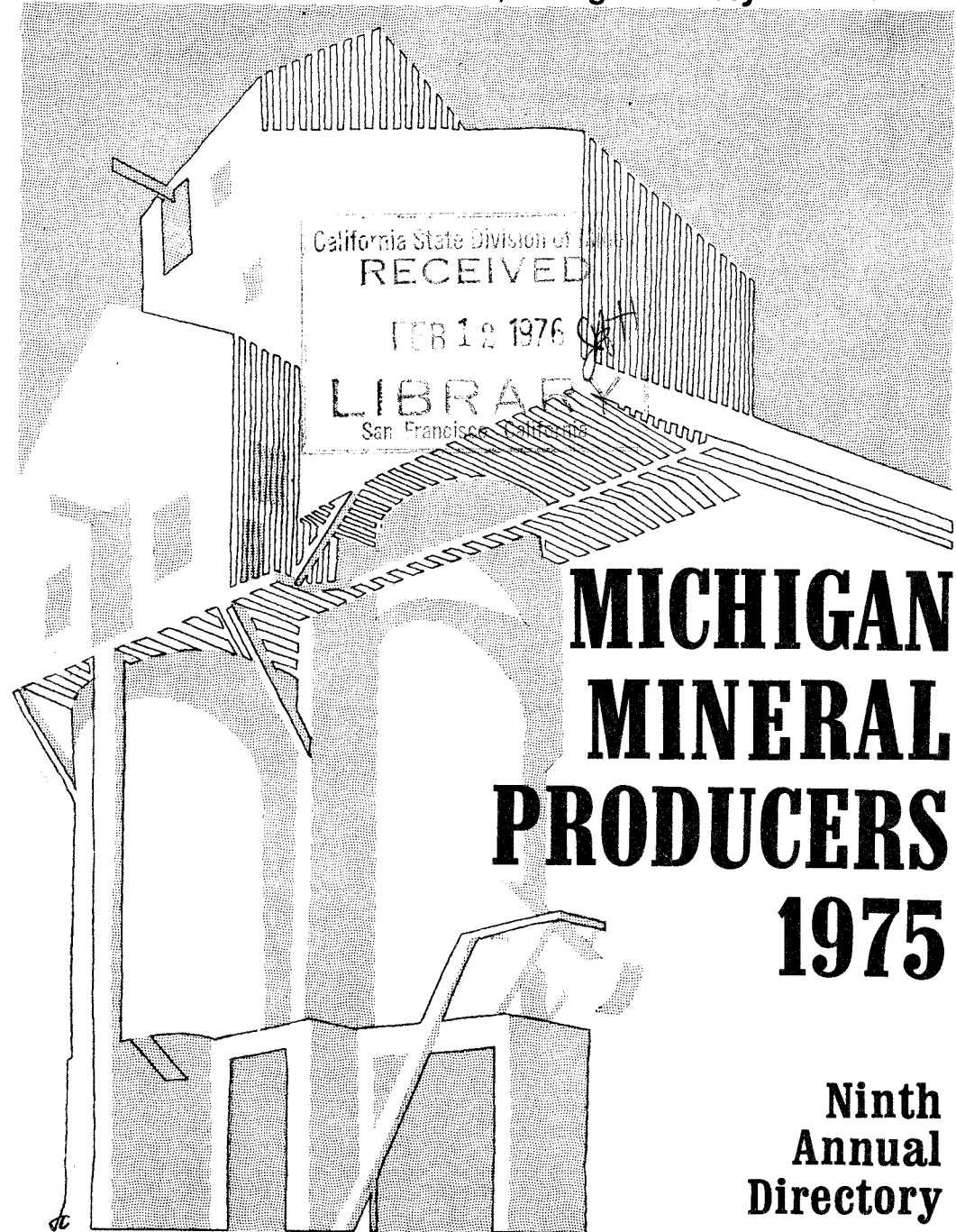


Department of Natural Resources, Geological Survey Division 1976



MICHIGAN MINERAL PRODUCERS 1975

Ninth
Annual
Directory

COVER ILLUSTRATION

The front cover is a drawing of the Centennial Mines No. 6 headframe by staff artist Jim Campbell. The mine is located north of Calumet in the Keweenaw Peninsula. It is at this mine that Homestake Copper Company is presently involved in a joint venture with the American Copper and Nickel Company, a wholly owned subsidiary of the International Nickel Company of Canada. Homestake has reopened the Centennial Mine to do exploratory work for native copper. If the preliminary exploration work proves worthwhile the mine will be put back into full scale operation.

The mine was originally operated by the Calumet and Hecla Mining Company until May 1968 when the company merged with Universal Oil Products (U.O.P.). The new operator U.O.P., continued to run the mine and took control of all mineral and land holdings. In August 1968 a labor dispute resulted in the closing of the mine. The dispute remained unsettled in December 1970 when the company (U.O.P.) decided to pull the pumps and allow the mine to flood.

In July 1972 Homestake Copper Company reached an agreement with U.O.P. to lease their mineral holdings, on a royalty basis, and explore for minerals. Following the lease agreement Homestake formed a joint venture with the American Copper and Nickel Company. Homestake would retain 60 percent of the venture and act as manager of the exploration and development program.

The company started dewatering the mine during April 1973, as part of an initial \$5 million program which also included renovation of the No. 3 and No. 6 shafts and surface equipment.

Once the initial project was completed \$4.3 million more was spent on the building of a pilot plant. The plant included a concentrator to mill ore along with other new equipment the company wanted to try out. Information gathered from the pilot plant will be used to establish ore processing costs in addition to serving as a design model for a larger plant.

More money will be spent as shaft sinking and drifting is continued. The No. 6 shaft is being deepened at the rate of 100 to 130 feet per month. The shaft is on a 38° incline. As of December 1975 the inclined shaft was nearing 6700 feet (Approx. 4150 vertical feet). It is hoped, that the 7700 foot mark (also known as the 55th level) will be reached by September 1976. Once the 55th level is reached the company plans to drive drifts outward from this and two or three other levels to evaluate the ore body. They will look at the grade of ore encountered and the depth, width, size and location of the ore body. If sufficient ore is found, a vertical shaft will be sunk. Ore mined from the body will be brought to the vertical shaft and lifted to the surface. New methods of mining are being tried in an attempt to improve mining technology and lower mining costs.

Ore is presently being mined in drifting operations from the No. 3 shaft. As the drifts are driven toward the No. 6 shaft the ore is removed and brought to the surface where it is then crushed and processed in the new pilot plant. The plant is working well so far with reported recoveries ranging from 91 to 92 percent of the copper in the ore. Until recently the ore had never been processed in modern conventional mills. The new milling process grinds the ore finer than the stamp mill methods of years past. The finer grinding allows for better recovery.

Local citizens of the Copper Country are watching Homestake's efforts closely. A new era of copper mining may be on the verge of actuality should exploration efforts prove favorable in this old copper mining district.

MICHIGAN MINERAL PRODUCERS

1975

GEOLOGICAL SURVEY DIVISION

ANNUAL DIRECTORY 9



By

Jerry D. Lewis

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DEPARTMENT OF NATURAL RESOURCES
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Hilary F. Snell, *Grand Rapids*
Charles J. Guenther, *Executive Assistant*

... the State Geological Survey shall make an annual report to the Governor, setting forth in detail the mineral statistics for the year; with the progress and development ... mining and smelting industries.
--Compiled Laws Mich. 1948 s.319.202

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PREFACE

Michigan Mineral Producers is an annual compilation of the names and addresses of operators, and the location of active mineral operations during 1975. The information used in this directory is obtained from the U. S. Bureau of Mines yearly canvass.

This directory is intended for use as a reference by industry, government and the general public. It lists operators according to mineral commodity and county of production. This year the sections on selected commodities contain background discussions and/or production-value charts. Some mineral resource maps are also included as well as the usual reference maps. A new section, added to the introduction, contains a discussion of developments in the mineral industry during 1974-75. It is hoped that this added information will help the reader to a better grasp of Michigan's mineral resources and operations.

The author wishes to thank the Michigan mineral industry for its excellent cooperation. And the U. S. Bureau of Mines has been very helpful in providing addresses, locations, and production statistics for Michigan mineral operators.

A special note of thanks is given to Mrs. Lynda Craft of the Michigan Geological Survey, and Miss Esther Middlewood of the U. S. Bureau of Mines, Lansing Liaison Office. Without their patient help and assistance this directory could not have been completed.

A note of thanks is also given to the staff of the Mining and Economic Geology Unit of the Geological Survey. Their assistance and suggestions in the preparation of the discussions and charts is greatly appreciated.

Lansing,
January, 1976

Jerry D. Lewis
Geologist
Mining and Economics Geology Unit

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Introduction

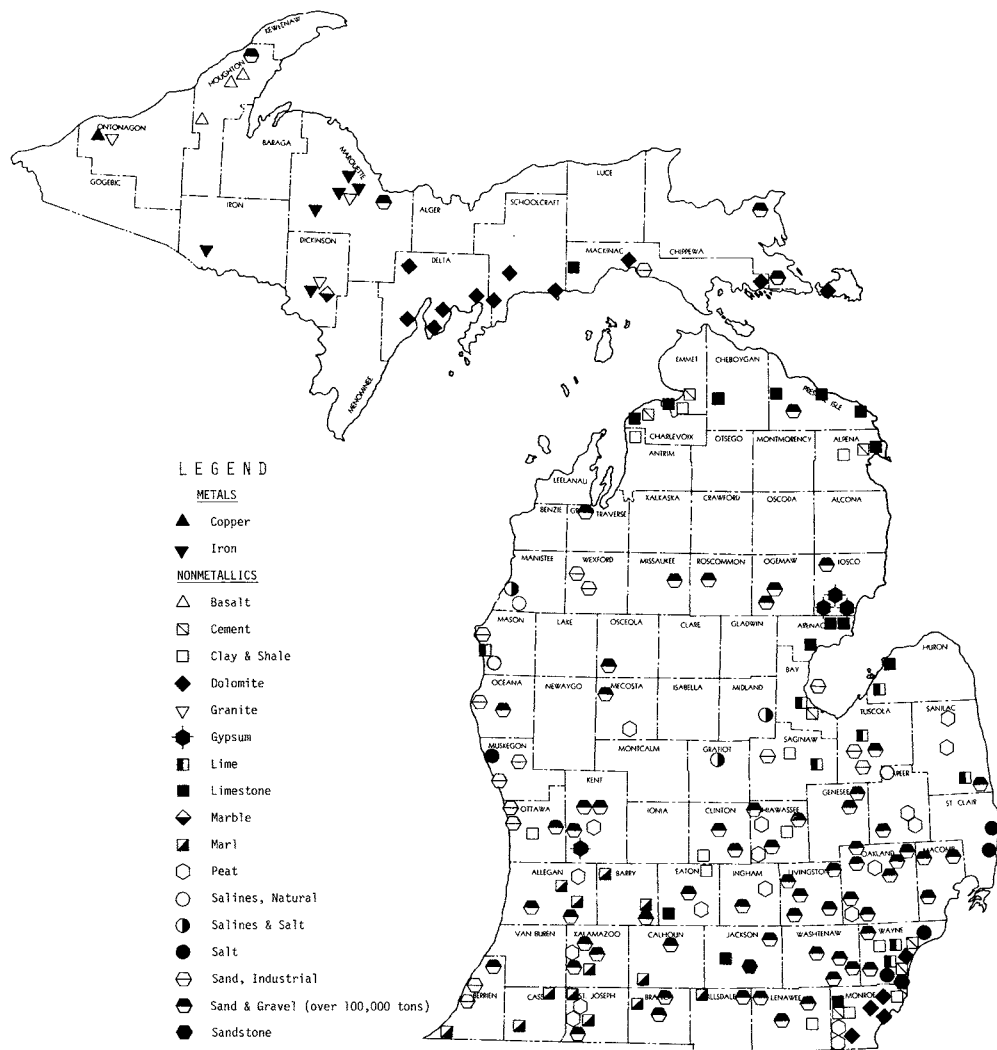
Michigan's mineral industry continued on its record breaking pace for the eleventh straight year. During 1974 mineral production was valued at an all time high \$1,057,301,366. In contrast, however, the production of raw materials was down. This was especially true for sand and gravel (-4%), cement (-5.7%), and gypsum (-21.3%), materials usually associated with the construction industry. Other minerals with lower yearly production include salt (-7.7%) and lime (-1.1%), iron ore (-6.4%), copper (-13.6%). Production of these minerals has been down, but should again increase steadily if and when the state and national economy gets back to normal.

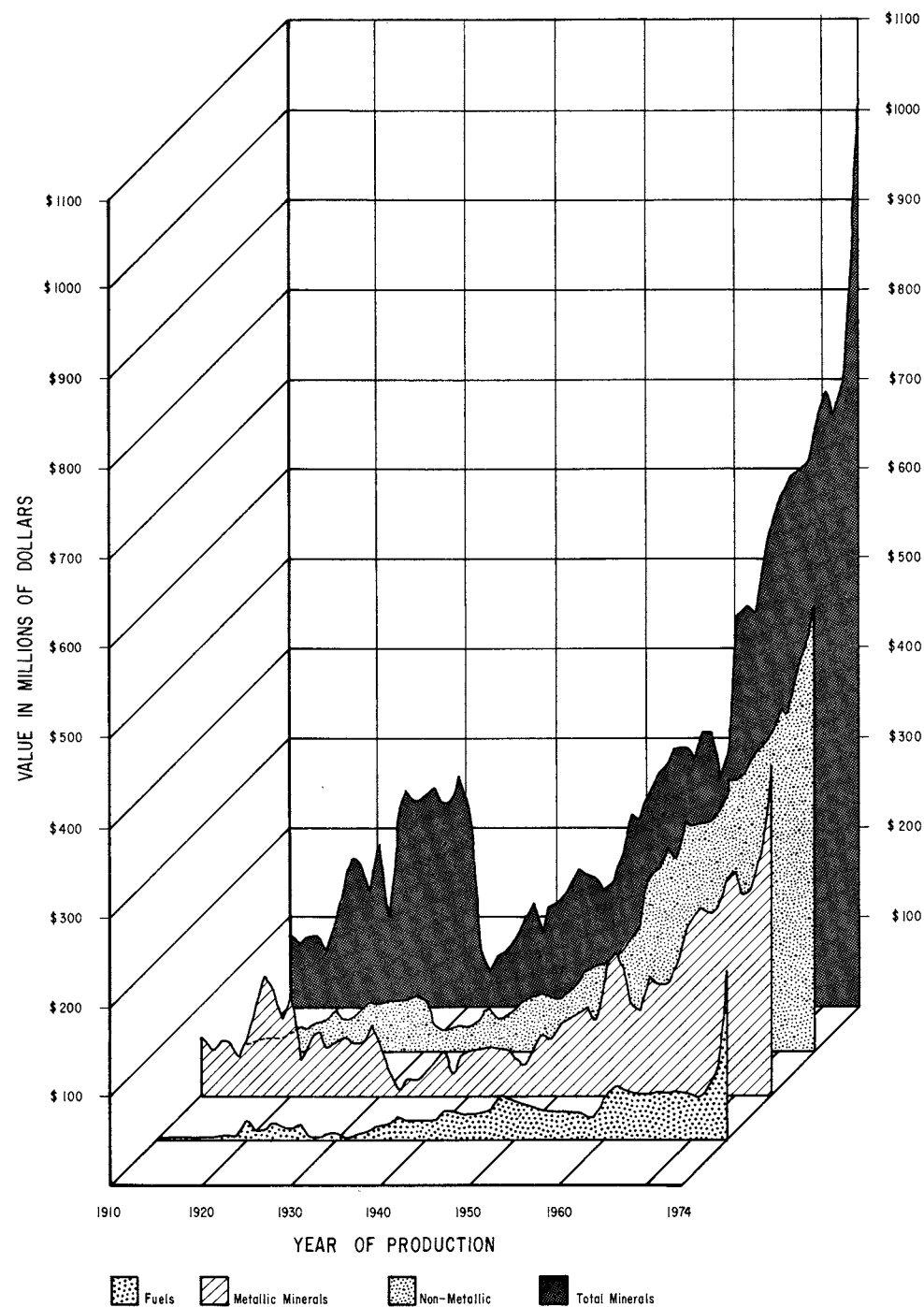
Prices on most mineral commodities are expected to increase due to inflation and higher production costs. Iron ore, petroleum and natural gas are prime examples. Iron ore was raised in price three times in 1974 and twice in 1975, with yet another price rise anticipated in the near future. During 1974 production of iron ore decreased -6.4% while value increased 43.2% over the previous year. Petroleum and natural gas increased in production 24.6% and 59.7%, whereas value increased 160% and 103%, respectively, over 1973.

The nonmetallic minerals accounted for 47% or \$497,335,605 of the total 1974 state mineral value. This was an increase of 7.5% over 1973. Metallic minerals were valued at \$369,831,837, or 35% of the total, which was an increase in value of 33.6% over the previous year. The largest advance was made by oil and natural gas. They accounted for 18% or \$190,133,924 of the total dollar value. The group increased 137% over the 1973 value.

Iron ore again led all mineral commodities with a value of \$257,943,788. Petroleum, cement, natural salines, and copper followed iron in dollar value.

Marquette leads all counties with a produced mineral value of \$213,495,883. Iron ore was the largest contributor followed by sand and gravel, and stone. Ontonagon was second with a mineral value of \$111,469,634. The leading commodity was copper, followed by silver, sand and gravel, and stone. The last of the top three counties was Wayne with a mineral value of \$69,551,591. The counties major mineral values resulted from cement, lime and salt, followed in order by stone, sand and gravel, clay, sulfur and petroleum.





MINERAL PRODUCTION OF MICHIGAN - 1974

Compiled by the Geological Survey Division

| MINERAL | UNIT | QUANTITY | VALUE | PERCENT CHANGE FROM 1973 IN: | | RANK IN U.S. FOR 1973 (Value) |
|-------------------|-------------------|-------------|---------------|------------------------------|--------|-------------------------------|
| | | | | Quantity | Value | |
| Iron Ore | Long tons (2240#) | 11,530,796 | 257,943,788 | -6.4 | +43.2 | 2 |
| Cement | Short tons | 6,119,999 | 146,822,510 | -5.7 | +13.3 | 4 |
| Petroleum | Barrels (42 gal.) | 18,101,812 | 154,951,511 | +24.6 | +160.1 | 17 |
| Sand & Gravel | St. Tons (2000#) | 60,072,793 | 82,709,611 | -4.0 | +11.4 | 2 |
| Nat. Salines (1) | Short Tons | 1,406,650 | 112,349,792 | +27.0 | -7.2 | 1 |
| Copper | Pounds | 131,037,602 | 108,761,210 | -13.6 | +15.5 | 6 |
| Salt | Short Tons | 4,444,704 | 62,054,985 | -7.7 | +15.5 | 2 |
| Stone (2) | Short Tons | 28,139,838 | 47,625,238 | +4.4 | +16.8 | 14 |
| Lime | Short Tons | 1,528,157 | 30,036,238 | -1.1 | +15.3 | 4 |
| Nat. Gas | Th. Cu. Ft. (MCF) | 69,806,374 | 35,182,413 | +59.7 | +103.3 | 16 |
| Gypsum (crude) | Short Tons | 1,482,192 | 7,257,885 | -21.3 | +15.0 | 1 |
| Clay & Shale (3) | Short Tons | 2,160,928 | 4,073,629 | +0.5 | +23.3 | 8 |
| Peat | Short Tons | 244,223 | 3,811,397 | +5.1 | +75.5 | 1 |
| Marl | Short Tons | 151,298 | 258,007 | +108.2 | +225.6 | 1 |
| Miscellaneous (4) | | | 3,463,152 | | +23.2 | |
| TOTAL | | | 1,057,301,366 | | +29.4 | |

(1) Bromine, Magnesium compounds, Calcium-Magnesium chloride, and Iodine.

(2) Does not include 19,142,166 short tons of limestone & dolomite valued at \$24,772,217 used in the manufacture of cement and lime.

(3) Tile brick, pottery, clay used for cement, lightweight aggregate, and miscellaneous.

(4) Sulfur, mineral pigments, silver.

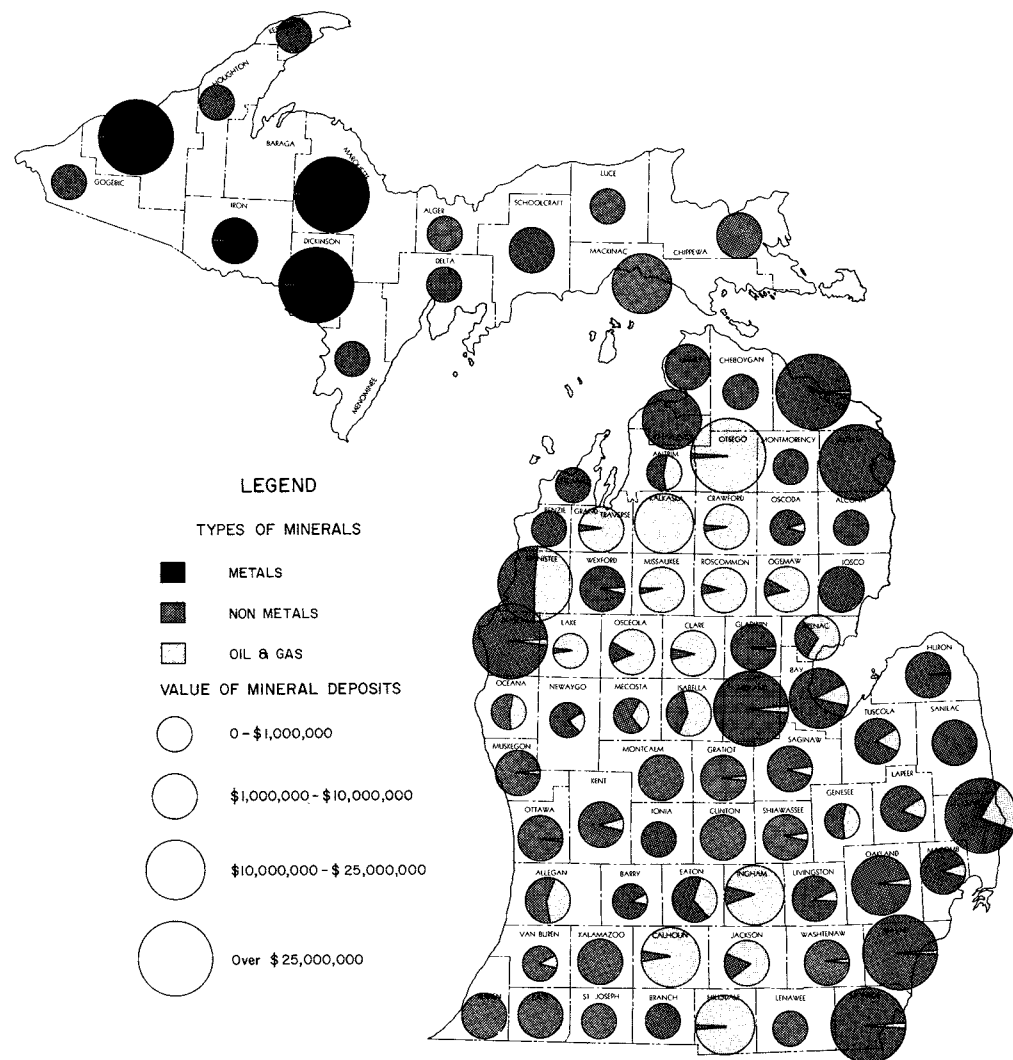
Michigan's total mineral value of 1,057,301,366 in 1974, ranked Michigan as 15 in U. S.

COUNTY MINERAL VALUATION AND RANK

| COUNTY | METALLIC | | | | | | | | | | INDUSTRIAL MINERALS | | | | | FUELS | | County Ranking | MINERAL PRODUCTION VALUE (\$) |
|--------------|----------|----------|--------|--------|-------|---------------|-----------------|------|------|-----------------|---------------------|------|--------|----------------|--------|-----------|-------------|----------------|-------------------------------|
| | Silver | Iron Ore | Copper | Sulfur | Stone | Sand & Gravel | Sand Industrial | Salt | Peat | Natural Salines | Marl | Lime | Gypsum | Clay and Shale | Cement | Crude Oil | Natural Gas | | |
| ALCONA | | | | | | 63 | | | | | | | | | | | | 76 | 134,000 |
| ALGER | | | | | | 68 | | | | | | | | | | | | 78 | 88,000 |
| ALLEGAN | | | | | | 22 | | | 8 | | 3 | | | | | 23 | 18 | 50 | 1,824,000 |
| ALPENA | | | | | 6 | 56 | | | | | | | | 1 | 1 | | | 4 | 66,819,000 |
| ANTRIM | | | | | | 66 | | | | | | | | 4 | | 31 | 19 | 61 | 786,000 |
| ARENAC | | | | | 11 | 72 | | | | | | | | | | 17 | | 45 | 2,271,000 |
| BARAGA | | | | | | 65 | | | | | | | | | | | 77 | | 126,000 |
| BARRY | | | | | | 28 | | | | | 6 | 3 | | | 6 | 36 | | 60 | 845,000 |
| BAY | | | | | | 14 | 6 | | | | | | | | | 16 | | 22 | 11,630,000 |
| BENZIE | | | | | | 78 | | | | | | | | | | | | 83 | 23,000 |
| BERRIEN | | | | | | 5 | 1 | | | | 7 | | | | | | | 33 | 4,487,000 |
| BRANCH | | | | | | 44 | | | | | | | | | | | | 71 | 355,000 |
| CALHOUN | | | | | | 21 | | | | | 5 | | | | | 5 | 6 | 21 | 11,772,000 |
| CASS | | | | | | 16 | | | | | 4 | | | | | | | 56 | 1,046,000 |
| CHARLEVOIX | | | | | 8 | 52 | | | | | | | | | 4 | | | 15 | 19,506,000 |
| CHEBOYGAN | | | | | 15 | 69 | | | | | | | | | | | | 73 | 179,000 |
| CHIPPENAW | | | | | 4 | 57 | | | | | | | | | | | | 31 | 5,903,000 |
| CLARE | | | | | | 48 | | | | | | | | | | 14 | 20 | 41 | 3,107,000 |
| CLINTON | | | | | | 15 | | | | | | | | 9 | | 9 | 16 | 53 | 1,132,000 |
| CRAWFORD | | | | | | 80 | | | | | | | | | | | | 32 | 5,689,000 |
| DELTA | | | | | | 55 | | | | | | | | | | | | 72 | 223,000 |
| DICKINSON | | 2 | | | 18 | 53 | | | 10 | | | | | | | 24 | 14 | 7 | 40,009,000 |
| EATON | | | | | 10 | 29 | | | | | | | | 6 | 5 | | | 44 | 2,387,000 |
| EMMET | | | | | 12 | 54 | | | | | | | | | | 30 | | 19 | 13,959,000 |
| GENESEE | | | | | | 40 | | | | | | | | | | 15 | | 64 | 692,000 |
| GLADWIN | | | | | | 81 | | | | | | | | | | | | 47 | 2,182,000 |
| GOGEBIC | | | | | | 60 | | | | | | | | | | | | 74 | 162,000 |
| GD. TRAVERSE | | | | | | 35 | | | | | | | | | | 7 | 2 | 20 | 12,274,000 |
| GRATIOT | | | | 2 | | 33 | | 5 | | 4 | | | | | 2 | 46 | 26 | 23 | 8,398,000 |
| HILLSDALE | | | | | | 34 | | | | | | | | | | 4 | 5 | 17 | 15,272,000 |
| HOUGHTON | | | | | 16 | 51 | | | | | | | | | | | | 69 | 332,000 |
| HURON | | | | | 7 | 39 | | | | | | | | | | 48 | | 51 | 1,754,000 |
| INGHAM | | | | | | 25 | | 9 | | | | | | | | 3 | 4 | 14 | 20,746,000 |
| IRONIA | | | | | | 38 | | | | | | | | | | | | 67 | 397,000 |
| ISABELLA | | | | | | 62 | | | | | | | 1 | | | | | 26 | 6,556,000 |
| JACKSON | | 3 | | | | 58 | | | | | | | | | | 20 | | 25 | 6,668,000 |
| | | | | | 14 | 18 | | | | | | | | | | 10 | 8 | 49 | 1,905,000 |
| | | | | | | | | | | | | | | | | | | 24 | 6,804,000 |

| | | | | | | | | | | | | | | | | | | | |
|--------------|---|--|--|---|----|----|----|---|----|---|--|--|---|---|----|----|----|----|---------------|
| KALAMAZOO | | | | | | 2 | | | | | | | | | | | | 29 | 6,210,000 |
| KALKASKA | | | | | | 81 | | | | | | | | | | 2 | 1 | 10 | 36,919,000 |
| KENT | | | | | | 4 | | | 6 | | | | 2 | | | 26 | 23 | 30 | 6,011,000 |
| KEMENAW | | | | | | 77 | | | | | | | | | | 21 | | 82 | 23,000 |
| LAKE | | | | | | 79 | | | | | | | | | | 25 | 22 | 62 | 777,000 |
| LAPEER | | | | | | 17 | | | 1 | 5 | | | | | | | | 36 | 3,750,000 |
| LEELANAU | | | | | | 41 | | | | | | | | | 10 | | | 70 | 371,000 |
| LENAWEE | | | | | | 20 | | | | | | | | | | | | 58 | 984,000 |
| LIVINGSTON | | | | | | 6 | | | | | | | | | | | 13 | 35 | 4,247,000 |
| LUCE | | | | | | 75 | | | | | | | | | | | | 81 | 44,000 |
| MACHTAC | | | | | 2 | 67 | | | | | | | | | | | | 18 | 14,098,000 |
| MACOMB | | | | | | 7 | | | | | | | | | | 43 | 11 | 39 | 3,206,000 |
| MANISTEE | | | | | | 23 | 7 | 2 | | 3 | | | | | | 34 | | 8 | 39,297,000 |
| MARQUETTE | 1 | | | | 13 | 26 | | | | | | | | | | | | 1 | 213,496,000 |
| MASON | | | | | | 13 | 5 | | 7 | 1 | | | | | | 19 | 9 | 5 | 58,968,000 |
| MCCOSTA | | | | | | 32 | | | | | | | | | | 29 | 24 | 59 | 972,000 |
| MENOMINEE | | | | | | 74 | | | | | | | | | | | | 80 | 46,000 |
| MIDLAND | | | | | | 81 | | 4 | | 2 | | | | | | 18 | | 6 | 42,545,000 |
| MISSAUKIE | | | | | | 71 | | | | | | | | | | 8 | 12 | 28 | 6,394,000 |
| MONROE | | | | | 3 | 59 | 10 | | 5 | | | | | 2 | 3 | 41 | | 13 | 28,925,000 |
| MONTCALM | | | | | | 45 | | | | | | | | | | 22 | | 55 | 1,082,000 |
| MONTMORENCY | | | | | | 61 | | | | | | | | | | | | 75 | 152,000 |
| MUSKEGON | | | | | | 10 | 2 | 6 | | | | | | | | 37 | | 38 | 3,388,000 |
| NEWAYGO | | | | | | 49 | | | 4 | | | | | | | 35 | | 68 | 375,000 |
| OAKLAND | | | | | | 1 | | | | | | | | | | | 10 | 16 | 17,739,000 |
| OCEANA | | | | | | 46 | | | | | | | | | | 32 | | 65 | 615,000 |
| OGEMAW | | | | | | 42 | | | | | | | | | | 11 | 17 | 34 | 4,465,000 |
| ONTONAGON | 1 | | | | 17 | 64 | | | | | | | | | | | | 2 | 111,470,000 |
| OSCEOLA | | | | | | 37 | | | | | | | | | | 12 | | 37 | 3,510,000 |
| OSCODA | | | | | | 73 | | | | | | | | | | 45 | | 79 | 56,000 |
| OTSEGO | | | | | | 50 | | | | | | | | | | 1 | 3 | 9 | 38,393,000 |
| OTTAWA | | | | | | 3 | 3 | | | | | | | | | 27 | 21 | 27 | 6,431,000 |
| PRESCUE ISLE | | | | | 1 | 47 | | | | | | | | | | 47 | | 11 | 31,328,000 |
| ROSCOMMON | | | | | | 70 | | | | | | | | | | 13 | 15 | 40 | 3,130,000 |
| SAGINAW | | | | | | 9 | 9 | | | | | | | 5 | | 33 | | 42 | 2,715,000 |
| ST. CLAIR | | | | | | 24 | | 1 | | | | | | | | 6 | | 12 | 30,729,000 |
| ST. JOSEPH | | | | | | 36 | | | 11 | | | | | | | | | 66 | 571,000 |
| SANILAC | | | | | | 43 | | | 2 | | | | | | | | | 48 | 1,996,000 |
| SCHOOLCRAFT | | | | | 9 | 76 | | | | | | | | | | | | 54 | 1,113,000 |
| SHIAWASSEE | | | | | | 30 | | 3 | | | | | | 8 | | 40 | | 52 | 1,202,000 |
| TUSCOLA | | | | | | 11 | 4 | | | | | | | | | 28 | | 46 | 2,234,000 |
| VAN BUREN | | | | | | 31 | | | | | | | | | | 38 | | 63 | 706,000 |
| WASHTENAW | | | | | | 8 | | | | | | | | | | 44 | | 43 | 2,248,000 |
| WAYNE | | | | 1 | 5 | 12 | | 3 | | | | | | | 2 | 39 | | 3 | 69,552,000 |
| WEXFORD | | | | | | 19 | 8 | | | | | | | 3 | | 42 | 25 | 57 | 1,016,000 |
| VARIOUS | | | | | | | | | | | | | | | | | | | 193,000 |
| STATE TOTAL | | | | | | | | | | | | | | | | | | | 1,057,301,000 |

Note - Data may not add to total shown because of rounding.



