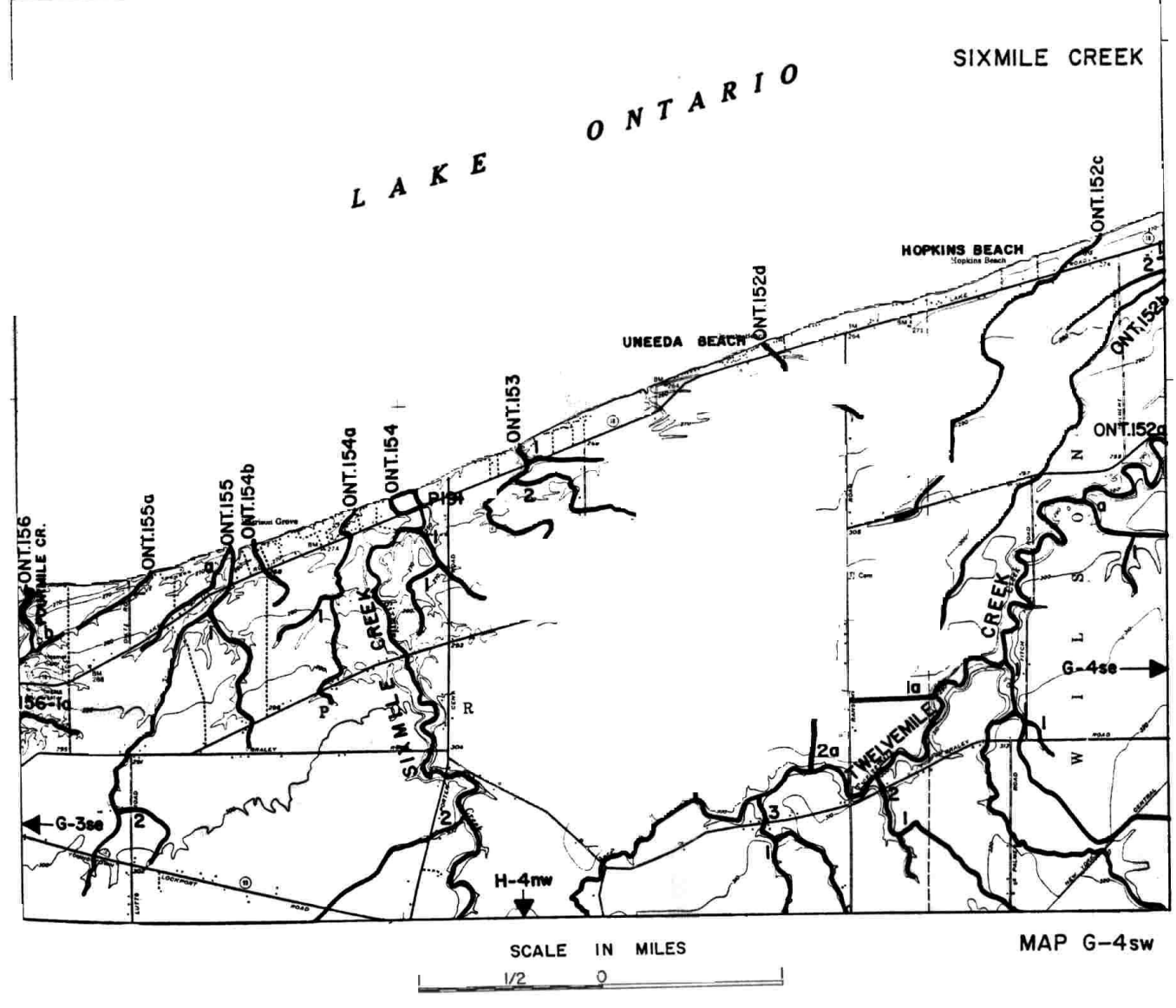
