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SELF COMMUNICATIONS SEAFARER PROGRAM

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power distribution network data

for input to

**environmental impact statement
and system design**

upper peninsula, michigan

SUB-CONTRACT NO. CSD-C-75-1048 (SDRL ITEM 8001)
MARCH 5, 1976

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CONTROL NO: 0309-B006-001

GTE SYLVANIA
INCORPORATED
COMMUNICATION SYSTEMS DIVISION

**ELF COMMUNICATIONS
SEAFARER PROGRAM**

SITE SURVEY FINAL REPORT
MICHIGAN REGION

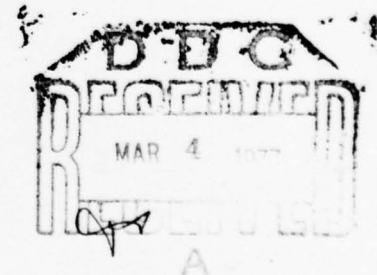
POWER DISTRIBUTION NETWORK

Contract No. N00039-75-C-0309
CDRL SEQUENCE NO. B006
March 5, 1976

Prepared for
NAVAL ELECTRONIC SYSTEMS COMMAND
Special Communications Project Office
ELF COMMUNICATIONS DIVISION

by
WILLIAMS & WORKS, INC.
611 Cascade West Parkway, S.E.
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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report is a collection of electrical utilities data defining the power generation and distribution networks related to the Seafarer program within a specified area within Michigan's Upper Peninsula. The data obtained will be utilized as a basis for determining the cost of mitigation measures necessary to minimize electrical interference between the antenna system and existing fence lines, pipelines and utilities | | |

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section 1
introduction and summary

SECTION 1

INTRODUCTION AND SUMMARY

1.1 AUTHORITY

Williams & Works is under subcontract to GTE Sylvania, Inc., Communication Systems Division, to collect electrical utilities data defining the power generation and distribution network related to the SEAFARER PROGRAM within a specified area in Michigan's Upper Peninsula (Subcontract No. CSD-C-75-1048).

Notice to proceed was issued on November 24, 1975, with field data acquisition scheduled to be completed by December 26, 1975; a preliminary report to be submitted on December 29, 1975; and a final report to be submitted on February 23, 1976.

This report is presented as one part of GTE Sylvania's overall SITE SURVEY FINAL REPORT, MICHIGAN REGION. The data will be incorporated into the SEAFARER Environmental Impact Statement and utilized as a basis for determining the cost of mitigation measures necessary to minimize electrical interference between the antenna system and existing fence lines, pipelines and utilities.

1.2 ACKNOWLEDGEMENT

The assistance and support provided by representatives of GTE Sylvania and its team of associates is acknowledged as being instrumental in the successful completion of this report.

Each of the power companies contacted by Williams & Works was extremely cooperative. Their assistance is also acknowledged.

Our two consultants also contributed by arranging local meetings and participating in the data acquisition and interpretation phase. Both men reside in Houghton, Michigan, and teach at Michigan Technological University. They are: Dennis O. Wiitanen, PhD, and Mr. Walter T. Anderson, P.E., head of the Electrical Engineering Department.

1.3 SUMMARY

The electrical study of the Upper Peninsula of Michigan was conducted in four parts: office preparation and study, field investigation and data collection, office analysis, and preparation of preliminary and final reports.

The SEAFARER Electrical Study Area includes Baraga, Marquette and Dickinson Counties and portions of Houghton, Alger, Iron, Menominee and Delta Counties encompassing approximately 6,000 square miles. Six power companies or co-ops serve the area.

The companies are interconnected to a grid network for exchanging electrical energy. Some are linked through normally closed tie switches and some are linked through normally open switches which are closed only in emergencies.

All incorporated areas with a population of 2,000 or more, plus a buffer zone of one mile, are excluded from detailed study although some transmission lines have been shown in these areas for the sake of continuity. Other areas excluded from the study are the Huron Mountain Club and the McCormich Experimental Forest. The map of the ELECTRICAL STUDY AREA - SHEET 1 delineates the limits of the Electrical Study Area, exclusion areas, and power company service areas.

On the succeeding ELECTRICAL FACILITIES LOCATION MAPS (SECTION 3), existing power lines are shown for each company with an appropriate abbreviation along the line (i.e., UP - Upper Peninsula Power Company). The type of linework utilized to delineate the power line location also indicates the voltage and phase (see legend), while the number and type of individual wires carried on the poles are identified by notes along the lines.

Generating plants are located and identified on the appropriate maps and tabulated in the text with capacities, fuel and percent of utilization. Major substations are also shown on the maps and tabulated in detail in the text.

Right-of-way practices and procedures vary with each power company. Where available, widths, descriptions and typical right-of-way acquisition documents are included.

Construction cost experience is described where available; however, conditions vary widely and each company hesitates in releasing data which can be misleading due to weather, changing construction conditions, or actually outdated due to rapid price changes.

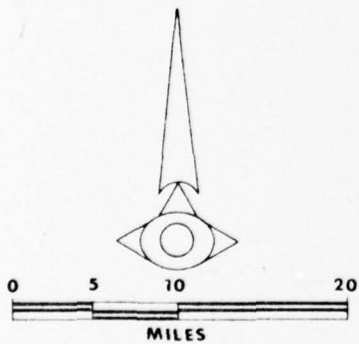
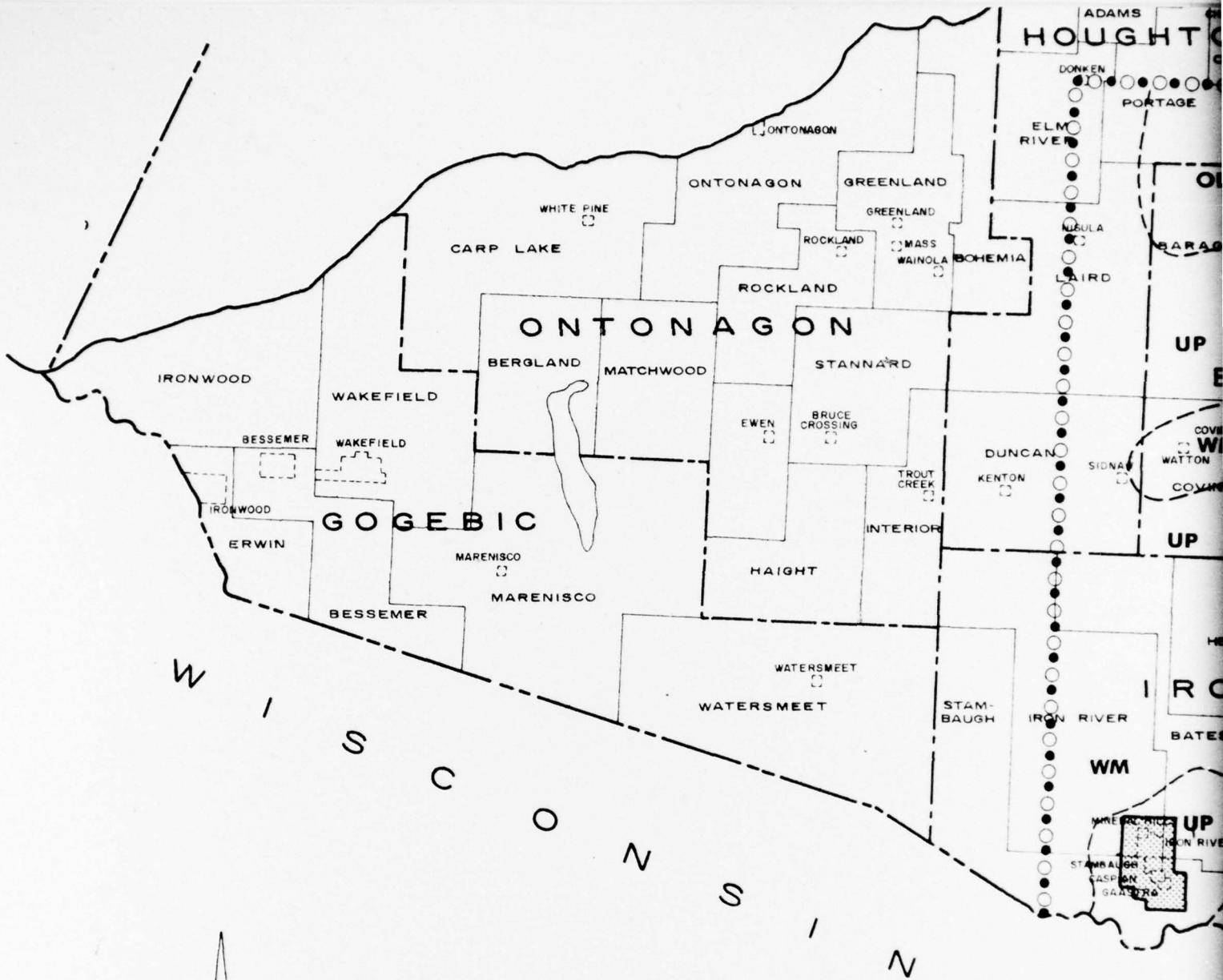
For each power company serving the area, interviews were scheduled beforehand; and a Williams & Works engineer visited the main office or field office and conducted a briefing with appropriate administrative or technical personnel. Data was reviewed and, where appropriate, copies requested for transfer to the home office. Each visit lasted from four hours to a number of days. A number of companies were visited more than once. In each case, a specific individual was selected as the permanent contact and a list prepared with information for contacting the individual in the future.