The Michigan Geological Survey has been busy the last two field seasons. The survey has been working in a cooperative effort with personnel from Michigan Tech's Institute of Mineral Research (IMR). The joint venture is conducting its program in the eastern half of the northern peninsula. The program involves the core drilling and analyses of the high purity Fiborn limestone in the Hendricks formation of the Burnt Bluff Group and the high quality Engadine dolostone of the middle Silurian Niagaran Series. The intent of the work is to evaluate potential industrial quality limestone and dolostone resources; determining their regional extent, chemical quality and reserves. Future work will involve the study of high quality Devonian age limestones in the northern lower peninsula.

Michigan Technological University is busy these days. The Institute of Mineral Research (IMR) at Tech. was awarded a \$5,000 grant by Quincy Mining Company for studies on underground leaching of native copper ores. Another project involves the study of mine drainage in Iron River - I.M.R. will conduct an 18-month study into mine subsidence and acid water drainage in the Iron River Valley. A \$62,500 appropriation to finance the study through the Department of Natural Resources was recently authorized by the Michigan Legislature. State Senator Joseph Mack, a sponsor of the project in the legislature said, "The Upper Peninsula has been plagued with cave-ins caused by underground mines and by acid too long. Michigan Tech. experts have been charged with looking for ways to clean up these kinds of pollution in our area". The Department of Geological Engineering has been awarded a one year contract by the Energy Research and Development Administration (successor to Atomic Energy Commission) to evaluate the uranium and thorium potential of precambrian rocks in Michigan and Northeast Wisconsin. In a similar move the department was awarded a grant by the U. S. Bureau of Mines to investigate Michigan's coal resources.

METALLIC MINERALS

COPPER

Renovation continues on White Pine's (Copper Range) South West Shaft. The shaft will be used for lifting men and equipment into newly proposed development areas in the southwest side of the mine.

Homestake Copper Company has been busy during the last year conducting a large exploration program in Keweenaw County. The company has flown several airborne surveys, and conducted geologic mapping and geochemical sampling, over the area. Anomalous areas have been tested by diamond drilling. No results have been reported to date.

The company is also involved in renovating several mine shafts in the area to conduct subsurface mineral exploration. At the Centennial Mine deepening and development of the number 6 inclined shaft continues at a slower than anticipated rate. The inclined shaft is presently near the 6600 foot mark. Completion of the shaft is contemplated sometime in the Fall of 1976. Development and exploration drifting are planned after the shaft is completed.

The company has reconstructed the Seneca mine down to the second level for the U. S. Bureau of Mines. The Bureau people are conducting drilling and blasting studies in an attempt to improve mining technology.

In another activity Homestake has joined forces with the Quincy Mining Company. They plan on doing subsurface exploration in the old Quincy Mine. The work will be done on the tenth level of the old No. 8 shaft. At present the hoist engine is in place, and the engine house, headframe and collar have all been reconstructed. They plan on having the engine running by December 1, 1975. Diamond drilling is scheduled to start in April after the shaft is renovated.

Investigations into potential Copper deposits in Kona dolomite were increased in 1974 by Cleveland Cliffs. Extensive field surveys have been conducted, and a course of action for the development of a joint venture is being carefully considered.

GOLD

Reopening of an old gold mine may soon be a reality. The old Ropes gold mine located north of Ishpeming was recently sold by local investors to the Callahan Mining Company of Darien, Connecticut. Several companies bid for the mine but Homestake was the only company promising to undertake mining operations. With today's gold prices and efficient mining methods the company hopes to mine more than \$1 million worth of gold it estimates are still present. The Ropes mine was originally opened in 1883 and ran until 1897 when the mine went bankrupt. Over \$700,000 of \$28 per ounce gold was mined during that period.

IRON

Exploration for base, precious and radioactive minerals continues at a stepped up pace. The Beth-Cliffs joint venture are continuing to explore for non-ferrous minerals in the Lake Superior region. The venture between Bethlehem Steel Company and Cleveland Cliffs Iron Company was formed to explore various geologic environments in Upper Michigan and Wisconsin. The venture has done extensive airborne and ground geophysics, geochemistry and geologic mapping in the western upper peninsula. Several areas have been tested by diamond drilling. The exploration and drilling program is expected to continue through 1975.

The Mather Mine is nearing an all time production record for north American mines as the 50 millionth ton of iron ore was lifted from the mine on May 12, 1975. Only the "various ownership" property of the Norrie-Pabst-Aurora group at Ironwood produced more iron ore (53,802,316 gross tons) until being closed in 1935. The Mather Mine is solely owned by the Negaunee Mining Company and is operated by Cleveland-Cliffs Iron Company. Commercial operations began at the mine in February of 1944 and have continued since.

Cleveland-Cliffs Iron Company, operators for the Tilden Mining Company, formally dedicated the Tilden Mine and mill in mid-August. The Tilden Project cost CCI and associated partners \$200 million. The mine is expected to produce 4,000,000 gross tons of pellets annually with future anticipated expansion pushing the total to around 12,000,000 tons annually. The ore reserve is estimated to be large enough to produce more than 360,000,000 tons of pellets.

At the adjacent Empire Mine recent expansion work was completed around the first of the year. The new expansion boasted production of pellets by 1,800,000 tons to an annual rate of 5,300,000 gross tons. The expansion required a capital investment of \$67 million. Consideration is now being given to an additional 2.8 million ton expansion.

Cleveland-Cliffs Iron Companies future expansion plans hinge on construction of three additional 80 Mw power units at Marquette's Presque Isle Station. H. Stuart Harrison, CCI chairman said, "Expansion of the Tilden, south of Ishpeming, and the Empire, located in Palmer, would add 500 permanent jobs by the late 1970's but construction of the power units is essential to any expansion plans". He also said the Tilden Mine and pelletizing plant are presently running at 70 to 75 percent capacity, attributing the low production to problems with electronic equipment at the newly-opened project. However, he said CCI is confident they will get the Tilden running flat out before the end of the 1975 year.

The demand for iron ore is still strong, according to Cleveland-Cliffs officials. The company will probably have a record year during 1975. Cliffs' Marquette Range properties consisting of one underground and three open-pit mines and four beneficiation and five pelletizing plants will produce an all time high of more than 14 million tons of pellets. A new high of 3,800 to 3,900 persons will be employed by the company during 1975. In addition the company payroll reached \$43,276,193 during 1974 and is expected to climb to a new record of \$50,000,000 during 1975.

Cleveland-Cliffs officials say that it is conceivable that there will be another Tilden-type project on the Marquette Range during the next five years. Preliminary exploration results on the Cascade East iron formation have been very promising to date. Studies are presently underway to study the availability of fuel, possible plant and tailings discharge locations, and the length of life of the iron formation, amongst others. The new cascade project is located east of the Empire Mine near Palmer.

URANIUM

The Tennessee Valley Authority (TVA) is backing an exploration program for uranium in the upper peninsula. The TVA has hired David S. Robertson and Associates of Blind River, Ontario to conduct the investigation. A spokesman for the Robertson Company said their principle area of investigation is on the land west from Marquette to Iron River. The Detroit Free Press has recently printed an article stating the company has applied for a uranium lease. This is the first known uranium exploration since the Kerr McGee Company flew an airborne survey in the same area three years ago.

NONMETALLIC MINERALS

CEMENT

Martin-Marietta Cement Company has announced the consolidation of its Great Lakes Division in Michigan with the Midwest Division located in Iowa. The new unit will be known as the Northern Division and will be located in Davenport, Iowa. In other developments the company plans on introducing imports of clinker from Canadian and Spanish sources to its Bay City plant. Lake Ontario Cement will supply the plant with \$20 million worth of clinker as provided in a new contract to be signed in April 1976. Further developments by the company include the proposal for two new wet process kilns at its Bay City plant. Kaiser Engineers are in the process of drawing up plans for the kilns and related facilities.

Huron Cement's Alpena plant is scheduled to go on line in late 1975 with new replacement equipment for 12 old small kilns. New equipment includes two 17 X 19'6" X 500' Fuller rotary dry-process kilns with clinker coolers. Two Wheelabrator-Frye glass baghouses for the new kilns are now in place.

MISCELLANEOUS

The Federal Trade Commission has given final approval to a federal court order requesting St. Lawrence Cement Company to divest itself of the Wyandotte Michigan Cement Division acquired three years before from BASF Wyandotte.

COAL

The first coal mining operation to commence since the closing of the Swan Creek Mine in 1952 near Unionville, Saginaw County, was opened by the Michigan Aggregates Corporation. The company reopened a coal strip mine near Williamston in early February 1975. The mine was originally closed in the 1930's. The present mine is located on approximately 5 of the 80 acres the company holds. The coal is presently being used by a local electric generating utility in Lansing. Six men are presently employed full time.

NATURAL SALINES

Martin-Marietta Chemicals will reopen a magnesite plant on South Saginaw Road in Midland. The plant will produce a form of magnesium oxide used to maintain steel producing furnaces. It will employ 35 to 40 people with an estimated annual payroll of \$600,000. The plant has been idle since 1971 when Kaiser Aluminum and Chemical Company shut down operations.

PETROLEUM

DNR Director Opposes Great Lakes Oil Exploration. The director of the Department of Natural Resources (DNR) is opposed to a request from a Canadian firm to be allowed to explore for oil in Lakes Erie, Huron and Michigan. Kenting Exploration Services, Ltd., of Calgary, Alberta, has asked for permission to take seismic soundings, normally a preliminary to drilling. The firm wrote to DNR Director Howard Tanner that the soundings could help locate nearby oil pools inland. Tanner says that DNR will not permit exploration for oil and natural gas in Michigan's portion of the Great Lakes. The Natural Resources Commission, DNR's policy making body, supported Tanner's decision. Once drilling firms obtain evidence of oil pools under the lakes, Tanner said that it would become politically more difficult to continue the drilling ban.

SAND AND GRAVEL

The first phase of American Aggregate's construction of a sand and gravel processing plant in Milford (Oakland County) is nearing completion. The pit area, dredge, and desander are placed and ready to begin operation. The second phase, the modified plant production equipment, is scheduled for completion in early fall of 1975, thus completing the construction program. The production from this plant will supply the market during the relocation of the Brighton plant, which is in the same general area.

STONE

During June a new stone cargo record of 35,256 net tons was set by the M/V H. Lee White of the American Steamship Company. The self unloader carried dolomite from Port Dolomite Michigan to Conneaut, Ohio. The vessel is 704 feet long with a beam of 78 feet and a depth of 45 feet. The White joined the ASC fleet in mid 1974.

Year around shipping on the Great Lakes has been called a success. During the past winter twenty-four vessels operated into January and sixteen into February on the Great Lakes. Army Brig. Gen. Walter Bachus, chairman of the Great Lakes - St. Lawrence Seaway Winter Navigation Board, said another year of tests will be made before recommendations go to Congress. Once Congress approves, he said, hardware permitting year round shipping could be in place within a couple of years. He predicted that the St. Lawrence Seaway could be opened to 12-month ocean traffic in a decade.

Metallic Mining Operations

COPPER

The Lake Superior copper district of Michigan was the first American copper field of importance and now is one of the oldest of the leading copper producing districts in the world. While the copper-bearing formations of Lake Superior outcrop to the east in the Algoma district in Ontario, and to the west traverses northern Wisconsin, the larger productive mines lie wholly within the limits of Michigan.

Although copper sulfides are extensively mined at the White Pine mine of the White Pine Copper Company, the most intriguing ore mineral in the region is the unique native copper. Michigan is fortunate to be one of the very few places in the world where pure native copper exists in any quantity. The discovery and primitive use of the native copper has been assigned to the aboriginal people commonly termed "The Moundbuilders". These tribes known as the Adena and Hopewell cultures had evidently used the copper for tools, weapons and ornamental uses. It is speculated that these people found the pieces of copper in stream beds or lying loose as float on the surface. Later, after it became increasingly difficult to find free copper, the Indians worked shallow pits where copper-bearing rock outcropped. The Moundbuilders in North America lived as much as 8,000 years ago and it is to their credit that many of the pits they worked eventually resulted in productive mines. It is interesting to note that the Ojibways, who were the inhabitants of the southern shore of Lake Superior knew very little of the copper deposits and when questioned by the first white men to visit the area, had no legends regarding the mining done by their predecessors.

The first white man to actually see the pure copper in place was Father Claude Allouez who was a French Jesuit Priest. Soon after Father Allouez reported the copper, Father Marquette and Father Mesnard visited the Lake Superior area. However, the Jesuits purpose was the conversion of the natives to christianity and not to mine copper.

Although minor attempts by the French and English were made to try to develop the copper deposits, nothing of much merit resulted until about 175 years later. In 1841 Dr. Douglass Houghton, after exploring and mapping the copper-bearing area for the State of Michigan published a report dealing with the economic potential of the 400 square mile area now known as "Copper Country". Dr. Houghton who by then had become the first State Geologist and Chief of the Geological Survey of the newly-formed State of Michigan, intended to promote the development of the copper deposits but at the same time, wished to avoid the inevitable avalanche of ill-prepared prospectors by stating that, "I would caution those persons who would engage in this business in the hope of accumulating wealth suddenly and without patient industry and capital, to look closely before the step is taken."

Dr. Houghton's warnings were wise, well-intended, carefully written and as is usually the case where potential wealth is involved, generally unheeded. By March 1843 America's first mining boom was under way and many hopeful miners were arriving and staking mining locations. Later that year a federal land office was opened at Copper Harbor to process the growing number of claims. Since many of the prospectors reaching the area had no mining experience, it would be reasonable to assume that they were also unaware as to how to go about surveying location boundaries. The latter was evidently the case as the mining locations were of immense area and individual claim lines overlapped causing much confusion and most likely very heated arguments among the prospectors. Needless to say, the Federal Land Office, became inundated with miners wanting to gain mineral leases so that mining could begin as soon as possible. The entire leasing procedure became so confusing that the Land Office ended up selling the mineral lands outright to the prospectors.

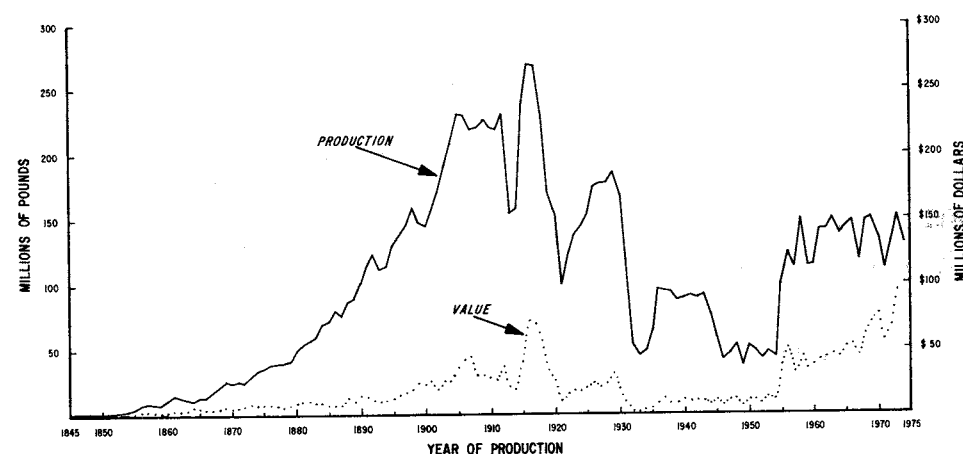
By 1844 more inexperienced mineral seekers had arrived in the copper country. However, along with the novices, came some professional mining men. Among the latter group perhaps the most note worthy were the Cornishmen. The Cornishmen were the first real miners to reach the district and it is no small coincidence that the first actual mining began shortly after their arrival.

The first mine to open in 1844 extracted only a few tons of ore taken from a copper sulfide vein deposit near Copper Harbor but the operation was short-lived and was quickly abandoned. During the following year however, a company discovered a vein near Eagle River on a greenstone cliff. The vein widened near the base of the cliff and an adit was driven into the vein. Soon after the adit was underway, workers encountered the first mass of native copper thus confirming that the float copper in the area was indeed derived locally. The mine, known as the Cliff marked the first deposit found by systematic mining and also marked the first mine in the world to mine native copper. The Cliff mine had repaid the initial investment to its backers and in 1849 paid its first dividend to its stockholders.

Nearly all of the early miners worked the fissures or vein-type massive native copper deposits. The stratified, disseminated native-copper and copper sulfide deposits in the shales, conglomerates and lavas which are presently mined, were neglected in the early years. Even though the lower grade, higher volume deposits were initially neglected due to a lack of fissures and veins, the mining had to begin at some point and, as is the case in any new mining district, the more accessible high grade ore is extracted first.

Michigan copper production has continued to grow from the initial production of about 4,000 pounds of copper in 1844 to 131,037,602 pounds in 1974. The growth of Michigan copper production has indeed had its peak and valleys. Initially, and continuing until 1887, Michigan was the nations main source of copper. Although the Lake Superior copper no longer holds such prominence when compared to the large western operations, the area is still believed to contain the largest "inferred" reserve source of copper in the country. Should modern exploration, mining and milling methods continue to improve, Michigan may again become one of the leading producers of copper in the nation.

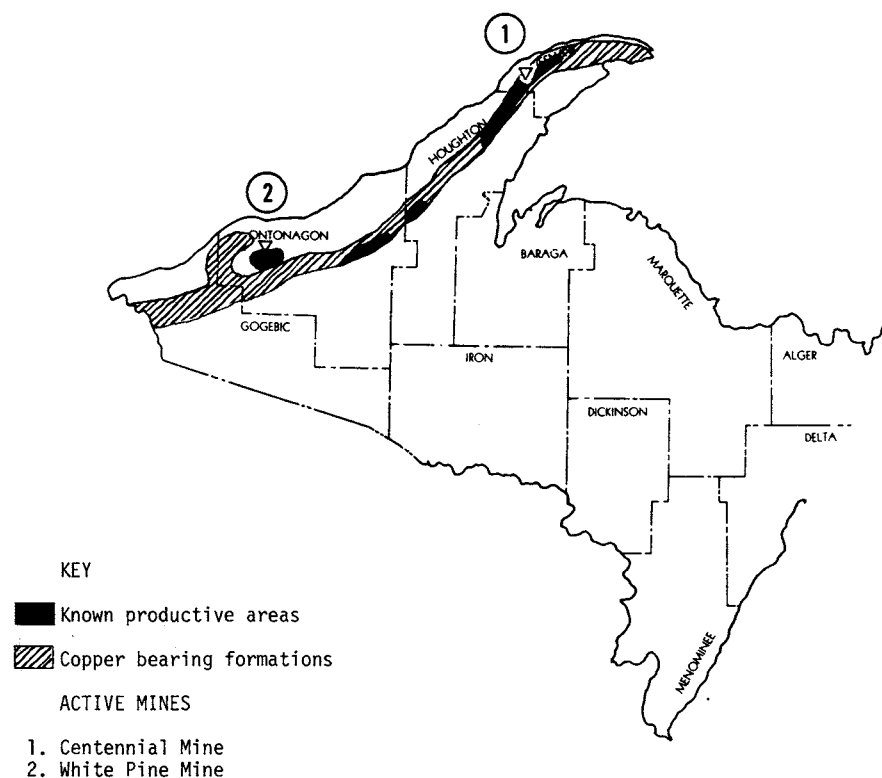
PRODUCTION AND VALUE OF MICHIGAN COPPER 1845 - 1974



COPPER MINES

| Name of Operation | Map No. | Ore type | Location |
|---|---------|---|---|
| Homestake Copper Co. Division of Homestake Mining Company P. O. Box 386 Calumet, Michigan 49913 | (1) | Native copper ore | Centennial Mine Sec. 12, T56N, R37W HOUGHTON COUNTY |
| White Pine Copper Co. P. O. Box 427 White Pine, Michigan 49971 | (2) | Copper sulfide, natural copper, native silver | White Pine Mine White Pine Mich. in Sec. 4, 5, 9, T50N, R42W, ONTONAGON COUNTY |

MICHIGAN COPPER RESOURCES AND MINES



IRON

One of the most basic commodities required for an industrialized nation is iron. Without this metal a country would have little choice but to remain in endeavors centered around agriculture rather than to progress into a more mechanized industry-oriented society. From about 1760 to the mid 1800's the United States had limited supplies of high-grade iron ore deposits. However, too often the demand outstripped the supply and hence America seemed destined to an economy centered on agricultural products. The discovery of the great iron ore deposits in the Lake Superior Region was undoubtedly the greatest single factor in shaping the century which followed.

The earliest discoveries of commercial deposits of iron ore were made at Negaunee, Marquette County, Michigan, in 1844. A party of federal surveyors under the direction of William A. Burt encountered difficulties in surveying owing to deflections of their compass needles. It was soon determined that the deflection was caused by the magnetic attraction of beds of iron ore. Upon learning of extensive iron deposits, twenty citizens from Jackson, Michigan, formed The Jackson Iron Company and in 1845 under the direction of P. M. Everett of Jackson, opened the Jackson Pit. The first iron shipment consisted of two hundred pounds of ore. The ore shipped during 1846 to Jackson, Michigan. A local blacksmith converted the ore into iron - the first iron derived from Lake Superior ore.

Initial discoveries for the various mining districts or ranges are as follows:

- The Marquette Range - Negaunee, Michigan in 1844.
- The Gogebic Range - Between Hurley and Melen, Wisconsin, in 1848.
The first ore found on the Michigan side was at the Colby mine at Bessemer, Michigan, and had its first shipment in 1884.
- The Menominee Range - Old Menominee at Iron Mountain, Michigan in 1848.
- New Menominee at Stambaugh and Crystal Falls, Michigan in 1851.

Michigan iron mining has grown from the first shipment of a scant 200 pounds of ore in 1846 to 993,000,000 tons in 1974. This later figure could not have been so large were it not for an ore - milling process called beneficiation.

Since iron mining commenced in Michigan's iron ranges, the various mining companies were extracting ore that would average as much as 55 percent iron. However, after nearly one hundred years of mining, the high grade ore became depleted. The rich iron ore in that period of time, had brought this country through two major wars and helped raise our standard of living to such a high level that no other country could be considered our equal. Yet the demand for more iron and steel increased every year. Knowing that the high-grade iron ore reserves were running out, mining companies conducted research into the possible use of the great untapped reserve of lower ore grades in the United States. Much of the untapped reserve had an iron content of 30 to 40 percent or less. The concern of the mining companies was how to keep the cost of beneficiation of low-grade ores low enough to compete with natural high-grade ores. From foreign markets.

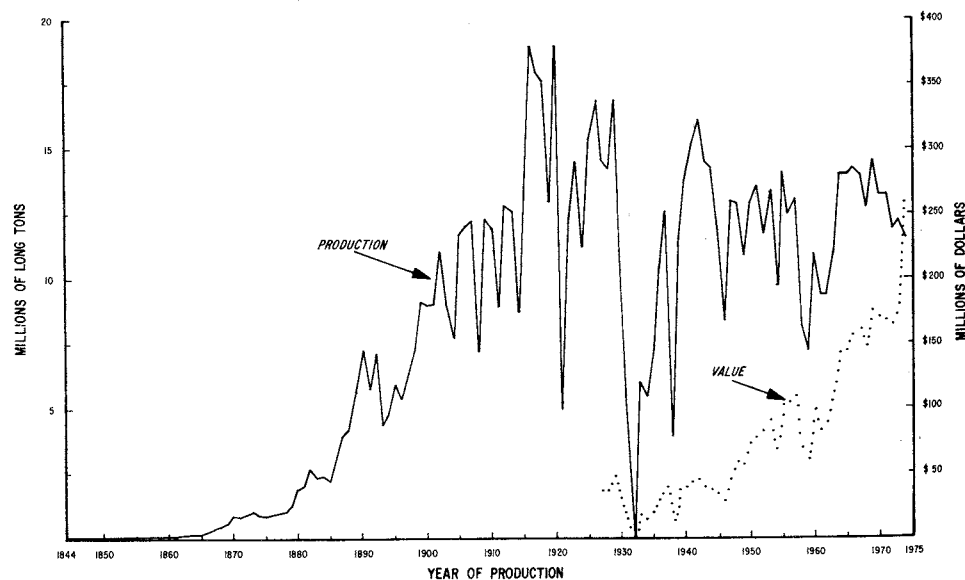
After much work, a process was derived wherein low-grade ores could be processed economically. The process consisted of finely crushing and then separating the iron ore from its host rock. The separated iron ore was then concentrated into pellets having an iron content of 55 to 60%.

The process of beneficiation therefore has effectively guaranteed the nation a steady future supply of iron ore for hundreds of years.

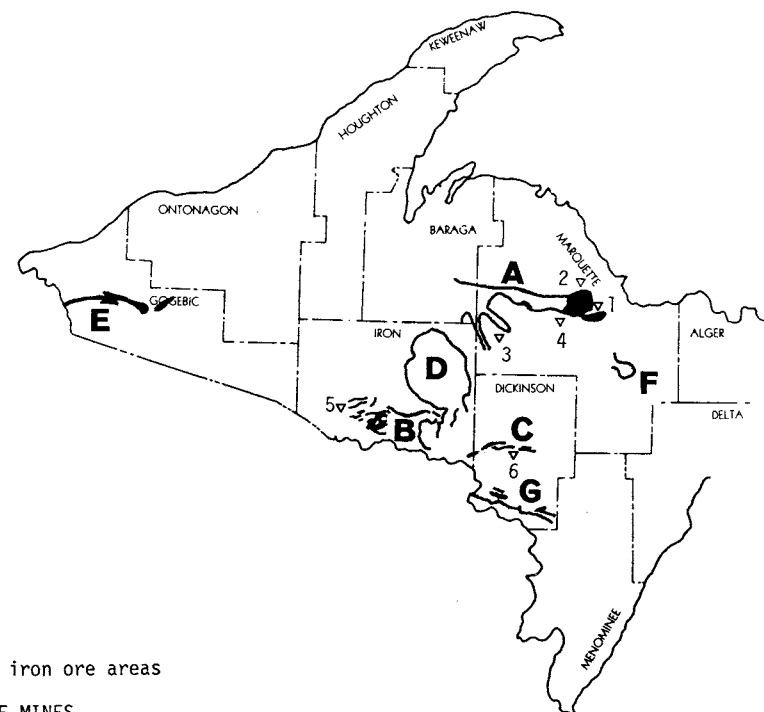
IRON MINING COMPANIES

| Name of Operation | Map No. | Range-Dist. & Ore Type | Location |
|--|---------|---|--|
| Cleveland-Cliffs Iron Co. (Operator for Empire Mining Company) 504 Spruce St. Ishpeming, Mich. 49849 | (1) | MARQUETTE Magnetite | Empire-Open pit 1 Mi. NW of Palmer, in Secs. 19, 20, 25, 30, T47N, R26W MARQUETTE COUNTY |
| Cleveland-Cliffs Iron Co. (Operator for the Negaunee Mine Company) 504 Spruce St. Ishpeming, Mich. 49849 | (2) | MARQUETTE Hematite | Mather-Underground Ishpeming-Negaunee in Secs. 1 & 2, T47N, R27W MARQUETTE COUNTY |
| Cleveland-Cliffs Iron Co. (Operator for the Marquette Mining Company) 504 Spruce St. Ishpeming, Mich. 49849 | (3) | MARQUETTE Hematite | Republic-Open pit 1 Mi. S of Republic in Secs. 7 & 18, T46N, R29W MARQUETTE COUNTY |
| Cleveland-Cliffs Iron Co. (Operator for Tilden Mining Company) 504 Spruce St. Ishpeming, Mich. 49849 | (4) | MARQUETTE Hematite Magnetite Martite | Tilden-Open pit 3 Mi. S of Ishpeming in Sec. 26, T47N, R27W MARQUETTE COUNTY |
| Inland Steel Co. Sherwood Mine P. O. Box 232 Iron River, Mich. 49935 | (5) | IRON RIVER- CRYSTAL FALLS Hematite | Sherwood-Underground ½ Mi. N of Iron River in Secs. 23 & 24, T43N, R35W IRON COUNTY |
| Hanna Mining Co. Groveland Mine Star Route 1 Box 131 Iron Mountain, Mich. 49801 | (6) | FELCH Magnetite Hematite | Groveland-Open pit 3 Mi. E of Randville in Sec. 31, T42N, R29W DICKINSON COUNTY |

PRODUCTION AND VALUE OF MICHIGAN IRON ORE 1844-1974



MICHIGAN IRON RESOURCES AND MINES



KEY

Known iron ore areas

ACTIVE MINES

- A. MARQUETTE RANGE
 - 1. Empire-open pit
 - 2. Mather-underground
 - 3. Republic-open pit
 - 4. Tilden-open pit
- B. IRON RIVER CRYSTAL FALLS DISTRICT
 - 5. Sherwood-underground
- C. FELCH DISTRICT
 - 6. Groveland-open pit
- D. AMASA OVAL DISTRICT
Inactive
- E. GOGEBIC RANGE
Inactive
- F. GWINN DISTRICT
Inactive
- G. IRON MOUNTAIN RANGE
Inactive

Nonmetallic Mineral Operations

CEMENT

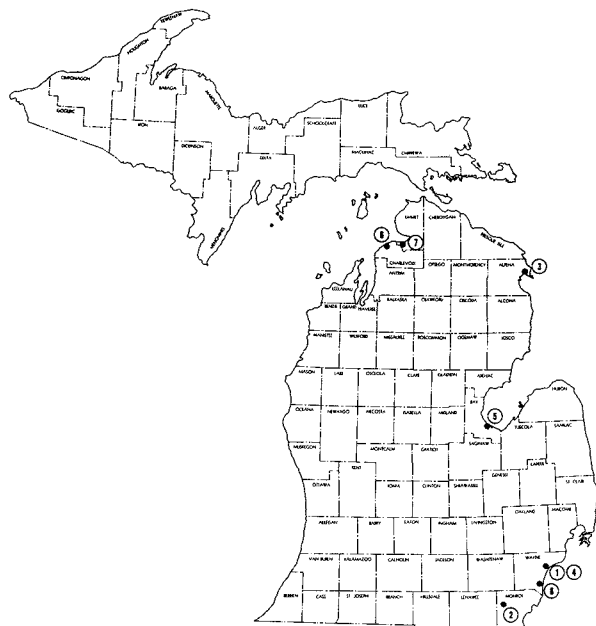
The cement industry in Michigan began in 1872 when the Eagle Portland Cement Company built a cement plant about two miles northeast of Kalamazoo, Michigan. The factory continued to produce cement until about 1882, at which time the factory closed down and dismantled the equipment. Fourteen years would elapse before another venture into the cement business took place. The manufacture of cement began in earnest with the forming of three companies starting in 1896. The first company was the Peerless Portland Cement Company which began in Union City. It was followed by the Bronson Portland Cement Company at Bronson in 1897, and the Michigan Portland Cement Company at Coldwater, in 1898.

During 1897 the production from the infant cement industry was 7,520 tons, all of which came from the Peerless Portland Cement Company. More cement was being manufactured than was being used during the first few years of operation. Workers in the construction industry used the cement mainly for sidewalks and building foundations. As more uses were found for cement, new companies formed and the industry began to grow. It grew steadily throughout the 1900's.

Today, Portland cement has become as essential to the modern construction industry as lumber was at the turn of the century. Michigan now ranks fourth in the nation in production of cement. During 1974 Michigan cement companies produced over 6.1 million tons of cement valued at nearly \$147 million.

Materials needed for the manufacture of Portland Cement include a mixture of finely pulverized limestone or marl, gypsum, and clay or ground shale. This mixture is heated to extreme temperatures thus forming a "clinker". The clinker is ground into a fine powder we know as cement.