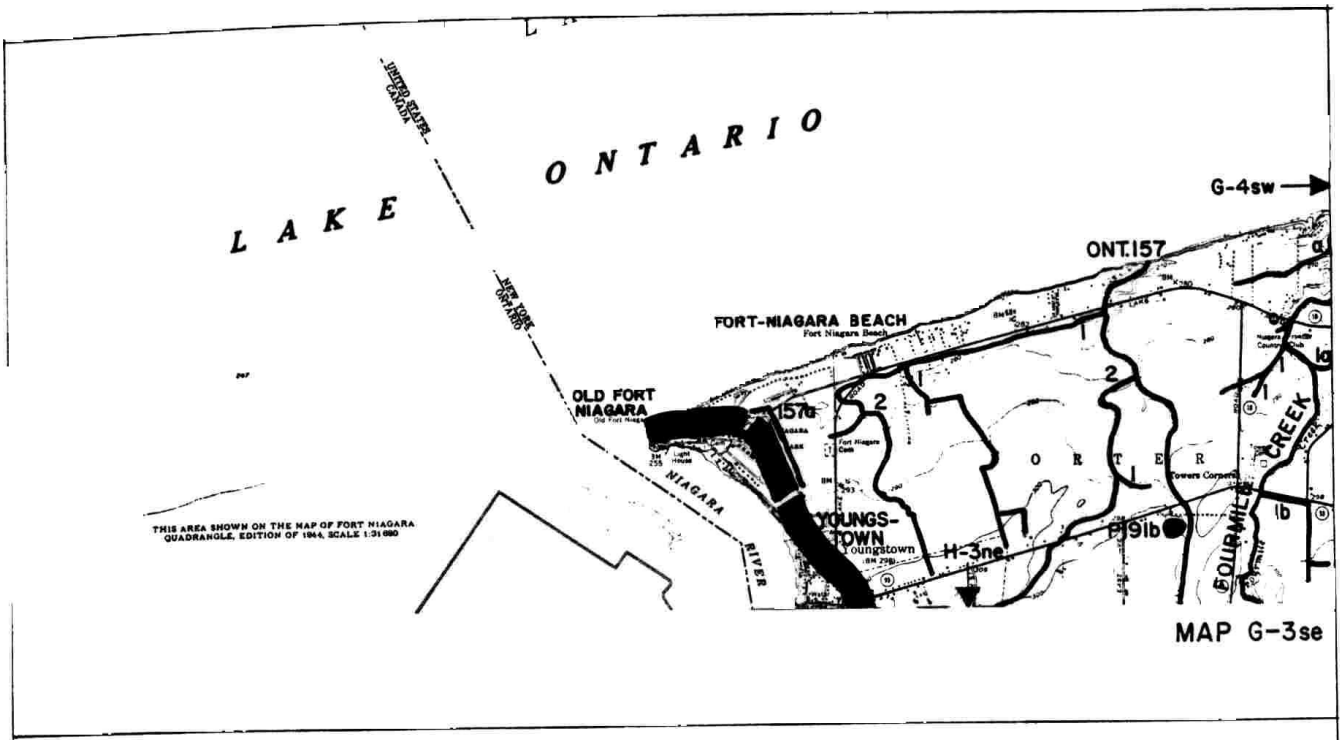


