

**2002**

Comprehensive Plan

# **Bear Lake**

**Township**



**BEAR LAKE TOWNSHIP  
PLANNING COMMISSION**

# INTRODUCTION

The Bear Lake Township "Comprehensive or Master Plan" refers to the entire plan, with elements and subplans representing future development or changes in the land use pattern, public facilities and service programs in the township.

A Comprehensive Plan cannot, in itself, control land use and development. Only a zoning ordinance can do that.

The Bear Lake Township Comprehensive Plan was compiled by the Bear Lake Township Planning Commission, concerned individuals and Township Board to establish goals for the community.

Community goals have been reviewed with our previous Comprehensive Plan of 1995 and revisions were made, necessary to the goals and policies that were proposed for the development of our present Bear Lake Township Comprehensive Plan of 2002.



# TABLE OF CONTENTS

Introduction	
Table of Contents	
Chart and Map List .....	1
Bear Lake Township Plat of 1903 .....	2
History of Bear Lake Township .....	3-4
Centennial Farms.....	5
Economy .....	7
Geological Location .....	12
Water: Surface Water & Drainage/Wetlands/Drains .....	16
Topography .....	21
Soil .....	22
Mineral Resources Oil and Gas.....	24
Wildlife Characteristics.....	26-27
Climate .....	28
Parks and Recreation .....	43
Police and Emergency Services .....	44
Manistee County Transportation .....	45
Library .....	46
Schools .....	47
Bear Lake Township Cemeteries .....	49
The Importance of Agriculture.....	51
Planned Unit Development.....	52
Bear Lake Township Businesses .....	53-59
Public Water System.....	60
Manistee County Commissioner District Divisions .....	61
Manistee County Commissioner Districts - 2000 Census .....	62
Administrative Services.....	64
General Goals and Objectives.....	72-73
Summary	



# CHART AND MAP LIST

Profile of General Demographic Characteristics .....	6
Decennial Census - Population by Township .....	8
Decennial Census - Percentage of Change by Township .....	9
Manistee County Municipal Boundaries .....	10
Bear Lake Township Base Map .....	11
Map of Bear Lake .....	13
Map of Chief Lake.....	14
Map of James Lake .....	15
Bear Lake Township Hydrology Map .....	17
Bear Lake Township Wetlands Map .....	18
Bear Lake Water Quality Testing Locations.....	19
Great Lakes Water Quality Results of Bear Lake.....	20
Bear Lake Township Important Farm Lands.....	23
Bear Lake Township Oil/Gas/Other Wells.....	25
Bear Lake Township Plat Map .....	29
Bear Lake Township Road Map.....	30
Bear Lake Township Road Right of Way Maps .....	31-33
Bear Lake Township Land Use Map.....	34
Bear Lake Village Land Use Map .....	35
Village of Bear Lake Map.....	36
Hopkins Forest Subdivision Map .....	37
Wildwood Subdivision Map.....	38
Chief lake Shores Subdivision Map.....	39
Martins Nest Subdivision Map .....	40
Village of Chief Subdivision Map .....	41
Spruce Ridge Subdivision map.....	42
Bear Lake Township School Districts Map .....	48
Bear Lake Township Cemeteries .....	50
Bear Lake Water System & Map .....	60
Manistee County Commissioner District 1 Map.....	63
Bear Lake Township Post Office Map.....	65
Bear Lake Township Electric Utilities Map.....	66
Bear Lake Township Phone Companies Map.....	67
Cable TV Service Area .....	68
Manistee County Road Commission Traffic Survey - 1994.....	69
Manistee County Traffic Flow Map .....	70
Bear Lake Township Vicinity Map.....	71







# HISTORY OF BEAR LAKE TOWNSHIP

Over a period of millions of years, the Township was covered several times by glaciers. As the large masses of ice receded and melted, (10,000) years ago), they left behind numerous lakes and hills with a widely varying contour.

It is believed there were no large Indian settlements in the Township. Evidence of occasional Indian visits are found along the shores of Bear Lake, with several camp sites of considerable size noted.

A century and half ago, the Township was covered by one solid "mixed hardwood" forest. The only exceptions to this were in the northwest corner of the southern borders of the Township where the pine timberland was picked up at an early date by lumbermen. The balance of the land remained vacant until Congress passed the Homestead Act in the early 1860's. This Act, which provided free land to bonafide settlers, went into effect on January 1, 1863, and resulted in an immediate influx of pioneers interested in agriculture.

The first settlers are believed to be the Russell F. Smith family, who arrived about the first of September 1863, and took up 172 acres of land on the south side of Bear Lake. The Smiths were followed within a short time by the families of Simeon Anderson, Francis Buckner and John Edmonson.

These people and most early settlers were interested in agriculture. Each started with 160 acres of hardwood forest and proceeded to clear land and plant crops. It was a very difficult task, and yet those who persevered (and the majority did) were rewarded with prosperity and good farms.

Bear Lake Township was organized as a legal entity early in 1865, but did not achieve its present boundaries until 1870. The first Township election was held in the Spring of 1865 at the home of Simeon Anderson. The honors of first supervisor went to Simeon Anderson; first clerk to H.M. Hannaford and first Treasurer to D.E. Sibley.

The first school was in a small log building, erected for this purpose on the farm of J.B. Mason, the first store appears to have been a small room in the Simeon Anderson home and a well-stocked store was established by T.A. Tillson previous to 1870. The Bear Lake Post Office opened for business on April 27, 1865, in the home of the first postmaster, Jerome Hulbert. By 1870, the Township had attained a population of 417 living in 91 homes. The assessment rolls for that year show the value of real estate at \$10,551 and the value of personal estate at \$16,863 for a total equalized valuation of \$27,414 on 11,279 acres. By 1881, the total equalized valuation had jumped to \$58,760 on 20,029 acres.

As the first settler, Russell F. Smith had chosen his land with the idea of a future village. To this end, he offered 12 acres of land to anyone who would come in and start a village. His offer was accepted by a firm who would become known as Carpenter & Harrington, comprised of John S. Carpenter and Eliphlate Harrington. These men built a small store, a boarding house, a steam saw and grist mill on the site of the present village. Their enterprise was apparently none too successful, for in the Spring of 1873, they sold out to George W. and David H. Hopkins.

Starting with just three or four buildings from Carpenter & Harrington, the Hopkins Brothers soon developed the Village of Bear Lake into the major service center for rural population. Hopkins immediately built an improved saw and grist mill. The following year, 1874, the firm platted 88 acres for the Village. On June 1, 1876, the Bear Lake Tram Railway, utilizing horse-drawn freight cars, commenced operation connecting the growing village with the docks at Pierport. In 1881, a new grist mill was built, reportedly the first roller mill in the State. Finally in 1882, the Hopkins Brothers built the Bear Lake & Eastern Railroad to replace the horse-drawn cars with a team locomotives, steel rails and



# HISTORY OF BEAR LAKE TOWNSHIP CON'T

suitable equipment. Throughout this period, new businesses opened almost monthly on Lake Street in the Village.

While George and David Hopkins may have founded the Village of Bear Lake with the idea of developing a private lumbering enterprise, the sawmill and railroad had a decided influence on the surrounding area. In clearing their farms, the homesteaders produced vast amounts of forest products. It was only practical to haul logs or cordwood distances of under five miles which left most Township residents without a market for these products. Consequently, for the first decade of settlement, these products were simply burned as the most efficient means of disposal. With the construction of the large sawmill in 1873, the Hopkins' immediately commenced buying logs from nearby farmers. Finally, with the construction of the Tram Railway in 1876, cordwood was shipped to Pierport for marketing in Chicago and Milwaukee. At the very minimum, this market for forest products would have doubled the income of homesteaders, while for the ambitious, income probably increased fivefold. Because of this, the farms of Bear Lake Township developed into extensive, productive units during the last part of the 19th century.