MICHIGAN CEMENT PLANTS



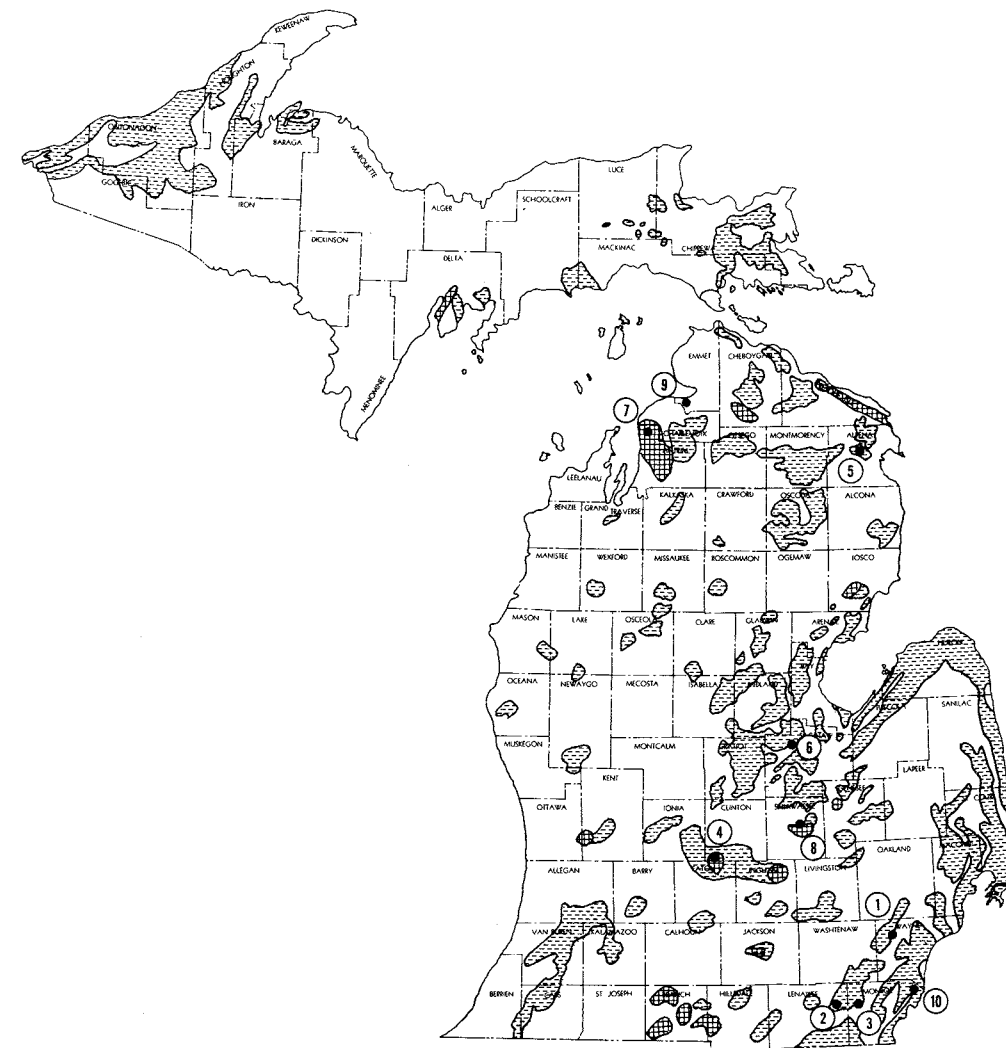
CEMENT COMPANIES

| Name of Operation | Map No. | Plant Location |
|---|---------|---|
| Amcord Inc. Peerless Cement Division 9333 Dearborn Street Detroit, Michigan 48209 | (1) | Forman Avenue Plant - Ext. Sec. 28, T2S, R11E; raw materials obtained from Ford Motor Co. clay pit and Rogers City area. <u>WAYNE COUNTY</u> |
| Dundee Cement Co. P. O. Box 317 Dundee, Michigan 48131 | (2) | 2 Mi. N of Dundee, Sec. 6, T6S, R7E, plant and quarry <u>MONROE COUNTY</u> |
| Huron Cement Co. Division of National Gypsum Co. Plant address: Alpena, Michigan 49707 Office address: 17515 W. Nine Mile Rd. Honeywell Center 12th Fl. Southfield, Michigan 48075 | (3) | 1.5 Mi. NE of Alpena, in Sec. 13, T31N, R8E, plant and quarry. <u>ALPENA COUNTY</u> |
| Jefferson Marine Terminal Div. of Edward C. Levy Co. 8941 Dix Avenue Detroit, Michigan 48209 | (4) | Jefferson Avenue at Detroit; Process purchased clinker. <u>WAYNE COUNTY</u> |
| Martin Marietta Cement Co. Northern Division P. O. Box #8 Essexville, Michigan 48076 | (5) | 3 Mi. NE of Bay City at Essexville, NE¼ Sec. 14, T14N, R5E; raw material obtained from Rogers City area. <u>BAY COUNTY</u> |
| Medusa Cement Div. of Medusa Corp. Plant address: Charlevoix, Michigan 49720 Office address: Box 5668 Cleveland, Ohio 44101 | (6) | 2 Mi. W of Charlevoix, C of Sec. 28, T34N, R8W <u>CHARLEVOIX COUNTY</u> |
| Penn-Dixie Industries, Inc. Plant #10 Plant address: Petoskey, Michigan 49770 Office address: P. O. Box 152 Nazareth, PA. 18064 | (7) | 3.5 Mi. W of Petoskey, (plant and quarry) in Sec. 3, T34N, R6W. <u>EMMET COUNTY</u> |
| Wyandotte Cement Inc. 3505 Biddle Avenue Wyandotte, Michigan 48192 | (8) | Wyandotte, Mich. Process purchased clinker. <u>WAYNE COUNTY</u> |

CLAY AND SHALE

CLAY AND SHALE COMPANIES

| Name of Operation | Map No. | Product | Location |
|--|---------|--|--|
| Amcord Inc. Peerless Cement Division 9333 Dearborn St. Detroit, Michigan 48209 | (1) | Cement | Ford Motor Co. Clay Pit NW¼ Ext. Sec. 36, T2S, R10E <u>WAYNE COUNTY</u> |
| Comfort Brick & Tile Co. 6393 Rogers Hwy. Tecumseh, Michigan 49286 | (2) | Drain tile | Clay pit, 1 Mi. SE of Tecumseh; SE¼ Sec. 2, T6S, R4E <u>LENAWEE COUNTY</u> |
| Dundee Cement Co. P. O. Box 122 Dundee, Michigan 48131 | (3) | Cement | Sec. 6, T6S, R7E, (clay overburden over limestone) <u>MONROE COUNTY</u> |
| Grand Ledge Clay Products Co. R.R. 1 P. O. Box 66 Grand Ledge, Michigan 48837 | (4) | Drain tile, vitriified sewer pipe, floor tile | Shale pits at SE¼ Sec. 3, T4N, R4W, <u>EATON COUNTY</u> and NE¼ SW¼ Sec. 34, T5N, R4W <u>CLINTON COUNTY</u> |
| Huron Cement Co. Div. of National Gypsum Co. 17515 W. Nine Mile Rd. Honeywell Center-12th Floor Southfield, Michigan 48075 | (5) | Cement | Paxton Shale Quarry, 8 Mi. W of Alpena, NE¼ Sec. 30, T31N, R7E <u>ALPENA COUNTY</u> |
| Martin Marietta Cement Co. Northern Division P. O. Box 8 Essexville, Michigan 48706 | (6) | Cement | Clay pit, Sec. 31, T12N, R3E <u>SAGINAW COUNTY</u> |
| Medusa Cement Co. Division of Medusa Corp. Box 5668 Cleveland, Ohio 44101 | (7) | Cement | Shale pit, SW¼, Sec. 24, T32N, R8W <u>ANTRIM COUNTY</u> |
| Michigan Brick Inc. Division of Hancock Brick and Tile Co. P. O. Box 450 Findlay, Ohio 45840 | (8) | Brick | Shale pit, ½ Mi. E of Corunna, Sec. 22, T7N, R3E <u>SHIAWASSEE COUNTY</u> |
| Penn-Dixie Industries, Inc. P. O. Box 307 Petoskey, Michigan 49770 | (9) | Cement | Shale pit, Sec. 8, T34N, R6W <u>EMMET COUNTY</u> |
| Ritter & Sons, F. W., Co., Inc. 12670 N. Dixie Hwy. S. Rockwood, Michigan 48179 | (10) | Flower pots | Clay pit, 1 Mi. S of South Rockwood, NE¼ SW¼, Sec. 16, T5S, R10E <u>MONROE COUNTY</u> |



KEY

Known clay areas

Known shale outcropping

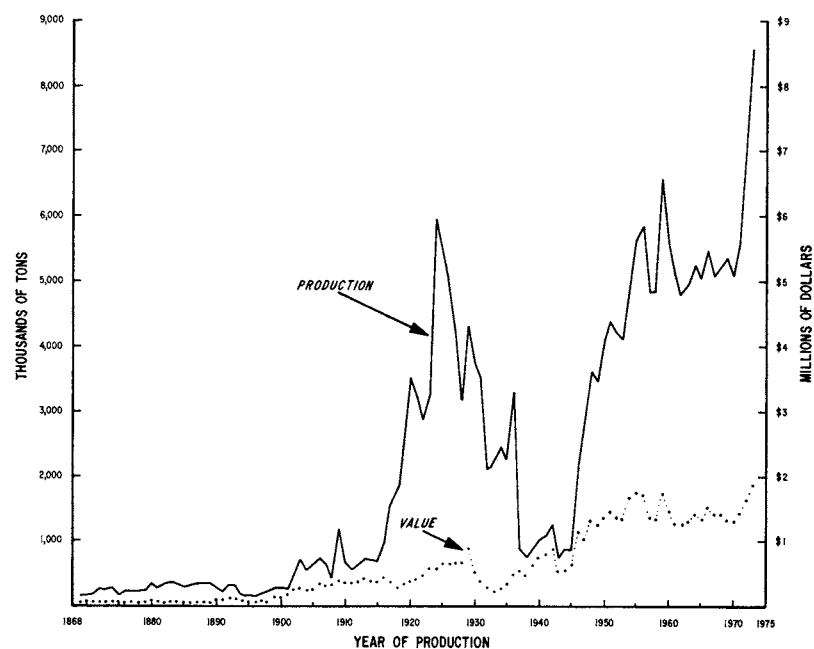
GYPSUM

MICHIGAN GYPSUM MINES

GYPSUM COMPANIES

| Name of Operation | Map No. | Mine or Quarry Location | Mill Location |
|--|---------|---|---|
| Georgia-Pacific Corp. 900 SW Fifth Avenue Portland, Oregon 97204 | (1) | SE Grand Rapids in NW¼ Sec. 24, T6N, R11W <u>KENT COUNTY</u> | SW Grand Rapids 2228 Butterworth Rd. SW Grand Rapids, Mich. 49501 |
| Grand Rapids Gypsum Co. 201 Monroe Avenue Grand Rapids, Mich. 49502 | (2) | SW side Grand Rapids in Sec. 34, T6N, R12W, Mine & Mill <u>KENT COUNTY</u> | At Mine |
| Michigan Gypsum Co. 2840 Bay Road Saginaw, Michigan 48601 | (3) | 4 Mi. SW of National City in Sec. 31, T21N, R5E, open pit and plant. <u>IOSCO COUNTY</u> | E of Pit, in SW¼ Sec. 32, T21N, R5E <u>IOSCO COUNTY</u> |
| National Gypsum Co. 325 Delaware Avenue Buffalo, New York 14202 | (4) | 8 Mi. W of Tawas City Sec. 26 & 35, T22N, R6E, open pit. <u>IOSCO COUNTY</u> | 2 Mi. S of Nat'l. City Sec. 16, T21N, R6E, <u>IOSCO COUNTY</u> |
| United States Gypsum Co. 101 S. Wacker Drive Chicago, Illinois 60606 | (5) | W of Alabaster, Sec. 22 & 27, T21N, R7E, open pit. <u>IOSCO COUNTY</u> | Detroit, Michigan <u>WAYNE COUNTY</u> |

PRODUCTION AND VALUE OF MICHIGAN GYPSUM 1868-1974

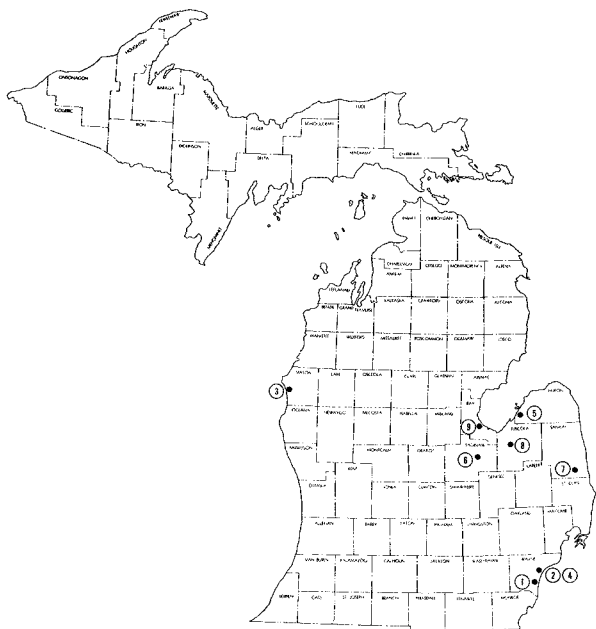


LIME

LIME COMPANIES

| Name of Operation | Map No. | Plant Location |
|---|--------------------------|---|
| BASF Wyandotte Corp. 100 Cherry Hill Road Parsippany, New Jersey 07054 | (1) | Wyandotte, Limekiln only <u>WAYNE COUNTY</u> |
| Detroit Lime Co. (subsidiary, Ed. C. Levy Co.) 8800 Dix Avenue Detroit, Michigan 48209 | (2) | River Rouge, Limekiln only <u>WAYNE COUNTY</u> |
| Dow Chemical Co. Ludington Division 2020 Dow Center Midland, Michigan 48640 | (3) | Ludington, Limekiln only <u>MASON COUNTY</u> |
| Marblehead Lime Co. (General Dynamics Corp.) 300 W. Washington St. Chicago, Illinois 60606 | (4) | River Rouge, Limekiln only <u>WAYNE COUNTY</u> |
| Michigan Sugar Co. Box 1091 Saginaw, Michigan 48601 | (5) (6) (7) (8) | 4 plants: (Limekilns only) Sebewaing, <u>HURON COUNTY</u> Carrollton, <u>SAGINAW COUNTY</u> Croswell, <u>SANILAC COUNTY</u> Caro, <u>TUSCOLA COUNTY</u> |
| Monitor Sugar 2600 S. Euclid Avenue Bay City, Michigan 48706 | (9) | Bay City, Limekiln only <u>BAY COUNTY</u> |

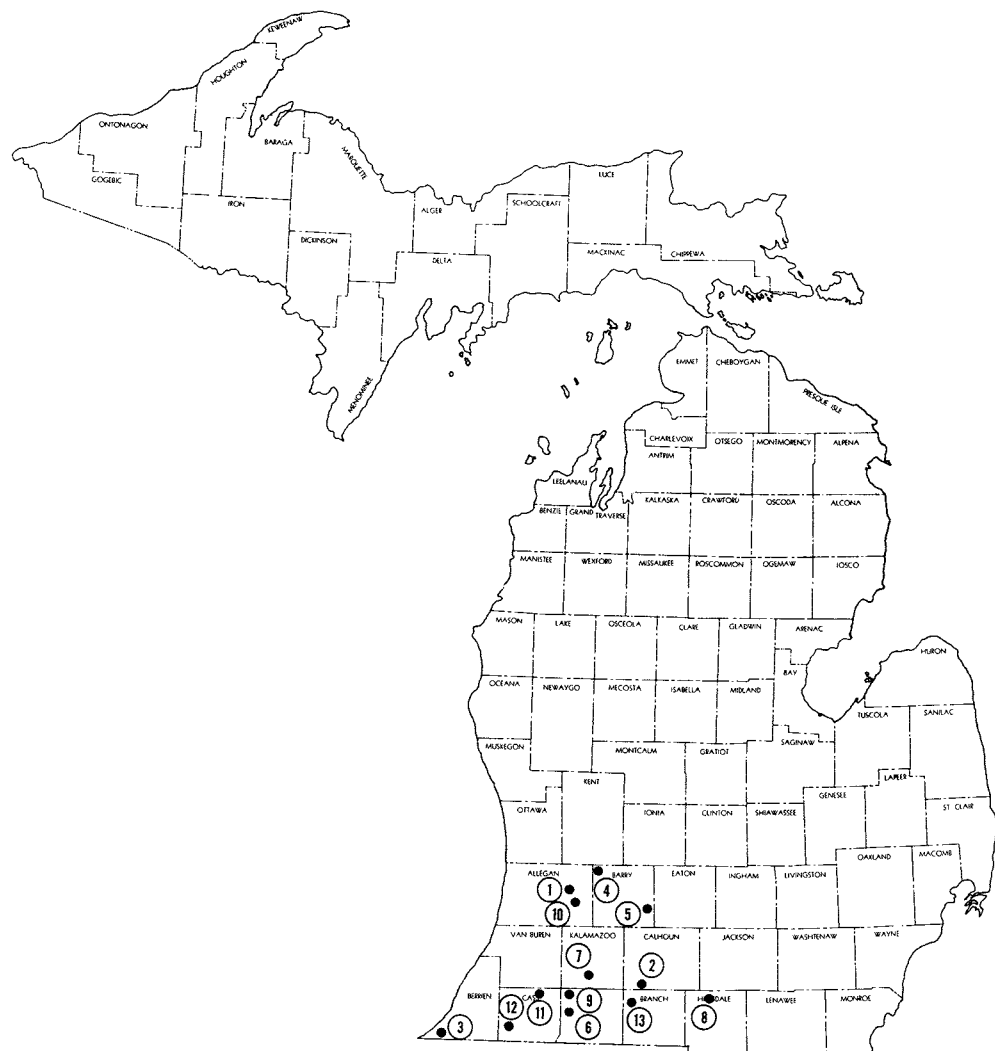
MICHIGAN LIME PLANTS



MARL

MARL COMPANIES

| Name of Operation | Map No. | Pit and County |
|---|---------|---|
| Arnsman, Gerald R#1 Hopkins, Michigan 49328 | (1) | Sec. 34, T2N, R13W 1 Mi. SE of Allegan <u>ALLEGAN COUNTY</u> |
| Case, William R#2 Box 136 Union City, Michigan 49094 | (2) | Sec. 28, T4S, R7W 2 Mi. W of Burlington <u>CALHOUN COUNTY</u> |
| Crosby Marl Co. R#2 Box 5 Three Oaks, Michigan 49128 | (3) | Sec. 23, T8S, R20W 2½ Mi. S of Three Oaks <u>BERRIEN COUNTY</u> |
| Currier, William R#1 Middleville, Michigan 49333 | (4) | Sec. 6, T4N, R10W 4 Mi. NE of Middleville <u>BARRY COUNTY</u> |
| Hamilton, Darrell L. 5690 S. Clark Road Nashville, Michigan 49073 | (5) | Sec. 6, T2N, R7W 5 Mi. W of Nashville <u>BARRY COUNTY</u> |
| Drake, Roy R#1 Three Rivers, Michigan 49093 | (6) | Sec. 12, T5S, R12W 1 Mi. S of Flowerfield <u>ST. JOSEPH COUNTY</u> |
| Hayward Dry Marl 6821 UV Ave East Vicksburg, Michigan 49097 | (7) | Sec. 8, T4S, R10W, 2 Mi. NW of Vicksburg <u>KALAMAZOO COUNTY</u> |
| Hess, John R#1 Hanover, Michigan 49241 | (8) | Sec. 14, T5S, R3W 4 Mi. N of Jonesville <u>HILLSDALE COUNTY</u> |
| Kerr Bros. Marl RR#1 Three Rivers, Michigan 49093 | (9) | Sec. 13, T6S, R12W 1 Mi. W of Three Rivers <u>ST. JOSEPH COUNTY</u> |
| Pavlak, Emil R#2 2980 18th Street Hopkins, Michigan 49328 | (10) | Sec. 12, T2N, R12W 3 Mi. NW of Martin <u>ALLEGAN COUNTY</u> |
| Pipher's Marl Service R#1 Box 128 Jones, Michigan 49061 | (11) | Sec. 15, T5S, R14W 2 Mi. SW of Nicholsville <u>CASS COUNTY</u> |
| Poehlman & Son R#2 Cassopolis, Michigan 49031 | (12) | Sec. 13, T7S, R16W 6 Mi. SW of Cassopolis <u>CASS COUNTY</u> |
| Taylor and Son R#1 Orland, Indiana 46776 | (13) | Sec. 4, T6S, R8W 1 Mi. S of Sherwood <u>BRANCH COUNTY</u> |



While Michigan's salines or natural brines have been a commercial source of sodium chloride or common salt since the middle 1800's, it was only during the first years of this century that they became an equally important source of additional elements and compounds. In the early days of the industry, the bitters or "mother liquors" resulting from the production of salt were discarded even though it was realized these solutions were rich in bromine and other chemical values. The increasing sophistication of the science of chemistry and brine processing which came with the turn of the century led numerous companies, large and small, to install the necessary equipment and processes to extract and market these formerly wasted products.

Soon such large quantities of bromine and the other chemicals were being produced that over supply quickly resulted in severe price erosion. At about the same time the German chemical cartels entered the market and prices were driven so low that just prior to World War I the production of bromides and calcium chloride was almost completely abandoned by the majority of operators. The Dow Chemical Company of Midland, however, continued to produce large quantities of bromine and other chemicals and, with the advent of World War I, increasing demand for chemicals and the exclusion of Germany from the world market caused dramatic price increases which revitalized the brine chemicals industry in Michigan.

The most common chemicals presently extracted from natural brines are: bromine, iodine, calcium chloride, and magnesium compounds. The end products resulting in whole, or in part, from these constituents are numerous and new uses, compounds, and combinations are constantly being developed.

The source beds of the commercial natural brines of Michigan are commonly the Filer and Sylvania sandstones of middle Devonian Age (Detroit River Group). The more concentrated of these brines are available only to moderately deep drilled wells which must be pumped to bring the raw product to the surface for settling, treating, and processing.

Michigan presently ranks first among the states in the production of natural salines and indications are that this position will be maintained for many years to come.

BRINE COMPANIES

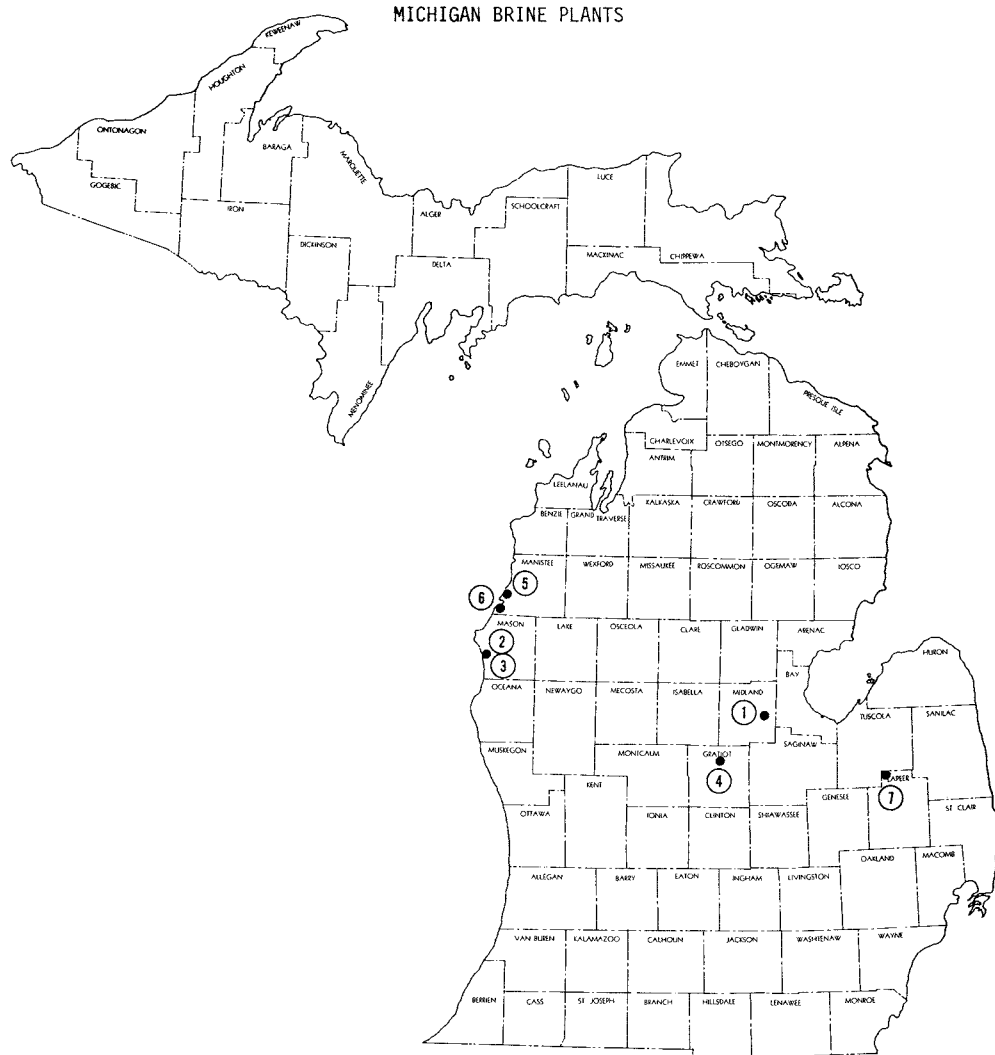
| Name of Operation | Map No. | Products | Plant Location |
|---|---------|--|--|
| Dow Chemical Co. 2020 Dow Center Midland, Michigan 48640 | (1) | Bromine, bromine compounds, magnesium compounds, calcium chloride, iodine | South side of Midland T14N, R2E, MIDLAND COUNTY |
| Dow Chemical Co. 2020 Dow Center Midland, Michigan 48640 | (2) | Bromine, magnesium compounds, calcium chloride | 1 Mi. SE of Ludington SW $\frac{1}{4}$, Sec. 23, T18N, R18W MASON COUNTY |
| Harbison-Walker Refrac. Co. 2 Gateway Center Pittsburgh, PA. 15222 | (3) | Magnesium compounds | 1.5 Mi. SE of Ludington NE $\frac{1}{4}$, SE $\frac{1}{4}$ Sec. 23, T18N, R18W MASON COUNTY |
| Michigan Chemical Corp. Div. of Northwest Industries Inc. 351 E. Ohio Street Chicago, Illinois 60606 | (4) | Bromine, calcium chloride, calcium magnesium chloride, magnesium compounds | W side of St. Louis in Sec. 24, T12N, R3W GRATIOT COUNTY |

NATURAL SALINES (CON'T.)

BRINE COMPANIES

| Name of Operation | Map No. | Products | Plant Location |
|---|---------|---------------------------------|---|
| Morton Chemical Co. Div. of Morton Norwich Prod. Inc. 110 N. Wacker Dr. Chicago, Illinois 60606 | (5) | Bromine, magnesium compounds | At Manistee Sec. 12, T21N, R17W <u>MANISTEE COUNTY</u> |
| Martin Marietta Chemicals Refractories Div. Executive Plaza II Hunt Valley, Maryland 21030 | (6) | Magnesium compounds | 1 Mi. NW of Stronach SE $\frac{1}{4}$ Sec. 18, T21N, R16W <u>MANISTEE COUNTY</u> |
| Wilkinson Chemical Co. 8290 Lapeer Rd. Mayville, Michigan 48744 | (7) | Calcium-magnesium chloride | S of Mayville Sec. 21, T10N, R10E <u>LAPEER COUNTY</u> |

MICHIGAN BRINE PLANTS

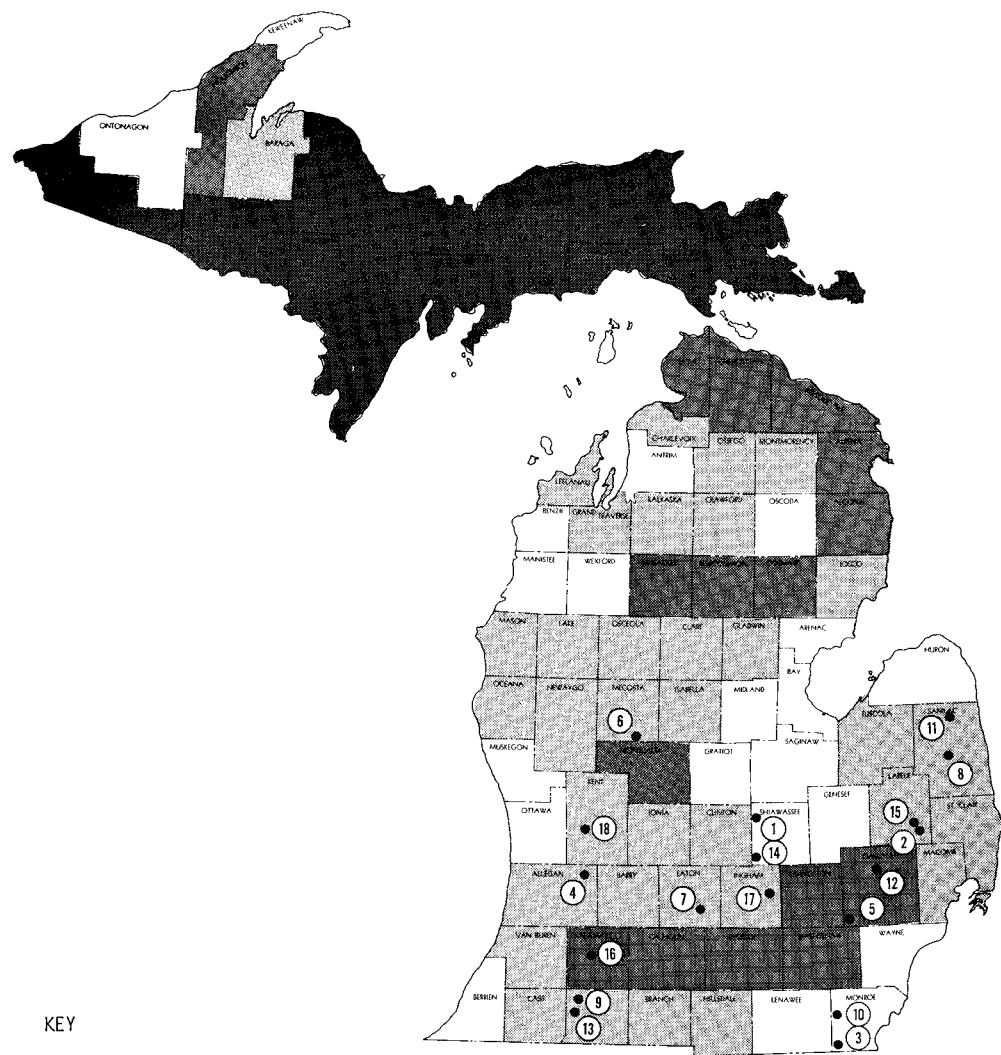


PEAT

PEAT COMPANIES

| Name of Operation | Map No. | Kind of Peat | Location |
|---|---------|-------------------------------|---|
| Al-Par Peat 9551 Krouse Ovid, Michigan 48866 | (1) | reed-sedge bulk & packaged | 6 Mi. NE of Ovid Sec. 18, T8N, R2E <u>SHIAWASSEE COUNTY</u> |
| Anderson Peat Co. 332 Graham Rd. Imlay City, Michigan 48444 | (2) | reed-sedge bulk & packaged | 3 Mi. E of Imlay City Sec. 23, T7N, R12E <u>LAPEER COUNTY</u> |
| Appleman Farms 717 Pickard Rd. Temperence, Michigan 48182 | (3) | moss & reed-sedge bulk | 6 Mi. SE of Petersburg Sec. 1, T8S, R6E <u>MONROE COUNTY</u> |
| Charles E. Douglas Wayland, Michigan 49438 | (4) | reed-sedge bulk | 3 Mi. NE of Wayland Sec. 26, T4N, R11W <u>ALLEGAN COUNTY</u> |
| Fletcher and Richard 54001 Grand River Rd. New Hudson, Michigan 48165 | (5) | bulk, humus | 3 Mi. E of South Lyon Sec. 23, T11N, R7E <u>OAKLAND COUNTY</u> |
| Gummer's Peat Co. R#2 Lakeview, Michigan 48850 | (6) | moss, reed-sedge, packaged | 11 Mi. N of Lakeview Sec. 28, T13N, R8W <u>MECOSTA COUNTY</u> |
| Hilu Peat Company 3040 Clinton Train R#3 Charlotte, Michigan 48813 | (7) | reed-sedge, packaged | 2 Mi. SE of Charlotte Sec. 21, T2N, R4W <u>EATON COUNTY</u> |
| Huber Peat Company P. O. Box 3006 Houston, Texas 77001 | (8) | reed-sedge bulk & packaged | 2 Mi. SE of Sandusky Sec. 11, T11N, R14E <u>SANILAC COUNTY</u> |
| Kerr Peat and Marl R#1 Box 76 Three Rivers, Michigan 49093 | (9) | reed-sedge bulk | 2 Mi. NW of Three Rivers Sec. 14, T6S, R12W <u>ST. JOSEPH COUNTY</u> |
| Norman E. Link R#1 Petersburg, Michigan 49270 | (10) | humus, bulk | 4 Mi. SE of Petersburg Sec. 24, T7S, R6E <u>MONROE COUNTY</u> |
| Michigan Peat, Inc. P. O. Box 66388 Houston, Texas 77006 | (11) | reed-sedge, packaged | 4 Mi. SW of Minden Sec. 21, T14N, R14E 1 Mi. E of Sandusky Sec. 3, T11N, R14E <u>SANILAC COUNTY</u> |
| Oxford Peat Company 1430 E. Drahner Road Oxford, Michigan 48051 | (12) | reed-sedge bulk & packaged | Near Oxford T5N, R10E <u>OAKLAND COUNTY</u> |
| Quality Peat R#2 Three Rivers, Michigan 49093 | (13) | moss, bulk & packaged | 3 Mi. N of Three Rivers Sec. 24, T5S, R12W <u>ST. JOSEPH COUNTY</u> |
| Scenic Lakes, Inc. P. O. Box 926 East Lansing, Michigan 48823 | (14) | humus, packaged | 3 Mi. S of Laingsburg Secs. 4, 10, 16 T5N, R1E <u>SHIAWASSEE COUNTY</u> |