All power companies contacted were extremely helpful and provided the data requested as well as knowledgeable personnel to assist the Williams & Works representative. Letters of appreciation have been forwarded to each company on behalf of Williams & Works and GTE Sylvania.

The two largest power companies providing service in the Study Area are Wisconsin Michigan Power Company (WM) and Upper Peninsula Power Company (UP). Together, they generate approximately 484 MW (90%) of the electrical energy used within the Electrical Study Area. Marquette Board of Light and Power also has a generating capacity of 57.2 MW bringing the total energy generated and used within the area to approximately 541.2 MW. The remaining three companies purchase their electrical energy for resale primarily from WM or UP.

Wisconsin Michigan Power Company generates all Upper Peninsula electrical energy with hydro units while Upper Peninsula Power Company generates 92% with coal fired steam units, 2.6% with diesel oil fired units, and 5.4% with hydro units. Marquette Board of Light and Power, however, generates 66.4% with coal fired steam units, 27.1% with diesel oil fired units, and 6.5% with hydro units.

It is estimated that WM has approximately 2,264 miles and UP has 2,276 miles of transmission and distribution lines in the Electrical Study Area. The four other power companies within the area have 851 miles of lines bringing the total to approximately 5,391 miles - not including short lines or drops less than 300 feet in length.



PROJECT SEAFARER
COLLECTION OF ELECTRICAL UTILITIES DATA

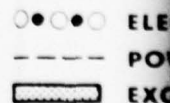
FOR GTE, SYLVANIA INC. SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL STUDY AREA **Date 3/5/76 Sheet No.1**



WILLIAMS & WORKS

Engineers, Surveyors, Planners, Geologists
611 Cascade West Parkway
Grand Rapids, Michigan 49506



LAKE SUPERIOR



LEGEND

- ELECTRICAL STUDY AREA
- POWER COMPANY SERVICE AREA
- EXCLUSION AREA

section 2
description and tabulation of data

SECTION 2

DESCRIPTION AND TABULATION OF DATA

ELECTRICAL STUDY AREA MAP - SHEET 1 delineates the service area of the various power companies providing electrical utility service within the area. The six major power companies within this area are:

- Upper Peninsula Power Company (UP)
- Wisconsin Michigan Power Company (WM)
- Marquette Board of Light and Power (MP)
- Alger Delta Cooperative Electrical Association (AD)
- Ontonagon County Rural Electrification Association (OR)
- Crystal Falls Electrical and Water Department (CF)

There are several power companies serving customers outside the study area or within the excluded areas that could supply electrical energy for facilities within the study area. These include:

- Norway Light Department
Norway, Michigan
- Gladstone Board of Public Works
Gladstone, Michigan
- L'Anse Board of Public Works
L'Anse, Michigan
- Baraga Board of Public Works
Baraga, Michigan
- Negaunee Board of Public Works
Negaunee, Michigan

The following list represents the power companies actually visited by Williams & Works representatives, the person contacted, and the dates of each visit. The first name listed is the designated contact.

| | Date of Visit and Williams & Works <u>Representative</u> |
|---|---|
| CRYSTAL FALLS ELECTRIC AND WATER DEPARTMENT Mr. John Ondrus, Superintendent 401 Superior Street Crystal Falls, Michigan 49920 906/875-6650 | 12-3-75 Leo Schaut |
| UPPER PENINSULA POWER COMPANY Mr. Elio Argentati, Vice President of Operations Mr. George Gildersleeve, Manager of Operations and Engineering 616 Sheldon Avenue Houghton, Michigan 49931 906/482-0220 | 12-3-75 Eugene Bouwkamp and Pat Gallo 2-20-76 Eugene Bouwkamp |
| WISCONSIN MICHIGAN POWER COMPANY Mr. Otto R. Boll, P.E., Manager of Engineering Mr. Al Alatalo, P.E., System Planning Engineer Mr. Norb Schemm, Supervisor of Engineering Services 807 S. Oneida Appleton, Wisconsin 54911 414/734-1411 | 12-2-75 12-3-75 Pat Gallo 2-18-76 Eugene Bouwkamp |
| MARQUETTE BOARD OF LIGHT AND POWER Mr. Wilbert Wiitala, Director Mr. Ed Buska, Production Superintendent Mr. Ted Nelson, P.E., Assistant Production Superintendent 2200 Wright Street, N.W. Marquette, Michigan 49855 906/228-6900 | 12-2-75 Eugene Bouwkamp |
| ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION Mr. William Chabot, Manager 511 J. K. Paul Street Ontonagon, Michigan 49953 909/884-2510 | 12-5-75 Eugene Bouwkamp |
| ALGER DELTA COOPERATIVE ELECTRICAL ASSOCIATION Mr. Roy F. Hawkinson, Manager Mr. Edwin Englund, Superintendent 426 North Ninth Avenue Gladstone, Michigan 49837 906/425-2331 | 12-1-75 Leo Schaut |

| | <u>Date of Visit and Williams & Works Representative</u> |
|---|--|
| CITY OF NORWAY LIGHT DEPARTMENT Mr. Junior Stanchina, Superintendent 915 Brown Street Norway, Michigan 49870 906/563-9641 | 12-3-75 Leo Schaut |
| WISCONSIN PUBLIC SERVICE CORPORATION Mr. David W. Schonke, P.E., Manager of Division Engineering 700 North Adams Green Bay, Wisconsin 54305 414/432-3311 | 12-2-75 Pat Gallo |
| CITY OF GLADSTONE Mr. Howard W. Keeton, City Manager City Hall Gladstone, Michigan 49837 906/425-2631 | 12-2-75 Leo Schaut |
| WISCONSIN MICHIGAN POWER COMPANY NORTHERN DIVISION Mr. Edward Koerschner, Manager Mr. M. Thoburn Gibson, Supervisor of Field Engineering Mr. Willard Miller, Line Superintendent Mr. Robert Linssen, Supervisor of Engineering Department 1401 South Carpenter Iron Mountain, Michigan 49801 906/774-3000 | 12-17-75 12-18-75 12-19-75 Leo Schaut 2-19-76 Eugene Bouwkamp |
| L'ANSE BOARD OF PUBLIC WORKS Mr. Raymond Herrala, Manager of Public Works L'Anse, Michigan 49946 906/524-6116 | 12-4-75 Eugene Bouwkamp and Pat Gallo |
| BARAGA BOARD OF PUBLIC WORKS Mr. Joe Ross, Superintendent of Light and Power Baraga, Michigan 49908 906/353-6237 | 12-4-75 Eugene Bouwkamp and Pat Gallo |

2.1 UPPER PENINSULA POWER COMPANY

The main office of the Upper Peninsula Power Company is located at 616 Sheldon Avenue, Houghton, Michigan 49931. The telephone number is (906) 482-0220. The information in this report was obtained from Mr. Elio Argentati, Vice President of Operations and Mr. George Gildersleeve, Manager of Operations and Engineering.

2.1.1 Service Area

The Upper Peninsula Power Company provides service to 95 communities and adjacent areas and furnishes energy for resale to four municipalities and three other electric utility companies in the Upper Peninsula. A large portion of the SEAFARER Study Area is served by the Upper Peninsula Power Company (refer to SHEET 1).