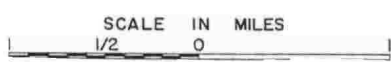
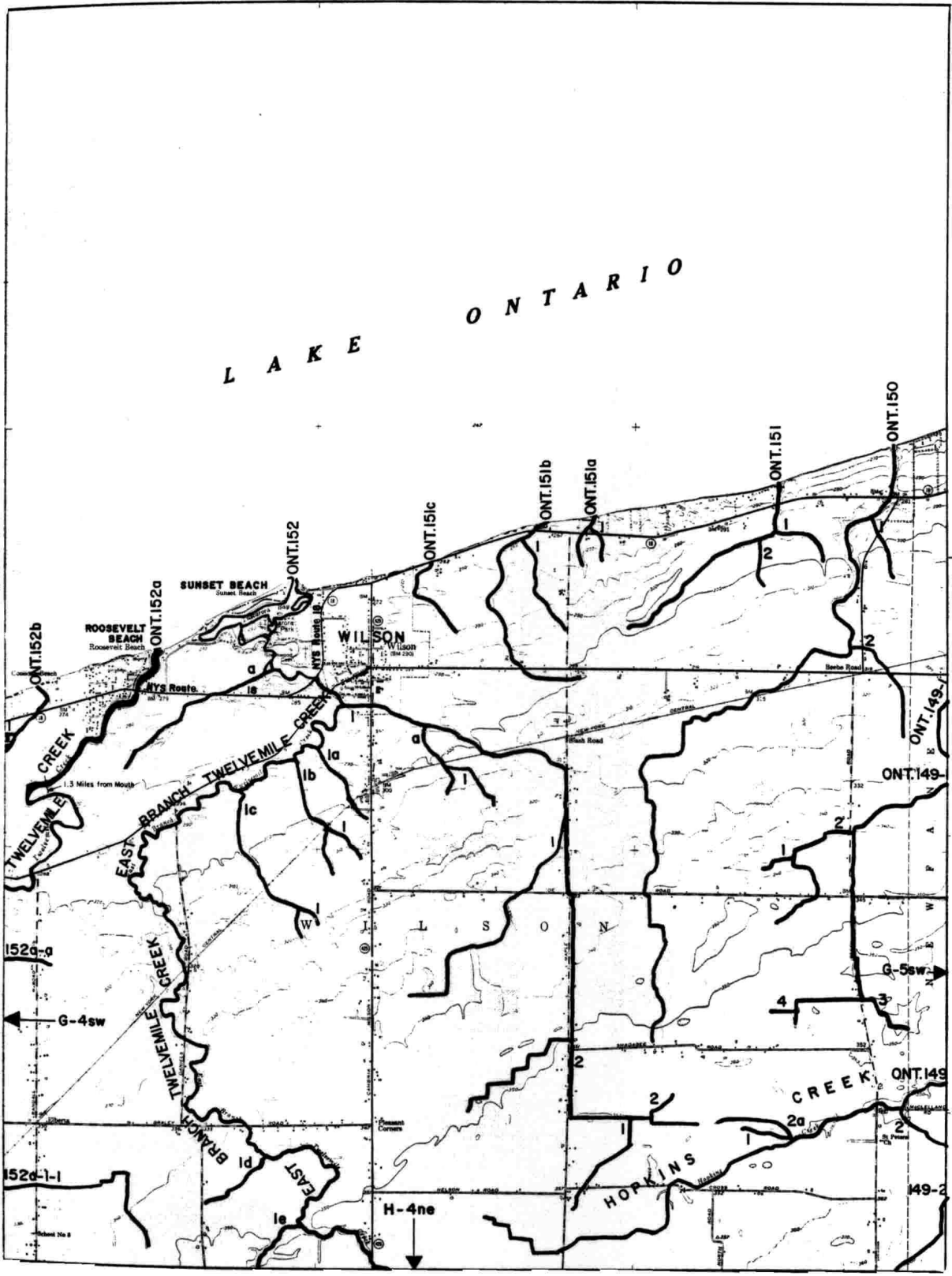
GRAI