MICHIGAN ORGANIC SOIL RESOURCES AND OPERATIONS



KEY

COUNTY ACREAGE OF ORGANIC SOILS

- Up to 25,000
- 25,000 to 50,000
- 50,000 to 100,000
- 100,000 and Greater

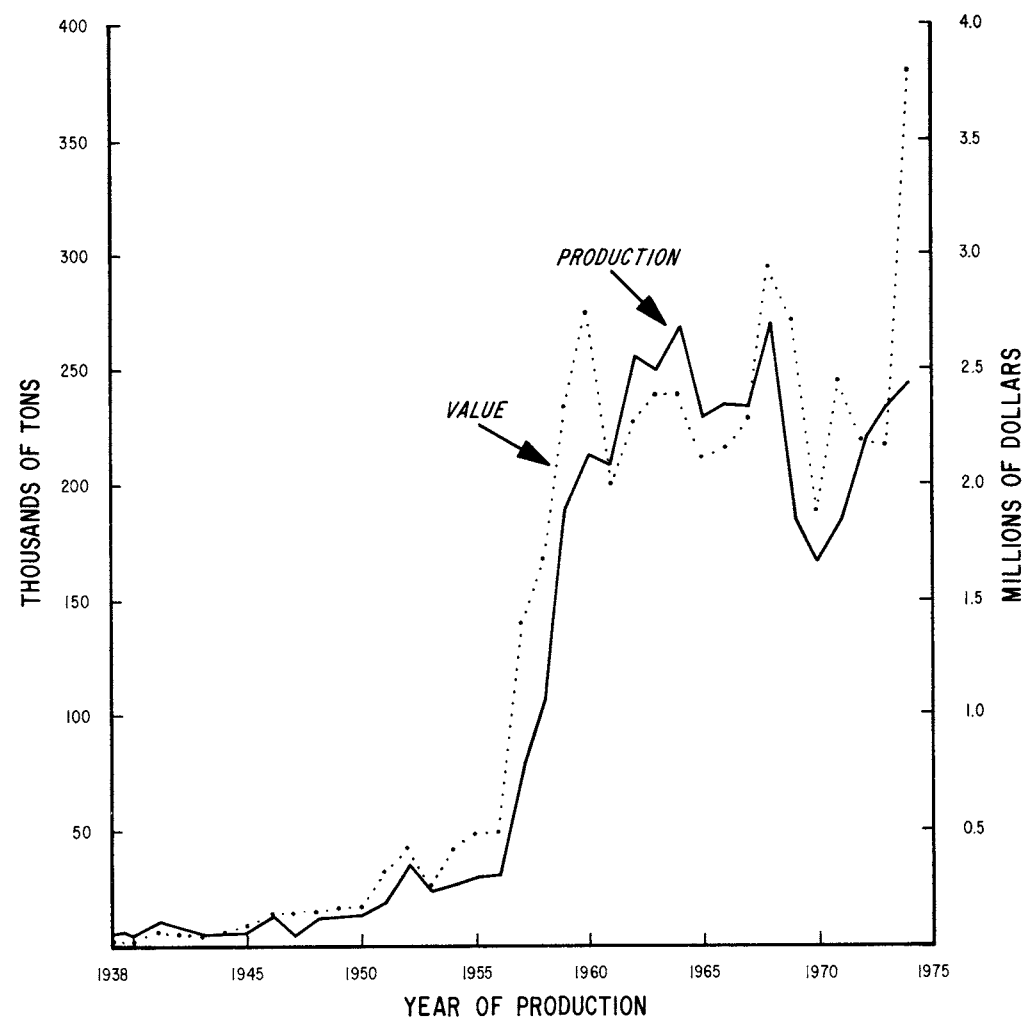
Organic soil contains 20% to 30% or more organic matter one foot or more in depth.

Source: "Organic Soils" Special Bulletin 425, 1959
Dept. Soil Science, Agri, Exper. Sta., Michigan State University

PEAT (CON'T.)

| Name of Operation | Map No. | Kind of Peat | Location |
|--|---------|-------------------|---|
| Souilliere Peat & Sod Co. 23650 23 Mile Road Mt. Clemens, Michigan 48043 | (15) | reed-sedge, bulk | 4 Mi. SE of Imlay City Sec. 25, T7N, R12E LAPEER COUNTY |
| Taylor & Son Inc. 5864 S. 30th Street Kalamazoo, Michigan 49002 | (16) | bulk | Near Kalamazoo KALAMAZOO COUNTY |
| Wicker's Inc. 6498 Bishop Road Lansing, Michigan 48910 | (17) | moss, bulk | SW side of Lansing Sec. 7, T4N, R2W INGHAM COUNTY |
| Wonderland Peat 3843 Michigan Rd., NE Grand Rapids, Michigan 49506 | (18) | moss & reed-sedge | Near Grand Rapids KENT COUNTY |

PRODUCTION AND VALUE OF MICHIGAN PEAT 1938-1974



SALT

MICHIGAN SALT PLANTS AND MINE

SALT COMPANIES

| Company and Address | Map No. | Product | Location |
|--|---------|---|---|
| BASF Wyandotte Corp. 1609 Biddle Avenue Wyandotte, Michigan 48192 | (1) | Salt brine (chlorine, soda ash) | At Wyandotte <u>WAYNE COUNTY</u> |
| Diamond Crystal Salt Co. 916 S. Riverside St. Clair, Michigan 48079 | (2) | Evaporated salt | At St. Clair, Sec. 31, T5N, R17E <u>ST. CLAIR COUNTY</u> |
| Dow Chemical Co. 2020 Dow Center Midland, Michigan 48640 | (3) | Salt brine (chlorine, natural salines) | At Midland <u>MIDLAND COUNTY</u> |
| Hardy Salt Co. P. O. Drawer 449 St. Louis, MO. 63166 | (4) | Evaporated salt | At Manistee <u>MANISTEE COUNTY</u> |
| Hooker Chemical and Plastics Corp. P. O. Box 295 Montague, Michigan 49437 | (5) | Salt brine (chlorine, caustic soda, hydrogen) | At Montague NE¼ Sec. 31, T12N, R17W <u>MUSKEGON COUNTY</u> |
| International Salt Co., Inc. Clarks Summit, PA. 18411 Detroit Mine: 12841 Saunders St. Detroit, Michigan 48217 | (6) | Rock salt | At Detroit SE¼, Sec. 32, T2S, R11E <u>WAYNE COUNTY</u> |
| Michigan Chemical Corp. 351 E. Ohio Street Chicago, Illinois 60611 | (7) | Evaporated salt | At St. Louis <u>GRATIOT COUNTY</u> |
| Morton Salt Co. Div. Morton-Norwich Products, Inc. 110 N. Wacker Drive Chicago, Illinois 60606 | (8) | Evaporated salt | At Manistee E½ Sec. 12, T21N, R17W <u>MANISTEE COUNTY</u> |
| Morton Salt Co. Div. Morton-Norwich Products, Inc. 110 N. Wacker Drive Chicago, Illinois 60606 | (9) | Evaporated salt | Marysville, Michigan SE¼, Sec. 29, T6N, R17E <u>ST. CLAIR COUNTY</u> |
| Pennwalt Corp. 4655 Biddle Wyandotte, Michigan 48192 | (10) | Salt brine (chlorine, caustic soda, hydrogen) | At Wyandotte <u>WAYNE COUNTY</u> |



SAND AND GRAVEL

Geographically the sand and gravel industry is concentrated around expanding urban areas, in areas of highway, bridge, dam and other large scale public and private construction projects.

Sand and gravel is produced mostly from glacial deposits which cover much of the state. Commercial deposits are generally confined to glacial outwash, eskers and glacial lake shore lines. Other deposits of local importance are river terraces, kames and deltas.

Leading sand and gravel producing counties during the year (over 2 million tons) were Oakland, Kalamazoo, Ottawa, Livingston, Kent and Washtenaw. Together these counties contributed 50 percent of the state total sand and gravel output. Michigan continues to rank second among the contiguous states in the production of sand and gravel. Production during 1974 was 60,073,000 short tons or about 6 percent of the national total.

CONSTRUCTION SAND AND GRAVEL

Perhaps the most widespread mineral commodity that exists in Michigan is construction sand and gravel. In addition to being the most widespread commodity, it is by far the most easily accessible. Michigan received her last shipment of sand and gravel nearly 15,000 years ago when the last glaciers began to melt and retreat. This huge ice sheet left behind millions of tons of sand and gravel which were locked up within it.

Construction sand and gravel is used largely for fill material, concrete aggregate and road use. It is probably obvious to the reader that construction sand and gravel is not used in the variety of ways as are natural salines, nor does it stir one's imagination as does the mining of gold or copper. It is interesting to note, however, that the 1974 value of Michigan's construction sand and gravel deposits exceeded 70 million dollars.

The construction sand and gravel business had a relatively meager beginning. Small operators in the early 1900's extracted only a few hundred thousand tons per year. As the demand increased sand and gravel operations expanded and eventually grew into a relatively large industry.

Considering the vast amounts of construction sand and gravel known to exist on Federal, State and private lands, Michigan shall continue to have an abundant supply of construction sand and gravel for generations to come.

INDUSTRIAL SAND

Michigan leads the nation in the production of industrial sand. Nine sand mining companies produce more than 40% of the sand used by the foundry industry. In Michigan alone, more than 90% of the sand produced is used by the automotive and associated industries. During 1974 Michigan produced nearly 4.6 million tons of industrial sand with a value over \$12 million.

Most of the industrial sand production is from the sand dunes found along the Lake Michigan shoreline. Secondary production comes from other sources found in Wexford County and the Saginaw Bay area. These sands generally have similar grain sizes ranging from .5 mm to 1 mm in size. The grains are well rounded and composed mostly (95+ percent) of silica. Sand mining companies prefer to mine this type of sand because of the large volumes available, the economic cost of mining and processing, and the nearness to major transportation facilities. The sand is in demand by the foundry and other minor industries because of its physical and chemical properties, and low purchase price.

CONSTRUCTION SAND AND GRAVEL

D - Dredge
D1 - Dragline
F - Front end loader
Sh - Shovel
BR - Bank Run
S - Stationary
P - Portable
(HMS) - Heavy media separation equipment

| Name of Operation | Type of Operation | County |
|--|-------------------|------------|
| A A and B Gravel Company Route 1, East Lime Lake Road Cedar, Michigan 49621 | [F, P] | LEELANAU |
| ABC Sand Company 36444 Cowan Road Westland, Michigan 48185 | [D] | WAYNE |
| Abram, Rueben Excavating Gould City, Michigan 49838 | | MACKINAC |
| Adrian Sand & Gravel Company 7831 Sylvannia Avenue Sylvannia, Ohio 43560 | [D, S] | LENAAWEE |
| Advance Bldg., Materials Co. 4500 31 Mile Road Romeo, Michigan 48065 | [S] | MACOMB |
| Aggregate Processors, Inc. Box 566 White Pigeon, Michigan 49099 | [D, S] | ST. JOSEPH |
| Ajax Materials Corporation Ajax Drive Madison Heights, Michigan 48071 | [F, S] | OAKLAND |
| Albert Sand & Gravel, Inc. 4621 Wilcox Road Holt, Michigan 48841 | [D, S] | LIVINGSTON |
| Albrecht, William Jr. Sandusky, Michigan 48471 | [P] | SANILAC |
| Alcona County Road Commission 301 N. Lake Street Lincoln, Michigan 48742 | [D1, F, P, BR] | ALCONA |
| Alger County Road Commission Drawer 359 Munising, Michigan 49862 | [D1, F, P, BR] | ALGER |
| Allied Chemical Corporation P. O. Box 145 13501 Huron River Romulus, Michigan 48174 | [F, P, BR] | LAPEER |
| Alpena Aggregate Inc. 7590 Weiss Road Alpena, Michigan 49707 | [P] | ALPENA |
| Alpena County Road Commission Route 6 Alpena, Michigan 49707 | [F, P, BR] | ALPENA |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of operation | Type of Operation | County |
|--|---|---|
| American Aggregates Corporation Drawer 160 Greenville, Ohio 45331 | [D1, S] [D, Sh, F, S] [D1, S] [D, D1, S] | KALAMAZOO, LIVINGSTON (HMS), MACOMB (HMS), OAKLAND (HMS) |
| Andersen Sand & Gravel Co. 1705 Boxwood Street Saginaw, Michigan 48601 | [D, S] | TUSCOLA |
| Anderson Gravel & Excavating Co. 233 Thurman Belding, Michigan 48809 | [F, P, BR] | MONTCALM |
| Antrim County Road Commission Mancelona, Michigan 49659 | [D1, P, BR] | ANTRIM |
| Arenac County Road Commission Omer, Michigan 48749 | [F, BR] | ARENAC |
| AROCO Box 115 Engadine, Michigan 49827 | [P] | MACKINAC |
| B B-K Rt. #1 Wallace, Michigan 49893 | [S] | MENOMINEE |
| Balkema, Henry 7758 Kilowatt Kalamazoo, Michigan 49001 | [F, BR] | KALAMAZOO |
| Baraga County Road Commission P. O. Box 227 L'Anse, Michigan 49946 | [D1, F, P, BR] | BARAGA |
| Barr Sand and Gravel, Inc. 990 Barnes Road Mason, Michigan 48854 | [D1, F, BR] | INGHAM |
| Barry County Road Commission P. O. Box 158 Hastings, Michigan 49058 | [F, Sh, BR] | BARRY |
| Bartlett, Norman R#3 East Jordan, Michigan 49727 | [F, BR] | CHARLEVOIX |
| Bawks & Beacon Company Pickford, Michigan 49774 | [BR] | MACKINAC |
| Beagle, Richard Sand & Gravel 1855 Hollingsworth Walled Lake, Michigan 48088 | [D1, F, P] | OAKLAND |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|-----------------------|
| Beckman Bros. Inc. 210 Michigan Avenue Shelby, Michigan 49455 | [F, D1, P, S] | OCEANA |
| Beeman Trucking & Bulldozing Co. R#1 Grawn, Michigan 49637 | [F, P, BR] | GRAND TRAVERSE |
| Bennett Excavating & Gravel Co. Inc. 10835 Hamburg Road Hamburg, Michigan 48139 | [D1, P] | LIVINGSTON, WASHTENAW |
| Bentley Sand and Gravel 9220 Bennet Lake Road Fenton, Michigan 48430 | [F, S] | LIVINGSTON |
| Benzie County Road Commission Honor, Michigan 49640 | [P] | BENZIE |
| Berenthal Sand & Gravel Co. Inc. 9523 Saginaw Road R#2 Reese, Michigan 48757 | [D1, F, BR, P] | TUSCOLA |
| Bichler Gravel and Concrete Co. Box 263 Escanaba, Michigan 49829 | [F, S] | DELTA |
| Binns Gravel & Ready-Mix Co. R#1 East Lime Lake Road Cedar, Michigan 49621 | [F, S] | LEELANAU |
| Blumke Excavating Co. Inc. Box 126A Alanson, Michigan 49706 | [S] | EMMET |
| Boichot Concrete Corporation P. O. Box 5247 Lansing, Michigan 48905 | [D, BR, S] | CLINTON (HMS) |
| Bollon, Ralph, Sand & Gravel Co. 375 Plum Creek Road Lapeer, Michigan 48446 | [F, BR] | LAPEER |
| Brade Ready Mix Concrete Co. 4900 N. Van Dyke Kinde, Michigan 48445 | [D1, S, BR] | HURON |
| Brady Sand & Gravel 2980 Russell Road Tecumseh, Michigan 49286 | [D1, BR] | LENAWEE |
| Branch Co. Rd. Commission 23 E. Garfield Coldwater, Michigan 49036 | | BRANCH |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|--|
| Brewers City Dock Inc. 24 Pine Avenue Holland, Michigan 49423 | [F, P] | ALLEGAN |
| Briggs Ready-Mix & Gravel 311 State Street Charlotte, Michigan 48813 | [D, S] | EATON (HMS) |
| Brink, William 1535 Willis Road Saline, Michigan 48176 | [F, BR] | WASHTENAW |
| Britton, Don, Inc. 1480 Westwood Road Marquette, Michigan | [F, BR] | MARQUETTE |
| Brow, Gene Construction Co. Box 5 Seney, Michigan 49883 | [D1, F, P] | LUCE |
| Budzen Cement Products Route 1 Paw Paw, Michigan 49079 | [F, S] | VAN BUREN |
| Builders Redi-Mix, Inc. 6133 Aurelius Road Holt, Michigan 48842 | [D1, F, P] | INGHAM |
| Bunting Sand & Gravel Products, Inc. 3247 Cook Road West Branch, Michigan 48661 | [F, Sh, P] | OGEMAW |
| Burkett, J. V. Construction Co. Inc. 3860 U.S. 31 St. Joseph, Michigan 49085 | [F, P] | BERRIEN, CASS, HILLSDALE, INGHAM, KALAMAZOO, LENAWEE, ST. JOSEPH |
| C Calhoun County Road Commission County Building Marshall, Michigan 49068 | | CALHOUN |
| Carter, George S. Co. Inc. 5800 Van Dyke Road Almont, Michigan 48003 | [P] | MACOMB |
| Cash & Carry Gravel Co. P. O. Box 1105A Holland, Michigan 49423 | | ALLEGAN |
| Caspian Construction Co. 100 W. Caspian Caspian, Michigan 49115 | [P] | DELTA, DICKINSON, GOGEBIC, IRON |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|--|
| Cass County Road Commission R#1 Box 68 Cassopolis, Michigan 49031 | [F, P, BR] | CASS |
| Central Michigan Sand & Gravel R#1 Ovid, Michigan 48866 | [F, S, BR] | CLINTON, SHIAWASSEE (HMS) |
| Champion, Inc. 105 E. "A" Street Iron Mountain, Michigan 49801 | [Sh, BR, S] | DICKINSON, MARQUETTE |
| Charlevoix County Road Commission Box 39 Boyne City, Michigan 49712 | [F, P, BR] | CHARLEVOIX |
| Charley's Service R#1 Box 103 Harbor Springs, Michigan 49740 | [F, P] | EMMET |
| Cheboygan Cement Products 702 LaFayette Avenue Cheboygan, Michigan 49721 | [F, P] | CHEBOYGAN |
| Cheboygan County Road Commission 729 N. Main Cheboygan, Michigan 49721 | [Sh, BR] | CHEBOYGAN |
| Clare County Road Commission Mannsiding Road Harrison, Michigan 48625 | [F, BR] | CLARE |
| Coit Avenue Gravel Company, Inc. 4772 Coit Avenue NE Grand Rapids, Michigan 49505 | [D, S, BR] | KENT |
| Cole Brothers Contr. Inc. 4100 Dickman Road Battle Creek, Michigan 49015 | [F, P, S] | BARRY, CALHOUN, JACKSON, KALAMAZOO, LENAWEE |
| Cole Gravel Company R#1 Patterson Road Wayland, Michigan 49348 | [F, S, BR] | BARRY |
| Combs, Emil Gravel & Ready-Mix R#1 Tekonsha, Michigan 49092 | [D1, S, BR] | CALHOUN |
| Compton Sand and Gravel 4300-31 Mile Road Romeo, Michigan 48065 | [D1, P] | OAKLAND |
| Concrete Services Inc. W. Front Street Traverse City, Michigan 48964 | [D1, F, S] | GRAND TRAVERSE |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|-------------------|--|
| Construction Aggregates Corp. P. O. Box 6830 Ferrysburg, Michigan 49409 | [D1, S] | OTTAWA (HMS) |
| Consumers Sand & Gravel Co. P. O. Box 231 Kalamazoo, Michigan 49005 | [D, S] | KALAMAZOO |
| Contractors Gravel Co. Box 83 Sparta, Michigan 49345 | [D1, S, BR] | KENT |
| Cook Block Company 138 E. Harrington Road Croswell, Michigan 48422 | [F, BR] | SANILAC |
| Copping, C. J. Trucking Co. Box 8925 Rt.#4 Alpena, Michigan 49707 | [BR] | ALPENA |
| Corey & Hartwig, Inc. 4353 Pratt Road Hadley, Michigan 48440 | [P, S, BR] | LAPEER |
| Cousineau Gravel, Inc. P. O. Box 222 Big Rapids, Michigan 49307 | [F, P] | KENT, MECOSTA, NEWAYGO, OSCEOLA, OTTAWA |
| Covington Construction Co. Covington, Michigan 49919 | [F, BR] | BARAGA |
| Crandell Trucking Co. 800 Island Highway Charlotte, Michigan 48813 3 Pits | [F, P, BR] | EATON, IONIA |
| Len Czewski Trucking 2224 Main Street Udly, Michigan 48475 | [S] | HURON |
| D D. & J. Gravel Co. Inc. R#2 4950 Mason Road Howell, Michigan 48843 | [D, S] | LIVINGSTON |
| Dean, Henry & Son P. O. Box 184 Onaway, Michigan 49765 | [P, BR] | CHEBOYGAN, PRESQUE ISLE |
| DeBoer Materials R#1 Box 81 Three Rivers, Michigan 49093 | | ST. JOSEPH |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|-------------------|
| Delta County Road Commission P. O. Box 298 Escanaba, Michigan 49829 | [P] | DELTA |
| Dennison Construction Co. 7205 Simons Lexington, Michigan 48450 | [F, BR] | SANILAC |
| DeVries, E. & Sons 959 Bristol Avenue NW Grand Rapids, Michigan 49504 | [F, P, BR] | KENT |
| Dewent Gravel Company 5725 Marlin Avenue Hudsonville, Michigan 49426 | [D1, F, S, BR] | OTTAWA |
| Drenth Brothers, Inc. Ellsworth, Michigan 49729 | [F, P, BR] | ANTRIM |
| Du-Pine Company 1241 South Maple Road Ann Arbor, Michigan 48105 | [D1, F, P] | WASHTENAW |
| Dunbar, Leo P. O. Box 246 Cadillac, Michigan 49601 | [D1, F, S, BR] | WEXFORD |
| Dyer Company Box 98 McBride, Michigan 48852 | [D1, P] | CLINTON, MONTCALM |
| E Eastman Gravel Pit R#1 422 Stover Road Standish, Michigan 48658 | [D, S] | ARENAC |
| Eichenberg Howard Company R#1 White Cloud, Michigan 49349 | [P] | NEWAYGO, OCEANA |
| Elba Gravel Company 5270 McDowell Lapeer, Michigan 48466 | [D1, F, S] | LAPEER |
| Emmet County Road Commission Box 0 Petoskey, Michigan 49770 | [D1, P] | EMMET |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|----------------------|---------------------------------|
| F Fayas & Sons, Inc. P. O. Box 2187 Kingsford, Michigan 49801 | [F, S, BR] | DICKINSON |
| Fenton Gravel Co., Inc. 11301 Fenton Hill Road Fenton, Michigan 48430 | [D1, F, P, BR] | LIVINGSTON |
| Fischer Gravel Co. 2604 Snyder Road Wellston, Michigan 49689 | [P] | MANISTEE |
| Fiser Supply Company 1617 E. Jolly Road Lansing, Michigan 48910 | [D, BR, S] | INGHAM |
| Fisher, Frank Co. 2153 W. Hibbard Road Owosso, Michigan 48867 | [P] | SHIAWASSEE |
| Fisher Sand & Gravel Co. 921 S. Jefferson Avenue Midland, Michigan 48640 | [D1, P] | CLARE, ISABELLA |
| Fitzgerald, Fred M., Gravel Co. 3990 E. Six Mile Creek Owosso, Michigan 48867 | [D1, F, BR] | SHIAWASSEE |
| Fitzgerald & Powell, Inc. P. O. Box 160 Rose City, Michigan 48654 | | OGE MAW |
| Fleming Gravel Company, Inc. 122 North Avenue R#3 Allegan, Michigan 49010 | [F, P,] | ALLEGAN |
| Foster, Don, Inc. 67550 Pashalk Road Richmond, Michigan 48062 | [D, F, S] | MACOMB |
| Fox Valley Construction Co. Box 645 219 W. College Avenue Appleton, Wisconsin 54911 | [F, P] | CHIPPEWA, GOGEBIC, ONTONAGON |
| Fuoss Gravel Company R#1 Durand, Michigan 48429 | [D, D1, F, S, P, BR] | SHIAWASSEE |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|-------------------|-----------------|
| G Gedvillas and Schnabel Corp. P. O. Box 143 Houghton, Michigan 49931 | [F, P] | HOUGHTON |
| Gillissee Construction Co. 2500 28th Street SW Box 278 Grandville, Michigan 49418 | [D1, S] | KENT |
| Glancy, R. E., Inc. 1055 S. Bay Drive Tawas City, Michigan 48763 | [F, P] | VARIOUS |
| Globe Industries Inc. Mill Street Ironwood, Michigan 49938 | [P] | GOGEBIC |
| Gogebic County Road Commission New County Building Bessemer, Michigan 49911 | [Sh, P] | GOGEBIC |
| Gordor, James R#3, Box 123 Sault Ste. Marie, Michigan | | CHIPPEWA |
| Grand Rapids Gravel Co. 2700 28th Street SW Grand Rapids, Michigan 49509 | [D1, S] | KENT |
| Grand Traverse County Rd. Comm. 3949 Silver Lake Road Traverse City, Michigan 49684 | [F, P] | GRAND TRAVERSE |
| Grand Valley Gravel Company 10450 Linden Drive R#5 Grand Rapids, Michigan 49540 | [F, S] | OTTAWA |
| Gratiot County Rd. Comm. 920 E. Center Street Ithaca, Michigan 48847 | [F, P, BR] | GRATIOT |
| Great Lakes Gravel Co. 490 Spaulding SE Grand Rapids, Michigan 49506 | [F, S,] | KENT |
| Great Lakes Gravel Co., Inc. 1455 E. Romeo Road Utica, Michigan 48038 | [F, P, BR] | MACOMB, OAKLAND |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|-------------------|---------------|
| Greenthumb Greenhouse R#2 Box 44C Ironwood, Michigan 49938 | | GOGEBIC |
| Gronlund Gravel Company Box 28 R#2 Bear Lake, Michigan 49614 | [P] | MANISTEE |
| Gunlach, Hernon Company 58 Huron Street Houghton, Michigan 49931 | [BR] | MARQUETTE |
| H Halliday Sand & Gravel, Inc. Star Route 79 Box 230 Houghton Lake, Michigan 48629 | [P] | ROSCOMMON |
| Haltunen Sand & Gravel Box 155 Copper City, Michigan 49917 | [F, P] | HOUGHTON |
| Hamilton Block & Redi-Mix R#3 Hamilton, Michigan 49419 | [P] | ALLEGAN |
| Hamlin Excavating P. O. Box 101 Grayling, Michigan 49738 | [BR] | CRAWFORD |
| Harris Excavation Company Route 1 Greenville, Michigan 48838 | [P] | MONTCALM |
| Havelka Construction Co. R#1 Wallace, Michigan 49893 | [D1, P, BR] | MENOMINEE |
| Hayes Washed Sand & Gravel Co., Inc. 15205 Middlebelt Road Livonia, Michigan 48154 | [D1, F, P, BR] | OAKLAND |
| Hersey Sand & Gravel J. P. Burroughs & Son Aggregate Division P. O. Box 1468 Saginaw, Michigan 48605 | [F, S, BR] | OSCEOLA (HMS) |
| Hillsdale County Rd. Comm. P. O. Box 357 Hillsdale, Michigan 49242 | [F, P] | HILLSDALE |
| Hocking, George, Construction Co. Box 488 South Range, Michigan 49963 | [P] | MARQUETTE |
| Hodgins, Ken & Sons P. O. Box 631 Marquette, Michigan 49855 | [F, P] | MARQUETTE |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|-------------------|-----------------------------|
| Hodgkiss & Duoma Inc. P. O. Box 311 Petoskey, Michigan 49770 | [F, P, BR] | EMMET, CHARLEVOIX |
| Hoffman Bros. Excavating 1355 Dickman Road Battle Creek, Michigan | [F, BR] | CALHOUN |
| Holloway Sand & Gravel Co., Inc. Div. of Holloway Construction Co. 10930 6 Mile Road Northville, Michigan 48096 | [D1, P] | GENESEE, OAKLAND, WASHTENAW |
| Holly Sand & Gravel Aggregate Division of J. P. Burroughs & Son, Inc. P. O. Box 1468 Saginaw, Michigan 48605 | [F, S, P, BR] | OAKLAND (HMS) |
| Holmberg, Gunnar F. R#1 Mounted Road Gladstone, Michigan 49837 | [D1, S] | DELTA |
| Hoogerhyde Sand & Gravel Co. R#1 Box 92 Gaylord, Michigan 49735 | [F, P] | OTSEGO |
| Houghton County Rd. Comm. P. O. Box 269 Hancock, Michigan 49930 | [F, P, BR] | HOUGHTON |
| Hubscher & Son, Inc. P. O. Box 411 Mt. Pleasant, Michigan 48858 | [D, D1, P, BR] | CLARE, GRATIOT, ISABELLA |
| Huhtala, R. H. Sand & Gravel Co. L'Anse, Michigan 49946 | [F, P, BR] | BARAGA |
| Huizenga Gravel Company 10015 Gordon Zeeland, Michigan 49464 | [D1, P] | OTTAWA |
| Hunt Construction Company 4452 West Street Cass City, Michigan 48726 | [D1, P, BR] | TUSCOLA |
| Huron County Road Commission P. O. Box 270 Bad Axe, Michigan 48413 | [P] | HURON |
| Hutfilz, Walter 2850 Bay Road Saginaw, Michigan 48601 | | SAGINAW |
| Huyck Excavating Pickford, Michigan 49774 | [BR] | MACKINAC |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|-----------|
| I Indiana Hwys. Materials, Inc. 2116 W. Wilden Avenue Goshen, Indiana 46526 | [D1, F, P] | CASS |
| Ingham County Road Comm. P. O. Box 38 Mason, Michigan 48854 | [F, P, BR] | INGHAM |
| Ionia County Road Comm. P. O. Box 76 Ionia, Michigan 48846 | [F, P, BR] | IONIA |
| Iosco County Road Comm. 810 W. Westover East Tawas, Michigan 48730 | [F, P, BR] | IOSCO |
| Irish Hills Gravel Co. 1100 South Jackson Road Cement City, Michigan 49233 | [D1, F, P] | LENAWEE |
| Iron County Road Comm. Crystal Falls, Michigan 49920 | [D1, P, S] | IRON |
| Isabella County Road Comm. R#7 Mt. Pleasant, Michigan 48858 | [F, P, BR] | ISABELLA |
| Isabella Sand & Gravel Co. E. Wing Road Mt. Pleasant, Michigan 48858 | | ISABELLA |
| J Jackson Co. Rd. Comm. 1314 N. West Avenue Jackson, Michigan 49202 | [F, P, BR] | JACKSON |
| Jaegger Brothers 2500 - 9 Avenue North Escanaba, Michigan 49829 | [BR] | DELTA |
| John R. Sand & Gravel Co. 1717 East Dryden Road Metamora, Michigan 48455 | [D1, S] | LAPEER |
| Johnson, Norman Company R#1 Box 111 Daggett, Michigan 49821 | [F, BR] | MENOMINEE |
| Jolly Road Sand Company 1842 Jolly Road Mason, Michigan 48854 | [F, BR] | INGHAM |
| K K-V Gravel Company 403 Cherokee Drive Fremont, Michigan 49412 | [S] | NEWAYGO |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|-----------------|
| Kaatz, Fred 33555-31 Mile Road Richmond, Michigan 48062 | | MACOMB |
| Kalamazoo County Rd. Comm. P. O. Box 2127 Kalamazoo, Michigan 49003 | [F, BR] | KALAMAZOO |
| Karber Gravel Company 917 Church Street St. Johns, Michigan 48879 | [D, S] | CLINTON |
| Kent County Road Commission 1500 Scribner NW Grand Rapids, Michigan 49504 | [S, P, BR] | KENT |
| Keweenaw County Rd. Comm. Mohawk, Michigan 49950 | [F, P, BR] | KEWEENAW |
| Kiell Excavating Company 2046 M-140 Niles, Michigan 49120 | [F, BR] | BERRIEN |
| Klett Construction Co. (Gravel Hill) R#2 Hartford, Michigan 49057 | [P] | VAN BUREN |
| Klumpp Bros. Gravel Co. 3342 Page Avenue Jackson, Michigan 49203 | [Sh, S] | JACKSON, LENAWE |
| Koboski Coal Company, Inc. 114 Washington Street Petoskey, Michigan 49770 | [S] | EMMET |
| Koenig Fuel & Supply Co. 1955 Lakeville Road Oxford, Michigan 48051 | [D1, S, BR] | OAKLAND (HMS) |
| Kruse Gravel Company 1090 W. Clar Road Ypsilanti, Michigan 48197 | [D1, F, S, BR] | WASHTENAW |
| Krygoski Construction 2511 - 10th Street Menominee, Michigan | [D1, F, P] | MARQUETTE |
| Kurtz Gravel Company G-5300 N. Dort Highway Flint, Michigan 48505 | [D1, S, BR] | OAKLAND |
| L Lake City Redi-Mix Route 1 Falmouth, Michigan 49632 | [S] | MISSAUKEE |