Shortly after the turn of the century, the Township enjoyed the peak of this early prosperity. Population reached 1,595 in 1904. There were 207 farms in the Township, with 12,114 productive acres. This land was worked by 583 horses and produced 97,441 bushels of grain, 74,098 bushels of potatoes, 46,000 bushels of apples and many other products. The Village serving this area had a seemingly endless list of businesses; three general stores, a furniture store, dry goods store, meat market, drug store, bank, canning factory, flour mill, creamery and a hotel. Individuals providing professional services included: three doctors, a dentist, a watchmaker, a shoemaker, a photographer

and a barber. Communication with the outside world was via a daily stage line connecting with the railroad at Chief.

By this date, the majority of the forest products had been harvested from the farmland. Because of this, the large mills were dismantled and in 1903, the Bear Lake & Eastern Railroad was taken up and shipped to another state. The original pioneers were passing on and their children or grandchildren frequently chose an easier life in a far away city. The natural fertility originally found in the soil under the hardwoods had been exhausted and farmers found it difficult to produce the record crops of the early years. All of these factors precipitated a general exodus from the Township which probably peaked immediately after World War I. In 1920, the population had dropped to 1,217 but the annual Bear Lake picnic held the following year in a park near the city of Detroit, had over a thousand attendants.

The 20th century has seen a steady continuation of the trends started early in the period. Agriculture has continued to decline with a gradual conversion by the remaining farmers to the fruit crops, which are ideally suited for the climate. Tourism has risen in importance as resorters and descendants of the early pioneers have returned to the area as a favorite vacation land. The Township has evolved as a pleasant community involved in a broad spectrum of business and industry.



# CENTENNIAL FARMS

John and Lillian Porter  
7332 Chippewa Hwy.  
Kaleva, MI 49645  
NE1/4 of SE1/4 & N1/2, SW1/4 of NE1/4, Sec31, T23N, R15W

*First Owner: John Baptiste Porter (PaQuin)*  
*Date of Purchase: 7/1/1863*

Mabel Schimke  
Route 1  
Bear Lake, MI 49614  
Sec30, T23N, R15N

*First Owner: Gotlieb Schimke*  
*Date of Purchase: 10/18/1866*

Hazel Briske  
Route #1  
Bear Lake, MI 49614  
W1/2 of E3/5 of S5/8 of SW1/4, Sec 15, T23N, R15

*First Owner: James Griswold*  
*Date of Purchase: 11/23/1868*

Winston S. Churchill EST  
11058 11-Mile Road  
Bear Lake, MI 49614  
E1/2NE1/4, Sec14 & W1/2NW1/4, Sec13 & S1/2Sec12, T23N, R15W

*First Owner: Andres Arner*  
*Date of Purchase: 6/5/1869*

Donovan E. and Bernice Anderson  
Route #2  
Bear Lake, MI 49614  
S1/2 of NE 1/4 of Sec3, T23N, R15W

*First Owner: David Anderson*  
*Date of Purchase: 5/11/1872*

Harold and Joyce Johnson  
7174 Thorpe Road  
Bear Lake, MI 49614  
SE1/4, SW1/4 & SW1/4 SE1/4 Sec31, T23N & Sec 6, T22N, R15W

*First Owner: Andrew Johnson*  
*Date of Purchase: 7/1/1880*

Earl F. and Dorothy Osborn  
Route #1  
Bear Lake, MI 49614  
W1/4 of SE1/4 of Sec 11, T23N, R15W

*First Owner: Andrew and Calhevine Arner*  
*Date of Purchase: 4/27/1867*

Joel D. and Carol Meister  
7901 Anderson Road  
Kaleva, MI 49645  
NW1/4 of NW1/4, Sec 34, T23N, R15W

*First Owner: Daniel and Tillie Meister*  
*Date of Purchase: 4/6/1895*

Felix S. and Catherine M. Gauthier  
7616 Adamson Lake Road  
Kaleva, MI 49645  
SE1/4 of NE1/4, Sec32, N23N, R15W

*First Owner: Frank L. Gauthier Sr.*  
*Date of Purchase: 4/21/1898*

Douglas E. and Linda Alkire  
8390 11-Mile Road  
Bear Lake, MI 49614  
E1/2, SW1/4 Sec9, T23N, R15W

*First Owner: Michael Fauble*  
*Date of Purchase: 7/7/1899*



# PROFILE OF GENERAL DEMOGRAPHIC CHARACTERISTICS

## Bear Lake Township

Subject	Number	Percent	Subject	Number	Percent
<b>Total population</b> .....	<b>1,587</b>	<b>100.0</b>	<b>HISPANIC OR LATINO AND RACE</b>		
<b>SEX AND AGE</b>			<b>Total population</b> .....	<b>1,587</b>	<b>100.0</b>
Male.....	799	50.3	Hispanic or Latino (of any race).....	59	3.7
Female.....	788	49.7	Mexican.....	43	2.7
Under 5 years.....	81	5.1	Puerto Rican.....	5	0.3
5 to 9 years.....	130	8.2	Cuban.....	-	-
10 to 14 years.....	109	6.9	Other Hispanic or Latino.....	11	0.7
15 to 19 years.....	105	6.6	Not Hispanic or Latino.....	1,528	96.3
20 to 24 years.....	59	3.7	White alone.....	1,489	93.8
25 to 34 years.....	165	10.4	<b>RELATIONSHIP</b>		
35 to 44 years.....	255	16.1	<b>Total population</b> .....	<b>1,587</b>	<b>100.0</b>
45 to 54 years.....	215	13.5	In households.....	1,573	99.1
55 to 59 years.....	96	6.0	Householder.....	639	40.3
60 to 64 years.....	100	6.3	Spouse.....	392	24.7
65 to 74 years.....	145	9.1	Child.....	447	28.2
75 to 84 years.....	85	5.4	Own child under 18 years.....	367	23.1
85 years and over.....	42	2.6	Other relatives.....	31	2.0
Median age (years).....	40.7	(X)	Under 18 years.....	12	0.8
18 years and over.....	1,193	75.2	Nonrelatives.....	64	4.0
Male.....	593	37.4	Unmarried partner.....	38	2.4
Female.....	600	37.8	In group quarters.....	14	0.9
21 years and over.....	1,153	72.7	Institutionalized population.....	-	-
62 years and over.....	331	20.9	Noninstitutionalized population.....	14	0.9
65 years and over.....	272	17.1	<b>HOUSEHOLD BY TYPE</b>		
Male.....	130	8.2	<b>Total households</b> .....	<b>639</b>	<b>100.0</b>
Female.....	142	8.9	Family households (families).....	457	71.5
<b>RACE</b>			With own children under 18 years.....	182	28.5
One race.....	1,571	99.0	Married-couple family.....	392	61.3
White.....	1,529	96.3	With own children under 18 years.....	143	22.4
Black or African American.....	6	0.4	Female householder, no husband present.....	39	6.1
American Indian and Alaska Native.....	13	0.8	With own children under 18 years.....	23	3.6
Asian.....	11	0.7	Nonfamily households.....	182	28.5
Asian Indian.....	2	0.1	Householder living alone.....	159	24.9
Chinese.....	-	-	Householder 65 years and over.....	81	12.7
Filipino.....	1	0.1	Households with individuals under 18 years.....	194	30.4
Japanese.....	-	-	Households with individuals 65 years and over.....	193	30.2
Korean.....	-	-	Average household size.....	2.46	(X)
Vietnamese.....	-	-	Average family size.....	2.90	(X)
Other Asian <sup>1</sup> .....	8	0.5	<b>HOUSING OCCUPANCY</b>		
Native Hawaiian and Other Pacific Islander.....	4	0.3	<b>Total housing units</b> .....	<b>916</b>	<b>100.0</b>
Native Hawaiian.....	-	-	Occupied housing units.....	639	69.8
Guamanian or Chamorro.....	-	-	Vacant housing units.....	277	30.2
Samoan.....	-	-	For seasonal, recreational, or		
Other Pacific Islander <sup>2</sup> .....	4	0.3	occasional use.....	203	22.2
Some other race.....	8	0.5	Homeowner vacancy rate (percent).....	1.9	(X)
Two or more races.....	16	1.0	Rental vacancy rate (percent).....	8.1	(X)
<b>Race alone or in combination with one</b>			<b>HOUSING TENURE</b>		
<b>or more other races:</b> <sup>3</sup>			<b>Occupied housing units</b> .....	<b>639</b>	<b>100.0</b>
White.....	1,545	97.4	Owner-occupied housing units.....	560	87.6
Black or African American.....	6	0.4	Renter-occupied housing units.....	79	12.4
American Indian and Alaska Native.....	28	1.8	Average household size of owner-occupied units.....	2.45	(X)
Asian.....	11	0.7	Average household size of renter-occupied units.....	2.57	(X)
Native Hawaiian and Other Pacific Islander.....	4	0.3			
Some other race.....	11	0.7			

- Represents zero or rounds to zero. (X) Not applicable.