2.1.2 Outside Power Sources and Interconnections

Due to the large size of the service area, nearly all companies find it is economical in some cases to buy electrical energy at wholesale rates from other companies and distribute locally. The Upper Peninsula Power Company exchanges electrical energy with the:

- City of Marquette
- Wisconsin Michigan Power Company
- Cliffs Electric Service Company
- Edison Sault Electric Company

The Upper Peninsula Power Company also has interconnections for purposes of wholesaling electrical energy for resale purposes to:

- City of Negaunee Board of Public Works
- City of L'Anse Board of Public Works
- City of Baraga Board of Public Works
- Ontonagon County Rural Electrification Association
- Wisconsin Michigan Power Company
- Alger Delta Cooperative Electrical Association

2.1.3 Generating Plants

Within the study area, the Upper Peninsula Power Company generates 388,825 KW of energy at plants at the following locations:

| <u>Name</u> | <u>Location</u> | <u>Capacity KW</u> | <u>Fuel</u> | <u>Utiliza- tion</u> |
|------------------------------------|-----------------------|------------------------|-------------|--------------------------|
| <u>In the Area</u> | | | | |
| J. H. Warden Station | L'Anse | 15,625 | Coal | 88% |
| Prickett Hydro Station | Baraga Co. | 2,200 | Water | 75% |
| Ishpeming Station | Ishpeming | 7,500 | Coal | 92% |
| 1/ Ishpeming Station (CES Co) | Ishpeming | 10,000 | Diesel | 80% |
| Hoist Hydro Station (CES Co) | Dear River Storage | 4,400 | Water | 75% |
| McClure Hydro Station (CES Co) | Marquette Twp. | 8,000 | Water | 75% |
| Cataract Hydro Station (CES Co) | Forsyth Twp. | 2,000 | Water | 75% |
| Carp Hydro Station (CES Co) | Marquette | 4,400 | Water | 75% |
| 2/ Presque Isle Station (UPG Co) | Marquette | 334,700 | Coal | 89% |
| | TOTAL: | 388,825 | | |
| <u>Outside the Area</u> | | | | |
| Escanaba Station | Escanaba | 25,300 | Coal | 87% |
| AuTrain Hydro Station (CES Co) | AuTrain | 896 | Water | 75% |
| Portage Station | Adams Twp. | 55,000 | Fuel Oil | 80% |
| Dodgeville Station | Dodgeville | 9,080 | Fuel Oil | 80% |
| Victoria Station | Victoria Dam | 12,000 | Water | 75% |
| | TOTAL: | 102,276 | | |

1/ (CES Co) Owned by Cliffs Electric Service Co.

2/ (UPG Co) Upper Peninsula Generating Co. (Owned jointly by UPP Co and CES Co)

2.1.4 Transmission and Distribution System

The Upper Peninsula Power Company has a widespread system utilizing 138 KV, 69 KV and 33 KV transmission voltages. ONE-LINE DIAGRAMS of these systems are included on the 138 KV System, 69 KV System-Eastern Division, 69 KV System-Western Division, and 33 KV System-Marquette County.

Data on major substations is included in TABLE 1. The general location of generating plants, substations, and transmission lines are shown on the ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower number, etc., are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report, but prints have been supplied to GTE Sylvania where they are filed.

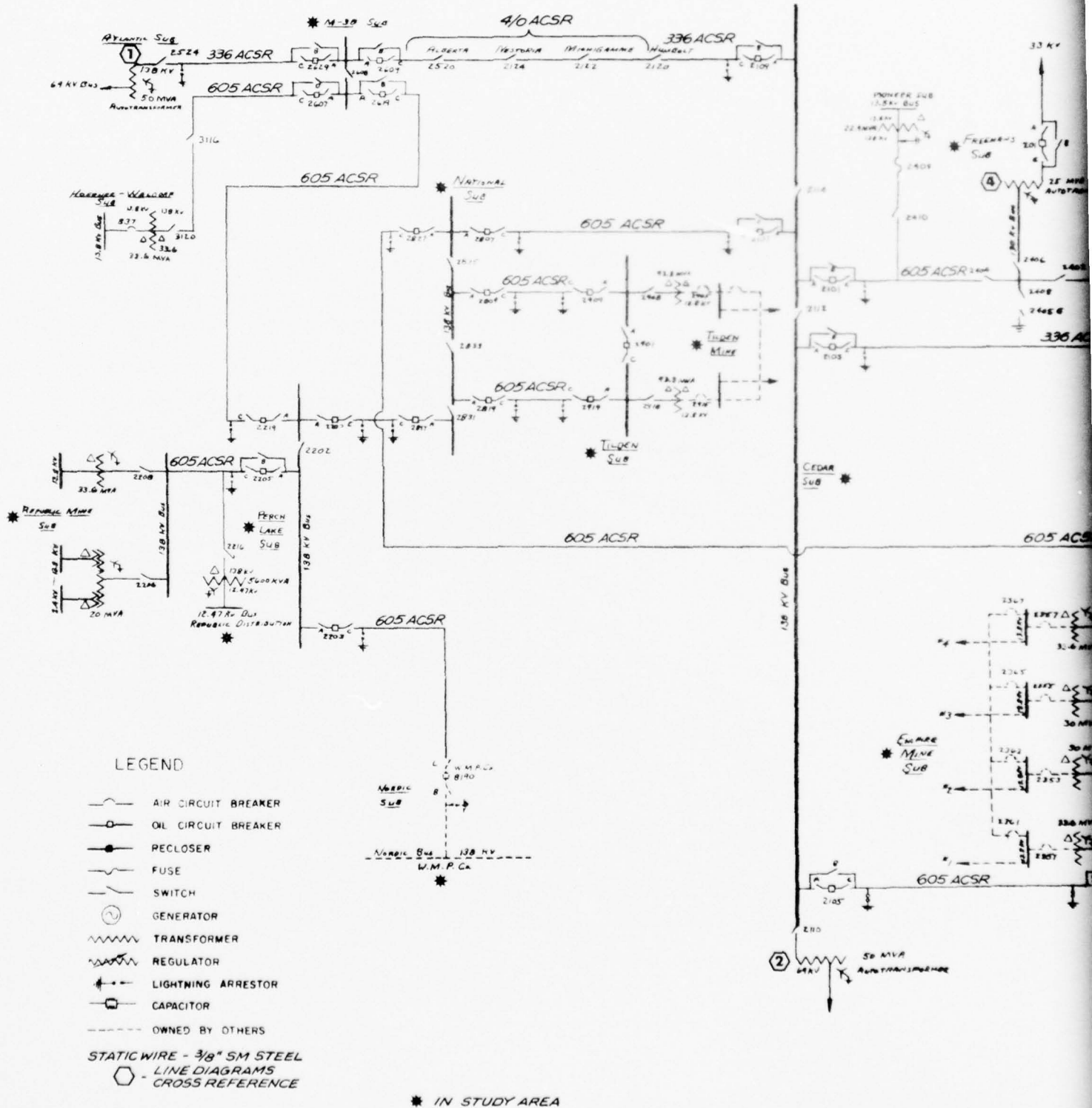
2.1.5 Projected Time-Phased Growth - Proposed Construction of New Facilities

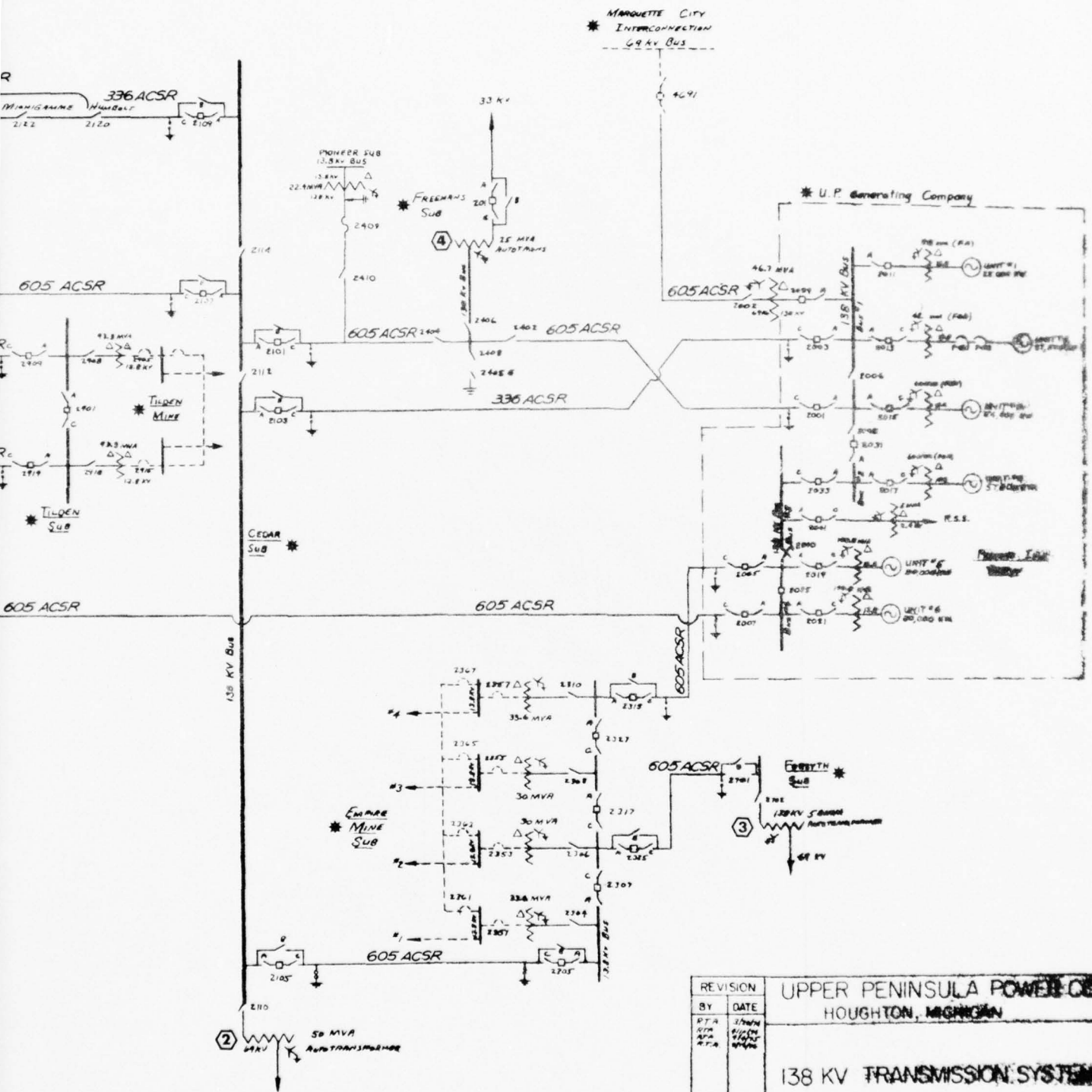
The Upper Peninsula Power Company has seven new 138 KV lines under construction. They are also proposing to rebuild an existing 69 KV line from Houghton to M-38 to provide 138 KV service. The Upper Peninsula Power Company is also planning to construct a White Pine line and substation to serve the above line. Those lines which are under construction are shown on the ELECTRICAL FACILITIES LOCATION MAPS.