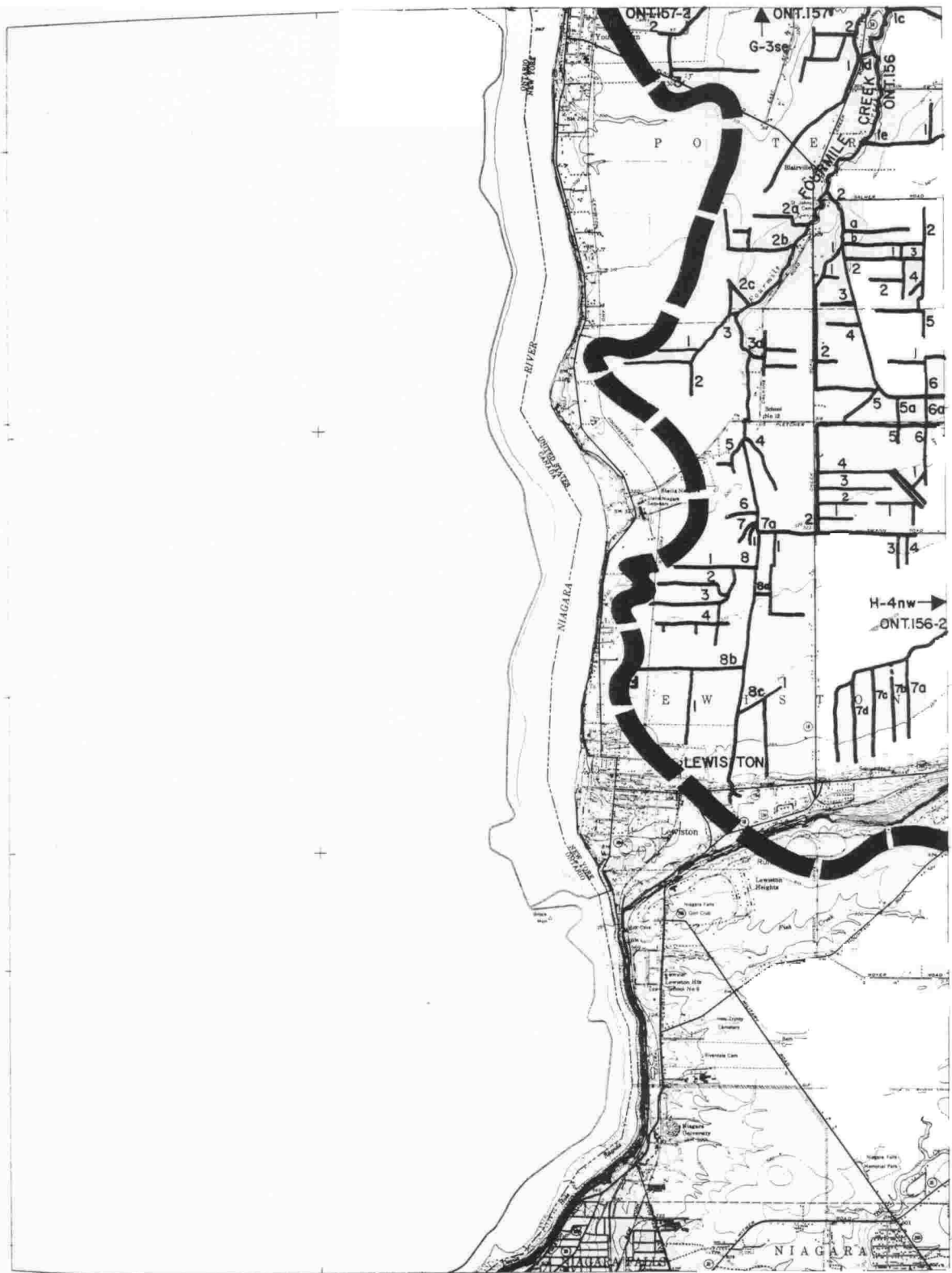
GRAPH 5



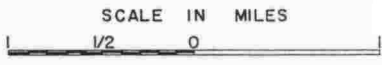