<sup>1</sup> Other Asian alone, or two or more Asian categories.

<sup>2</sup> Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

<sup>3</sup> In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.



# ECONOMY

Agriculture in Bear Lake Township is an important base of employment and a number of people are directly employed on Township farm operations. Migrant workers are employed during each Harvest season.

Tourist trade is the most important activity in the Township. Businesses such as restaurants, taverns, motels, bed and breakfast, cottages, parks and marina service depend largely on the tourist trade. Bear Lake is known as an established resort area because of the many lakes located in the area.

Commercial, industrial and forestry are other economic activities in the Township. The commercial, retail and wholesale trade activity also is important to the Township as an employer and as a service to the population.

Industrial activity does not have a big economic part for the Township but it does as far as the State of Michigan is concerned - that being the extraction of raw materials. Some direct service employment is received from the companies doing the extractions. The markets for the raw materials produced in the Township are world-wide.

There are some small forests throughout the Township which are privately owned. These provide beauty and wildlife protection.

The largest single employer in the Township is Blarney Castle Oil Co. Bear Lake has a number of Building Contractors and many people are employed at businesses located in the adjacent areas.



# DECENNIAL CENSUS

## *Population by Township/City*

	Population 1970	Population 1980	Population 1990	Population 2000	Change 1970-1980	Change 1980-1990	Change 1990-2000
MANISTEE COUNTY	20,094	23,019	21,265	24,527	2,925	(1,754)	3,262
Arcadia	592	641	553	621	49	(88)	68
Bear Lake	1,444	1,658	1,419	1,587	214	(239)	168
Brown	390	631	588	712	241	(43)	124
Cleon	555	764	713	932	209	(51)	219
Dickson	627	777	735	929	150	(42)	194
Filer	1,921	2,143	1,966	2,208	222	(177)	242
Manistee city	7,723	7,665	6,734	6,586	(58)	(931)	(148)
Manistee	2,875	3,209	2,952	3,764	334	(257)	812
Maple Grove	750	1,071	1,123	1,285	321	52	162
Marilla	213	266	268	362	53	2	94
Norman	678	944	1,189	1,676	266	245	487
Onkama	1,128	1,444	1,266	1,514	316	(178)	248
Pleasanton	486	627	573	817	141	(54)	244
Springdale	199	452	498	730	253	46	232
Stronach	513	727	688	804	214	(39)	116

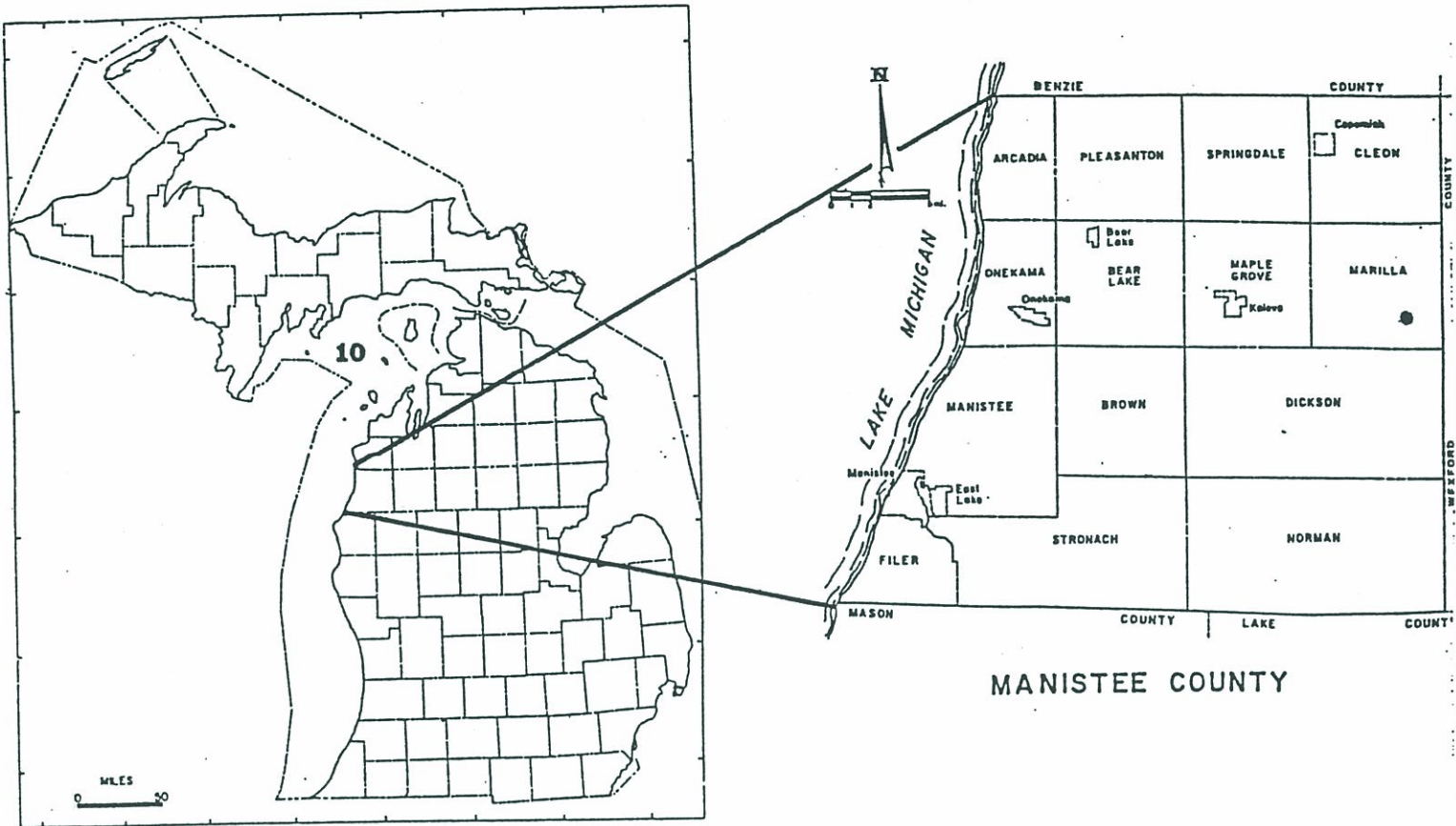
# DECENNIAL CENSUS

## *Percentage Change In Population by Township/City*

	<b>% of Total Change 1970-1980</b>	<b>% of Total Change 1980-1990</b>	<b>% of Total Change 1990-2000</b>	<b>% Change 1970-1980</b>	<b>% Change 1980-1990</b>	<b>% Change 1990-2000</b>
MANISTEE COUNTY	100.0%	100.0%	-186.0%	14.6%	-7.6%	15.3%
Arcadia	1.7%	5.0%	-3.9%	8.3%	-13.7%	12.3%
Bear Lake	7.3%	13.6%	-9.6%	14.8%	-14.4%	11.8%
Brown	8.2%	2.5%	-7.1%	61.8%	-6.8%	21.1%
Cleon	7.1%	2.9%	-12.5%	37.7%	-6.7%	30.7%
Dickson	5.1%	2.4%	-11.1%	23.9%	-5.4%	26.4%
Filer	7.6%	10.1%	-13.8%	11.6%	-8.3%	12.3%
Manistee city	-2.0%	53.1%	8.4%	-0.8%	-12.1%	-2.2%
Manistee	11.4%	14.7%	-46.3%	11.6%	-8.0%	27.5%
Maple Grove	11.0%	-3.0%	-9.2%	42.8%	4.9%	14.4%
Marilla	1.8%	-0.1%	-5.4%	24.9%	0.8%	35.1%
Norman	9.1%	-14.0%	-27.8%	39.2%	26.0%	41.0%
Onekama	10.8%	10.1%	-14.1%	28.0%	-12.3%	19.6%
Pleasanton	4.8%	3.1%	-13.9%	29.0%	-8.6%	42.6%
Springdale	8.6%	-2.6%	-13.2%	127.1%	10.2%	46.6%
Stronach	7.3%	2.2%	-6.6%	41.7%	-5.4%	16.9%