The Upper Peninsula Power Company is also planning to build an 80 MW plant by 1980 in the Houghton-Hancock area. The type of fuel to be used has not been determined as yet. The Cliffs Electrical Service Company is also studying various sites for a 500 MW coal-fired plant. Three 80 MW coal-fired units are under construction at UPG Co for completion in 1978.

Data regarding the capital posture to support additional plant construction is not readily available; however, financial data as of 1974 is included in SECTION 4.1.1.

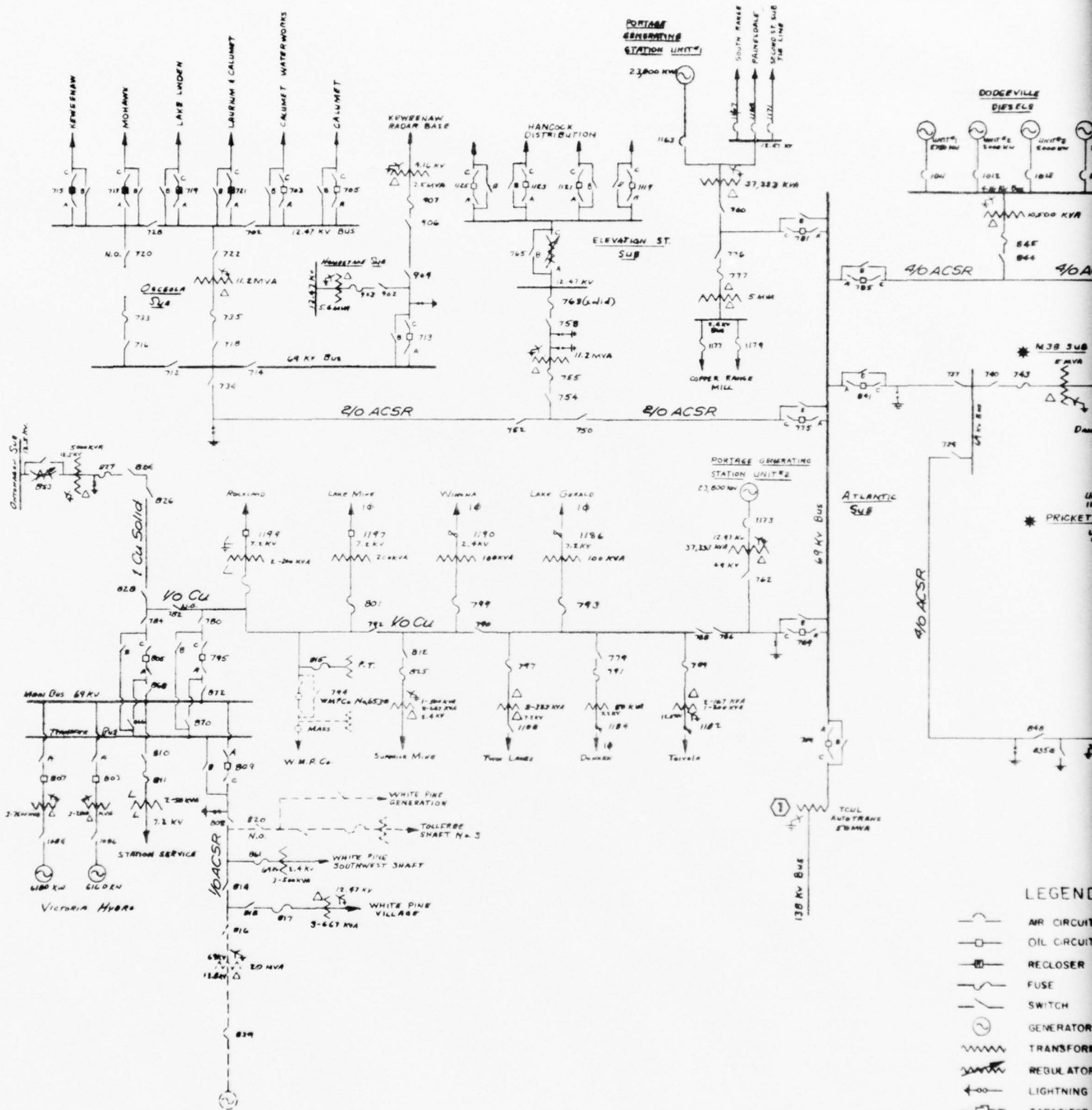
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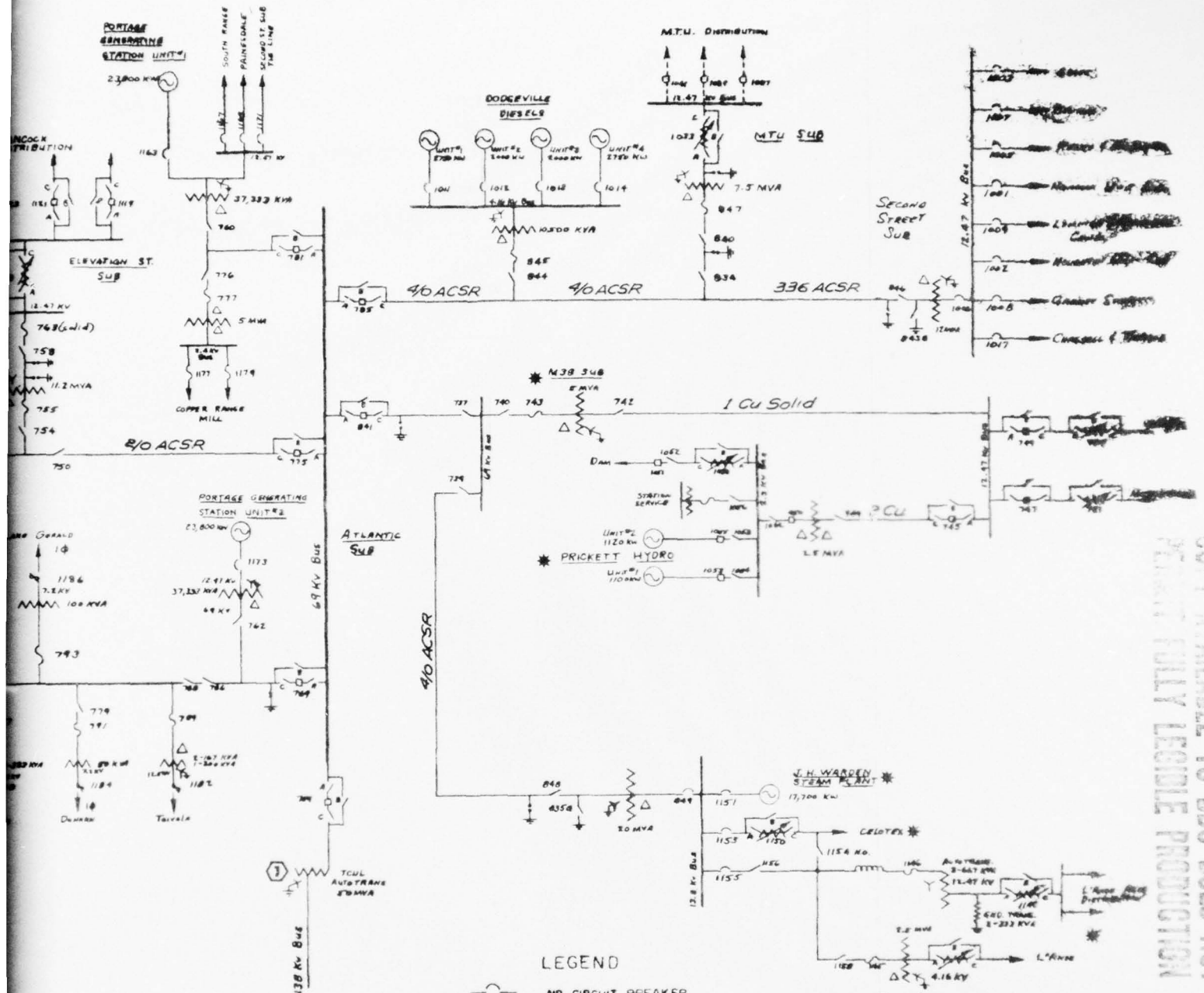
UPPER PENINSULA POWER CO
 HOUGHTON, MICHIGAN
 138 KV TRANSMISSION SYSTEM
 ONE-LINE DIAGRAM
 DRAWING: H-5048
 DRAWN BY: R.T.A. DATE: 12-13-73