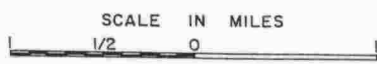
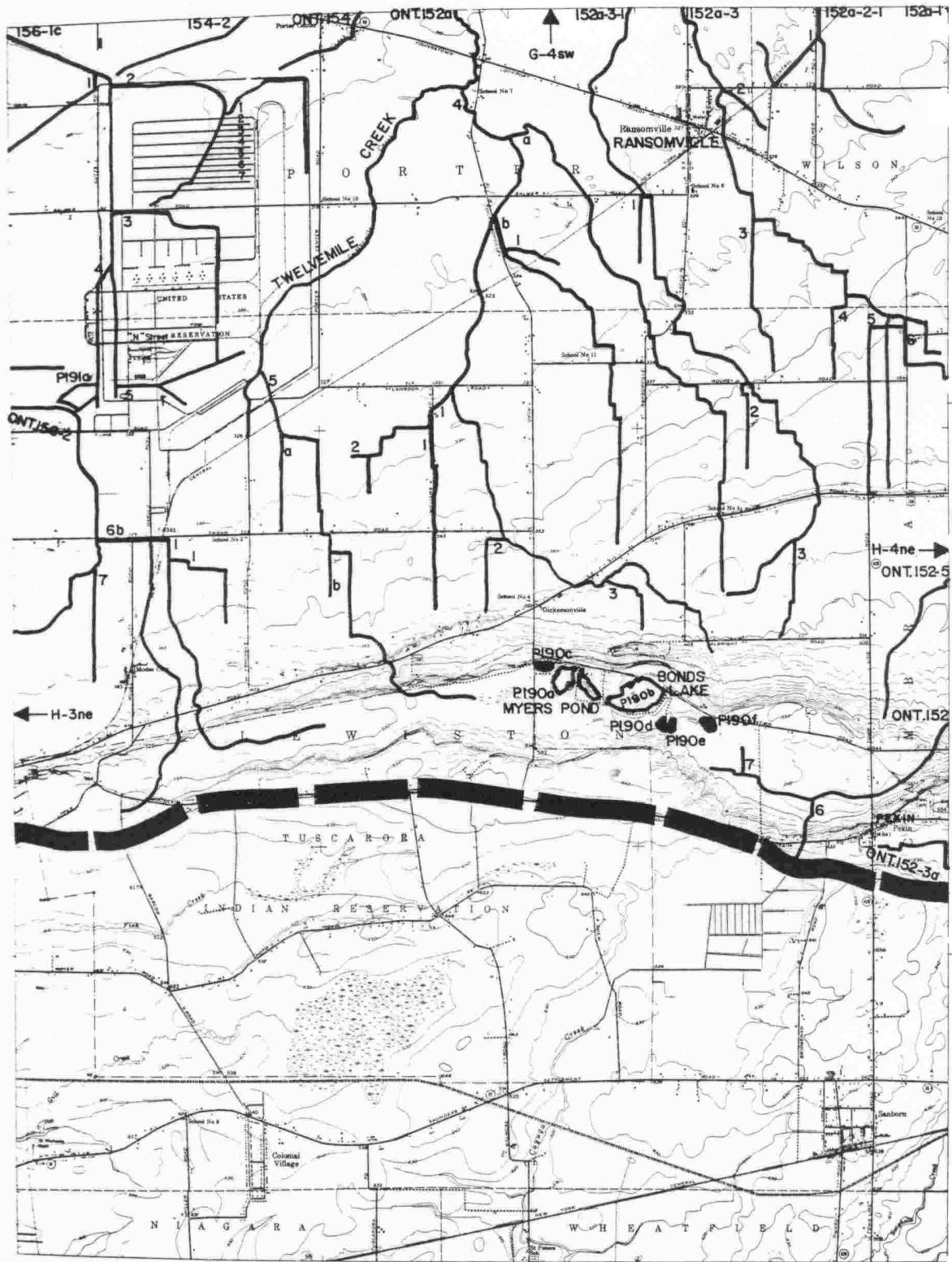