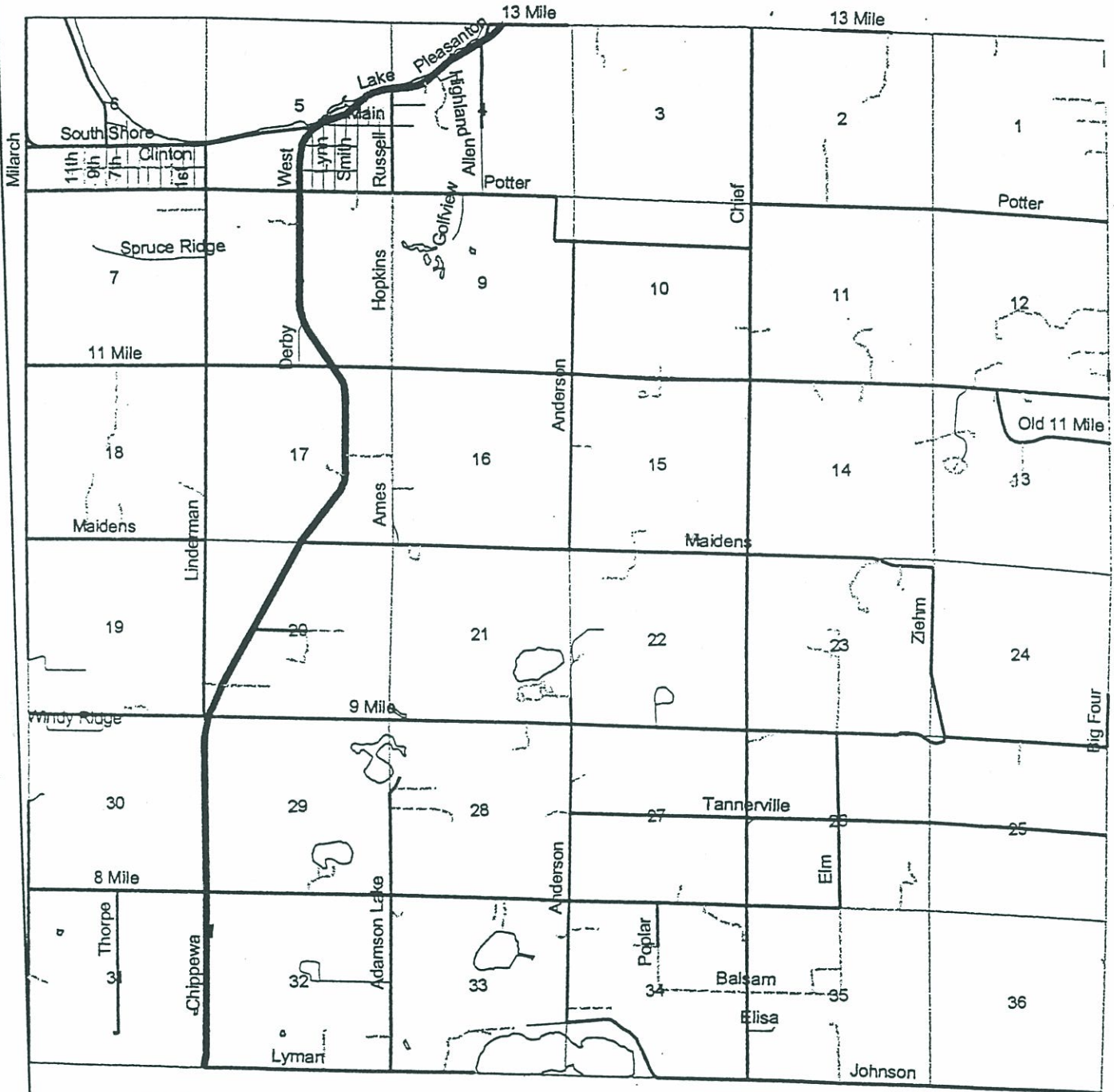


# MANISTEE COUNTY MUNICIPAL BOUNDARIES



MANISTEE COUNTY

# BEAR LAKE TOWNSHIP BASE MAP



## Legend

- Roads
  - Two Tracks
  - Highways
  - Minor Roads
  - County Roads
- Lakes
- Sections





# GEOLOGICAL LOCATION

Bear Lake Township is located in the Northwestern part of the Lower Peninsula, in the Northwestern quarter of Manistee County. (Plat location is T23N-R15W).

Townships bordering Bear Lake are Onekama on the West, Pleasanton on the North, Maple Grove on the East, Arcadia on the Northwest, Springdale on the Northeast and Brown, Dickson and Manistee Townships on the South.

Bear Lake Township is 36 square miles. The land area is approximately 22,145 acres with an inland water area of about 955 acres. The portion of Bear Lake within the Township is approximately 640 acres.

The approximate area of the lakes in the Township are as follows:

LAKE	APPROX. ACRES
<i>Bear Lake</i>	1800
<i>Chief Lake</i>	160
<i>James Lake</i>	40
<i>Emma Lake</i>	40
<i>Adamson Lake</i>	40
<i>Watson Lake</i>	20
<i>Cooper Lake</i>	10