WHITE PINE GEN. STATION
 3 UNITS (STEAM) - 52401 KVA - 0.85 P.F.
 2 UNITS (GAS TURBINE) - 15,000 KW

- LEGEND**
- AIR CIRCUIT
 - OIL CIRCUIT
 - RECLOSER
 - FUSE
 - SWITCH
 - GENERATOR
 - TRANSFORMER
 - REGULATOR
 - LIGHTNING
 - CAPACITOR
 - OWNED BY
 - FUSED SWITCH
 - CURRENT LIMITER
 - STATIC WIRE - 5/8"
 - LINE DIA.
 - CROSS SECTION

* IN STUDY AREA



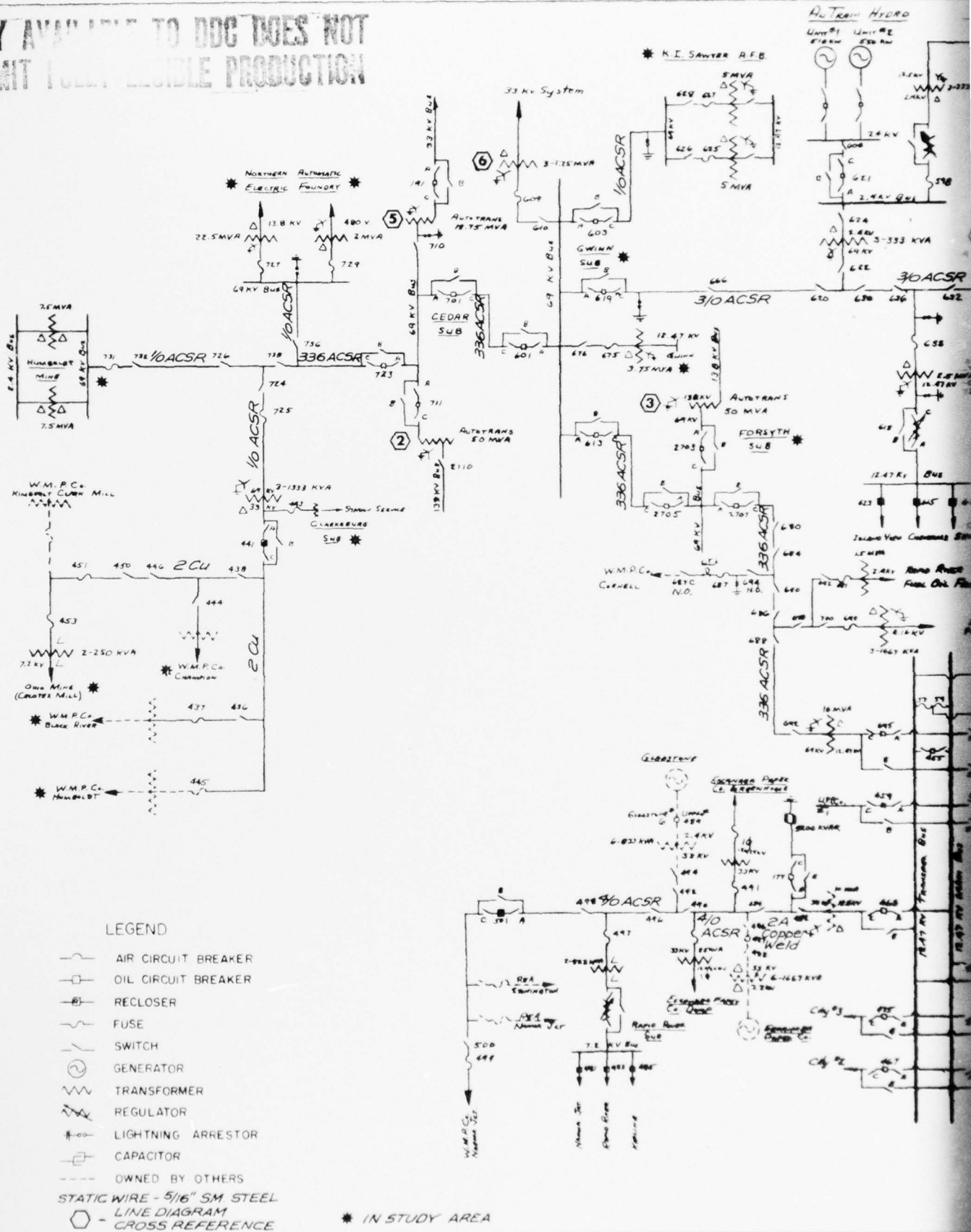
COPY AVAILABLE TO DDG DOES NOT
REPRESENT FULLY LEGIBLE PRODUCTION

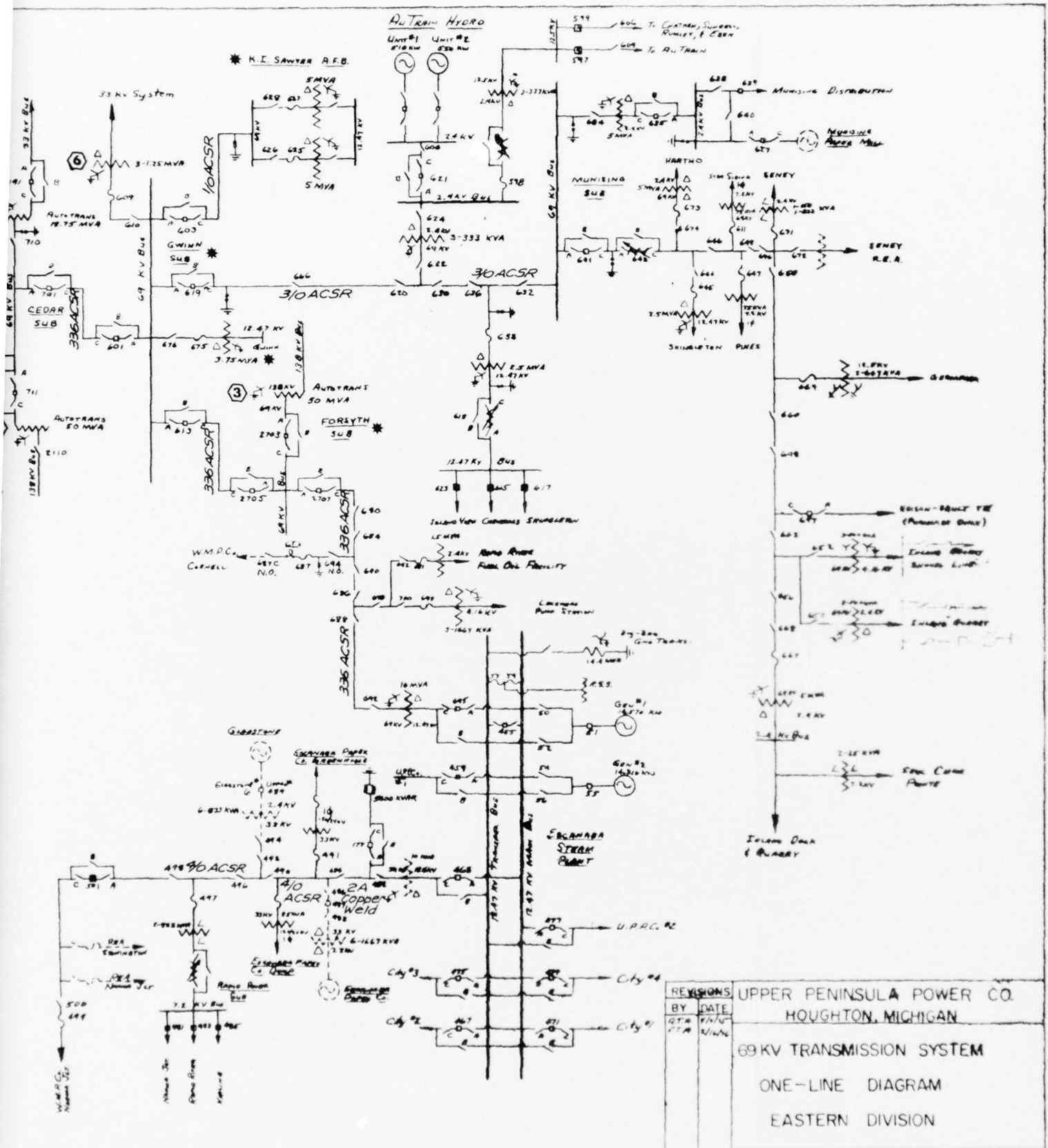
- LEGEND**
- AIR CIRCUIT BREAKER
 - OIL CIRCUIT BREAKER
 - RECLOSER
 - FUSE
 - SWITCH
 - GENERATOR
 - TRANSFORMER
 - REGULATOR
 - LIGHTNING ARRESTOR
 - CAPACITOR
 - OWNED BY OTHERS
 - FUSED SWITCH
 - CURRENT LIMITING REACTOR
 - STATIC WIRE - 5/16" SM STEEL
 - LINE DIAGRAMS
 - CROSS REFERENCE