| CONSTRUCTION | SAND AND GRAVEL | (CONT'D.) |
|---|-----------------|---|
| Lake Construction Company P. O. Box 427 Indian River, Michigan 49749 | [F, BR] | MACKINAC |
| Lake County Road Commission Baldwin, Michigan 49304 | [D1, P] | LAKE |
| Lake Linden, Village of Village Hall Lake Linden, Michigan 49945 | [F, BR] | HOUGHTON |
| Lamar Gravel Co., Inc. R#1 Grawn, Michigan 49637 | [P] | GRAND TRAVERSE |
| Lapeer County Road Commission 820 Davis Lake Road Lapeer, Michigan 48446 | [F, BR] | LAPEER |
| Leelanau County Road Comm. Suttons Bay, Michigan 49682 | [D1, P] | LEELANAU |
| Lennon Sand & Gravel Inc. 114 Duane Street Durand, Michigan | [F, P, BR] | SHIAWASSEE |
| Liberty Sand Company Box 1046 Ann Arbor, Michigan 48105 | [F, S, BR] | WASHTENAW |
| Lindberg A. & Sons, Inc. 560 Mather Avenue Ishpeming, Michigan 49849 | [F, Sh, P, S] | ALGER, DICKINSON, IRON, MARQUETTE, ONTONAGON |
| Livingston County Rd. Comm. 918 North Street Howell, Michigan 48843 | [S, BR] | LIVINGSTON |
| Long Lake Gravel Service 736 Lakewood Road Traverse City, Michigan 49684 | | GRAND TRAVERSE |
| Luce County Road Comm. P. O. Box 401 Newberry, Michigan 49868 | [D1, F, P, BR] | LUCE |
| Luoma Sand & Gravel 1228 Grovenburg Road Holt, Michigan 48842 | [BR] | INGHAM |
| Lyon Sand & Gravel Co. (Div. E. C. Levy Company) 51455 W. Twelve Mile Road Wixom, Michigan 48906 | [F, S, BR] | OAKLAND (HMS) |

| CONSTRUCTION | SAND AND GRAVEL | (CONT'D.) |
|---|-------------------|-----------|
| Name of Operation | Type of Operation | County |
| M Mabry & Melton Sand & Gravel Co. 2600 Forrester Street Pontiac, Michigan 48057 | [F, P, BR] | OAKLAND |
| Mackinac County Road Comm. State A Street St. Ignace, Michigan 49781 | [F, BR] | MACKINAC |
| Macomb Sand & Gravel Co. 3295 Auburn Road Utica, Michigan 48087 | [D, S] | MACOMB |
| Mangene, Mike, Inc. Cedarville, Michigan 49719 | | MACKINAC |
| Manistee County Road Comm. 425 Parkdale Avenue Manistee, Michigan 49660 | [BR] | MANISTEE |
| Marquette, City of Marquette, Michigan 49855 | [F, S, Sh, P, BR] | MARQUETTE |
| Marquette County Road Comm. N. Second Street Ishpeming, Michigan 49849 | [F, Sh, P, BR] | MARQUETTE |
| Marsack Sand & Gravel Inc. 20900 - 14 Mile Road Roseville, Michigan 48066 | [D1, S, BR] | MACOMB |
| Martin Aggregates Inc. R#6 North Gilson Road St. Johns, Michigan | [D1, S] | CLINTON |
| Marvic, Steve and Sons 1514 N. 16th Escanaba, Michigan 49829 | [Sh, P, BR] | DELTA |
| Mason Excavating Inc. R#4 Box 289 Gaylord, Michigan 49735 | [Sh, D, P] | OTSEGO |
| Mathews Gravel Co. 8082 N. Gaele Road Otisville, Michigan 48063 | [F, BR] | GENESEE |
| McGuirk Jim & Sons 616 S. Adams Street Mt. Pleasant, Michigan 48858 | | ISABELLA |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|----------------------|--|
| Mecosta County Road Commission 120 N. DeKraft Avenue Big Rapids, Michigan 49307 | [P] | MECOSTA |
| Menominee County Road Comm. 3222 10th Street Menominee, Michigan 49858 | [P] | MENOMINEE |
| Meyer and Company 300 Haynes Cadillac, Michigan 49601 | [F, P, BR] | WEXFORD |
| Michigan Aggregates Corp. 213 E. St. Joseph Lansing, Michigan 48933 | [D1, F, D, S] | BRANCH, CALHOUN, HILLSDALE (HMS) |
| Michigan, State of Dept. Natural Resources Lansing, Michigan 48926 | | ALCONA, ALGER, ALPENA, BARAGA, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CRAWFORD, DICKINSON, GLADWIN, GOGEBIC, KALKASKA, LUCE, MACKINAC, MANISTEE, MARQUETTE, MECOSTA, MENOMINEE, MISSAUKEE, OGEMAW, ONTONAGON, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SCHOOLCRAFT, WEXFORD |
| Mickelson Corporation 435 Granger Road Oxford, Michigan 48051 | [F, D1, D, P, S, BR] | OAKLAND (HMS) |
| Mid-Michigan Materials, Inc. 406 Park Avenue Yale, Michigan 48097 | [F, S, BR] | SANILAC |
| Miller Brothers Construction Co. Archbold, Ohio 43502 | [D1, F, P] | HILLSDALE |
| Miller, George & Sons R#2 Box 21 St. Joseph, Michigan 49085 | [D1, P] | BERRIEN, CALHOUN, CASS, KALAMAZOO, ST. JOSEPH, VAN BUREN |
| Miller, Howard R#1 Prescott, Michigan 48756 | [D1, F, P] | OGEMAW |
| Miller, Paul C. Co. 10300 Sparta Avenue Sparta, Michigan 49345 | [D1, F, P] | KENT, OCEANA, OTTAWA |
| Miller Prod. & Supply Co. P. O. Box 548 North U.S.-2 Iron Mountain, Michigan 49801 | [F, P] | DICKINSON |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|--|
| Miller Sand & Gravel R#2 120 Avenue West Hopkins, Michigan 49328 | [D1, F, S, BR] | ALLEGAN |
| Millikin, Jack, Inc. 398 Millikin Road Box 12A Grayling, Michigan 49738 | [F, P] | CRAWFORD |
| Millington Gravel Co. Box 1 Millington, Michigan 48746 | [D1, F, S] | TUSCOLA |
| Missaukee County Road Comm. P. O. Box A Lake City, Michigan 49651 | [F, BR] | MISSAUKEE |
| Moe, Arne R#1 Munising, Michigan 49862 | [F, BR] | ALGER |
| Molesworth Contracting Co. P. O. Box 117 Yale, Michigan 48097 | [D1, P] | LAPEER, MACOMB, OAKLAND, SANILAC, ST. CLAIR |
| Montero Excavation Inc. I-75 Business Supr. Sault Ste. Marie, Michigan 49738 | [D1, F] | CHIPPEWA |
| Montcalm County Road Comm. Stanton, Michigan 48888 | | MONTCALM |
| Montmorency County Road Comm. Atlanta, Michigan 49709 | [P, BR] | MONTMORENCY |
| Moore Bros. Sand & Gravel 3701 Ruff Road Romulus, Michigan 48174 | [D, S] | WAYNE |
| Morgan Sand & Gravel Co. 46218 Custer Road Utica, Michigan 48087 | [F, D, S] | LIVINGSTON, MACOMB |
| Morgan, Al, Sand Company 26291 Pennsylvania Road Romulus, Michigan 48174 | [D1, F, BR] | MONROE |
| Muskegon Gravel Inc. R. R. #1 Box 183 Ravenna, Michigan 49451 | [S] | OTTAWA |

| CONSTRUCTION SAND AND GRAVEL (CONT'D.) | | |
|---|-------------------|-------------------------------|
| Name of Operation | Type of Operation | County |
| Mustang Contractors, Inc. 28771 Mineral Springs Road New Boston, Michigan 48164 | [D1, BR] | MONROE |
| N NAPCO Aggregate Company P. O. Box 265 Romeo, Michigan 48065 | [F, P] | LAPEER |
| Nashville Gravel Company R#3 Box 117B Nashville, Michigan 49073 | [F, S] | BARRY (HMS) |
| Natural Aggregates Corp. 65545 Mound Road Romeo, Michigan 48065 | [D, S] | LIVINGSTON(HMS), MACOMB (HMS) |
| Neadow, James R#1 Cooks, Michigan 49817 | [F, BR] | SCHOOLCRAFT |
| Negaunee, City of Negaunee, Michigan 49866 | [S] | MARQUETTE |
| Nelson Excavating & Gravel Co. 10079 E. 48 Road Cadillac, Michigan 49601 | [F, P] | WEXFORD |
| Neuman Sand & Gravel G-5281 Deland Flushing, Michigan 48433 | [S] | GENESEE |
| Newaygo County Road Comm. White Cloud, Michigan 49349 | [F, BR] | NEWAYGO |
| Newberry Ready Mix Company Box 404 E. Victory Way Newberry, Michigan 49868 | [BR] | MACKINAC |
| Nieb Concrete Prod. Company (Niles Sand & Gravel Div.) 2779 Hoyt Drive Niles, Michigan 49120 | [F, S] | CASS |
| Niemi & Company, Inc. 2492 North Harrison Road Harrison, Michigan 48625 | [F, BR] | CLARE |
| Northeast Gravel Company 4300 Cannonsburg Road Belmont, Michigan 49306 | [D1, S, BR] | KENT |
| Northern Concrete Prod. Co. P. O. Box 525 Petoskey, Michigan 49770 | [F, S] | EMMET |

| CONSTRUCTION SAND AND GRAVEL (CONT'D.) | | |
|---|-------------------|---------------------|
| Name of Operation | Type of Operation | County |
| Nurmela Sand & Gravel Star Route, Box 3 Michigamme, Michigan 49861 | | BARAGA |
| O Oakland Transport, Inc. P. O. Box 236 Walled Lake, Michigan 48088 | [D1, F, BR] | OAKLAND, LIVINGSTON |
| Oceana County Road Comm. P. O. Box 112 Hart, Michigan 49420 | [D1, F, P, BR] | OCEANA |
| Ogemaw County Road Comm. 1250 S. M-33 West Branch, Michigan 48661 | [D1, P] | OGEMAW |
| Ontonagon County Road Comm. 415 Spar Street Ontonagon, Michigan 49953 | [Sh, P] | ONTONAGON |
| Osceola County Road Comm. Reed City, Michigan 49677 | [F, P] | OSCEOLA |
| Otisville Stone Company 300 Center Street Otisville, Michigan 48463 | [D1, S, BR] | GENESEE |
| Otsego County Road Comm. P. O. Box 537 Gaylord, Michigan 49735 | [F, P] | OTSEGO |
| Ottawa County Road Comm. 616 N. 6th Street Grand Haven, Michigan 49417 | [D1, F, BR] | OTTAWA |
| Oxford Mining Company 9820 Andersonville Road Davisburg, Michigan 48019 | [D1, S] | OAKLAND |
| P P. & B. Gravel Company R#3 Ithaca, Michigan 48847 | [D, Sh, P, S, BR] | GRATIOT |
| Palmer Sand & Gravel 2531 E. South Street Jackson, Michigan 49201 | [D1, S] | JACKSON |
| Paquin & Sons, Inc. R#1 Gladstone, Michigan 49837 | [D1, F, P] | DELTA |
| Paris Gravel Company, Inc. R#1 Big Rapids, Michigan 49307 | [D1, S, P] | MECOSTA |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|---|
| Peninsula Asphalt Corp. Box 726 Traverse City, Michigan 49684 | [S] | LEELANAU |
| Peterhans, H. O. Sand & Gravel 530 Pearl Street Caro, Michigan 48723 | [D1, BR] | TUSCOLA |
| Peters Construction Co. 3325 E. Kilgore Road Kalamazoo, Michigan 49001 | [D1, F, P] | KALAMAZOO |
| Petersen Gravel & Excav. 350 Norwood Rockford, Michigan 49341 | [S, BR] | KENT |
| Pickitt & Schreur, Inc. P. O. Drawer D Moline, Michigan 49335 | | ALLEGAN (HMS), IONIA, ISABELLA, JACKSON, KALAMAZOO, KENT, LAPEER, OAKLAND, OCEANA, OSCEOLA |
| Pitchford Sand & Gravel 1330 N. Onondaga Road Holt, Michigan 48842 | [F, BR] | INGHAM |
| Polhamus Sand & Gravel Ovid, Michigan 48866 | [F, BR] | SHIAWASSEE |
| Portable Aggregate Producers, Inc. 1401 Souter Blvd. Troy, Michigan 48084 | [D1, F, P, BR] | OAKLAND |
| Powell Sand & Gravel 2284 Main Street Fairgrove, Michigan 48733 | [F, BR] | TUSCOLA |
| Presque Isle County Road Comm. Rogers City, Michigan 49779 | | PRESQUE ISLE |
| Proksch Construction Co. P. O. Box 151 Iron River, Michigan 49935 | [F, BR] | IRON |
| Pryor Brothers R#2 P. O. Box 89 Grand Ledge, Michigan 48837 | [P] | CLINTON |
| Port Huron, City of Port Huron, Michigan 48060 | [BR, S] | ST. CLAIR |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|---|-------------------|--|
| Q Quality Aggregate Co., Inc. 646 Beecher Road Osseo, Michigan 49266 | [D1, S] | HILLSDALE |
| R Raymond Excavating, Inc. 800 Gratiot Avenue Marysville, Michigan 48040 | [D1, F, BR] | ST. CLAIR |
| Ray's Aggregate Co. 2040 Packard Hwy. Charlotte, Michigan 48813 | [P] | EATON |
| Reyhl Sand & Gravel Grand River Drive Brighton, Michigan 48116 | [F, BR] | LIVINGSTON |
| Richardson Asphalt Corp. 801 Lewis Street P. O. Box 1134 Jackson, Michigan 49201 | [D1, P] | JACKSON |
| Rieth-Riley Const. Co., Inc. P. O. Box 1108 Elkhart, Indiana 46514 | [D1, F, Sh, P] | BERRIEN, CALHOUN, CASS, EATON, IONIA, KENT, OCEANA, OTTAWA, ST. JOSEPH |
| Riverside Sand & Gravel Co. 1050 Maynard Avenue SW Grand Rapids, Michigan 49504 | [F, Sh, BR] | KENT |
| Riverview Gravel Co. 805 Taylor Street Jenison, Michigan 49428 | [F, P, BR] | OTTAWA |
| Robinson Gravel Co. 12065 N. Cedar Drive Grand Haven, Michigan 49417 | [D1, F, S, BR] | OTTAWA |
| Rock Crete Products 6991 Chelsea Manchester Rd. Manchester, Michigan 48158 | [F, S, BR] | WASHTENAW |
| Rocks Redi-Mix Concrete Co. 2401 Chicago Drive Grand Rapids, Michigan 49509 | [D1, P] | KENT |
| Rod's Sand & Gravel P. O. Box 58 Johnnesburg, Michigan 49751 | [F, P] | MONTMORENCY |
| Roscommon County Road Comm. P. O. Box 117 Roscommon, Michigan 48653 | [F, BR] | ROSCOMMON |
| Roslund Gravel Company 6902 Jerome Road Alma, Michigan 48801 | [D, S, BR] | GRATIOT |

| CONSTRUCTION SAND AND GRAVEL (CONT'D.) | | |
|---|-------------------|-----------------|
| Name of Operation | Type of Operation | County |
| S | | |
| St. Clair County Road Comm. 3415 28th Street Port Huron, Michigan 48060 | [F, P] | ST. CLAIR |
| St. Joseph County Road Comm. Rt.#1 Centerville, Michigan 49032 | [F, P, BR] | ST. JOSEPH |
| Saginaw Aggregates 12618 Seymour Road Burt, Michigan 48417 | [D1, F, P] | GENESEE |
| Saginaw County Road Comm. 3020 Sheridan Saginaw, Michigan 48601 | [D1, F, BR] | SAGINAW |
| Salem Sand & Gravel Aggregates Division of J. P. Burroughs & Son P. O. Box 1468 Saginaw, Michigan 48605 | [F, S, BR] | OAKLAND |
| Sanderson Company 3024 Lakeshore Drive Sault Ste. Marie, Michigan 49783 | [F, P, BR] | CHIPPEWA |
| Sargent Sand Company 2840 Bay Road Saginaw, Michigan 48602 | [D1, F, P] | TUSCOLA |
| Scheffler Brothers 6350 Lapeer Road Goodeills, Michigan 48027 | [F, BR] | ST. CLAIR |
| Schlegel, Carl, Inc. 16527 Wood Lansing, Michigan 48906 | [F, P] | CLINTON, INGHAM |
| Schoolcraft County Road Comm. Box 152 Manistique, Michigan 49854 | [F, P, BR] | SCHOOLCRAFT |
| Schworm Inc. P. O. Box 162 Traverse City, Michigan 49684 | [F, P] | GRAND TRAVERSE |
| Shiawassee County Road Comm. 112 E. McArthur Street Corunna, Michigan 48817 | [D1, F, BR] | SHIAWASSEE |
| Shook Paving Company 8281 Snows Lake Road Greenville, Michigan 48838 | [P] | MONTCALM |

| CONSTRUCTION SAND AND GRAVEL (CONT'D.) | | |
|--|-------------------|---|
| Name of Operation | Type of Operation | County |
| Sievert Brothers Inc. 200 E. River Street Manistee, Michigan 49660 | [D1, F, S] | LAKE, MANISTEE |
| Smith, Bill, Sand & Gravel P. O. Box 23 Otsego, Michigan 49078 | [D1, F, P, BR] | ALLEGAN |
| Smith, D. L. Sand & Gravel Route #3 Box 280 East Jordan, Michigan 49727 | [F, BR] | CHARLEVOIX |
| Snellenberger, J., Gravel 1545 W. Fry Road Burt, Michigan 48417 | [D1, P, BR] | GENESEE |
| Snider Construction Co., Inc. 5791 LaVern Avenue Levering, Michigan 49755 | [P] | EMMET |
| Snider's Gravel Processing 215 Lawton Mason, Michigan 48854 | [F, P, BR] | INGHAM |
| Snyder & Sons Gravel Company 189 Bridge Road Battle Creek, Michigan 49017 | [D1, F, Sh, S] | KALAMAZOO |
| Spartan Aggregates, Inc. P. O. Box 25 Holt, Michigan 48842 | [D1, F, P] | CLINTON, EATON, INGHAM, JACKSON, OAKLAND, SHIAWASSEE |
| Stamm Bros. Gravel Company R#1 Adrian, Michigan 49221 | [P] | LENAWEE |
| Standard Aggregate Company R#6 East Colony Road St. Johns, Michigan 48879 | [D, S] | CLINTON |
| Standard Gravel Company Division of Whittaker & Gooding 5800 Cherry Hill Road Ypsilanti, Michigan 48197 | [F, P] | LIVINGSTON, OAKLAND, WASHTENAW |
| Stevick Gravel Company 1100 S. Jackson Road Cement City, Michigan 49233 | [P] | JACKSON |
| Stidham Gravel Company 227 S. Michigan Avenue Hasting, Michigan 49058 | [F, S, BR] | BARRY |
| Stockwell Sand & Gravel R#1 St. Johns, Michigan 48879 | [D1, BR] | CLINTON |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|-------------------|----------------------------|
| Stony Lake Sand & Gravel R#1 Augusta, Michigan 49012 | [F, Sh, S] | KALAMAZOO |
| Straits Aggregate & Equip. Corp. 120 Oak Street Tawas, Michigan 48763 | [F, S, P] | ALCONA, PRESQUE ISLE (HMS) |
| Strasberg, Frank & Sons 3 Iota Place Saginaw, Michigan 48603 | [P] | HURON |
| Superior Sand & Gravel Inc. 1028 Ethel Avenue Hancock, Michigan 49930 | [F, P, BR] | HOUGHTON |
| Sutherland, Warran Box 253 Delton, Michigan 49046 | [F, S, BR] | BARRY |
| T Tanton Redi-Mix 4519 Mills Road Deckerville, Michigan 48427 | [F, Sh, S, BR] | HURON |
| Tecumseh Gravel Company P. O. Box 247 Tecumseh, Michigan 49286 | [D, S] | LENAWEE |
| Tharp & Kosiba 445 Brown Road Pontiac, Michigan 48053 | [P] | OAKLAND |
| Thompson Construction Co. 234 W. Garfield Coldwater, Michigan 49036 | [F, P, BR] | BRANCH |
| Thomson Sand & Gravel Inc. 48399 W. 7 Mile Road Northville, Michigan 48167 | [D1, F, P, S, BR] | WAYNE |
| Three S Gravel Company 2252 White Street Niles, Michigan 49120 | [D1, F, BR] | CASS |
| Tip-Top Gravel Company Rt. #1 9741 Fulton Street Ada, Michigan 49301 | [F, P, BR] | KENT |
| Tod Gravel Company 6498 W. M-21 Rt. #1 Ovid, Michigan 48866 | | SHIAWASSEE |

CONSTRUCTION SAND AND GRAVEL (CONT'D.)

| Name of Operation | Type of Operation | County |
|--|--------------------|-----------|
| Towns Construction Co. P. O. Box 608 Ludington, Michigan 49431 | [D1, F, P] | MASON |
| Trautman Sand & Gravel 800 W. Fourth Street Buchanan, Michigan 49107 | [F, BR] | BERRIEN |
| Traverse City Sand & Gravel Co. 1142 S. Airport Traverse City, Michigan 49684 | [F, P] | LEELANAU |
| Tri-City Aggregates Inc. 14300 Shields Road Holly, Michigan 48442 | [F, P] | OAKLAND |
| Tri-County Sand & Stone 3664 Calhoun Road P. O. Box 328 Beaverton, Michigan 48612 | [P] | CLARE |
| Tuckey Block Company 6038 E. Cass City Road Cass City, Michigan 48726 | [D, P, BR] | TUSCOLA |
| Tuscola County Road Comm. 120 Millwood Street Caro, Michigan 48723 | | TUSCOLA |
| U Underwood Sand & Gravel Co. 2255 Hamlin Road Utica, Michigan 48087 | [D1, F, S, BR] | OAKLAND |
| V Van Buren County Road Comm. Box 156 Lawrence, Michigan 49064 | [D1, F, Sh, P, BR] | VAN BUREN |
| Van Every, Charles 42100 W. Eleven Mile Road Novi, Michigan 48050 | [P, BR] | OAKLAND |
| Velting Contractors, Inc. 2020 Newark Avenue SE Grand Rapids, Michigan 49507 | [D1, F, P, BR] | KENT |
| Vergote & Sons Sand & Gravel 141 Groesback Road Mt. Clemens, Michigan 48043 | [F, S] | MACOMB |
| Vertz, Fred W. Trout Lake, Michigan 49793 | [F, BR] | MACKINAC |
| Vollmer Redi-Mix 196 S. Caseville Road Pigeon, Michigan 48755 | [D, F, S] | HURON |

| CONSTRUCTION SAND AND GRAVEL (CONT'D.) | | |
|---|-------------------|--------------------------------|
| Name of Operation | Type of Operation | County |
| W Wagner Ready-Mix 8260 Sand Beach Rd. Harbor Beach, Michigan 48441 | [F, Sh, S, BR] | HURON |
| Walker Industries 900 Bogie Lake Road Milford, Michigan 48042 | [D1, F, P] | OAKLAND |
| Washtenaw County Road Comm. 555 N. Zeeb Road Ann Arbor, Michigan 48103 | [D1, F, P, BR] | WASHTENAW |
| Washtenaw Sand & Gravel, Inc. 4984 Earhardt Ann Arbor, Michigan 48103 | [S] | WASHTENAW |
| Waterbury K. Contractor R#6 Box 19 U. S. 27 North Coldwater, Michigan 49036 | [D1, S, P, BR] | BRANCH (HMS) |
| Wayne Sand & Gravel, Inc. P. O. Box 267 Wayne, Michigan 48184 | [D, S, BR] | WAYNE |
| Weaver, Ronald, Gravel Co. P. O. Box 116 Dansville, Michigan 48819 | [D1, P] | CLINTON, INGHAM, SHIAWASSEE |
| Weber's Sand & Gravel 350 W. Silverbell Road Pontiac, Michigan 48057 | [D1, F, P, S] | OAKLAND |
| Weldon's Transit Mix 1184 N. County Farm Road Harrison, Michigan 48625 | [F, BR] | CLARE |
| West Branch Sand & Gravel Co. 3350 Rau West Branch, Michigan 48661 | [D, S] | OGEMAW |
| West Shore Constr. Co., Inc. 188 Jefferson P. O. Box 77 Zeeland, Michigan 49464 | [F, P] | OTTAWA |
| Western Materials Div. of Medusa Aggregates Co. Box H 4200 S. Milford Road New Hudson, Michigan 48165 | [D1, F, P, S, BR] | OAKLAND (HMS) |

| CONSTRUCTION SAND AND GRAVEL (CONT'D.) | | |
|---|-------------------|---|
| Name of Operation | Type of Operation | County |
| Wexford County Road Comm. P. O. Box 88 Cadillac, Michigan 49601 | [F, S] | WEXFORD |
| Wheeler Transit Mix Concrete Co. Rt. #1 Box 141 Greenville, Michigan 48838 | [F, S] | MONTCALM |
| Whit Pond Gravel Company Div. of Kuert Concrete Inc. 3113 Lincoln Way West South Bend, Indiana 46628 | [D1, S, BR] | CASS |
| White, Alden & Sons Rt. #3 Box 343 Watervliet, Michigan 49098 | [F, Sh, P, BR] | BERRIEN |
| Whitehall Gravel Company 3278 Colby Road Whitehall, Michigan 49461 | | MUSKEGON |
| Whitehead, I. L., Co. 1107 W. Easterday Avenue Sault Ste. Marie, Michigan 49783 | [P] | CHIPPEWA, MACKINAC |
| Whittaker & Gooding Co. 5800 Cherry Hill Road Ypsilanti, Michigan 48197 | [Sh, S] | WASHTENAW (HMS) |
| Whittum's Gravel Company R#4 Eaton Rapids, Michigan 48827 | [F, S, BR] | EATON |
| Wiggins, Max & Sons Merritt, Michigan 49667 | [F, P] | MISSAUKEE |
| Williams Brothers Asphalt Paving Co. P. O. Box 54 Saranac, Michigan 48881 | [D1, F, P, S, BR] | HURON |
| Winkleman Excavating Company Box 16 Lewiston, Michigan 49756 | [D1, P] | MONTMORENCY |
| Worden, James P. O. Box 13 Whittemore, Michigan 48770 | | OGEMAW |
| Y Yerington Construction Co. R#2 Box 34 Benton Harbor, Michigan 49022 | [D1, P, S] | ALLEGAN, BARRY, BERRIEN, CASS, VAN BUREN |
| Z Zayti Trucking Company 47500 West Eight Mile Road Northville, Michigan 48167 | | WASHTENAW |
| Zellar's Custom Crushing 1406 S. Linden Road Flint, Michigan 48504 | [D1, P] | TUSCOLA |

- ◆ Dredging Operations
- Dune Sand Operations
- Inland Sand Operations
- ⬡ Sandstone Operations

STONE

Stone is an important Michigan product consisting mostly of limestone and dolomite with lesser amounts of sandstone, basalt and marble.

The principle limestone and dolomite quarry operations are located at Rogers City and Presque Isle in the northern Lower Peninsula and near Gulliver, Cedarville and on Drummond Island in the eastern half of the Upper Peninsula. Several steel companies own quarries which are mined mainly for flux stone in the manufacture of steel at down-lake steel centers. Other stone shipped include stone for lime burning, the manufacture of Portland cement, stone aggregate and for chemical use.

Quarries operated solely for the manufacture of Portland Cement are at Alpena, Charlevoix and Petoskey in the northern portion of the Lower Peninsula and at Dundee in the southeast part of the Lower Peninsula. Numerous smaller limestone and dolomite operations are present locally throughout much of the state where the rock is at or near enough to the surface to permit quarrying. The stone aggregate produced is largely for construction and maintenance of state and county roads.

In addition to limestone and dolomite, sandstone is quarried at Napoleon and sold for a number of uses including building front construction, flagstone and stone for retaining walls. At Rockwood a very white pure silica sandstone is quarried and sold for glass manufacture and foundry use. Other stone quarried include white marble, pink feldspar and black amphibolite. Deposits of these rocks are in Dickinson County in the Upper Peninsula. Much of the stone produced is used for landscaping purposes, with smaller quantities also being sold for terrazzo and ornamental concrete use. Basalt and waste mine rock is processed for stone aggregate material in Marquette and Ontonagon Counties in the Upper Peninsula.

Michigan ranks 7th among the states in stone production. Production during 1974 amounted to nearly 48 million tons or about 5 percent of the nations total.