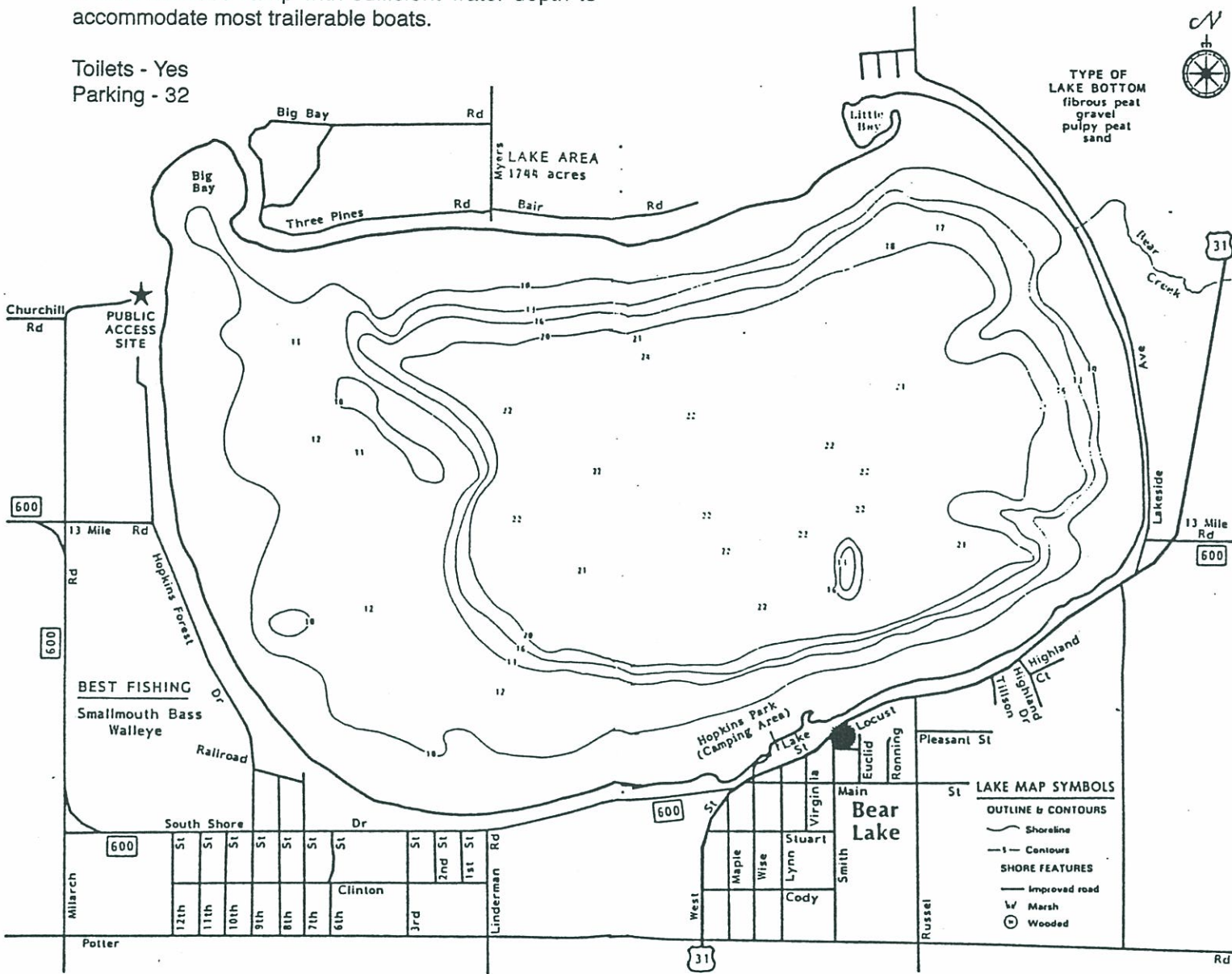
# MAP OF BEAR LAKE

## RAMP CODE

A hard-surfaced ramp with sufficient water depth to accommodate most trailerable boats.

Toilets - Yes  
Parking - 32

TYPE OF LAKE BOTTOM  
fibrous peat  
gravel  
pulpy peat  
sand





# MAP OF CHIEF LAKE

MANISTEE COUNTY  
 Bear Lake & Brown Townships  
 (See County Highway Map)