* IN STUDY AREA

| | | | |
|---------------------------|--------|--------------------------|--|
| REVISION | | UPPER PENINSULA POWER CO | |
| BY | DATE | HOUGHTON, MICHIGAN | |
| R.T.A. | 4/1/74 | | |
| 69 KV TRANSMISSION SYSTEM | | | |
| WESTERN DIVISION | | | |
| ONE-LINE DIAGRAM | | | |
| DRAWING: H-5049 | | | |
| DRAWN BY: R.T.A. | | DATE: 3-1-74 | |

COPY AVAILABLE TO DDC DOES NOT PERMIT REPRODUCIBLE PRODUCTION

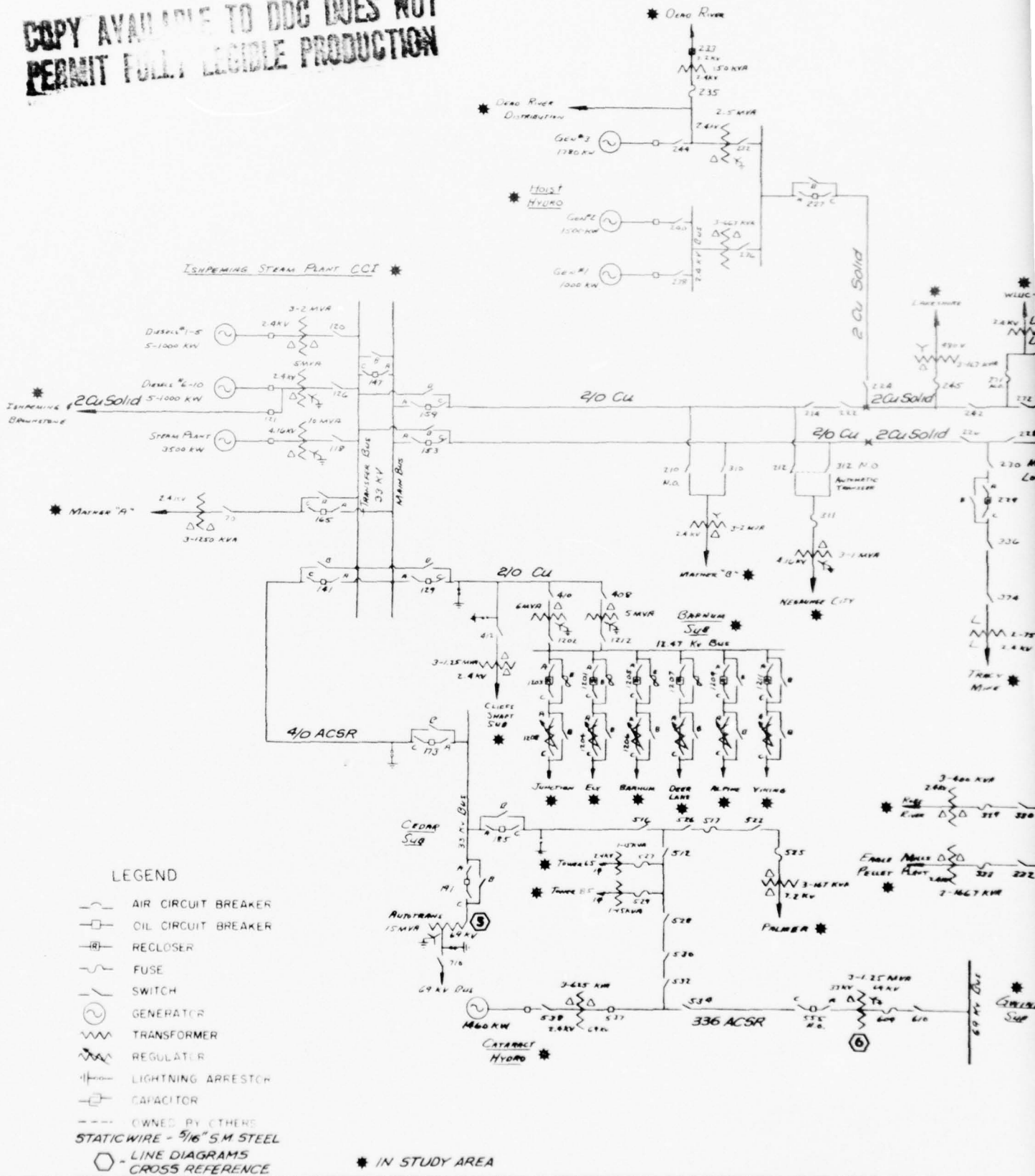




| | | |
|---|--|--|
| REVISIONS BY DATE G.T.A. 1/11/74 G.T.A. 2/1/74 | | UPPER PENINSULA POWER CO. HOUGHTON, MICHIGAN 69 KV TRANSMISSION SYSTEM ONE-LINE DIAGRAM EASTERN DIVISION |
| DRAWING: H-5050 DRAWN BY: R.T.A. | | DATE: 3-19-74 |