LIMESTONE AND DOLOMITE

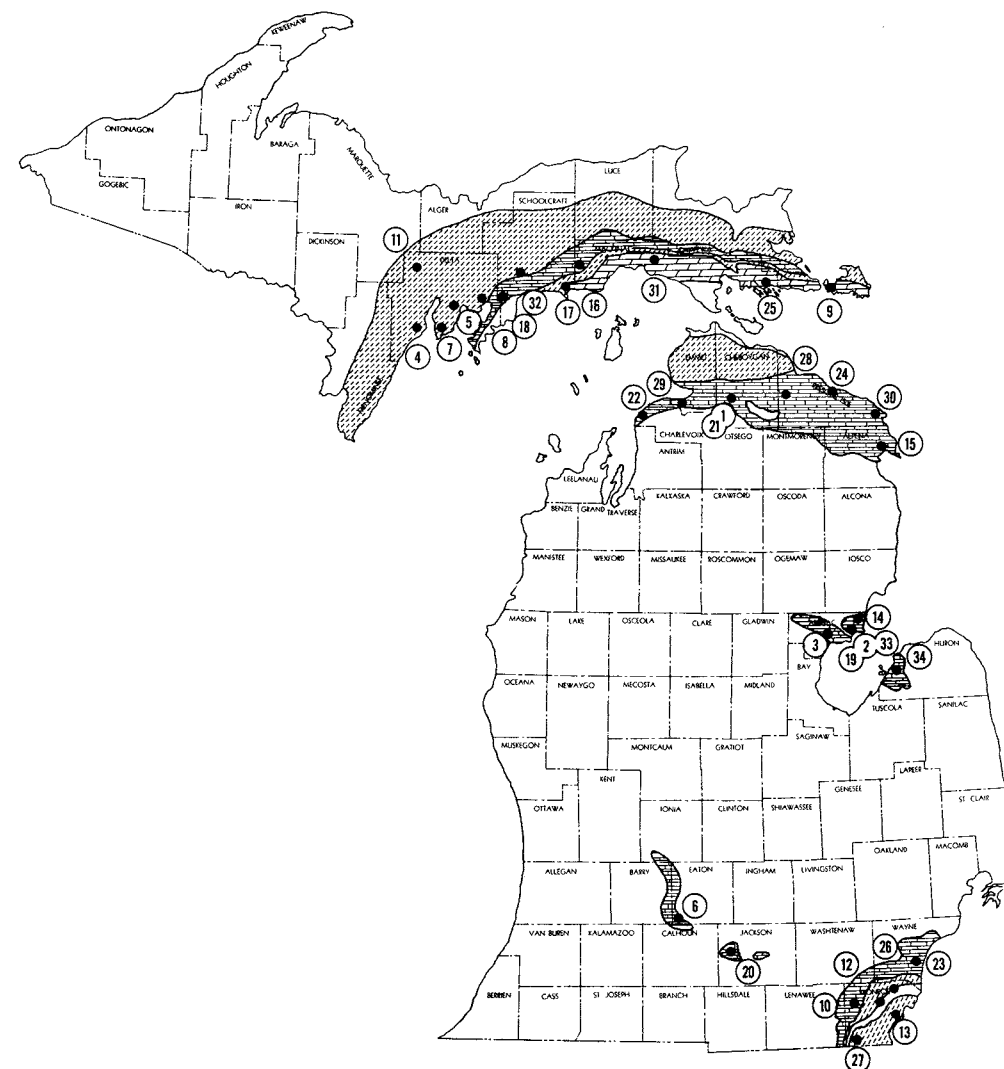
LIMESTONE AND DOLOMITE COMPANIES

| Name of Operation | Map No. | Type of Stone and use | Quarry Location |
|---|---------|--|--|
| Afton Stone Inc. Afton, Michigan 49705 | (1) | Limestone, crushed, concrete aggregate | 1 Mi. N of Afton Sec. 36, T35N, R2W <u>CHEBOYGAN COUNTY</u> |
| Arenac Co. Rd. Comm. 116 Bridge Street Omer, Michigan 48749 | (2) | Limestone, crushed, road aggregate | 3 Mi. NE of Au Gres Sec. 5, T19N, R7E <u>ARENAC COUNTY</u> |
| Bay Co. Rd. Comm. 2521 S. Huron Rd. Kawkawlin, Michigan 48631 | (3) | Limestone, crushed, construction aggregate and riprap | 3 Mi. N of Omer Sec. 34, T20N, R5E <u>ARENAC COUNTY</u> |
| Bichler Gravel & Concrete Co. Box 263 Escanaba, Michigan 49829 | (4) | Dolomite, crushed construction aggregate | 1½ Mi. N of Wells Sec. 1, T39N, R23W <u>DELTA COUNTY</u> |
| Caspian Construction Co. Caspian, Michigan 49115 | (5) | Limestone, crushed road and construction aggregate | 8½ Mi. SE of Rapid River Sec. 6, T40N, R20W <u>DELTA COUNTY</u> |
| Cheney Limestone Co. P. O. Box 6 Bellevue, Michigan 49021 | (6) | Limestone, crushed construction aggregate and agricultural | W of Bellevue Sec. 29, T1N, R6W <u>EATON COUNTY</u> |
| Delta County Rd. Comm. P. O. Box 298 Escanaba, Michigan 49829 | (7) | Dolomite, crushed road aggregate | 8½ Mi. S of Ensign Sec. 11, T39N, R21W <u>DELTA COUNTY</u> |
| Delta County Rd. Comm. P. O. Box 298 Escanaba, Michigan 49829 | (8) | Dolomite, crushed road aggregate | ½ Mi. W of Isabella Sec. 2, T40N, R19W <u>DELTA COUNTY</u> |
| Drummond Dolomite Inc. Div. of Bethlehem Steel Corp. 701 East Third St. Bethlehem, PA. 18016 | (9) | Dolomite, crushed flux stone, construction and concrete aggregate, agricultural | W end Drummond Island Secs. 3 & 10, T41N, R5E <u>CHIPPewa COUNTY</u> |
| Dundee Cement Co. P. O. Box 317 Dundee, Michigan 48131 | (10) | Limestone, crushed, cement and road aggregate | 2 Mi. N of Dundee Sec. 6, T6S, R7E <u>MONROE COUNTY</u> |
| Fox Valley Construction Co. Box 645 Appleton, Wisconsin 54911 | (11) | Dolomite, crushed road aggregate | 3 Mi. SE of Rock Secs. 11 & 24, T42N, R23W <u>DELTA COUNTY</u> |
| France Stone Co. P. O. Box 1928 Toledo, Ohio 43603 | (12) | Dolomite, crushed macadam aggregate and riprap | At Grape Sec. 13, T6S, R7E <u>MONROE COUNTY</u> |
| France Stone Co. P. O. Box 1928 Toledo, Ohio 43603 | (13) | Dolomite, crushed macadam aggregate and riprap | At Monroe Sec. 7, T7S, R9E <u>MONROE COUNTY</u> |
| Glancy, R. E. 1055 S. Bay Drive Tawas City, Michigan 48763 | (14) | Limestone, crushed, construction, concrete, and road aggregate, rip rap | 5 Mi. S of Alabaster Sec. 14, T20N, R7E <u>ARENAC COUNTY</u> |

LIMESTONE AND DOLOMITE (CONT'D.)

MICHIGAN LIMESTONE AND DOLOMITE RESOURCES AND QUARRIES

| Name of Operation | Map No. | Type of Stone and Use | Quarry Location |
|--|---------|---|---|
| Huron Cement Co. Div. Nat'l. Gypsum Co. 17515 W. Nine Mile Rd. Honeywell Center - 12th Flr. Southfield, Michigan 48075 | (15) | Limestone, cement and road aggregate | At Alpena Sec. 13, T31N, R8E <u>ALPENA COUNTY</u> |
| Inland Lime and Stone Co. Div. of Inland Steel Co. Gulliver, Michigan 49840 | (16) | Limestone, construction aggregate, cement, lime and flux | N of Port Inland Sec. 6, T42N, R12W <u>MACKINAC COUNTY</u> |
| | (17) | Dolomite, flux stone and road aggregate | W of Port Inland Sec. 2, T41N, R13W <u>SCHOOLCRAFT COUNTY</u> |
| Inwood Stone Products Co. P. O. Box 24 Cooks, Michigan 49817 | (18) | Dolomite, dimensional | 3 Mi. NE of Cooks Sec. 8, T41N, R17W <u>SCHOOLCRAFT COUNTY</u> |
| Iosco Co. Rd. Comm. 810 W. Westover Street East Tawas, Michigan 48730 | (19) | Limestone, road aggregate and riprap | 7 Mi. NE of Au Gres Sec. 24, T20N, R7E <u>ARENAC COUNTY</u> |
| Jeffrey Limestone Co. Box 126 Parma, Michigan 49269 | (20) | Limestone, agricultural | 1 Mi. NE of Parma Sec. 30, T2S, R2W <u>JACKSON COUNTY</u> |
| Limestone Products Co. 7736 Mill Street Vanderbilt, Michigan 49795 | (21) | Limestone, agricultural | 1 Mi. N of Afton Sec. 36, T35N, R2W <u>CHEBOYGAN COUNTY</u> |
| Medusa Cement Co. Div. of Medusa Corp. Box 5668 Cleveland, Ohio 44101 | (22) | Limestone, cement | 2 Mi. W of Charlevoix Sec. 28, T34N, R8W <u>CHARLEVOIX COUNTY</u> |
| Mich. Foundation Quarry Co. 110 W. Jefferson Avenue Trenton, Michigan 48183 | (23) | Limestone, construction aggregate | At Trenton Sec. 7, T4S, R11E <u>WAYNE COUNTY</u> |
| Michigan Limestone Operations Div. of U. S. Steel Corp. Rogers City, Michigan 49779 | (24) | Limestone, lime, flux, cement, chemical construction aggregate, agricultural, sugar and paper | At Rogers City Sec. 23, T35N, R5E <u>PRESQUE ISLE COUNTY</u> |
| Michigan Limestone Operations Div. of U. S. Steel Corp. Rogers City, Michigan 49779 | (25) | Dolomite, flux, lime, construction aggregate, agricultural | 4 Mi. E of Cedarville Sec. 10, T42N, R1E <u>MACKINAC COUNTY</u> |
| Michigan Stone Co. R#2 Ottawa Lake, Michigan 49267 | (26) | Dolomite, construction aggregate | ½ Mi. N of Maybee Sec. 29, T5S, R8E <u>MONROE COUNTY</u> |
| Michigan Stone Co. R#2 Ottawa Lake, Michigan 49267 | (27) | Dolomite, construction aggregate | E of Ottawa Lake Sec. 25, T8S, R6E <u>MONROE COUNTY</u> |



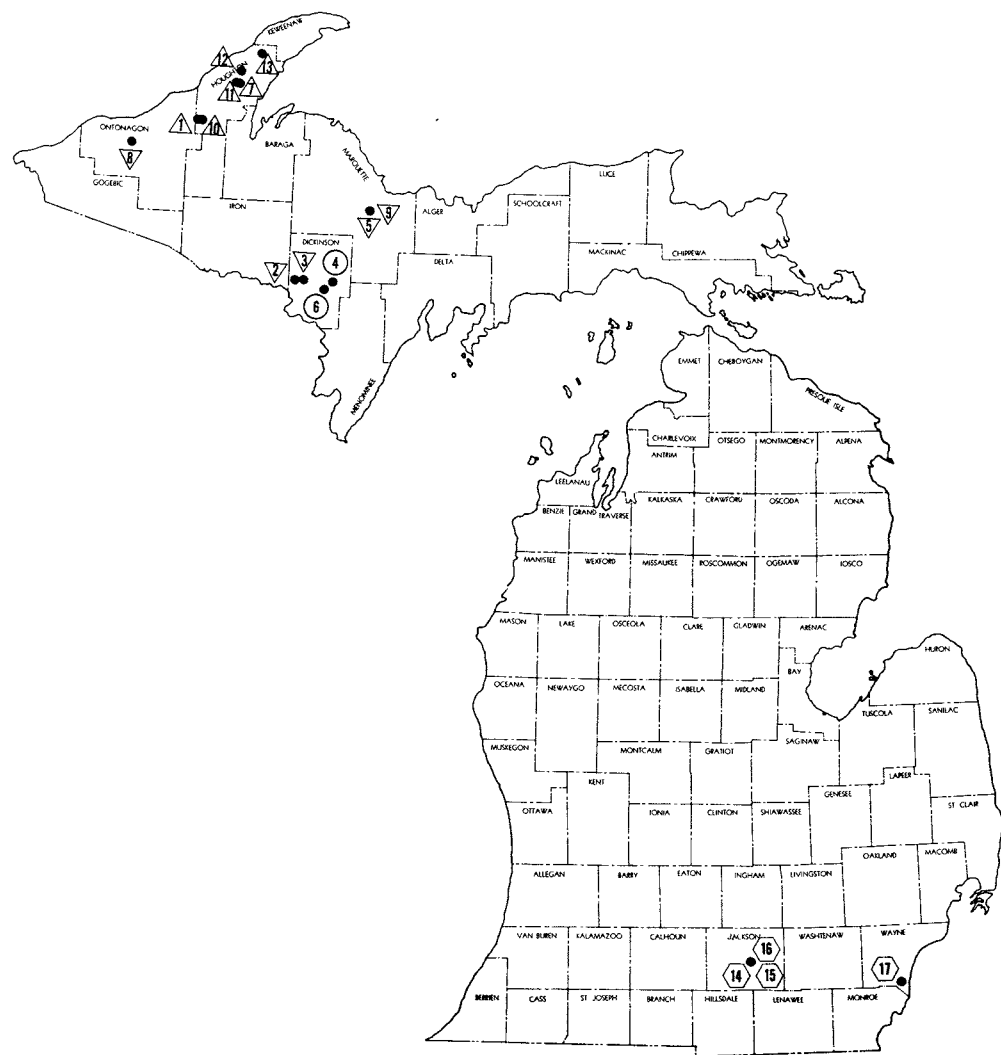
KEY

- Areas of Industrial quality dolomites
- Areas of Industrial quality limestones
- Areas of other limestones and dolomites

| LIMESTONE AND DOLOMITE (CONT'D.) | | | |
|---|---------|---|--|
| Name of Operation | Map No. | Type of Stone and Use | Quarry Location |
| Onaway Stone Co. c/o Cherryland Cut Stone Co. Route 4 Box 529 Traverse City, Michigan 49765 | (28) | Limestone, dimensional | 1 Mi. N of Onaway Sec. 5, T34N, R2E <u>PRESQUE ISLE COUNTY</u> |
| Penn-Dixie Industries Inc. P. O. Box 152 Nazareth, Penn. 18064 | (29) | Limestone, cement | 3.5 Mi. W of Petoskey Sec. 3, T34N, R6W <u>EMMET COUNTY</u> |
| Presque Isle Corp. P. O. Box 426 Alpena, Michigan 49704 | (30) | Limestone, flux, construction aggregate, lime, cement | 7 Mi. N of Lakeport Sec. 2, T33N, R8E <u>PRESQUE ISLE COUNTY</u> |
| Sand Products Corp. P. O. Box 442 St. Ignace, Michigan 49781 | (31) | Dolomite, crushed, riprap and aggregate | 7½ Mi. N of Epoufette SW Sec. 34, T44N, R7W <u>MACKINAC COUNTY</u> |
| Schoolcraft Co. Rd. Comm. P. O. Box 152 Manistique, Michigan 49754 | (32) | Dolomite, road aggregate | 4½ Mi. N of Manistique Sec. 14, T42N, R16W <u>SCHOOLCRAFT COUNTY</u> |
| Van Deusen Stone Co. Route #1 Au Gres, Michigan 48703 | (33) | Limestone, road aggregate and riprap | 3 Mi. NE of Au Gres Sec. 5, T19N, R7E <u>ARENAC COUNTY</u> |
| Wallace Stone Co. Div. J. P. Burroughs & Son, Inc. P. O. Box 1468 Saginaw, Michigan 48605 | (34) | Limestone, construction aggregate and agricultural | 3 Mi. W of Pigeon Secs. 5 & 6, T16N, R10E <u>HURON COUNTY</u> |

| MISCELLANEOUS STONE | | | |
|---|---------|--|---|
| MISCELLANEOUS STONE COMPANIES | | | |
| Name of Operation | Map No. | Type of Stone and Use | Quarry Location |
| Caspian Construction Co. 100 Caspian Avenue Caspian, Michigan 49915 | (1) | Trap rock, construction aggregate | Near Winona Sec. 30, T52N, R36W <u>HOUGHTON COUNTY</u> |
| | (2) | Feldspar, amphibolite, landscape stone | Near Randville Sec. 26, T42N, R30W |
| | (3) | | Sec. 30, T42N, R29W <u>DICKINSON COUNTY</u> |
| | (4) | Marble, landscape stone | 2½ Mi. E of Felch Sec. 26, T42N, R28W <u>DICKINSON COUNTY</u> |
| | (5) | Granite, construction aggregate | Near Palmer Sec. 22, T47N, R26W <u>MARQUETTE COUNTY</u> |
| Felch Quarry Corp. P. O. Box 97 Felch, Michigan 49831 | (6) | Marble, landscape and flux stone | ½ Mi. SE of Felch Sec. 33, T42N, R28W <u>DICKINSON COUNTY</u> |
| Hocking Construction Co. P. O. Box 488 South Range, Michigan 49963 | (7) | Trap rock, construction aggregate | 1 Mi. E of Baltic Sec. 11, T54N, R34W <u>HOUGHTON COUNTY</u> |
| | (8) | Granite, construction aggregate | Sec. 22, T50N, R41W <u>ONTONAGON COUNTY</u> |
| Hodgins & Sons P. O. Box 631 Marquette, Michigan 49855 | (9) | Granite, construction aggregate | Near Palmer Sec. 22, T47N, R26W <u>MARQUETTE COUNTY</u> |
| Houghton Co. Rd. Comm. P. O. Box 269 Hancock, Michigan 49930 | (10) | Trap rock, construction aggregate | Near Winona Sec. 29, T52N, R36W |
| | (11) | Trap rock, construction aggregate | Near Baltic Sec. 21, T54N, R34W |
| | (12) | Trap rock, construction aggregate | Near Atlantic Sec. 10, T54N, R34W |
| | (13) | Trap rock, rhyolite, construction aggregate | Near Calumet Sec. 14, T56N, R33W <u>HOUGHTON COUNTY</u> |

MICHIGAN MISCELLANEOUS STONE AND SANDSTONE OPERATIONS



KEY

MISCELLANEOUS STONE

- ▽ Granite or rhyolite
- Marble
- △ Trap rock (basalt)

SANDSTONE

- ⬡ Sandstone operations

SANDSTONE

SANDSTONE COMPANIES

| Name of Operation | Map No. | Type and use of stone | Quarry Location |
|--|---------|--|---|
| H & H Sandstone Co. 9343 Vinning Clark Lake, Michigan 49234 | (14) | Sandstone, rough dimensional | Near Napoleon <u>JACKSON COUNTY</u> |
| Jude Sandstone Co. 338 Austin Road Napoleon, Michigan 49261 | (15) | Sandstone, rough dimensional | ½ Mi. E of Napoleon Sec. 6, T4S, R2E and Sec. 31, T3S, R2E <u>JACKSON COUNTY</u> |
| Napoleon Sandstone Quarry P. O. Box 119 Napoleon, Michigan 49261 | (16) | Sandstone, dressed and rough dimensional | ½ Mi. E of Napoleon Sec. 6, T4S, R2E <u>JACKSON COUNTY</u> |
| Ottawa Silica Co. Michigan Division 33620 Streicher Road Rockwood, Michigan 48173 | (17) | Sandstone, glass and foundry use | At Rockwood Secs. 14, 15, 22 & 23 T5S, R10E <u>WAYNE COUNTY</u> |

SULFUR

| Name & Address of Producer | Nearest Town | County |
|--|--------------|----------------|
| Total-Leonard Refineries, Inc. Alma, Michigan 48801 | Alma | <u>GRATIOT</u> |
| Marathon Oil Company 1300 S. Fort Street Detroit, Michigan 48217 | Detroit | <u>WAYNE</u> |

Mineral Producers Listed By County

1975

Mineral producers are listed below by county. Location of the operation, when known, is given by section, township, and range, or nearest city to operation.

ALCONA

| | | | |
|---------------------------------------|------------------------------|-----------------|-----------------|
| Alcona Co. Road Comm. | NW NW 14 28N 8E | NW SE 23 27N 8E | Sand and gravel |
| | SW SW 12 26N 9E | NE SW 1 26N 9E | " " " |
| | SW NE 4 28N 5E | SE NE 7 26N 6E | " " " |
| | 11 26N 9E | NW NW 12 25N 6E | " " " |
| | | 14 28N 6E | " " " |
| State of Michigan | W $\frac{1}{2}$ SW 32 25N 9E | NE NE 12 25N 6E | " " " |
| | NE NW 34 27N 7E | SW SW 32 27N 5E | " " " |
| Straits Aggregate and Equipment Corp. | 10 25N 9E | 19 34N 4E | " " " |

ALGER

| | | | |
|--------------------------|------------------|------------------|-----------------|
| Alger Co. Road Comm. | NE SW 7 49N 13W | SE SE 10 49N 14W | Sand and gravel |
| | SE SE 11 47N 17W | SE NE 8 46N 17W | " " " |
| | SE NE 15 46N 19W | SW NW 6 46N 20W | " " " |
| | SE NE 32 46N 21W | SE NE 34 46N 21W | " " " |
| | NE 4 45N 21W | NE 9 45N 21W | " " " |
| | SW NE 10 45N 20W | SE NE 28 45N 21W | " " " |
| | SW 33 45N 22W | NE NE 34 45N 21W | " " " |
| | | NE 7 44N 21W | " " " |
| Caspian Construction Co. | | 24 46N 18W | Trap rock |
| Lindberg and Sons, Inc. | | 7 47N 22W | Sand and gravel |
| Moe, Arne | | 29 47N 19W | " " " |
| State of Michigan | SW NW 25 44N 21W | NE NE 11 45N 21W | " " " |
| | | NE SE 15 47N 17W | " " " |

ALLEGAN

| | | | |
|---------------------------|------------------------|----------------|-----------------|
| Arnsman, Gerald | Belden pit | 34 2N 13W | Marl |
| Brewers City Dock Inc. | Hughes Otsego, Grigsby | | Sand and gravel |
| Cash & Carry Gravel Co. | Middlemass Heath | | " " " |
| Douglas, Charles E. | | 26 4N 11W | Peat |
| Flemming Gravel Co. | | SE NE 1 3N 3W | Sand and gravel |
| Hamilton Block & Redi-Mix | | 26 3N 14W | " " " |
| Miller Sand & Gravel Co. | | 11 & 14 3N 12W | " " " |

ALLEGAN (cont't.)

| | | | |
|----------------------------|-----------------------------|-----------------|-----------------|
| Pavlak, Emil | | NE SW 12 2N 12W | Marl |
| Pickett & Schreur | W $\frac{1}{2}$ SE 24 1N 1W | NW SE 18 4N 13W | Sand and gravel |
| | Garlock & sweet pits | SW NE 34 3N 13W | " " " |
| Smith Sand & Gravel | 24 1N 12W | 17 1N 14W | " " " |
| Yerington Construction Co. | Maurer pit near Allegan | | " " " |

ALPENA

| | | | |
|-----------------------|-----------|------------------------------|--------------------|
| Alpena Aggregate Inc. | | NE SE 23 32N 8E | Sand and gravel |
| | | 32 32N 8E | " " " |
| Alpena Co. Road Comm. | 20 31N 8E | NW SW 13 30N 7E | " " " |
| | | SW 35 31N 6E | " " " |
| | | E $\frac{1}{2}$ NW 24 32N 8E | " " " |
| | | 13 32N 7E | " " " |
| Copping Trucking | | 14 32N 8E | " " " |
| Huron-Cement Co. | | NE 30 31N 7E | Shale |
| | | 24 31N 8E | Cement |
| | | 13 31N 8E | Limestone, crushed |
| State of Michigan | | NE SW 12 31N 6E | Sand and gravel |

ANTRIM

| | | | |
|------------------------|--------------|-----------------|-----------------|
| Antrim Co. Rd. Comm. | 7 29N 8W | NW NE 23 29N 8W | Sand and gravel |
| | | NE NE 2 29N 6W | " " " |
| | | SE SE 14 29N 7W | " " " |
| | | NW SW 14 30N 8W | " " " |
| | | NW SE 14 32N 8W | " " " |
| | | NW SW 24 32N 8W | " " " |
| Drenth Bros. Inc. | | | Shale |
| Medusa Cement Co. | | | Sand and gravel |
| Mich. State Hwy. Dept. | (Contractor) | | |

ARENAC

| | | | |
|-----------------------|---------|-----------------|--------------------|
| Arenac Co. Road Comm. | | NE NW 5 19N 7E | Limestone, crushed |
| | | NW SE 20 10N 3E | Sand and gravel |
| Bay County Road Comm. | Various | SE SE 34 20N 5E | Limestone, crushed |
| Eastman Gravel pit | | SW NW 36 19N 5E | Sand and gravel |
| Glancey Inc. | | 14 20N 7E | Limestone, crushed |
| Iosco Co. Road Comm. | | SW 24 20N 7E | " " " |
| Van Deusen Stone Co. | | NW 5 19N 7E | " " " |

BARAGA

| | | | |
|----------------------------|---------|---------------|-----------------|
| Baraga Co. Road Comm. | Various | 7 49N 33W | Sand and gravel |
| | | 15 48N 33W | " " " |
| | | NW 23 51N 31W | " " " |
| Caspian Construction Co. | | 24 48N 35W | " " " |
| Covington Construction Co. | | 20 48N 31W | " " " |
| Huhtala Sand & Gravel | | 22 50N 33W | " " " |
| Nurmela Sand & Gravel | | 20 48N 31W | " " " |

BARAGA (con't.)

State of Michigan SW SE 8 47N 34W SW NE 12 48N 32W Sand and gravel

BARRY

| | | | |
|------------------------------|------------------------|----------------|-----------------|
| Barry Co. Road Comm | Various | 5 3N 9W | Sand and gravel |
| Cole Gravel Co. | | NE NW 7 3N 10W | " " " |
| Cole Brothers Contr. Inc. | Various | | " " " |
| Currier, William | | NW SE 6 4N 10W | Marl |
| Hamilton, Darrell | | 6 2N 7W | " |
| Nashville Gravel Co. | | NE NW 10 1N 7W | Sand and gravel |
| Rieth-Riley Construction Co. | | 10 1N 9W | " " " |
| Stidham Gravel Co. | | SW NW 12 3N 9W | " " " |
| Sutherland, Warren | | 20 2N 9W | " " " |
| Yerington Construction | Bohn pit - Middleville | 30 4N 10W | " " " |

BAY

| | | | |
|----------------------------|---------------------------|--------------|-----------------|
| Martin-Marietta Cement Co. | | NE 14 14N 5E | Cement |
| Monitor Sugar Div. | Bay City | | Lime |
| Sargent Sand Co. | Saginaw-Bay - Erie Dredge | | Industrial sand |

BENZIE

Benzie Co. Road Comm. Various Sand and Gravel

BERRIEN

| | | | |
|------------------------------|---|--------------|-----------------|
| Burkett Construction Co. | Beaver & Olney pits | 23 7S 19W | Sand and gravel |
| Crosby Marl Co. | | 23 8S 20W | Marl |
| Kiell Excavating | | SE 15 7S 17W | Sand and gravel |
| Manley Brothers | | NE 6 6S 19W | Industrial sand |
| Martin-Marietta | | 18 6S 19W | " |
| Miller & Sons, Inc. | St. Joseph | | Sand and gravel |
| Reith-Riley Construction Co. | Rhoades pit | | " " " |
| Trautman Sand & Gravel | | 27 7S 18W | " " " |
| White & Sons Contractor | | 27 3S 17W | " " " |
| Yerington Construction | Brown, Donertz, Chamberlain & Hennesey pits | | " " " |
| | | 6 6S 17W | " " " |

BRANCH

| | | | |
|--------------------------|---------------|---------------|-----------------|
| Michigan Aggregate Corp. | Coldwater pit | 27 6S 6W | Sand and gravel |
| Taylor and Son | | 4 8S 6W | Marl |
| Thompson Constr. Co. | | SE 20 6S 6W | Sand and gravel |
| Waterbury Gravel Co. | | SW SE 4 6S 6W | " " " |

CALHOUN

| | | | |
|--------------------------------|---|----------------|-----------------|
| Calhoun Co. Road Comm. | 5 4S 7W | SW 9 3S 7W | Sand and gravel |
| | 24 & 25 4S 7W | 5 2S 4W | " " " |
| | 34 3S 6W | 32 & 33 2S 5W | " " " |
| | 14 2S 5W | SW 12 1S 6W | " " " |
| | 27 2S 6W | NE 13 4S 6W | " " " |
| Case, William | | 28 4S 7W | Marl |
| Cole Brothers Contr. Inc. | S $\frac{1}{2}$ 4 2S 8W | SW NW 25 4S 6W | Sand and gravel |
| | NE NE 34 3S 6W | NE 17 3S 4W | " " " |
| Combs Grav. & Ready-Mix | | SW SE 18 3S 4W | " " " |
| Hoffman Brothers Sand & Gravel | | 11 2S 8W | " " " |
| Michigan Aggregates Corp. | | SE SW 12 1S 6W | " " " |
| Miller and Sons | NE SE 5 4S 7W | SE SW 5 2S 4W | " " " |
| Rieth-Riley Const. | Blanchard, Hannah, Paulsen, Reid, Verhest, Ziebell pits | | " " " |
| Yerington Const. | | SE SE 32 2S 5W | " " " |
| | | NW NW 35 3S 6W | " " " |

CASS

| | | | |
|-------------------------------|--------------------------------------|-----------------|-----------------|
| Burkett Const. Co. | Unknown | | Sand and gravel |
| Cass Co. Road Comm. | Various | NW SE 19 6S 16W | " " " |
| Indiana Hwys. Materials, Inc. | | NW SW 1 8S 16W | " " " |
| Miller and Sons | Unknown | | " " " |
| Nieb Concrete Prod. | | NW NW 15 7S 16W | " " " |
| Pipher's Marl Service | | 15 5S 14W | Marl |
| Poehlman & Sons | | 13 7S 16W | " |
| Rieth-Riley Const. | Lemna, Norris, Milliken, Murphy pits | | Sand and gravel |
| Three S Gravel Co. | Three S pit near Niles | | " " " |
| Whit Pond Gravel Co. | | NW NW 23 6S 15W | " " " |
| Yerington Construction | Silver Creek pit | NW SE 10 5S 16W | " " " |

CHARLEVOIX

| | | | |
|--------------------------------------|------------------|------------------|-----------------|
| Bartlett, Norman | | NE SW 30 32N 6W | Sand and gravel |
| Charlevoix Co. Rd. Comm. | Various | | " " " |
| Hodgkiss and Duoma, Inc. | | 2 34N 7W | " " " |
| Medusa Cement (Div. of Medusa Corp.) | | SW 28 34N 8W | Cement |
| Smith Sand & Gravel | | NE NW 28 32N 7W | Sand and gravel |
| State of Michigan | NW NW 6 33N 4W | NW NW 31 33N 4W | " " " |
| | SW SW 36 33N 4W | NW SE 31 34N 8W | " " " |
| | SW SW 11 37N 10W | SE SE 13 37N 11W | " " " |
| | SW SW 21 38N 10W | NW NW 27 38N 10W | " " " |
| | | SE NE 35 38N 10W | " " " |

CHEBOYGAN

| | | | |
|----------------------------|--------------------------|-----------------|--------------------|
| Afton Stone Inc. | | 36 35N 2W | Limestone, crushed |
| Cheboygan Cement Prod. | | SW SW 14 37N 1W | Sand and gravel |
| Cheboygan County Rd. Comm. | Indian Trail, Rhoda pits | | " " " |
| | Knaffle pit | 36 38N 3W | " " " |
| Dean & Sons | Skuse pit | SW 19 34N 2W | " " " |

CHEBOYGAN (con't.)

| | | | |
|------------------------|--|-----------------|--------------------|
| Limestone Products Co. | | SE 36 35N 2W | Limestone, crushed |
| State of Michigan | | NE NW 10 35N 1E | Sand and gravel |

CHIPPEWA

| | | | |
|-------------------------|-----------------|-----------------|-------------------|
| Drummond Dolomite, Inc. | | 10 41N 5E | Dolomite, crushed |
| Fox Valley Const. Co. | Paradise pit | | Sand and gravel |
| Gordon, James A. | | 23 47N 1W | " " " |
| Montero Excavation Inc. | | NW NW 24 47N 1W | " " " |
| Sanderson, C. G. | 10 44N 1W | NW NW 24 47N 1W | " " " |
| State of Michigan | SE SW 3 41N 6E | NW SW 20 42N 6E | " " " |
| Whitehead, I. L., Co. | Lutz pit | NW NW 25 47N 1W | " " " |
| | SE SW 35 48N 7W | 23 45N 2W | " " " |
| | | NE NE 23 47N 1W | " " " |

CLARE

| | | | |
|--------------------------|---------------|-----------------|-----------------|
| Clare Co. Road Comm. | Various | | Sand and gravel |
| Fisher Sand & Gravel | | NE NE 10 18N 4W | " " " |
| Hubscher & Son, Inc. | | SE SE 32 17N 3W | " " " |
| Niemi & Company, Inc. | | 29 19N 4W | " " " |
| Tri County Sand & Gravel | McCulloch pit | NW NW 2 18N 4W | " " " |
| Weldons Transit Mix | | SE SE 33 19N 4W | " " " |