BEST FISHING  
 Crappie

LAKE AREA  
 126 acres

TYPE OF  
 LAKE BOTTOM  
 fibrous peat  
 pulpy peat  
 sand

### LAKE MAP SYMBOLS

#### OUTLINE & CONTOURS

— Shoreline

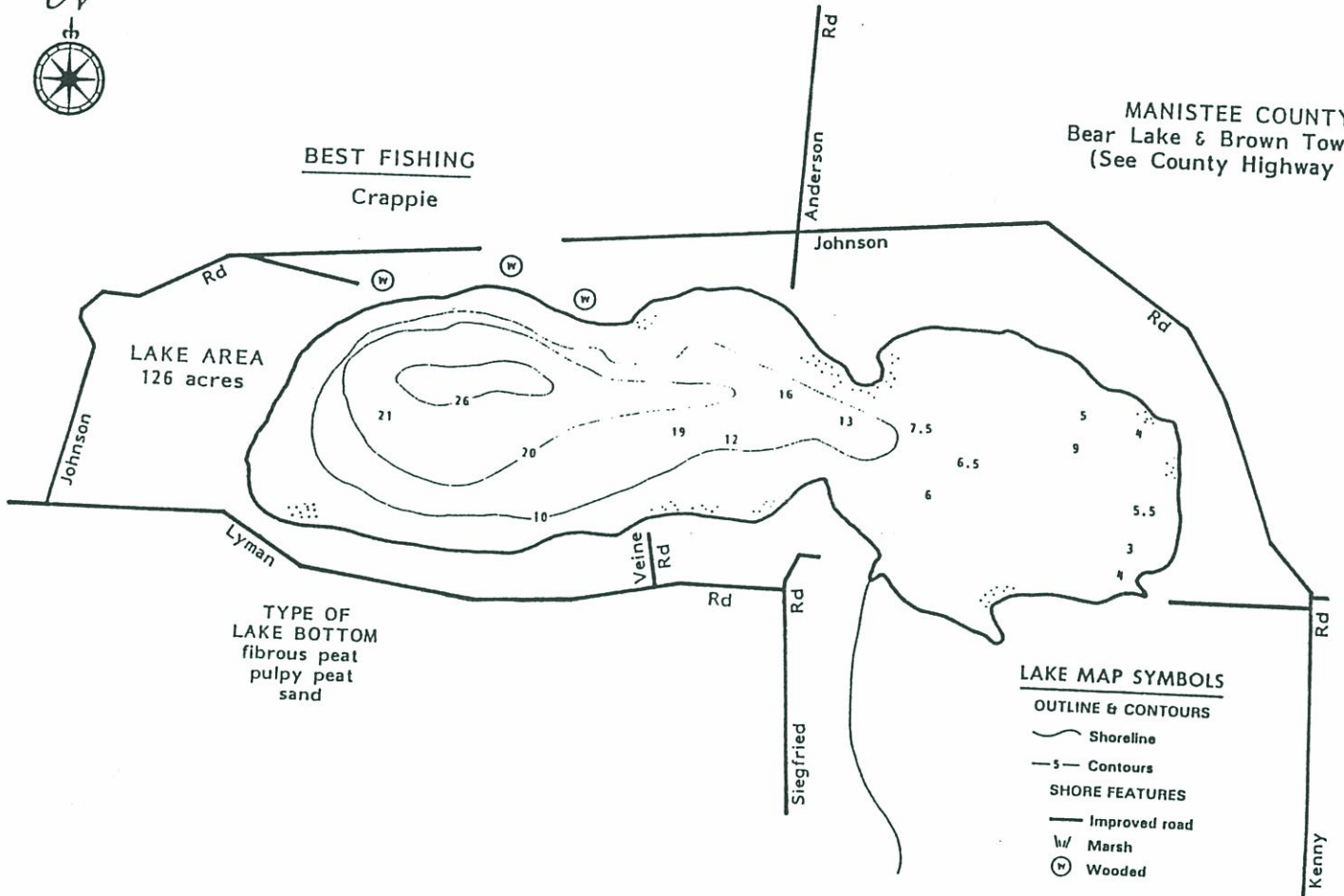
— Contours

#### SHORE FEATURES

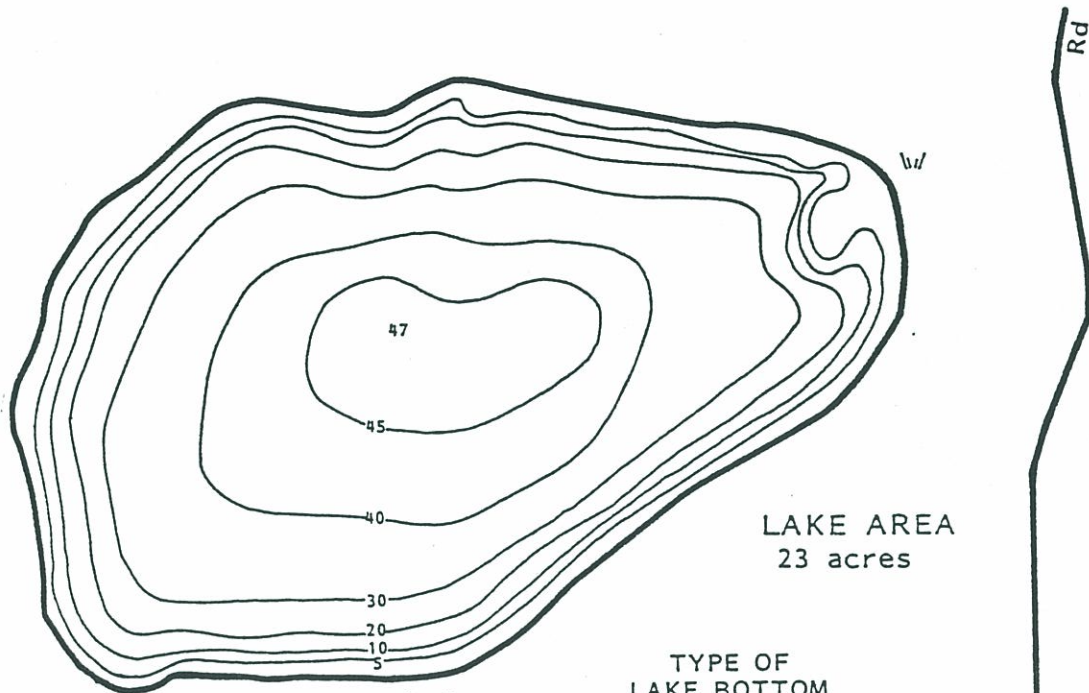
— Improved road

h/ Marsh

⊙ Wooded



# MAP OF JAMES LAKE



LAKE AREA  
23 acres

TYPE OF  
LAKE BOTTOM  
detritus  
fibrous peat  
marl  
pulpy peat  
sand

## LAKE MAP SYMBOLS

### OUTLINE & CONTOURS

Shoreline

Contours

### SHORE FEATURES

Improved road

Marsh

Wooded

Nine Mile

598

Rd

598

Anderson



# WATER

## ***Surface Water and Drainage Systems***

Bear Lake Township surface water consists of Bear Lake, Chief Lake, Emma Lake, James Lake, Watson Lake, Adamson Lake and Cooper Lake. The bulk of Bear Lake Township is part of the Big Manistee River drainage basin. Big Bear Creek drains most of the Township area. Bear Lake drains into Little Bear Creek which drains into Big Bear Creek which drains into the Big Manistee River.

Watson Lake and Cooper Lake are thought of as being kettle lakes. Generally, a kettle lake doesn't seem to be connected to a surfact water drainage basin and is not connected to any of the Township or County's rivers.

## ***Wetlands***

Soils with high moisture content are classified as somewhat poorly drained to very poorly drained, sandy loamy, clayey, marly or organic (muck or peat) soils or lowlands. These areas have a severe to very severe soil limitations for residential or urban-type development. High water tables, (year-round, intermittent or seasonal within 1-2 feet of the surface) is expected in these areas. Problems with septic tanks, pollution of ground and surface water and poor load-supporting ability are problems associated with wetlands. Wetlands in the Bear Lake Township area are located in the southeastern and southern part of the Township. There are some wetlands along County Rd. 600 and south of the golf course and a good-sized area in the southwestern part of the Township. (It's located between Maidens Road on the north and 9 mile on the south).

## ***Artificial Drains***

Manistee County Drains in the Bear Lake Township area as of November, 1979 are as follows:

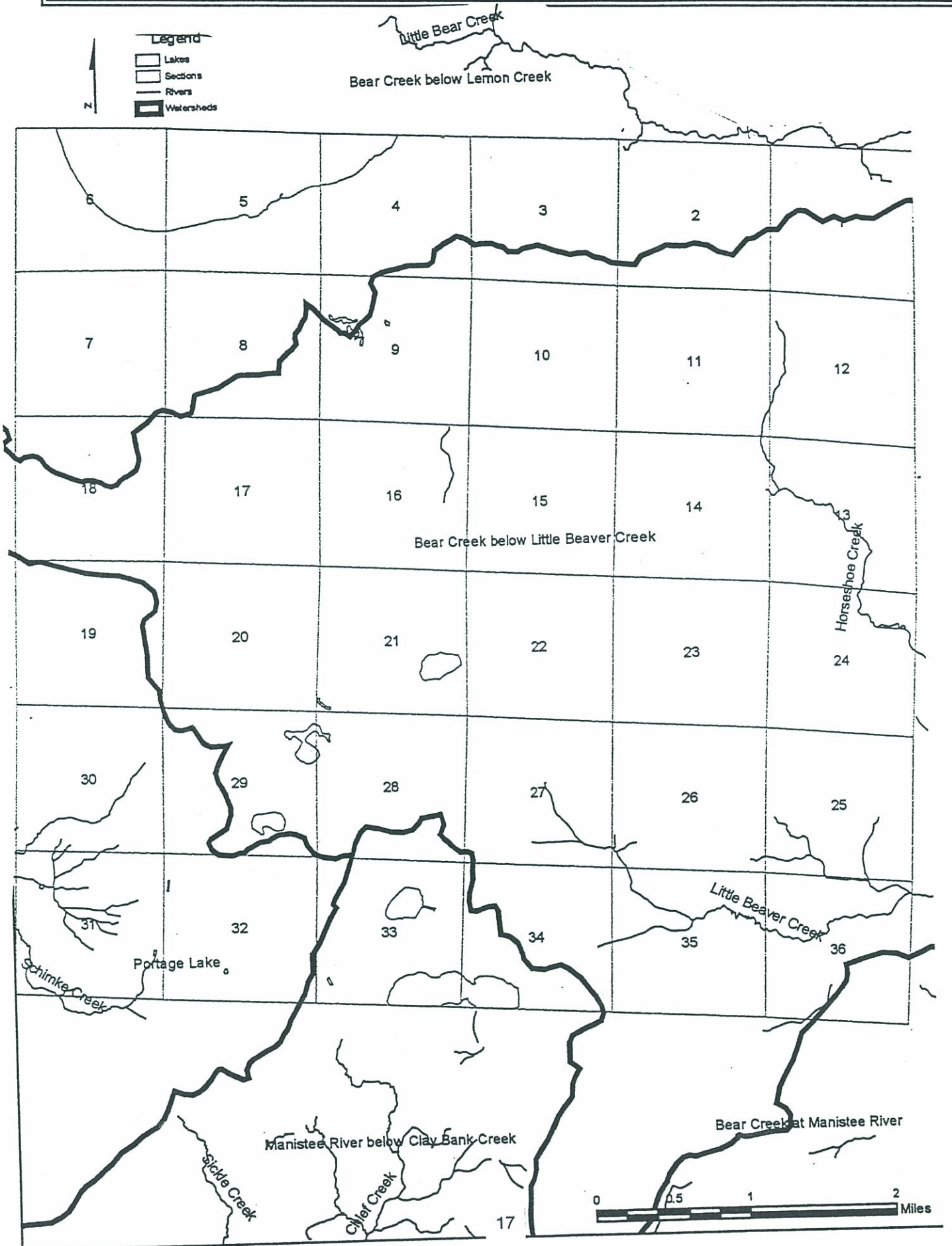
- 1. BIG KAISER DRAIN - many open creeks and ditches drain into Horseshoe Creek and Williamson Creek.*
- 2. CHIEF LAKE DRAIN - open ditches and several gullies drain into Chief Lake and Chief Creek.*
- 3. GUSTASON DRAIN - open tile (buried) drain, drains, into Little Beaver Creek.*
- 4. BEAVER CREEK DRAIN - there is no explanation in the County Drain Report on what this drain is.*