MAP G-4se

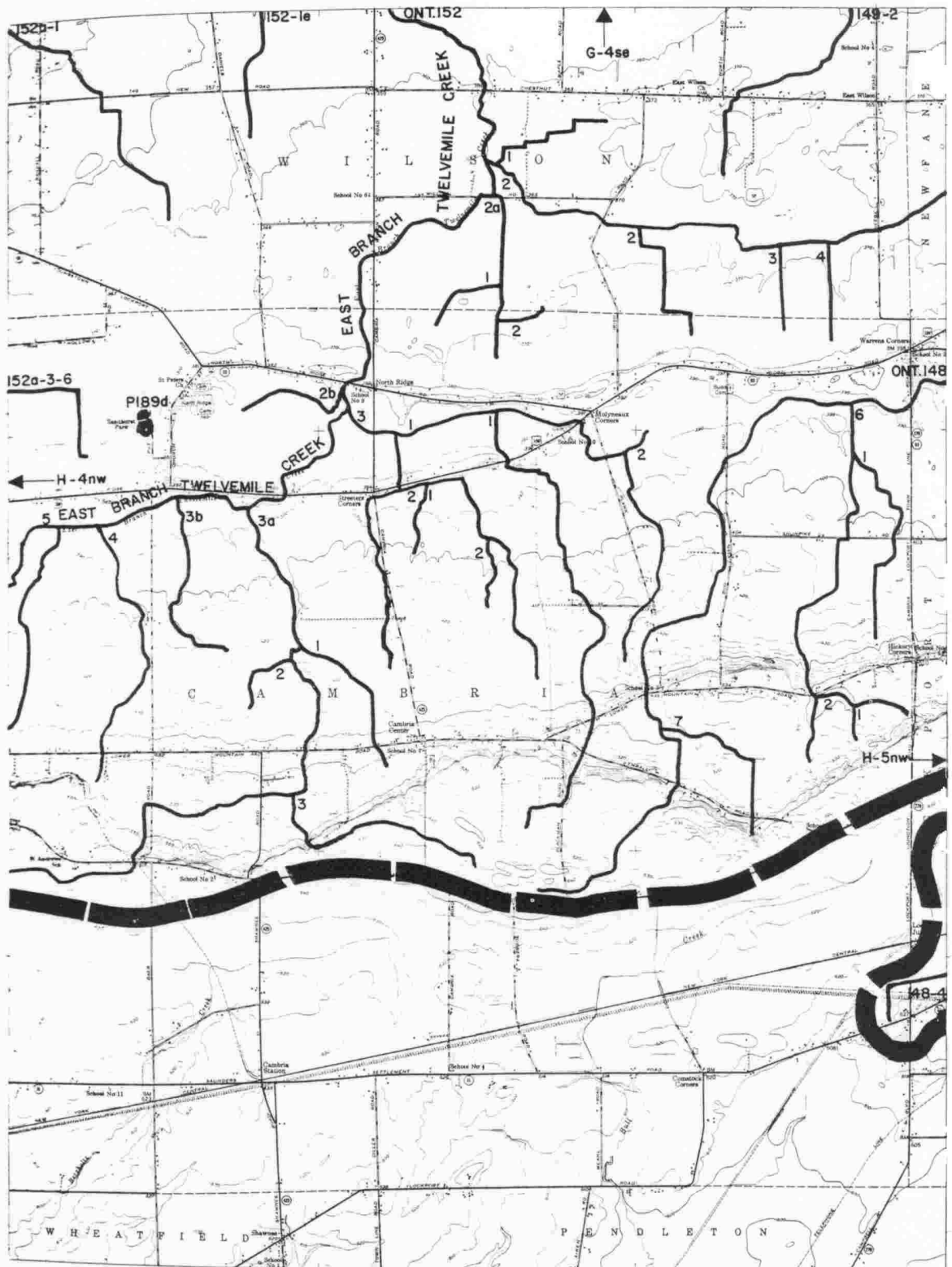


MAP H-3ne