CLINTON

| | | | |
|---------------------------------|----------------------------------|----------------|-----------------|
| Boichot Concrete Prod. Corp. | 3 5N 2W | NW NW 27 5N 2W | Sand and gravel |
| Central Mich. Sand & Gravel Co. | | NE SW 3 5N 2W | " " " |
| Dyer Company | | 11 7N 1W | " " " |
| Grand Ledge Clay Prod. Co. | Fitzpatrick pit near Carson city | | " " " |
| Karber Gravel Co. | | NE SW 34 5N 4W | Shale |
| Martin Aggregates Inc. | | SE NW 34 8N 2W | Sand and gravel |
| Pryor Bros. Gravel Co. | | 25 8N 2W | " " " |
| Schlegel, Carl Inc. | | SE SE 29 5N 4W | " " " |
| Spartan Aggregates | Smith pit | 31 8N 1W | " " " |
| Standard Aggregate Co. | | NW 36 8N 2W | " " " |
| Stockwell Sand & Gravel | | 27 8N 3W | " " " |
| Weaver Gravel Co. | | 31 8N 1W | " " " |

CRAWFORD

| | | | |
|-------------------|---------|------------------|-----------------|
| Hamlin Excavating | Unknown | | Sand and gravel |
| Millikin, Jack | | NE NE 16 25N 3W | " " " |
| State of Michigan | | SW NW 27 25N 2W | " " " |
| | | NE NE 16 25N 3W | " " " |
| | | NE SE 20 22N 11W | " " " |
| | | SW NE 15 28N 4W | " " " |

DELTA

| | | | |
|---------------------------|------------------|-------------------------------|-------------------|
| Bichler Gravel & Concrete | | NE 1 39N 23W | Limestone |
| | | E $\frac{1}{2}$ NE 14 40N 23W | Sand and gravel |
| Caspian Construction Co. | | SW 6 40N 20W | Dolomite, crushed |
| | | 24 40N 22W | Sand and gravel |
| Delta Co. Road Comm. | | SE SW 11 39N 21W | Dolomite, crushed |
| | NE NE 5 38N 24W | SW NE 12 29N 23W | Sand and gravel |
| | NW NW 30 38N 19W | NW SE 17 40N 21W | " " " |
| | SW SW 19 38N 24W | NE NE 14 40N 23W | " " " |
| | | NE NW 8 40N 23W | " " " |
| Fox Valley Const. Co. | 24 42N 23W | 11 42N 23W | Dolomite, crushed |
| Holmberg, Gunnar F. | | 15 40N 22W | " " " |
| Jaegger Brothers | | 14 40N 23W | Sand and gravel |
| Marvic and Sons | 14 40N 23W | 27 39N 24W | " " " |
| Paquin & Sons Inc. | 5 41N 23W | 16 40N 23W | " " " |

DICKINSON

| | | | |
|------------------------------|------------------|------------------|-----------------|
| Caspian Construction Co. | | NW NW 26 42N 30W | Feldspar |
| | SE SW & | SW SE 30 42N 29W | Amphibolite |
| | | SE SW 26 42N 28W | Marble, crushed |
| | SW SW 25 41N 28W | NE SW 12 39N 30W | Sand and gravel |
| | 7 39N 27W | NE NE 19 40N 30W | " " " |
| Champion, Inc. | | NE NE 19 40N 30W | " " " |
| Fayas & Sons, Inc. | | 5 39N 30W | " " " |
| Felch Quarry Corp. | | 33 42N 28W | Marble, crushed |
| Groveland Mine | Open pit | 31 42N 29W | Iron Ore |
| Lindberg & Sons, Inc. | | 18 40N 30W | Sand and gravel |
| Miller Products & Supply Co. | | NW SW 7 40N 30W | " " " |
| State of Michigan | SE SE 35 40N 28W | SW SW 30 41N 29W | " " " |

EATON

| | | | |
|---------------------------|----------------------------------|---------------|--------------------|
| Briggs Ready Mix & Gravel | | SE 13 2N 5W | Sand and gravel |
| Cheney Limestone Co. | | NE 29 1N 6W | Limestone, crushed |
| Crandall Trucking Co. | | 4 3N 4W | Sand and gravel |
| Grand Ledge Clay Products | | SE 3 4N 6W | Shale |
| Hilu Peat Co. | | 21 2N 4W | Peat |
| Michigan Aggregate Corp. | Pit #3 - Olivet | | Sand and gravel |
| Rays Aggregate Co. | | 27 2N 4W | " " " |
| Reith-Riley Const. Co. | Almy - Nye, Nelson, Royston pits | | " " " |
| | | 32 1N 5W | " " " |
| Spartan Aggregates | Unknown | | " " " |
| Whittum's Gravel Co. | | SE NE 5 1N 3W | " " " |

EMMET

| | | | |
|--------------------------|-----------------|-----------------|-----------------|
| Blumke Excavating Co. | | 16 35N 4W | Sand and gravel |
| Charley's Service | | 12 35N 6W | " " " |
| Emmet Co. Road Comm. | SW NW 20 36N 4W | NW NW 27 38N 4W | " " " |
| | NW SE 7 35N 4W | SE SW 34 38N 4W | " " " |
| | NW NE 25 35N 5W | NE NW 17 27N 5W | " " " |
| | SE NW 14 28N 5W | SE 34 35N 4W | " " " |
| Hodgkiss and Duoma, Inc. | | 22 36N 5W | " " " |

EMMET (con't.)

| | | |
|-----------------------------|-----------|-----------------|
| Koboski Coal Co. | 30 35N 5W | Sand and gravel |
| Northern Concrete Prod. Co. | 15 35N 5W | " " " |
| Penn-Dixie Industries | 2 34N 6W | Cement |
| | 3 34N 6W | Limestone |
| | 8 34N 6W | Shale |
| Snider Construction Co. | 2 37N 4W | Sand and gravel |

GENESEE

| | | | |
|----------------------------|--------------------|--------------------------|-----------------|
| Holloway Sand & Gravel Co. | Genesee County pit | 3 9N 8E | Sand and gravel |
| Mathews Gravel, H. C. | | S $\frac{1}{2}$ 7 8N 8E | " " " |
| Neuman Sand & Gravel | | W $\frac{1}{2}$ 23 8N 5E | " " " |
| Otisville Stone Co. | | N $\frac{1}{2}$ 22 9N 8E | " " " |
| Saginaw Aggregate Co. | | 2 9N 8E | " " " |
| Snellenberger Gravel Co. | | SE 16 9N 5E | " " " |

GLADWIN

| | | | |
|-------------------|----------------|-----------------|-----------------|
| Glancy, R. G. | Villeneuve pit | | Sand and gravel |
| State of Michigan | | SW SE 10 20N 2W | " " " |

GOGEBIC

| | | | |
|-----------------------------|---------------|------------------|-----------------|
| Caspian Construction Co. | | 4 46N 42W | Sand and gravel |
| Fox Valley Construction Co. | Marenesco pit | | " " " |
| Globe Industries, Inc. | | NW NE 10 47N 47W | " " " |
| Gogebic Co. Road Comm. | Various | | " " " |
| Greenthumb Greenhouse | Unknown | | " " " |

GRAND TRAVERSE

| | | | |
|---------------------------------|-------------|------------|-----------------|
| Beeman Trucking | | 36 12N 12W | Sand and gravel |
| Concrete Services Inc. | 8 27N 11W | 5 27N 11W | " " " |
| Grand Traverse County Rd. Comm. | 9 27N 11W | 14 25N 12W | " " " |
| Lamar Gravel Co. | | 27 26N 11W | " " " |
| Long Lake Gravel | Haywood pit | | " " " |
| Schworm & Son, Inc. | Harris pit | | " " " |

GRATIOT

| | | | |
|-----------------------|-----------------|-----------------|-----------------|
| Gratiot Co. Rd. Comm. | | 29 11N 4W | Sand and gravel |
| | 1 9N 2W | 11 8N 4W | " " " |
| | 12 11N 3W | 16 1N 3W | " " " |
| | NE NE 3 12N 4W | NE SW 29 12N 3W | " " " |
| | SE NW 17 11N 1W | NW SE 10 11N 1W | " " " |

GRATIOT (con't.)

| | | | |
|-------------------------|-----------------|-----------------|--|
| Gratiot Co. Rd. Comm. | NE SW 33 11N 4W | SW NW 22 12N 4W | Sand and gravel |
| (con't.) | NE NW 10 11N 4W | SE SE 13 12N 3W | " " " |
| | NW NW 29 12N 3W | SE NW 24 12N 2W | " " " |
| | SE SW 23 12N 2W | SE NE 23 12N 2W | " " " |
| | NE NW 21 12N 1W | NW SE 31 12N 1W | " " " |
| | NE SE 31 12N 1W | SW SE 2 9N 1W | " " " |
| Hubscher & Son | NE SE 34 11N 4W | 3 10N 4W | " " " |
| Michigan Chemical Corp. | | 24 12N 3W | Bromine, Calcium chloride, Calcium-Magnesium Chloride, Magnesium Compounds, Salt |
| P. & B. Gravel (3 pits) | | 8 10N 1W | Sand and gravel |
| | 10 10N 1W | NW SE 9 10N 1W | " " " |
| Roslund Gravel Co. | 19 11N 4W | NW NE 36 12N 3W | " " " |
| Total-Leonard Inc. | Alma | | Sulfur |

HILLSDALE

| | | | |
|--------------------------|---------|-------------------|-----------------|
| Burkett Construction Co. | Unknown | | Sand and gravel |
| Hillsdale Co. Rd. Comm. | Various | | " " " |
| Hoover Brothers | | NE SE 23 8S 2W | " " " |
| Michigan Aggregates | | NE 7 & NW 8 5S 1W | " " " |
| Miller Brothers Const. | | 23 9S 2W | " " " |
| Quality Aggregate Co. | | SE 3 7S 1W | " " " |

HOUGHTON

| | | | |
|------------------------------|-----------------|------------------|-----------------|
| Caspian Construction Co. | | 19 47N 35W | Sand and gravel |
| | | 30 52N 36W | Crushed basalt |
| Gedvillas and Schnabel Corp. | | 28 54N 39W | Sand and gravel |
| Gunlach, Herman | | 17 48N 25W | " " " |
| Haltunen Sand & Gravel | | 5 56N 32W | " " " |
| Hocking Construction Co. | 11 54N 34W | 33 54N 34W | Crushed basalt |
| Homestake Copper Co. | | 12 56N 33W | Native Copper |
| Houghton Co. Rd. Comm. | 14 54N 34W | NW 21 54N 34W | Crushed basalt |
| | C SE 10 54N 34W | NW SE 29 52N 36W | " " " |
| Lake Linden, Village of | Haltunen pit | 5 56N 32W | Sand and gravel |
| Superior Sand & Gravel | | NE SW 27 55N 34W | " " " |

HURON

| | | | |
|-------------------------|-----------|------------------|-----------------|
| Brade Ready-Mix | | 16 16N 13E | Sand and gravel |
| Czewski, Len | | 16 15N 13E | " " " |
| Huron Co. Rd. Comm. | | SE SE 17 16N 13E | " " " |
| Michigan Sugar Co. | Sebewaing | | Lime |
| Strasberg, Frank & Sons | | 16 31N 16E | Sand and gravel |
| Tanton Ready-Mix | | 4 15N 13E | " " " |
| Vollmer Sand & Gravel | | NE SE 20 15N 11E | " " " |

HURON (con't.)

| | | | |
|--------------------------------------|---------|---|------------------------------------|
| Wagner Ready-Mix | | SE 29 16N 13E | Sand and gravel |
| Wallace Stone Co. | | E $\frac{1}{2}$ E $\frac{1}{2}$ SW 27 16N 15E | " " " |
| Div. J. P. Burroughs | | 5 & 6 16N 10E | Limestone, crushed and dimensional |
| Williams Brothers Asphalt Paving Co. | Various | | Sand and gravel |

INGHAM

| | | | |
|---------------------------|----------------|----------------------------|-----------------|
| Barr Sand & Gravel, Inc. | | SE SW 25 2N 1W | Sand and gravel |
| Builders Redi-Mix, Inc. | 2 4N 2W | 11 3N 2W | " " " |
| Burkett Construction Co. | Unknown | SW SE 34 4N 2W | " " " |
| Fiser Supply Co. | | 10 2N 2E | " " " |
| Ingham Co. Road Comm. | 17 4N 1E | 25 2N 2W | " " " |
| | 7 4N 2E | 26 2N 2E | " " " |
| | 28 1N 1W | 18 3N 2E | " " " |
| | 35 5N 1W | 8 2N 1W | " " " |
| | 36 2N 2E | 1 2N 7E | " " " |
| | 31 3N 2W | 18 3N 2E | " " " |
| | 35 1N 3W | 8 1N 2E | " " " |
| | 11 2N 2W | 3 2N 1E | " " " |
| | 34 3N 1E | 10 2N 1E | " " " |
| | 20 1N 1E | 31 3N 2W | " " " |
| | 16 1N 2W | 7 2N 2W | " " " |
| Jolly Road Sand Co. | | 34 4N 1W | " " " |
| Luoma Sand & Gravel | SW NW 29 3N 2W | C N $\frac{1}{2}$ 12 2N 2W | " " " |
| Pitchford Sand & Gravel | Unknown | 2 4N 2W | " " " |
| Schlegal, Inc. | | 11 2N 2W | " " " |
| Sniders Gravel Processing | | 16 2N 1W | " " " |
| Spartan Aggregates | Scarlett | | " " " |
| Weaver Gravel Co. | NE SE 24 2N 2W | SE SW 24 2N 2W | " " " |
| | NE NE 34 3N 1E | SE NW 23 2N 1E | " " " |
| | | NE SE 10 3N 1E | " " " |
| Wicker's Inc. | | 7 4N 2W | Peat |

IONIA

| | | | |
|------------------------------|--------------------|----------------|-----------------|
| Binns Gravel & Ready-Mix Co. | | 27 5N 5W | Sand and gravel |
| Cole Brothers | | SW NW 19 8N 5W | " " " |
| Crandell, Trucking | 15 2N 6W | 27 5N 5W | " " " |
| Ionia Co. Road Comm. | NW NE 33 7N 7W | SE SE 8 6N 5W | " " " |
| | SE NE 24 5N 7W | SE SW 18 5N 5W | " " " |
| | NE SW 15 7N 5W | NW SW 27 6N 5W | " " " |
| | | 36 5N 8W | " " " |
| Pickett & Schreur | Teaker pit - Ionia | | " " " |
| Reith-Riley Const. Co. | Adgate pit - Lyons | | " " " |

IOSCO

| | | | |
|---------------------|---------|-----------------|-----------------|
| R. E. Glancy, Inc. | | SE SW 10 24N 5E | Sand and gravel |
| Iosco Co. Rd. Comm. | Various | | " " " |
| Michigan Gypsum Co. | | 31 21N 5E | Gypsum |
| National Gypsum Co. | | 26 & 35 22N 6E | " |
| U. S. Gypsum Co. | | 22 & 27 21N 7E | " |

IRON

| | | | |
|-----------------------|------------------|-------------------------------|-----------------|
| Caspian Constr. Co. | | 36 43N 31W | Sand and gravel |
| | NW NE 31 43N 35W | S $\frac{1}{2}$ SW 22 43N 35W | " " " |
| Inland Steel Co. | | 23 43N 35W | Iron Ore |
| Iron Co. Road Comm. | NE NE 18 43N 32W | 22 43N 34W | Sand and gravel |
| | NE NW 14 42N 35W | SE SW 25 44N 34W | " " " |
| | | 16 42N 33W | " " " |
| Lindberg & Sons, Inc. | | 35 44N 37W | " " " |
| Proksch Const. Co. | | 26 43N 35W | " " " |

ISABELLA

| | | | |
|--------------------------|-----------------|------------------------------|-----------------|
| Fisher Sand & Gravel Co. | 32 17N 3W | NW 12 14N 3W | Sand and gravel |
| Hubscher & Son | SW SW 4 16N 3W | E $\frac{1}{2}$ SW 20 14N 5W | " " " |
| Isabella Co. Rd. Comm. | SW NW 25 14N 6W | SE NE 19 16N 6W | " " " |
| | SW SW 27 14N 6W | SW SE 6 16N 3W | " " " |
| | SE SW 14 14N 5W | NE SE 27 15N 6W | " " " |
| | NE NE 25 14N 5W | NW SE 19 15N 5W | " " " |
| | SE SE 21 13N 6W | SW NE 5 15N 3W | " " " |
| | SE NE 26 13N 6W | SW NE 14 14N 6W | " " " |
| | | NE SW 8 13N 3W | " " " |
| Isabella Sand & Gravel | Unknown | | " " " |
| McGuirk & Sons | Unknown | | " " " |
| Pickitt & Schreur, Inc. | Various | | " " " |

JACKSON

| | | | |
|--------------------------|-------------------|----------------|-----------------|
| Cole Brothers Contr. Co. | Unknown | | Sand and gravel |
| H & H Sandstone Co. | Napoleon | | Sandstone |
| Jeffrey Limestone Co. | | SE 30 2S 2W | Limestone |
| Jude Sandstone Qy. | | NW NE 6 4S 2E | Sandstone |
| | | SW SE 31 3S 2E | " " |
| Klumpp Bros. Gravel Co. | | SE SE 1 2S 2E | Sand and gravel |
| Napoleon Sandstone Qy. | | NW NE 6 4S 2E | Sandstone |
| Palmer Sand & Gravel | | SW NW 8 3S 1E | Sand and gravel |
| Pickett & Schreur, Inc. | | 34 3S 3W | " " " |
| | | 24 3S 3W | " " " |
| Richardson Asphalt | Richardson Pit #1 | | " " " |
| Spartan Aggregates | Unknown | | " " " |
| Stevick Gravel Co. | Cement City | | " " " |

KALAMAZOO

| | | | |
|---------------------------|------------------------|-----------------|-----------------|
| American Aggregates Corp. | | SW NW 15 1S 11W | Sand and gravel |
| Balkema Sand & Gravel | | SE SE 17 2S 10W | " " " |
| Burkett Construction Co. | Unknown | | " " " |
| Cole Bros. Contr. Inc. | | NW NE 7 2S 9W | " " " |
| Consumers Sand & Gravel | | SE NE 13 2S 11W | " " " |
| Hayward Dry Marl | | 8 4S 10W | Marl |
| Miller and Son | Unknown | | Sand and gravel |
| Peters Constr. Co. | | SW NE 7 2S 11W | " " " |
| Pickett & Schreur | Pettiford pit - Climax | | " " " |
| Snyder & Sons Gravel Co. | Galesburg | | " " " |
| Stony Lake Sand & Gravel | | NE NE 22 1S 9W | " " " |
| Taylor and Son, Inc. | | | Peat |

KALKASKA

| | | | |
|-------------------|--|-----------------|-----------------|
| State of Michigan | | NE NW 31 27N 5W | Sand and gravel |
|-------------------|--|-----------------|-----------------|

KENT

| | | | |
|--------------------------|-------------------------|-------------------------------|-----------------|
| Coit Ave. Gravel Co. | | NE SE 29 8N 11W | Sand and gravel |
| Contractor's Gravel Co. | Sparta | | " " " |
| Cousineau Gravel | | 8 6N 10W | " " " |
| DeVries & Sons | | NE 22 7N 12W | " " " |
| Georgia-Pacific Corp. | | NW 24 6N 11W | Gypsum |
| Gillisse Constr. Co. | | 4 6N 12W | Sand and gravel |
| Grand Rapids Gravel Co. | E $\frac{1}{2}$ NW & SW | NE 16 6N 12W | " " " |
| | | 26 8N 11W | " " " |
| | | 5 6N 12W | " " " |
| | | 34 6N 12W | Gypsum |
| Grand Rapids Gypsum Co. | | NW NE 31 7N 10W | Sand and gravel |
| Great Lakes Gravel Co. | SW SE 36 5N 9W | NW SE 32 5N 11W | " " " |
| Kent Co. Road Comm. | NE SE 20 6N 9W | NE NE 17 6N 9W | " " " |
| | SW NE 5 6N 12W | NE NE 32 7N 11W | " " " |
| | NW SW 26 7N 11W | NW 8 7N 12W | " " " |
| | NE NW 13 8N 11W | SW NE 23 10N 11W | " " " |
| | NE SE 13 10N 12W | SE SW 11 10N 12W | " " " |
| | | NW 15 10N 12W | " " " |
| Miller, Paul C. | | NE SW 19 8N 11W | " " " |
| Northeast Gravel & Exc. | | NE SW 24 8N 11W | " " " |
| Petersen Gravel & Exc. | NW 13 8N 11W | SW SW 12 8N 11W | " " " |
| Pickett & Schreur Inc. | NE NE 25 9N 11W | SW SE 23 8N 11W | " " " |
| | SE NE 35 9N 11W | W $\frac{1}{2}$ NE 32 8N 11W | " " " |
| | 19 7N 9W | NE NE 10 6N 9W | " " " |
| | 7 6N 10W | NE NW 6N 9W | " " " |
| | 28th Street | SW NW 1 8N 9W | " " " |
| | Bliss & Katz pits | N $\frac{1}{2}$ NW 24 10N 11W | " " " |
| | Cannonsburg | NE 20 7N 10W | " " " |
| | Finkler - Cascade | | " " " |
| | Able, Pettis pits | | " " " |
| Rieth-Riley Constr. Co. | | SE SE 33 7N 12W | " " " |
| Riverside Sand & Gravel | | 4 & 9 1N 12W | " " " |
| Rocks Ready Mix Concrete | | 6 6N 9W | " " " |
| Tip-Top Gravel Co. | | | " " " |

KENT (con't.)

| | | | |
|---------------------------|----------------|----------|-----------------|
| Velting Contractors, Inc. | Burton St. pit | 3 7N 11W | Sand and gravel |
| | Grand Rapids | | Peat |

KEWEENAW

| | | | |
|-------------------------|-----------------|-----------------|-----------------|
| Keweenaw Co. Road Comm. | 27 57N 32W | NW NW 8 58N 30W | Sand and gravel |
| | SE SE 5 57N 32W | SW SW 8 57N 32W | " " " |

LAKE

| | | | |
|-----------------------|------------------|------------------|-----------------|
| Lake Co. Road Comm. | SE NE 23 18N 13W | NE SW 21 19N 14W | Sand and gravel |
| | SE NE 29 17N 12W | SE NW 12 19N 12W | " " " |
| Sievert Brothers Inc. | | 3 20N 14W | " " " |

LAPEER

| | | | |
|---------------------------|----------------------------|-----------------|--------------------------------|
| Allied Chemical Corp. | | 16 7N 11E | Sand and gravel |
| Anderson Peat Co. | | NE SE 23 7N 12E | Peat |
| Bollon Sand & Gravel Co. | | 8N 10E | Sand and gravel |
| Corey & Hartwig | | SW 20 7N 10E | " " " |
| Elba Gravel Co. | | 20 8N 9E | " " " |
| John R. Sand & Gravel Co. | Metamora pit | 10 6N 10E | " " " |
| Lapeer Co. Road Comm. | NW SW 21 7N 11E | SE NE 18 9N 11E | " " " |
| | | NW 27 9N 12E | " " " |
| Molesworth Contr. Co. | County pit | | " " " |
| NAPCO Aggregate Co. | | 33 6N 12E | " " " |
| Pickett and Schreur | Metamora pit, Robinet pit, | | " " " |
| | Allied Chemical pit | | " " " |
| St. Clair Co. Road Comm. | SE SE 27 9N 12E | NW NW 5 6N 11E | " " " |
| Soulliere Peat & Sod Co. | | SW SW 25 7N 12E | Peat |
| Wilkinson Chemical Co. | | 21 10N 10E | Chloride, Calcium Magnesium |

LEELANAU

| | | | |
|------------------------------|------------|------------------|-----------------|
| A and B Gravel Co. | | 17 29N 12W | Sand and gravel |
| Binns Gravel & Ready Mix Co. | | 27 5N 5W | " " " |
| Leelanau Co. Road Comm. | 28 30N 12E | SW SW 22 28N 13W | " " " |
| Peninsula Asphalt Corp. | | NE NW 16 28N 13W | " " " |
| Traverse City Sand & Gravel | | 35 28N 12W | " " " |

LENAWEE

| | | | |
|---------------------------|---------------|---------------|-----------------|
| Adrian Sand & Gravel | NE SE 4 6S 4E | SE 16 7S 3E | Sand and gravel |
| Brady Sand & Gravel | | SE 32 5S 4E | " " " |
| Burkett Construction Co. | | SE SE 4 6S 4E | " " " |
| Cole Brothers Contr. Inc. | 35 5S 1E | 25 5S 1E | " " " |

LENAAWEE (con't.)

| | | |
|--------------------------|----------------|-----------------|
| Comfort Brick & Tile Co. | SE 2 6S 4E | Clay |
| Irish Hills Gravel Co. | 25 5S 1E | Sand and gravel |
| Klumpp Bros. | SE NW 8 5S 1E | " " " |
| Stamm Bros. Gravel Co. | SW NE 19 7S 3E | " " " |
| Tecumseh Gravel Co. | SW NE 4 6S 4E | " " " |

LIVINGSTON

| | | |
|---------------------------------|-------------------------------|-----------------|
| Albert Sand & Gravel | SW NE 6 3N 3E | Sand and gravel |
| American Aggregates Corp. | NE 24 2N 6E NE NE 11 1N 6E | " " " |
| Bennett Excavating & Gravel Co. | 33 & 34 1N 5E | " " " |
| Bentley Sand & Gravel | SE NW 5 4N 6E | " " " |
| D. & J. Gravel Co. | SW SW 32 3N 4E | " " " |
| Fenton Gravel Co. | NE SE 2 4N 6E SW NE 2 1N 3E | " " " |
| Livingston Co. Road Comm. | SW NE 30 1N 6E SW NE 31 4N 6E | " " " |
| | NW NW 26 2N 4E | " " " |
| | SW SW 11 4N 5E NW SW 14 4N 6E | " " " |
| | NW NW 36 4N 5E SE SW 13 3N 4E | " " " |
| | NE SW 33 3N 5E NE SW 24 3N 6E | " " " |
| | SW SE 23 2N 5E NW SE 32 2N 5E | " " " |
| | SE NE 21 2N 4E NW NW 5 2N 3E | " " " |
| | NW SW 19 2N 3E NE NE 20 1N 3E | " " " |
| | SW SW 14 1N 4E SE NE 12 1N 4E | " " " |
| Morgan Sand & Gravel | 9 2N 6E | " " " |
| Natural Aggregates Corp. | NE 24 2N 6E | " " " |
| Oakland Transport, Inc. | Kensington pit 23 2N 6E | " " " |
| Reyhl Sand & Gravel | 29 2N 6E | " " " |
| Standard Gravel Co. | 11 1N 6E | " " " |

LUCE

| | | | |
|---------------------|-----------------|-----------------|-----------------|
| Brow, Gene Constr. | Brow No. 2 pit | 24 45N 11W | Sand and gravel |
| Luce Co. Road Comm. | | 11 45N 11W | " " " |
| State of Michigan | NE SW 20 48N 8W | NW NW 17 48N 8W | " " " |
| | | SE NE 3 49N 11W | " " " |

MACKINAC

| | | |
|--------------------------------|-----------------------|--------------------|
| Abram, Rueben | 13 43N 12W | Sand and gravel |
| AROCO | 17 43N 10W | " " " |
| Baws & Beacon Co. | 35 43N 1W | " " " |
| Huyck Excavating Co. | 36 43N 1W | " " " |
| Inland Lime & Stone Co. | 6 42N 12W | Limestone, crushed |
| Lake Construction Co. | Lake Construction pit | Sand and gravel |
| Mackinac County Rd. Comm. | Various | " " " |
| Mangene, Mike Inc. | SW SE 5 42N 1W | " " " |
| Mich. Limestone Operation, | | |
| U. S. Steel, Cedarville Quarry | 10 42N 1E | Limestone, crushed |

MACKINAC (con't.)

| | | |
|------------------------|------------------|-----------------|
| Newberry Ready-Mix Co. | 18 42N 11W | Sand and gravel |
| Sand Products Corp. | SW 34 44N 7W | Dolomite |
| State of Michigan | SE NE 30 42N 12W | Sand and gravel |
| | SE SE 19 43N 12W | " " " |
| Vertz, Fred | 11 45N 11W | " " " |
| Whitehead, I. L. Co. | SE SW 19 42N 1E | " " " |
| | 5 42N 1W | " " " |
| | SW NW 13 40N 4W | " " " |

MACOMB

| | | |
|------------------------------|-------------------------------------|-----------------|
| Advance Bldg. Materials Co. | SE NW 18 4N 12E | Sand and gravel |
| American Aggregates Corp. | SW NW 4 4N 12E | " " " |
| Carter, George S. Co., Inc. | Romeo | " " " |
| Foster Inc. | SW 3 4N 14E | " " " |
| Katz, Fred | SW 16 4N 14E | " " " |
| Macomb Sand & Gravel | SW SW 30 3N 12E | " " " |
| Marsack Sand & Gravel Inc. | 3 1N 13E | " " " |
| Molesworth Contracting Co. | Carter pit | " " " |
| Morgan Sand & Gravel | 30 3N 12E | " " " |
| Natural Aggregates Corp. | NW NE 8 4N 12E | " " " |
| Vergote & Sons Sand & Gravel | (Ext.) E $\frac{1}{2}$ SW 10 2N 13E | " " " |

MANISTEE

| | | |
|------------------------------|-----------------------|------------------------------|
| Fischer Gravel Co. | 3 17N 11W | Sand and gravel |
| Gronlund Gravel Co. | NE SE 7 23N 14W | " " " |
| | SE 6 23N 14W | " " " |
| Hardy Salt Co. | Manistee | Salt, evaporated |
| Manistee Co. Road Comm. | Various | Sand and gravel |
| Martin-Marietta Chemical Co. | | |
| Refractories Div. | SE 18 21N 16W | Magnesium compounds |
| Morton Chemical Co. | 12 21N 17W | Bromine, Magnesium Compounds |
| Morton Salt Co. | Manistee | Salt |
| Sievert Bros. Inc. | 15 21N 13W 35 21N 14W | Sand and gravel |

MARQUETTE

| | | |
|----------------------------|------------------|-------------------|
| Britton, Don, Inc. | 17 48N 25W | Sand and gravel |
| Caspian Construction Co. | 22 47N 26W | Granite, crushed |
| Champion, Inc. | NW NE 26 48N 30W | Sand and gravel |
| Cleveland-Cliffs Iron Co.: | | |
| Empire Open Pit Mine | 19 47N 26W | Iron Ore |
| Mather Mine | 1 47N 27W | " " |
| Republic Open Pit Mine | 7 46N 29W | " " |
| Tilden Open Pit Mine | 26 47N 27W | " " |
| Gunlach, Herman Co. | 17 48N 25W | Sand and gravel |
| Hocking Construction Co. | 30 49N 29W | " " " |
| Hodgins & Son | Marquette | " " " |
| Krygoski Construction Co. | 35 48N 26W | " " " |
| Lindberg & Sons, Inc. | NW NE 17 47N 25W | " " " |
| | SE SE 8 47N 25W | Dolomite, crushed |
| Marquette, City of | NE SW 9 48N 25W | Sand and gravel |

MARQUETTE (con't.)

| | | | |
|------------------------------|--------------|------------------|---|
| Marquette Co. Rd. Comm. | | 12 42N 26W | Sand and gravel |
| Negaunee, City of | Negaunee | | " " " |
| MASON | | | |
| The Dow Chemical Co. | | NW SW 23 18N 18W | Calcium chloride, Magnesium compounds, Lime |
| Harbison-Walker Refractories | | NE SE 23 18N 18W | Magnesium compounds |
| Mich. State Hwy. Dept. | (Contractor) | | Sand and gravel |
| Sargent Sand Co. | | 20 & 23 19N 18W | Industrial sand |
| Towns Construction | (Unknown) | | Sand and gravel |

MECOSTA

| | | | |
|------------------------|-----------------|------------------------------|-----------------|
| Cousineau Gravel Co. | Unknown | | Sand and gravel |
| Gummer's Peat Co. | | N $\frac{1}{2}$ SE 28 13N 8W | Peat |
| Mecosta Co. Road Comm. | | NE NE 32 15N 9W | Sand and gravel |
| | NE SW 7 15N 7W | SW SW 24 15N 10W | " " " |
| | NW NE 35 15N 8W | W $\frac{1}{2}$ SW 4 15N 9W | " " " |
| | SE NW 25 15N 9W | NW SE 27 16N 10W | " " " |
| Paris Gravel Co. | | SW SE 12 15N 8W | " " " |
| State of Michigan | | | |