STUDY AREA

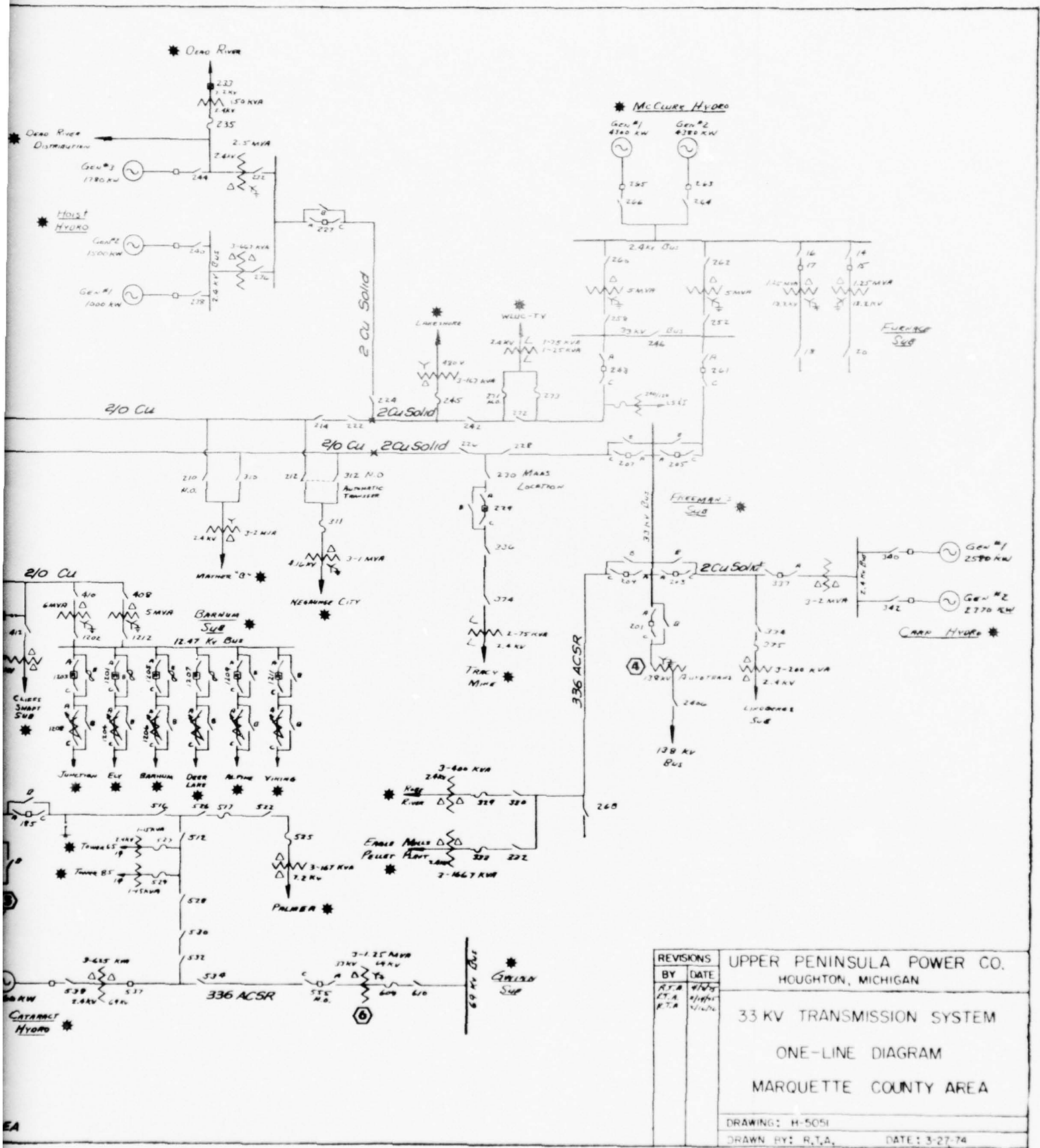
COPY AVAILABLE TO DDC DOES NOT PERMIT FULLY LEGIBLE PRODUCTION



LEGEND

- AIR CIRCUIT BREAKER
- OIL CIRCUIT BREAKER
- RECLOSER
- FUSE
- SWITCH
- GENERATOR
- TRANSFORMER
- REGULATOR
- LIGHTNING ARRESTOR
- CAPACITOR
- OWNED BY OTHERS
- STATIC WIRE - 3/16" S.M. STEEL
- LINE DIAGRAMS
- CROSS REFERENCE

* IN STUDY AREA



2.1.6 System Right-of-Way, Easements, Land Use/Co-Use Arrangements

Transmission lines are generally located on easements of approximately 100 to 110 feet in width. Approximately 10% are on Upper Peninsula Power Company owned rights-of-ways. Nearly all distribution lines are on public rights-of-ways. When this is not possible, separate easements are obtained from individual property owners. Some distribution lines are on a co-use right-of-way arrangement with local telephone companies and cable TV company. A sample of a typical easement form is included in SECTION 4.2.1.

2.1.7 Construction Cost Experience

The Upper Peninsula Power Company current construction estimates for transmission lines including easement are as follows:

138 KV line - \$85,000/mile
69 KV line - \$45,000/mile
33 KV line - \$30,000/mile
7.2 KV line - \$10,000/mile

The Upper Peninsula Power Company officials estimate that the cost of changing 10 KVA single bushing transformers to two bushing transformers is about \$300 plus the cost of modifying the distribution line to insulate the neutral conductor. This cost is estimated at about \$1,000/mile of line.

2.1.8 Grounding Practices and Insulator Data

Transmission line structures usually have a 3/8-inch steel static wire tied to ground while wood poles have the butt section spiral wrapped with copper wire with additional ground rods or masses to give reasonable minimum resistance to ground. Neutral wires are often carried on low voltage spool insulators and tied to ground at each pole. Insulators used on the lines are of the class required for the line voltage or one voltage class higher.

2.1.9 Power Interruptions/Downtime

The Upper Peninsula Power Company officials state that transmission outages due to icing occur very seldom. Transmission line outage due to lightning occurs approximately twice a year per 100 miles of line. Transmission line outages due to miscellaneous causes occur approximately once a year per 100 miles of line. The length of the outage depends on the location and cause, varying from one to three hours.

2.1.10 Rates and Charges

Detailed rates and charges for energy are included in SECTION 4.

2.1.11 Miles of Power Lines Within the Study Area

The Upper Peninsula Power Company has the following number of miles of transmission and distribution lines in the Electrical Study Area.

| | |
|---------------|-----------------|
| 138 KV - | 183 miles |
| 69 KV - | 267 miles |
| 33 KV - | 70 miles |
| 7.2/12.5 KV - | 1,720 miles |
| Underground - | <u>36 miles</u> |
| TOTAL | 2,276 miles |

TABLE 1 - MAJOR SUBSTATIONS DATA - UPPER PENINSULA POWER COMPANY

| Name | Location | No. of Transformers | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|--------------------|--------------------|-------------------------|-----------------|---------------------|---------------------------|--|---|
| | | | | Pri. | Sec. | | |
| BARNUM | ISHPEMING | 1-6 MVA 3 Ø | 1 | 33KVΔ | | 1-Ishpeming Steam Plant | #2/0 CU |
| | | 1-5 MVA 3 Ø | 6 | | 7.2/12.5KV X ₄ | 1-Junction 2-ELY 3-Barnum 4-Deer Lake 5-Alpine 6-Viking | |
| CLIFFS SHAFT | ISHPEMING | 3-1.25 MVA 1 Ø | 1 | 33KVΔ | | 1-Ishpeming Steam Plant | #2/0 CU |
| CEDAR | ISHPEMING | | 2 | 33KV X ₄ | 2.4KVΔ | 1-Cliff Shaft | #4/0 ACSR |
| | | 1-15 MVA 3 Ø Auto Trans | 2 | | 69KV X ₄ | 1-Ishpeming Steam Plant 2-Gwinn | #336 MCM ACSR #336 MCM ACSR #336 MCM ACSR |
| MATHER "B" | MATHER MINE | 1-50 MVA 3 Ø Auto Trans | 1 | 69KV X ₄ | | Bus | |
| | | 3-2 MVA 1 Ø | 4 | | 138KV X ₄ | 1-Humboldt 2-National 3-U.P. Gen Co 4-U.P. Gen Co | #336 MCM ACSR #605 MCM ACSR #605 MCM ACSR #336 MCM ACSR |
| NEGAUNEE | NEGAUNEE | 3-1 MVA 1 Ø | 2 | 33KVΔ | | 1-Ishpeming 2-Stream Plant | #2/0 CU #2/0 CU |
| | | | 1 | | 4.16KVΔ | 1-Mather "B" | |
| TRACY MINE | TRACY MINE | 2-75KVA 1 Ø Open Delta | 1 | 33KVΔ | | 1-Ishpeming | #2 Solid CU |
| | | 3-167 KVA 1 Ø | 1 | | 2.4KVΔ | 2-Stream Plant | #2/0 CU |
| LAKESHORE | LAKESHORE | | 1 | 33KVΔ | | 1-Negaunee | #2 Solid CU |
| | | | 1 | | 480V X ₄ | | #2 Solid CU |
| WLOC - TV ELY TWP. | WLOC - TV ELY TWP. | 1-75 KVA 1 Ø | 2 | 33KVΔ | | | #2 Solid CU |
| | | 1-25 KVA 1 Ø Open Delta | 1 | | 2.4KVΔ | | #2 Solid CU |
| FREEMAN | FREEMAN | 1-25 MVA 3 Ø Auto Trans | 4 | 33KVΔ | | | #2 Solid CU #2 Solid CU |
| | | | 2 | | 138KV X ₄ | | #2 Solid CU #2 Solid CU #336 MCM ACSR #2 Solid CU #605 MCM ACSR |