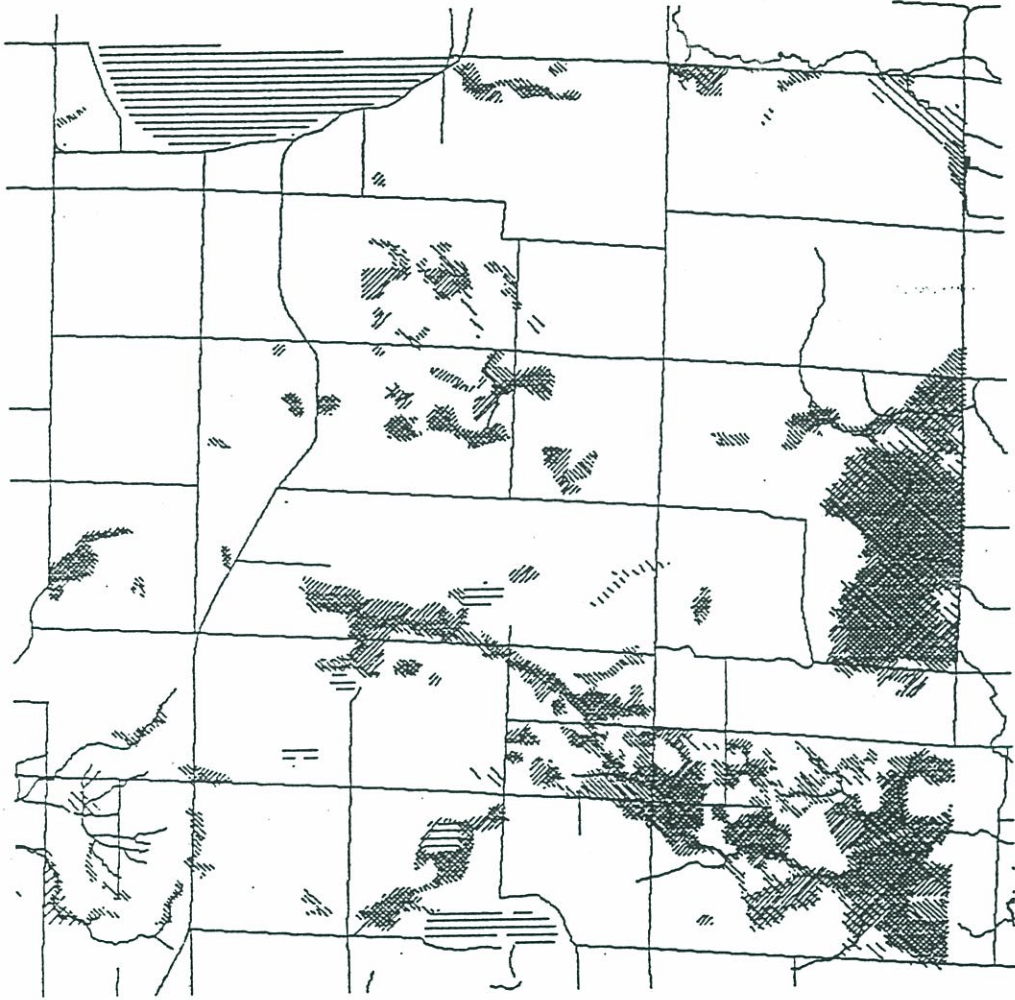
# BEAR LAKE TOWNSHIP HYDROLOGY MAP

Legend

- Lakes
- Sections
- Rivers
- Watersheds



# BEAR LAKE TOWNSHIP WETLAND MAP



Legend

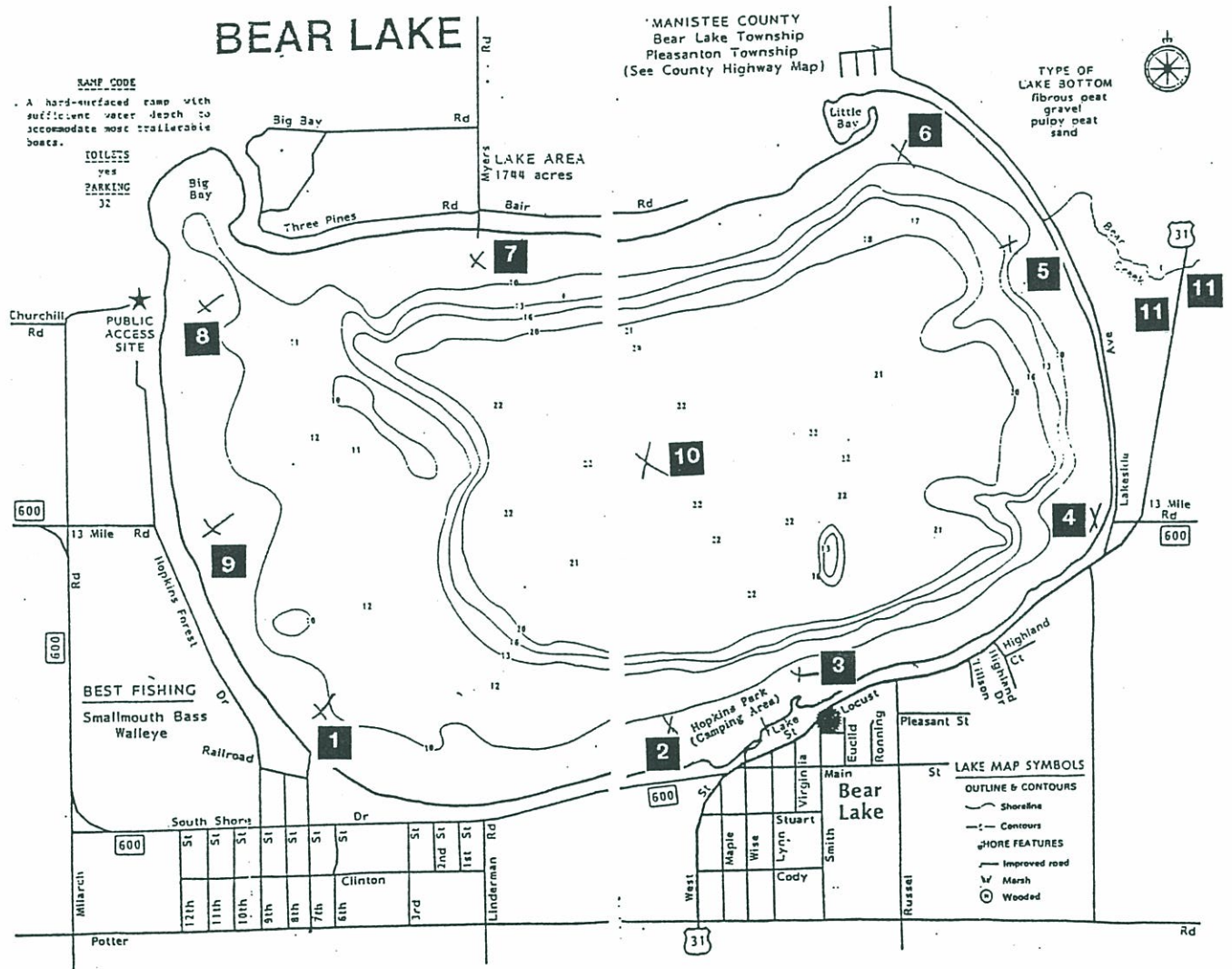
- Upland
- Wetland (hydric)
- Wetland (veg.)
- Maybe H. wetland
- Maybe H. wetland
- Maybe veg. wetland
- 

(Vegetation & Soil)  
Manistee Co. Planning  
Dept. Sept. 28, 1995



# BEAR LAKE WATER QUALITY TESTING LOCATIONS

See Following Page for Results



# BEAR LAKE WATER QUALITY RESULTS

*Sample Collection - Dated: 11/3/01*

LAB I.D. #01110332 - 43

SITE	COLIFORM (FECAL) PER 100 ml	pH in pH units	DISS OXYGEN in Mg/L	AMMONIA NITROGEN in Mg/L	NITRATE NITROGEN in Mg/L	NITRITE NITROGEN in Mg/L	PHOSP TOTAL inMg/l
# 1	2	8.0	12.4	0.11	<0.5	0.01	0.033
# 2	19	7.9	12.1	0.11	<0.5	<0.01	0.025
# 3	3	8.1	12.4	0.10	0.5	<0.01	0.048
# 4	0	7.9	12.2	0.10	<0.5	<0.01	0.008
# 5	0	8.0	12.0	0.09	<0.5	<0.01	0.012
# 6	0	8.0	12.3	0.09	<0.5	<0.01	0.106
# 7	7	8.0	11.9	0.09	<0.5	<0.01	0.022
# 8	0	8.0	12.4	0.10	<0.5	<0.01	0.056
# 9	3	8.0	12.0	0.10	<0.5	<0.01	0.033
# 10	4	8.0	12.4	0.09	<0.5	<0.01	0.021
# 11	12	7.5	10.9	0.08	0.5	<0.01	0.037
# 12	14	7.4	11.1	0.08	0.5	<0.01	0.078

REMARKS: < = LESS THAN  
 > = GREATER THAN  
 OG = OVERGROWTH (BACTERIAL GROWTH WAS EXCESSIVE)



# TOPOGRAPHY

The network of hills in Bear Lake Township are marginal moraines. The hills are deposits created by water running off the edge of a stationary glacier. The moraine, generally west of U.S. 31, has good farm soils. The good soils, combined with the irregular topography and moderate lake-effect climate lends the area to unique farming conditions. Those conditions favor fruit-growing, broccoli and cauliflower crops. However, the hills and lake in the hot summers make the area less favorable for corn and grains. Parts of the moraine, which extends east of U.S. 31 have flatter areas which lend themselves to irrigated cash crops. The moraine normally supports hardwood trees and have deposits of gravel and clay.