MENOMINEE

| | | | |
|--------------------------|-------------------------------|------------------|-----------------|
| B. & K. Sand and Gravel | | 26 34N 27W | Sand and gravel |
| Caspian Construction | | 17 34N 25W | " " " |
| Havelka, Gerald | | 19 33N 27W | " " " |
| Johnson, Norman | Daggett | | " " " |
| Menominee Co. Road Comm. | | 2 33N 27W | " " " |
| | NE NE 9 39N 25W | SE NE 33 35N 26W | " " " |
| State of Michigan | | NE NE 9 39N 25W | " " " |
| | N $\frac{1}{2}$ NE 36 36N 25W | SE NE 15 38N 26W | " " " |

MIDLAND

| | | | |
|----------------------|---------|--|---|
| The Dow Chemical Co. | Midland | | Bromine, Magnesium compounds, Calcium chloride, Salt, Iodine |
|----------------------|---------|--|---|

MISSAUKEE

| | | | |
|--------------------------|---------|-----------------|-----------------|
| Lake City Redi-Mix | | NE NW 26 23N 7W | Sand and gravel |
| Missaukee Co. Road Comm. | Unknown | | " " " |
| State of Michigan | | NE SW 13 23N 8W | " " " |
| Wiggins, Max & Sons | | 13 24N 7W | " " " |

MONROE

| | | | |
|-----------------------|------------|-----------------|---------------------------|
| Appleman Farms | | 1 8S 6E | Peat |
| Dundee Cement Co. | NW 6 6S 7E | | Cement, limestone Clay |
| France Stone Co. | | 7 7S 9E | Dolomite, crushed |
| Monroe Quarry | | 13 6S 7E | " " |
| Grape Quarry | | 24 7S 6E | Peat |
| Link, Norman E. | | | |
| Michigan Stone Co. | | 29 5S 8E | Dolomite, crushed |
| Maybe Quarry | | SW 25 8S 6E | " " |
| Ottawa Lake Quarry | | 11 5S 7E | Sand |
| Al Morgan Sand Co. | Wargle pit | NE NE 24 5S 8E | Sand and gravel |
| Mustang Constr., Inc. | | NE SW 16 5S 10E | Clay |
| Ritter & Sons, Co. | | | |

MONTCALM

| | | | |
|----------------------------------|----------------|--------------------------|-----------------|
| Anderson Gravel Co. | | 33 9N 8W | Sand and gravel |
| Dyer Co. | NE NW 35 9N 8W | SW SW 9 12N 5W | " " " |
| | SW NE 7 11N 5W | NW 1 10N 6W | " " " |
| Harris Excavation Co. | | 32 9N 8W | " " " |
| Montcalm Co. Road Comm. | NE 36 10N 6W | NW 26 9N 5W | " " " |
| Shook Paving Co. | Shook pit | | " " " |
| Wheeler Transit-Mix Concrete Co. | | E $\frac{1}{2}$ 34 9N 8W | " " " |

MONTMORENCY

| | | | |
|----------------------------|-----------------|-----------------|-----------------|
| Glancy, R. E. Inc. | | 6 31N 4E | Sand and gravel |
| Montmorency Co. Road Comm. | Various | | " " " |
| Rod's Sand & Gravel | | 19 30N 1E | " " " |
| State of Michigan | SE SE 23 29N 3E | NW NW 14 31N 2E | " " " |
| | | NW NE 34 32N 2E | " " " |
| Winkleman Excavating Co. | | 23 29N 1E | " " " |

MUSKEGON

| | | | |
|----------------------|--|-------------------------------|-----------------|
| Hooker Chemical Co. | | NE 31 12N 17W | Salt |
| McCormick Sand Corp. | | SW 16 11N 16W | Industrial Sand |
| Nugent Sand Co. | | NE 3 9N 17W | " " " |
| Whitehall Gravel Co. | | W $\frac{1}{2}$ NE 27 12N 17W | Sand and gravel |

NEWAYGO

| | | | |
|----------------------|------------------|---------------|-----------------|
| Cousineau Gravel Co. | | 29 14N 14W | Sand and gravel |
| | NW SW 16 11N 11W | SE 4 13N 12W | " " " |
| | NE SE 16 11N 13W | NW 16 16N 12W | " " " |

NEWAYGO (con't.)

| | | | | |
|------------------------|-----------|-------|------------|-----------------|
| Eichenberg | | | 32 14N 12W | Sand and gravel |
| K. V. Gravel Co. | 6 12N 11W | NE NW | 21 12N 12W | " " " |
| Newaygo Co. Road Comm. | | | 5 13N 12W | " " " |

OAKLAND

| | | | | |
|-------------------------------|--|-------|--------------------------|-----------------|
| Ajax Paving Industries | | | 4N 10E | Sand and gravel |
| American Aggregates Corp. | 5 2N 7E | NE NW | 22 5N 10E | " " " |
| Beagle, Richard Sand & Gravel | | NW SE | 5 3N 11E | " " " |
| Compton Sand & Gravel | Great Lakes Pit | | | " " " |
| Fletcher & Richard | | | 23 1N 7E | Peat |
| Great Lakes Gravel Co., Inc. | | | 36 5N 11E | Sand and gravel |
| Hayes Sand & Gravel | 6 1N 7E | | 12 1N 7E | " " " |
| Hollaway Sand & Gravel Inc. | | | 14 1N 7E | " " " |
| Holly Sand & Gravel | | NE SE | 32 5N 8E | " " " |
| Koenig Fuel & Supply Co. | SW SE 24 5N 10E | NW | 1 3N 8E | " " " |
| Kurtz Gravel Co. | | | 30 5N 8E | " " " |
| Lyon Sand & Gravel Div. | | NW NE | 13 1N 7E | " " " |
| Mabry & Melton | | SE SW | 30 3N 11E | " " " |
| Mickelson Corp. | | NE SE | 20 5N 10E | " " " |
| Molesworth Contracting Co. | Almont Church pit, Yoder pit, Paton pit, Agg. pit. | | | " " " |
| Oakland Transport Inc. | | | 25 2N 7E | " " " |
| Oxford Mining Co. | | E½ NW | 35 4N 8E | " " " |
| Oxford Peat Co. | | | 5N 10E | Peat |
| Pickett and Schreur | Holly pit near Holly | | | Sand and gravel |
| Portable Agg. Prod., Inc. | | | 8 2N 8E | " " " |
| Salem Sand & Gravel Co. | | E½ NE | 2 4N 9E | " " " |
| Spartan Aggregates, Inc. | | | 19 5N 8E | " " " |
| Standard Gravel Co. | | | 33 2N 7E | " " " |
| Tharp & Kosiba Sand & Gravel | Pontiac | | | " " " |
| Tri-City Agg., Inc. | 30 5N 8E | | 19 5N 8E | " " " |
| Underwood Sand & Gravel | | NW | 2 3N 10E | " " " |
| | | SE | 11 3N 8E | " " " |
| Van Every, Charles | Novi | | | " " " |
| Walker Industries | | | 29 3N 8E | " " " |
| Weber's Sand & Gravel | | | Secs. 26, 27 & 28 4N 10E | " " " |
| Western Materials | 33 2N 7E | | 34 2N 7E | " " " |

OCEANA

| | | | | |
|-----------------------------|------------------|-------|------------|-----------------|
| Beckman Brothers | | NE SW | 24 14N 17W | Sand and gravel |
| Eichenburg Company | Unknown | | | " " " |
| Miller, Paul C. | Various | | 3 13N 15W | " " " |
| Oceana Co. Road Comm. | NE NE 32 15N 18W | NE SW | 26 14N 15W | " " " |
| | SW NW 4 13N 15W | SE SE | 8 13N 18W | " " " |
| | | SW NE | 15N 16W | " " " |
| Pickett and Schreur | | | 4 13N 15W | " " " |
| Reith-Riley Const. Co. Inc. | | | 24 14N 17W | " " " |
| Sand Products Corp. | | | 19 15N 18W | Industrial Sand |

OGEMAW

| | | | |
|-----------------------------------|-----------------|-----------------|-----------------|
| Bunting Sand & Gravel Prod., Inc. | | 24 22N 1E | Sand and gravel |
| Fitzgerald & Powell Inc. | | SW SW 26 24N 3E | " " " |
| Glancy Inc. | Rosevear pit | | " " " |
| Halliday Sand & Gravel | Byron David pit | | " " " |
| Miller, H. Sand & Gravel | Steen pit | 10 22N 3E | " " " |
| Ogemaw Co. Road Comm. | | SW 5 22N 2E | " " " |
| State of Michigan | | SW SW 14 24N 4E | " " " |
| West Branch Sand & Gravel | | NE SE 6 21N 2E | " " " |
| Worden, James | Unknown | | " " " |

ONTONAGON

| | | | |
|---------------------------|----------------|-----------------|-------------------|
| Fox Valley Const. Co. | Nordine pit | | Sand and gravel |
| Hocking, Geo, Constr. Co. | | SW 22 50N 41W | Rhyolite, crushed |
| Lindberg & Sons Inc. | Amber Lake pit | | Sand and gravel |
| Ontonagon Co. Road Comm. | | SE 7 49N 42W | " " " |
| White Pine Copper Co. | | 4, 5, 9 50N 42W | Copper and Silver |

OSCEOLA

| | | | |
|--------------------------|--------------------------|-----------------|-----------------|
| Cousineau Gravel, Inc. | | NW NW 11 17N 9W | Sand and gravel |
| Hersey Sand & Gravel | Seagraves pit - Post pit | NW SW 20 17N 9W | " " " |
| Osceola County Rd. Comm. | Various | | " " " |
| Pickett & Schreur, Inc. | Richter pit - Sears | | " " " |
| Sand Products Corp. | | NE 17 15N 8W | Industrial Sand |

OSCODA

| | | | |
|-------------------|-----------------|-----------------|-----------------|
| State of Michigan | SW NW 32 25N 1E | SE SW 7 27N 4E | Sand and gravel |
| | | NW NW 36 25N 4E | " " " |

OTSEGO

| | | | |
|------------------------------|-----------------|-----------------|-----------------|
| Hoogerhyde Sand & Gravel Co. | | 3 30N 3W | Sand and gravel |
| Mason Excavating Inc. | 4 30N 3W | 2 30N 3W | " " " |
| Otsego Co. Road Comm. | Various | | " " " |
| | NW NW 3 31N 3W | NW NE 29 31N 3W | " " " |
| | 15 29N 4W | 17 29N 3W | " " " |
| State of Michigan | NE NW 19 29N 4W | NE SE 31 30N 1W | " " " |
| | | NE SE 25 32N 1W | " " " |

OTTAWA

| | | | |
|-------------------------|----------------------------|-----------------------------|------------------------------------|
| Construction Agg. Corp. | NW SE 7 7N 14W 5 7N 16W | SW NE 17 8N 16W | Sand and gravel Industrial Sand |
| Cousineau Gravel Co. | Unknown | | Sand and gravel |
| DeWent Gravel Co. | | SW SW 23 6N 13W | " " " |
| Grand Valley Gravel Co. | SE SE 29 7N 13W | NE NE 32 7N 13W | " " " |
| Huizenga Gravel | | W $\frac{1}{2}$ NE 3 6N 13W | " " " |
| Miller, Paul C. | Various | | " " " |
| Muskegon Gravel Inc. | | NW NE 5 9N 13W | " " " |
| Ottawa Co. Road Comm. | Various | | " " " |
| | NW NE 16 7N 14W | SW SE 7 7N 14W | " " " |
| | NE NE 32 7N 13W | NW SW 2 6N 13W | " " " |
| | SW NE 15 5N 13W | NE NW 29 5N 14W | " " " |
| | | E $\frac{1}{2}$ 2 6N 13W | " " " |
| Riverview Gravel Co. | | | " " " |
| Robinson Gravel Co. | | | " " " |
| Standard Sand Co. | | E $\frac{1}{2}$ SW 2 6N 13W | Industrial Sand |
| West Shore Constr. Co. | SW SW 2 6N 13W | E $\frac{1}{2}$ SW 2 6N 13W | Sand and gravel |

PRESQUE ISLE

| | | | |
|--|------------------------------|-----------------|------------------------|
| Dean and Son | | 19 33N 5E | Sand and gravel |
| Michigan Limestone Operation, U. S. Steel | | | |
| Onaway Stone Co. | | SE NE 23 35N 5E | Limestone, crushed |
| Presque Isle Co. Rd. Comm. | NE NE 19 33N 5E | NW NW 5 34N 2E | Limestone, dimensional |
| Presque Isle Corp. | | SW SE 18 35N 2E | Sand and gravel |
| State of Michigan | NE SW 29 36N 2E | NW 2 33N 8E | Limestone, crushed |
| | S $\frac{1}{2}$ SW 13 34N 7E | NW NE 28 36N 3E | Sand and gravel |
| | | NW NE 22 34N 7E | " " " |
| Straits Agg. & Equip. Corp. | | NE NW 19 34N 4E | " " " |

ROSCOMMON

| | | | |
|------------------------------|-----------------|-----------------|-----------------|
| Halliday Sand & Gravel, Inc. | SE SE 30 24N 3W | NW SW 3 23N 3W | Sand and gravel |
| Roscommon Co. Road Comm. | NW NE 25 24N 4W | NE NW 32 23N 4W | " " " |
| | Various | | " " " |
| | SW NW 4 22N 4W | NW NW 14 22N 4W | " " " |
| State of Michigan | NE SE 22 23N 2W | NW NW 32 23N 4W | " " " |

SAGINAW

| | | | |
|------------------------|------------|-----------|-----------------|
| Hutfilz, Walter | Unknown | | Sand and gravel |
| Martin-Marietta | | 31 12N 3E | Clay |
| Michigan Sugar Co. | Carrollton | | Lime |
| Saginaw Co. Road Comm. | Various | | Sand and gravel |
| Sargent Sand Co. | | 17 10N 2E | Industrial Sand |

ST. CLAIR

| | | | |
|--------------------------|-----------------------------|--------------|------------------|
| Amcord Cement Co. | Port Huron | 32 6N 16E | Cement |
| Diamond Crystal Salt Co. | | 31 5N 17E | Clay |
| Molesworth Contracting | Brown, Ohmer, Reid pits | | Salt, evaporated |
| Morton Salt Co. | | SE 29 6N 17E | Sand and gravel |
| Port Huron, City of | Unknown | | Salt, evaporated |
| Raymond Excavating, Inc. | Smock pit | 33 7N 16E | Sand and gravel |
| St. Clair Co. Road Comm. | 5 6N 11E | 8 8N 14E | " " " |
| | 8 7N 15E | 29 8N 16E | " " " |
| Scheffler Bros. | Scheffler pit near Goodells | | " " " |

ST. JOSEPH

| | | | |
|-----------------------------|--------------|-------------|-----------------|
| Aggregate Processors, Inc. | | NE 8 8S 11W | Sand and gravel |
| Burkett Construction Co. | Unknown | | " " " |
| DeBoer Materials | | 14 6S 12W | " " " |
| Drake Marl | | 12 5S 12W | Marl |
| Kerr Peat and Marl | | 13 6S 12W | " |
| | | 13 6S 12W | Peat |
| Miller and Son | Unknown | | Sand and gravel |
| Quality Peat | | 24 5S 12W | Peat |
| Reith-Riley Const. Co. | Studeman pit | | Sand and gravel |
| St. Joseph County Rd. Comm. | Various | | " " " |

SANILAC

| | | | |
|------------------------------|----------------------|------------------|-----------------|
| Albrecht, William Jr. | | SW SE 31 12N 13E | Sand and gravel |
| Cook Block Co. | | NE NE 28 10N 15E | " " " |
| Dennison Construction Co. | | 14 9N 16E | " " " |
| Huber Peat Co. | | NW 11 11N 14E | Peat |
| Michigan Peat | Minden & Sandusky | 21 14N 14E | Peat |
| | | 3 11N 14E | " |
| Michigan Sugar Co. | Croswell | | Lime |
| Mid-Michigan Materials, Inc. | | SW SW 32 9N 16E | Sand and gravel |
| Molesworth Contracting | Worth and Cliff pits | | " " " |

SCHOOLCRAFT

| | | | |
|---------------------------|------------|------------------|-----------------------|
| Inland Lime & Stone Co. | | 2 41N 13W | Dolomite, crushed |
| Inwood Stone Products Co. | | 8 41N 17W | Dolomite, dimensional |
| Neadow, James | Neadow pit | | Sand and gravel |
| Schoolcraft Co. Rd. Comm. | | SE SW 14 42N 16W | Dolomite, crushed |
| | Various | | Sand and gravel |
| State of Michigan | | SE NW 15 41N 17W | " " " |

SHIAWASSEE

| | | | | | |
|------------------------------------|-----------------|-------|----------------|----------------|-----------------|
| Al-Par Peat Co. | | | | 18 8N 2E | Peat |
| Central Michigan Sand & Gravel Co. | | | | SW NW 22 7N 1E | Sand and gravel |
| Fisher, Frank Co. | | | | 35 6N 2E | " " " |
| Fitzgerald Gravel Co. | 4 & 14 | 8N 3E | NE SW 22 8N 2E | " " " | " " " |
| Fuoss Gravel Co. | SE SW 4 | 6N 3E | SE SE 17 5N 4E | " " " | " " " |
| | | | SE NW 9 | 6N 3E | " " " |
| | | | NE 27 | 7N 4E | " " " |
| Lennon Sand & Gravel | | | SE 22 | 7N 3E | Shale |
| Michigan Brick Inc. | | | SW SE 16 | 7N 1E | Sand and gravel |
| Polhamus Gravel Co. | | | 4, 10 & 16 | 5N 1E | Peat |
| Scenic Lakes, Inc. | | | SE SE 20 | 7N 2E | Sand and gravel |
| Shiawassee Co. Road Comm. | | | | | " " " |
| Spartan Aggregate | Unknown | | | | " " " |
| Tod Gravel Co. | Unknown | | | | " " " |
| Weaver, Ronald Gravel Co. | Grand River pit | | NE SW 16 | 5N 2E | " " " |

TUSCOLA

| | | | | | |
|------------------------------|-------------------------------|--|--|-------------------------------|-----------------|
| Andersen Sand & Gravel | | | | NE NE 20 11N 9E | Sand and gravel |
| Bernthal Sand & Gravel | | | | SW SE 31 12N 9E | " " " |
| Great Lakes Foundry Sand Co. | Various | | | | Industrial Sand |
| Hunt Construction Co. | | | | 33 14N 11E | Sand and gravel |
| Michigan Sugar Co. | Caro | | | | Lime |
| Millington Gravel | Kaestor pit - near Millington | | | | Sand and gravel |
| Peterhans, H. O. S. & G. | | | | 13 12N 8E | " " " |
| Powell Sand & Gravel | | | | 15 13N 8E | " " " |
| Sargent Sand Co. | 24 10N 7E | | | 17 11N 8E | Industrial Sand |
| | 16 10N 9E | | | NE 20 11N 9E | Sand and gravel |
| Tuckey Block Co. | | | | W $\frac{1}{2}$ NW 33 14N 11E | " " " |
| Tuscola Co. Rd. Comm. | NW NW 28 | | | SW NE 33 10N 9E | " " " |
| | NW SE 22 11N 7E | | | SW SW 19 | " " " |
| | NE NW 29 | | | NE NE 2 11N 9E | " " " |
| | E $\frac{1}{2}$ SW 5 11N 10E | | | SW NE 3 | " " " |
| | SE SE 34 | | | SW NW 13 12N 8E | " " " |
| | NE NW 7 12N 10E | | | N $\frac{1}{2}$ SW 18 12N 10E | " " " |
| | SE SE 10 13N 9E | | | NW NW 16 13N 10E | " " " |
| | SE SW 4 13N 11E | | | 33 14N 10E | " " " |
| | NE NW 24 14N 11E | | | SE SW 27 10N 8E | " " " |
| Zeller Custom Crushing | | | | 25 10N 8E | " " " |

VAN BUREN

| | | | | | |
|---------------------------|--------------------------------|--|--|-----------------|-----------------|
| Budzen, John Cement Prod. | | | | 13 3S 14E | Sand and gravel |
| Klett Constr. Co. | | | | SE NW 24 3S 14W | " " " |
| Miller and Son | Unknown | | | | " " " |
| Van Buren Co. Rd. Comm. | Various | | | | " " " |
| Yerington Construction | Crocker, Eastman, ploppers pit | | | | " " " |

WASHTENAW

| | | | | | |
|-----------------------------------|-------------------|--|--|----------------------------|-----------------|
| Bennett Excavating and Gravel Co. | Hamburg | | | | Sand and gravel |
| Brink Sand & Gravel | | | | 8 4S 6E | " " " |
| Du-Pine Co. | | | | 24 3S 5E | " " " |
| Holloway Sand & Gravel Co. | Dixon pit - Wixom | | | | " " " |
| Kruse Gravel Co. | | | | | " " " |
| Liberty Sand Co. | | | | 36 2S 6E | " " " |
| Mich. State Hwy. Dept. | Contractor | | | | " " " |
| Rock Crete Products | | | | 12 3S 3E | " " " |
| Standard Gravel Co. | | | | E $\frac{1}{2}$ SW 3 2S 5E | " " " |
| Washtenaw Co. Rd. Comm. | SE NE 21 2S 5E | | | NW SW 3 2S 5E | " " " |
| | SW NE 14 1S 7E | | | NE SE 2 4S 3E | " " " |
| | NW 23 3S 4E | | | SE NW 22 1S 3E | " " " |
| | | | | 12 2S 7E | " " " |
| Washtenaw Sand & Gravel | | | | 1 2S 6E | " " " |

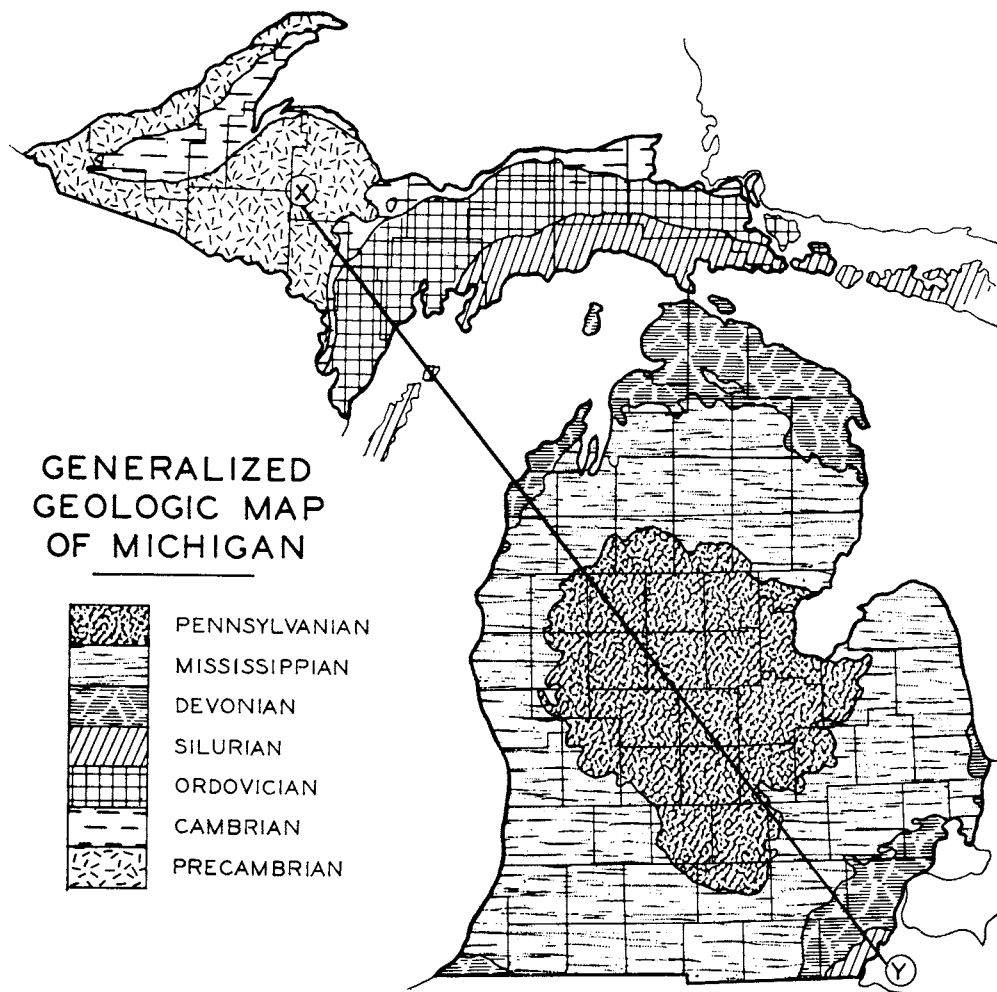
WAYNE

| | | | | | |
|------------------------------|-------------|-----------------|---------|--|-------------------------|
| ABC Sand Co. | Mijal pit | | | | Sand and gravel |
| Ancord Cement Co. | | | | | Cement |
| | | Ext. Sec. 28 | 2S 11E | | Clay |
| | | NW Ext. Sec. 36 | 2S 10E | | Salt, lime |
| BASF Wyandotte | Wyandotte | | | | Lime |
| Detroit Lime Co. | River Rouge | | | | Rock Salt |
| International Salt Co., Inc. | | (Ext.) SW 32 | 2S 11E | | Cement |
| Levy Co. | Detroit | | | | Sulfur |
| Marathon Oil Co. | Detroit | | | | Lime |
| Marblehead Lime Co. | River Rouge | | | | Limestone, crushed |
| Mich. Foundation Quarry Co. | | NE NW 7 | 4S 11E | | Sand and gravel |
| Moore Bros. Sand & Gravel | | | 2 3S 9E | | Sandstone (silica sand) |
| Ottawa Silica Co. | | SW NE 15 | 5S 10E | | Salt |
| Pennwalt Corp. | Wyandotte | | | | Sand and gravel |
| Thomson Sand & Gravel | | NW NE 8 | 1S 8E | | " " " |
| Wayne Sand & Gravel Co. | | NW SE 12 | 3S 8E | | Cement |
| Wyandotte Cement Inc. | Wyandotte | | | | Sand and gravel |
| Zayti Trucking Co. | Rawsonville | | | | |

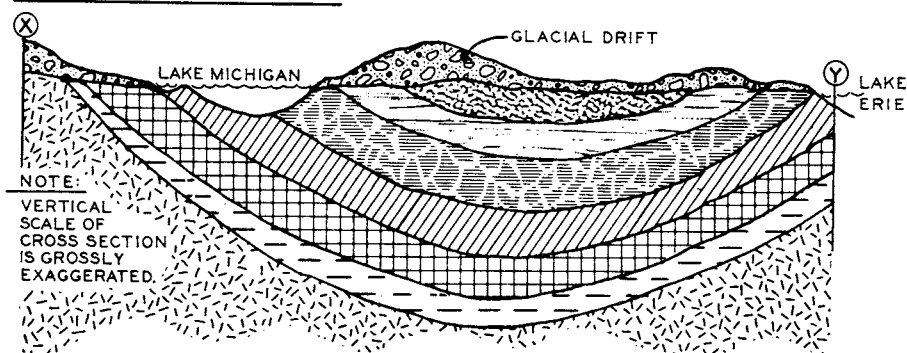
WEXFORD

| | | | | | |
|----------------------------|------------|--|--|------------------|-----------------|
| Dunbar, Leo Sand & Gravel | | | | SW NE 15 21N 9W | Sand and gravel |
| Meyer & Company | | | | NW NE 10 21N 11W | " " " |
| Nelson Excavating & Gravel | | | | 10 21N 11W | " " " |
| Sargent Sand Co. | | | | 3 22N 12W | " " " |
| State of Michigan | | | | NW SE 20 22N 11W | " " " |
| Wexford Co. Road Comm. | Contractor | | | | " " " |
| Wexford Gravel Co. | | | | NW NE 10 21N 9W | " " " |

Selected Minerals By Geological Formation



CROSS SECTION X-Y



SELECTED MINERALS AND GEOLOGY

COPPER

PRECAMBRIAN AGE

| | |
|--------------------------|-----------------|
| Middle Keweenaw: | |
| Portage Lake Series..... | Centennial Mine |
| Upper Keweenaw: | |
| Nonesuch Shale..... | White Pine Mine |

IRON

PRECAMBRIAN AGE

| | |
|------------------------------|----------------|
| Middle Huronian: | |
| Negaunee Iron-Formation..... | Empire Mine |
| | Mather Mine |
| | Republic Mine |
| | Tilden Mine |
| Vulcan Iron-Formation..... | Sherwood Mine |
| Upper Huronian: | |
| Riverton Iron-Formation..... | Groveland Mine |

CLAY AND SHALE

DEVONIAN AGE

| | |
|-------------------------|----------------------------|
| Middle Devonian | |
| Bell Shale..... | Huron Portland Cement Co. |
| Gravel Point Shale..... | Penn-Dixie Industries Inc. |
| Upper Devonian | |
| Antrim Shale..... | Huron Portland Cement Co. |
| Ellsworth..... | Medusa Cement Co. |

PENNSYLVANIAN AGE

| | |
|---------------------|-------------------------------|
| Lower Pennsylvanian | |
| Saginaw Shale..... | Grand Ledge Clay Products Co. |
| | Michigan Brick Inc. |

CENOZOIC AGE

| | |
|-----------------------|----------------------------|
| Quaternary | |
| Pleistocene Clay..... | Amcord Inc. |
| | Comfort Brick and Tile Co. |
| | Dundee Cement Co. |
| | Martin Marietta Cement Co. |
| | Ritter and Sons Inc. |

COAL

PENNSYLVANIAN AGE

| | |
|------------------------|---------------------------|
| Lower Pennsylvanian | |
| Saginaw Formation..... | Michigan Aggregates Corp. |

GYPSUM

MISSISSIPPIAN AGE

| | |
|-------------------------|--------------------------|
| Upper Mississippian | |
| Michigan Formation..... | Georgia-Pacific Corp. |
| | Grand Rapids Gypsum Co. |
| | Michigan Gypsum Co. |
| | National Gypsum Co. |
| | United States Gypsum Co. |

SELECTED MINERALS AND GEOLOGY (CON'T.)

NATURAL SALINES

DEVONIAN AGE

Lower Devonian

Detroit River Group.....Dow Chemical Co. - Ludington
(Includes the Sylvania and/or Dow Chemical Co. - Midland
Filer Sandstone Formations) Martin Marietta Co.
Michigan Chemical Co.
Morton Chemical Co.
Wilkinson Chemical Co.

Middle Devonian

Dundee Formation.....Michigan Chemical Co.

SALT

SILURIAN AGE

Upper Silurian

Salina Group.....BASF Wyandotte Corp.
Diamond Crystal Salt Co.
Dow Chemical Co.
Hardy Salt Co.
Hooker Chemical Corp.
International Salt Co. Inc.
Michigan Chemical Corp.
Morton Salt Co. - Manistee
Morton Salt Co. - St. Clair
Pennwalt Corp.

STONE-DOLOMITE

ORDOVICIAN AGE

Middle Ordovician

Trenton-Black River.....Bichler Gravel and Concrete Co.
Caspian Construction Co.
Delta County Road Comm.
Fox Valley Construction Co.
Schoolcraft County Rd. Comm.

SILURIAN AGE

Middle Silurian

Engadine.....Drummond Dolomite Inc.
Inland Lime and Stone Co.
Michigan Limestone Operations
Sand Products Corp.
Hendricks.....Inwood Stone Products Co.
Upper Silurian
Bass Island.....France Stone Co. - Monroe
Michigan Stone Co. - Ottawa Lake

DEVONIAN AGE

Middle Devonian

Detroit River Group.....France Stone Co. - Maybee
Michigan Foundation Quarry Co. Inc.
Michigan Stone Co.

SELECTED MINERALS AND GEOLOGY (CON'T.)

STONE-LIMESTONE

SILURIAN AGE

Middle Silurian

Fiborn.....Inland Lime and Stone Co.

DEVONIAN AGE

Middle Devonian

Dundee.....Dundee Cement Co.
Michigan Limestone Operation
Presque Isle Corp.
Afton Stone Inc.
Huron Portland Cement Co.
Limestone Products Co.
Medusa Cement Co.
Onaway Stone Co.
Penn-Dixie Industries, Inc.

Traverse.....

MISSISSIPPIAN AGE

Upper Mississippian

Bayport.....Arenac County Road Comm.
Bay County Road Comm.
Cheney Limestone Co.
Jeffrey Limestone Co.
Van Deusen Stone Co.
Wallace Stone Co.

STONE-MISCELLANEOUS

PRECAMBRIAN AGE

Middle Precambrian

Randville (marble).....Felch Quarry Corp.

STONE-SANDSTONE

MISSISSIPPIAN AGE

Lower Mississippian

Marshall.....H and H Sandstone Co.
Jude Sandstone Co.
Napoleon Sandstone Quarry

DEVONIAN AGE

Middle Devonian

Sylvania.....Ottawa Silica Co.

Note - The above listings are given by Age, Epoch and Group or Formation names.

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