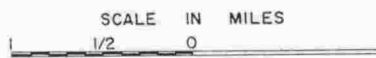
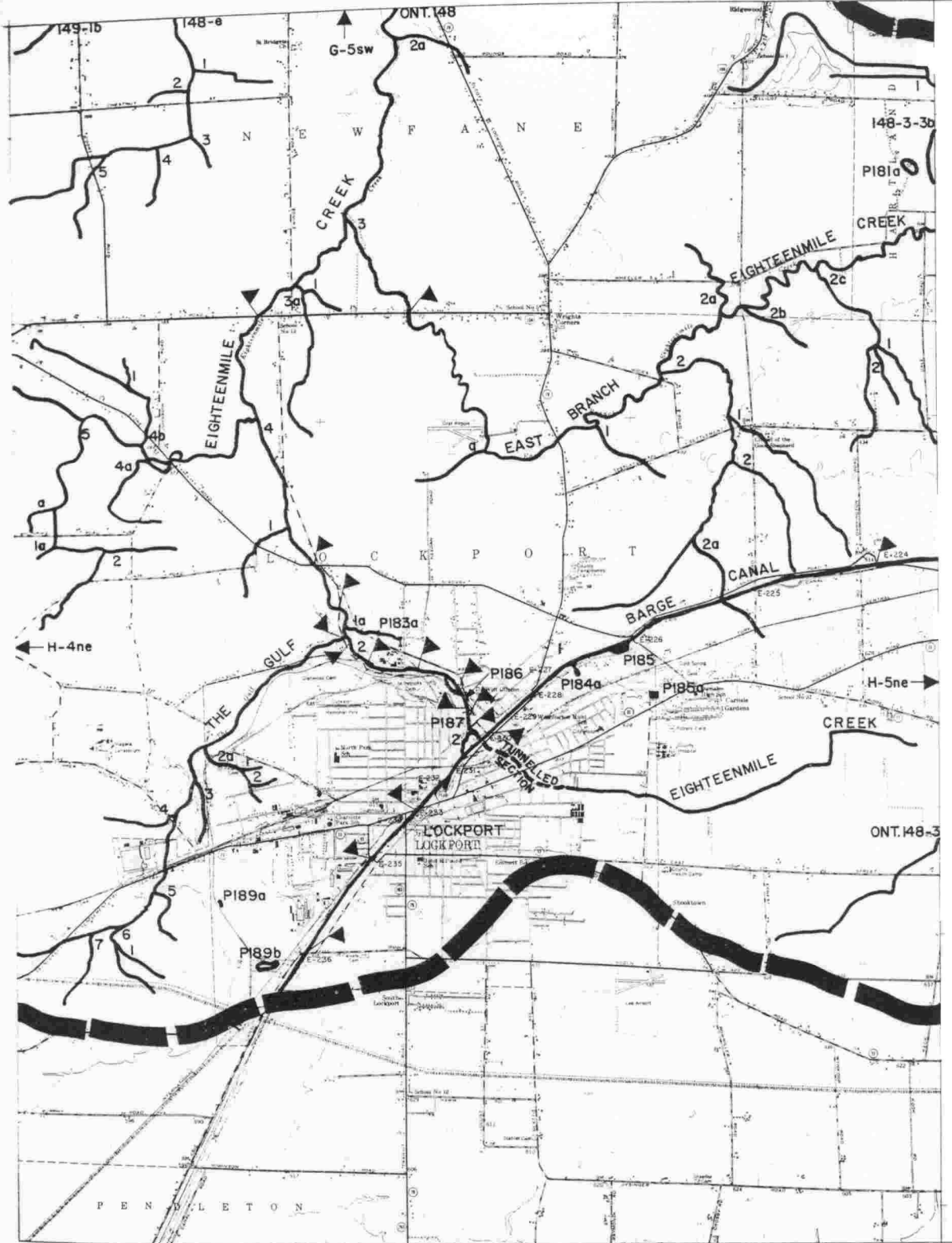