Bear Lake Township is also part of a glacial outwash plain. The outwash plain is where the water moving away from the glacier deposits sand and silt creating flat areas. The outwash plain in Bear Lake Township is part of a large plain that runs through the center of the county, extending from the north county line through Copemish, Kaleva, Brethren and Wellston. Two fingers running out of the larger Kaleva plain, includes Bear Lake and Chief Lake.

The major characteristics of an outwash plain is the presence of wetlands and poorly-drained soils. The entire area from Copemish south, drains into Big Bear Creek and then into the Big Manistee River. It is believed groundwater movement follows the same drainage pattern as the surface water. The plain has about 20-30 ft. of sand on top of a poor (for commercial use) clay. Groundwater sits on top of this 100 foot thick pan so the water table throughout the outwash plain is 10-20 feet below the surface.

This shallow water table has an advantage as an inexpensive source of irrigation water. However, the outwash plain soils are relatively infertile and poor for farming. The high water table and predominant horizontal movement of the water table close to the surface necessitates the need for caution as to the type of industry locating in the area.

An industry with a large volume of waste should not locate in this areas or should design a program to dispose of the wastes by reuse or transporting them elsewhere. A high density of septic tanks might also present the need for special attention.



# SOIL

There are 18 different soil groups in Bear Lake Township, two of which make up the greatest content of the Township. They are classified as C7 and C8. They are both well-drained soils. The classification code being used is one used by the Northwest Michigan Prime Forests Lands Project. C8 is classified as one step better than C7 (due to the fact that C7 soils were weakly developed or degraded because of man's activity). Most of C7 soils are located on the abandoned farmlands which were depleted of many nutrients and organic matter by wind erosion and leaching which followed tillage.

The best soils in the Township for forest potential are classified as C1, C2, C3, C5 and part of E1, E4, E5, E7, F1 and F2. The very best (C2), is well to moderately drained, loamy soils. There are medium to small areas of this soil throughout the Township. C2 soils are found in Sections 3, 4, 7, 9, 16, 30, 31, 32 and 34.

The best soil in the Township for agriculture yield are C1 and C5. C5 is the best for the highest yield rates in the Township or County. There are only two small areas of this soil in the Township and they are located in Sections 9 and 16.

The most unsuitable soils in the Township are G1, G2 and H7. G1 and G2 are very poorly drained organic soils without trees. The geologic feature is very acidic bogs and unforested swamps. H7 is gravel pits. These soils are located in Sections 1, 2, 4, 5, 8, 15, 16, 19, 20, 21, 26, 27, 33 and 35.

The information on soil comes from the Bear Lake Township Manistee County third Level Soil Association Reports and Tables, furnished by the Manistee County Planning Commission and dated March 1982.

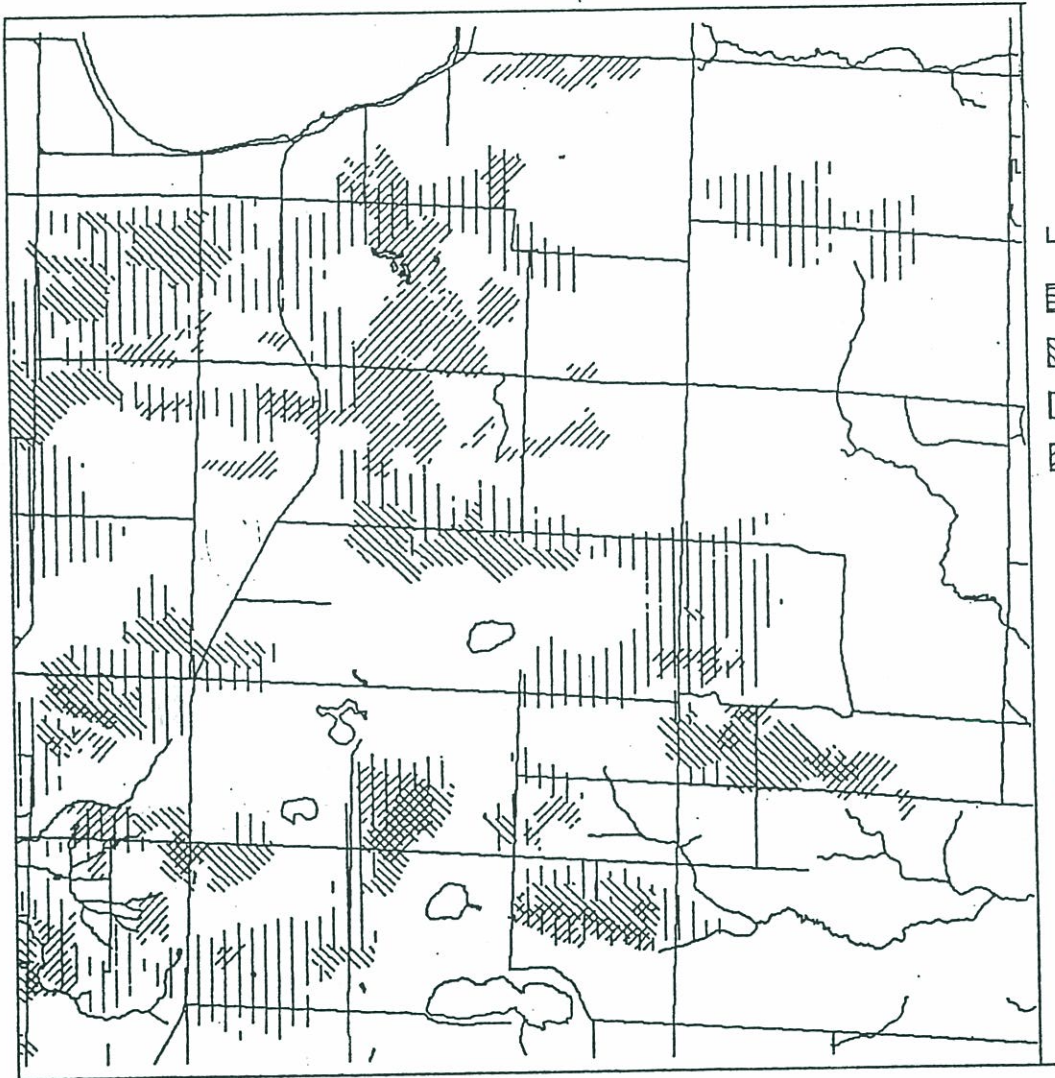
This report is for general planning purposed and for preliminary work. It is well to keep this in mind when looking for a progressive soil survey, which this is not. This report should be considered and used often in making recommendations as to the goals and Zoning for the Township. This report was put together by information gathered by the County Planning Commission, Soil Conservation Service and the N.W. Michigan Prime Forests Lands Project. Even though this report and maps are for general planning, it should be noted that this is, so far, the best information that this Township and the County have available to date.

Information such as Forest potential, agriculture interpretations, building site limitations, sanitation limitations, construction material sources, recreational limitations and wildlife habitat information is important in all decision making from the Township. Some progressive soil survey work has been done around Bear Lake and along the Little and Big Bear Creeks south of 13 Mile Road. This material is not in published form. It is available for us at the County Planning Office and/or the the County Soil Conservation Service Office. Manistee County does not have a published Modern Progressive Soil Survey.





Because the soil survey and grouping is oriented towards timber production statements on other soil properties such as farming, sanitation and construction materials, the groupings used are not always consistent with the groupings used in this text.



# BEAR LAKE TOWNSHIP IMPORTANT FARM LANDS



**Legend**

-  Nat. Unique Sligh
-  Nat. Unique Moder
-  Nat. Unique Sever
-  Locally Important

\* FROM  
CHERR

\* FROM  
SOIL

\* SHADED AREA IS  
CROP LAND, ORCHARDS  
AND PASTURES