MAP H-4nw

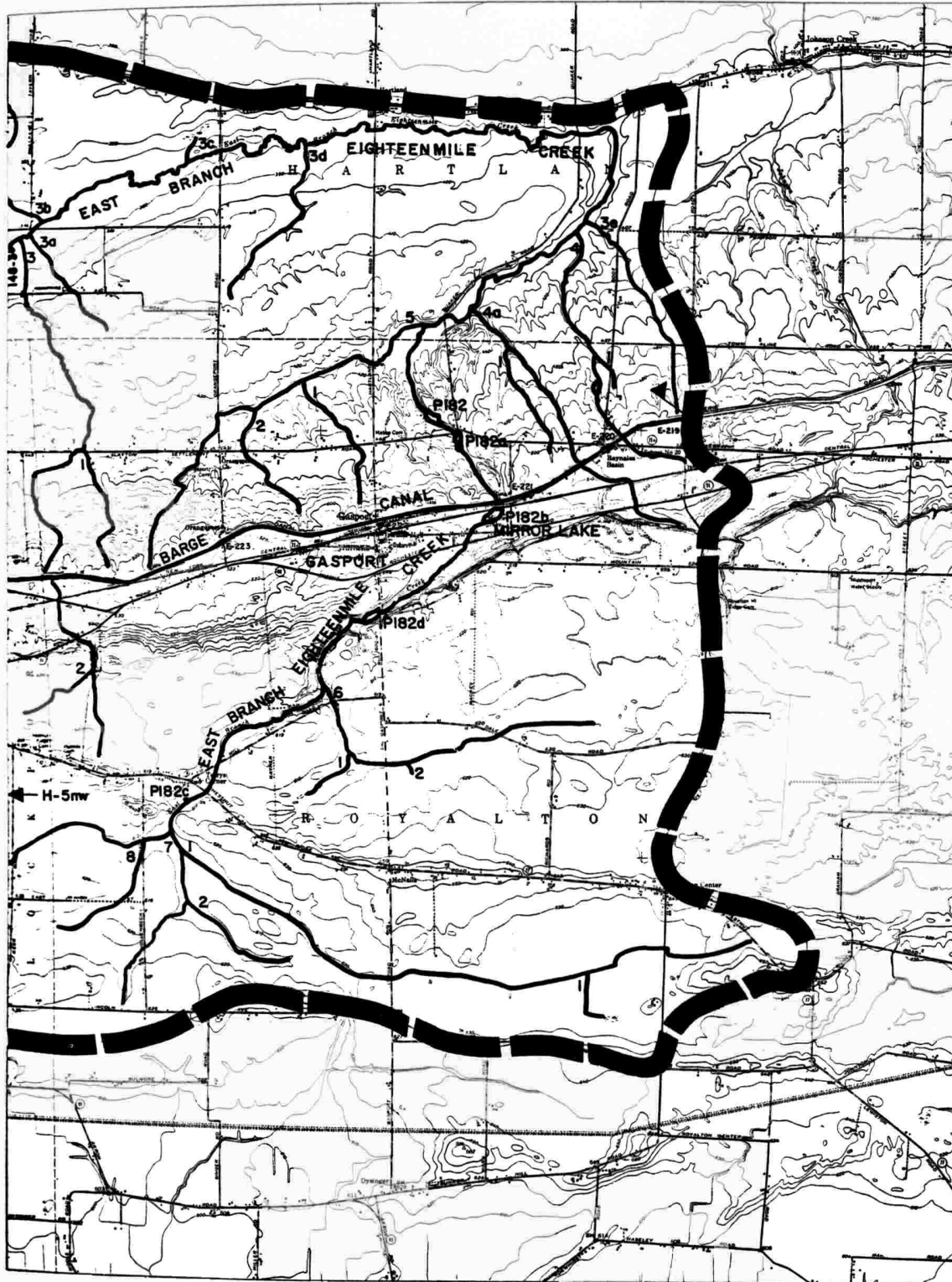


SCALE IN MILES
 1/2 0

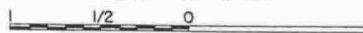
MAP H-4ne



MAP H-5nw



SCALE IN MILES



MAP H-5ne

NEW YORK STATE
DEPARTMENT OF HEALTH
WATER POLLUTION CONTROL BOARD
84 Holland Avenue
Albany 8, New York

LEGAL NOTICE

NOTICE IS HEREBY GIVEN, pursuant to Section 1209, Article 12 of the Public Health Law, that a public hearing will be held at the following specified place and time to consider proposals for the official classification and assignment of standards of quality and purity to all surface waters contained within the Eighteenmile Creek Drainage Basin, within the County of Niagara, State of New York:

NIAGARA COUNTY COURT HOUSE (3rd Floor)
LOCKPORT, NEW YORK
Tuesday, September 15, 1959, at 8:00 p.m.

The aforesaid waters sought to be classified and for which standards of quality and purity are sought to be adopted, either border upon or flow through the County of Niagara; the Towns of Cambria, Hartland, Lewiston, Lockport, Newfane, Porter, Royalton, and Wilson; the City of Lockport; and the Villages of Lewiston, Wilson, and Youngstown.

Copies of the report on the survey of waters within the aforesaid drainage basin, which will form the basis for this hearing, have been mailed to the Chairman of the Board of Supervisors of Niagara County, the Supervisors of the Towns listed above, and the Mayors of the City and Villages listed above, and may be examined in their offices.

NEW YORK STATE WATER POLLUTION CONTROL BOARD
A. F. DAPPERT, EXECUTIVE SECRETARY

EXPLANATORY

The Water Pollution Control Board is required to make proper studies of any specifically designated waters and hold a public hearing with reference thereto prior to the official classification and assignment of quality standards to any such waters.

The public hearing above scheduled constitutes an important phase in the development of New York State's comprehensive pollution abatement and control program under the provisions of Article 12 of the Public Health Law.

The studies of this drainage basin were carried on in 1956. A report thereon has been prepared and published and is being made

(over)

available in advance of the above scheduled hearing to each municipality, industry, and person within the basin to whom by law the Board is required to mail notice of the public hearing. To the extent that copies are available, the report will be sent to other persons upon request. The above scheduled hearing is, therefore, for the particular purpose of considering the suggested or proposed classifications and standards of quality for all surface waters, based upon the consideration of best usage of the waters in the public interest and upon other considerations as required by law.

8/59
-500-