TABLE 1 - Major Substations Data - Upper Peninsula Power Company - Continued

| Name | Location | No. of Transformers | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|---------------|--|---|-----------------|----------|---------|---|--|
| | | | | Pri. | Sec. | | |
| LINDBERGS | | 3-200 KVA 1 Ø | 1 | 33KVΔ | 1 | 1 | #2 Solid CU |
| ROBE RIVER | | 3-400 KVA 1 Ø | 1 | 33KVΔ | 2.4KVΔ | 1-Lindbergs | Cust. Bus #336 MCM ACSR |
| EAGLE MILLS | | 3-1667 KVA 1 Ø | 1 | 33KVΔ | 2.4KVΔ | 1 | Cust. Bus #336 MCM ACSR |
| GWINN | | 3-1.25 MVA 1 Ø | 1 | 33KVΔ | 2.4KVΔ | 1 | Cust. Bus #336 MCM ACSR |
| | | 1-3.75 MVA 3 Ø | 4 | 69KVΔ | 69KVΔ | 1-Cedar Sub 1-KI Sawyer 2-Munising 3-Cedar 4-Forsyth Bus | #170 ACSR #336 MCM ACSR #336 MCM ACSR #336 MCM ACSR |
| M-38 | M-38 ROAD AT GRIST-MILL ROAD (DETAILED MAPS SHOW ROAD AS M-35) | 1-5 MVA 3 Ø | 2 | 69KVΔ | 12.5KVΔ | 1-Gwinn 1-Atlantic Sub 2-Warden StmPnt | #4/0 ACSR #4/0 ACSR |
| FALLS RIVER | L'ANSE | 1-2.5 MVA 3 Ø | 1 | 13.8KVΔ | 12.5KVΔ | 1-Baraga 2-Alston-Pelkie 3-Prickett Hydro 1-Warden StmPnt | #1 Solid CU #2 CU |
| L'ANSE | L'ANSE | 3-667 KVA 1 Ø Auto Trans (3-333 KVA 1 Ø) Grd Trans | 2 | 13.8KVΔ | 4.16KVΔ | 1-L'Anse | #1/0 ACSR Ø |
| K.I. SAWYER | K.I. SAWYER | 2-5 MVA 3 Ø | 1 | 69KVΔ | 12.5KVΔ | 1-L'Anse Area | #2/0 ACSR |
| FORSYTH | FORSYTH | 1-50 MVA 3 Ø Auto Trans | 1 | 138KVΔ | 12.5KVΔ | 2-L'Anse Area 1-Gwinn | 4 Sol CU #1/0 ACSR |
| CLARKSBURG | CLARKSBURG | 3-1333 KVA 1 Ø | 2 | 69KVΔ | 69KVΔ | 1-K.I. Sawyer 1-Empire Mine 2-Escanaba 1-Cedar | Cust. Bus #605 MCM ACSR #336 MCM ACSR #336 MCM ACSR |
| HUMBOLDT MINE | HUMBOLDT MINE | 2-7.5 MVA 3 Ø | 2 | 69KVΔ | 33KVΔ | 1-Ohio Mine 1-Clarksburg 2-Humboldt Mine | #2 CU #336 MCM ACSR #1/0 ACSR |
| | | | 1 | 2.4KVΔ | 2.4KVΔ | 1-Mine | Cust. Bus |

TABLE 1 - Major Substations Data - Upper Peninsula Power Company - Continued

| Name | Location | No. of Transformers | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|------------------------------------|------------------------------------|---------------------|-----------------|----------|--|--|-----------------|
| | | | | Pri. | Sec. | | |
| NORTH ELECTRIC AUTOMATIC FDRY | Sec 1, T47N, R29W ELY TWP. | 1-22.5 MVA 3 Ø | 1 | 69KVΔ | 1-Cedar Sub | #170 ACSR | |
| | | | 1 | 69KVA | 1-Cust. | Cust. Bus | |
| | | | 1 | 480V | 1-Cust. | #170 ACSR | |
| EMPIRE MINE RICHMOND TWP. | EMPIRE MINE RICHMOND TWP. | 4-30 MVA 3 Ø | 3 | 138KVΔ | 1-National Sub 2-Forsyth Sub 3-U.P. Gen Co | Cust. Bus #605 MCM, ACSR #605 MCM, ACSR #605 MCM, ACSR | |
| | | | 4 | 13.8KVΔ | 1-Mine 2-Mine 3-Mine 4-Mine | Cust. Bus Cust. Bus Cust. Bus Cust. Bus | |
| | | | 6 | 138KVA | 1-Cedar Sub 2-U.P. Gen Co 3-Perch Lake 4-Tilden Sub 5-Tilden Sub 6-Empire Sub | #605 MCM, ACSR #605 MCM, ACSR #605 MCM, ACSR #605 MCM, ACSR #605 MCM, ACSR #605 MCM, ACSR | |
| | | | 2 | 138KVA | 1-National Sub 2-National Sub | #605 MCM, ACSR #605 MCM, ACSR | |
| NATIONAL | TILDEN TWP. | None | 2 | 13.8KVΔ | 1-Mine | - | |
| | | | 3 | 138KVΔ | 1-Republic 2-National Sub 3-WMP Co | #605 MCM, ACSR #605 MCM, ACSR #605 MCM, ACSR | |
| TILDEN | TILDEN MINE | 2-50 MVA 3 Ø | 1 | 138KVΔ | 1-Republic Dist 1-Perch Lake | #770 ACSR #605 MCM, ACSR | |
| | | | 1 | 138KVA | 1-Mine | - | |
| | | | 2 | 13.8KVΔ | 1-Distribution | - | |
| PERCH LAKE | CHAMPION TWP. | 1-5 MVA 3 Ø | 1 | 138KVΔ | 1-Distribution | - | |
| | | | 1 | 138KVA | 1-Distribution | - | |
| REPUBLIC MINE SOUTH OF REPUBLIC | REPUBLIC TWP. SOUTH OF REPUBLIC | 1-30 MVA 3 Ø | 1 | 138KVΔ | 1-Distribution | - | |
| | | | 1 | 138KVA | 1-Distribution | - | |
| PIONEER | PIONEER | 1-20MVA 3 Ø | 1 | 138KVΔ | 1-Cust. | #336 MCM, ACSR | |
| | | | 1 | 13.8KVΔ | 1-Cust. | Cust. Bus | |

Note: UPP Co has one mobile substation for emergency use.

2.2 WISCONSIN MICHIGAN POWER COMPANY

The individuals contacted during the data gathering phase of the study (two separate visits) were Al Alatalo, System Planning Engineer, and Norb Schemm, Supervisor of Engineering Services for Wisconsin Michigan Power Company. Their address is 807 South Oneida; Appleton, Wisconsin 54911. The telephone number is (414) 734-1411. The person to contact in the future is Otto R. Boll, Manager of Engineering. Two visits were made to the Iron Mountain office to obtain data from Edward Koerschner, Manager, and Willard Miller, Superintendent. The latter gentleman provided a great deal of help by annotating power company maps with line data not available from any other source.

2.2.1 Service Area

Although the main headquarters of Wisconsin Michigan Power Company are located in Milwaukee and Appleton, Wisconsin, the service area extends throughout eastcentral and northern Wisconsin and into the Upper Peninsula of Michigan. Power service is provided in the southcentral portion of the Upper Peninsula - primarily in Iron and Dickinson Counties. Wisconsin Michigan Power Company has franchise rights in townships extending from Gogebic to Schoolcraft Counties and north to Lake Superior; however, similar franchise rights are also granted to other power companies who provide various levels of service in these areas.

2.2.2 Outside Power Sources and Interconnections

Electrical energy is purchased by Wisconsin Michigan Power Company from Upper Peninsula Power Company to serve customers in three small areas. The points of purchase are Champion, Diorite and Black River (also know as Humboldt).

Interconnections also exist with Upper Peninsula Power Company at three points to either balance loads or provide alternate sources. At Nordic in Dickinson County, an interconnection (normally closed) is governed by a continuing agreement with specific

limitations as to usage by either company; however, the limits are exceeded quite often. At Mass in Ontonagon County and Cornell in Delta County, interconnections (normally open) are maintained for emergency purposes only. These two connections are manually operated.

2.2.3 Generating Plants

In the Upper Peninsula, Wisconsin Michigan Power Company power is all produced by hydro plants on the Menominee, Brule, Pine, Sturgeon, Michigamme and Paint Rivers. Some power could be provided by the Point Beach Nuclear Plant located to the south in Wisconsin.

Although the total system load is currently 439,000 KW, only 95,362 KW is utilized in the Upper Peninsula or Northern Division, as it is referred to by Wisconsin Michigan Power Company.

The following list provides a breakdown of the major Upper Peninsula generating plants within the SEAFARER Study Area.

| <u>Name</u> | <u>Location (Nearest Community)</u> | <u>Capacity KW</u> | <u>Fuel</u> | <u>Percentage* Utilization Range</u> |
|---------------------------|---|------------------------|-------------|--|
| Twin Falls | Iron Mountain, MI | 6,490 | Hydro | 60-95 |
| Brule | Florence, WI | 6,666 | Hydro | 47-75 |
| Pine | Florence, WI | 4,000 | Hydro | 50-100 |
| Sturgeon | Loretto, MI | 1,000 | Hydro | 80 |
| Big Quinnesec Falls | Iron Mountain, MI | 17,778 | Hydro | 79-100 |
| Chalk Hill | Amberg, WI | 9,750 | Hydro | 42-68 |
| White Rapids | Amberg, WI | 10,000 | Hydro | 60-86 |
| Peavy Falls | Randville, MI | 15,000 | Hydro | 93-100 |
| Way | Crystal Falls, MI | 1,800 | Hydro | 0-100 |
| Lower Michigamme Falls | Florence, WI | 10,667 | Hydro | 80-88 |
| Hemlock Falls | Crystal Falls, MI | 3,111 | Hydro | 32-84 |
| Lower Paint | Crystal Falls, MI | 100 | Hydro | 100 |
| **Kingsford | Kingsford, MI | 9,000 | Hydro | 55-68 |

TOTAL 95,362

* Variations based on monthly low to high flows within a dependable range over a 30-year record.

** Switching only.

2.2.4 Transmission and Distribution System

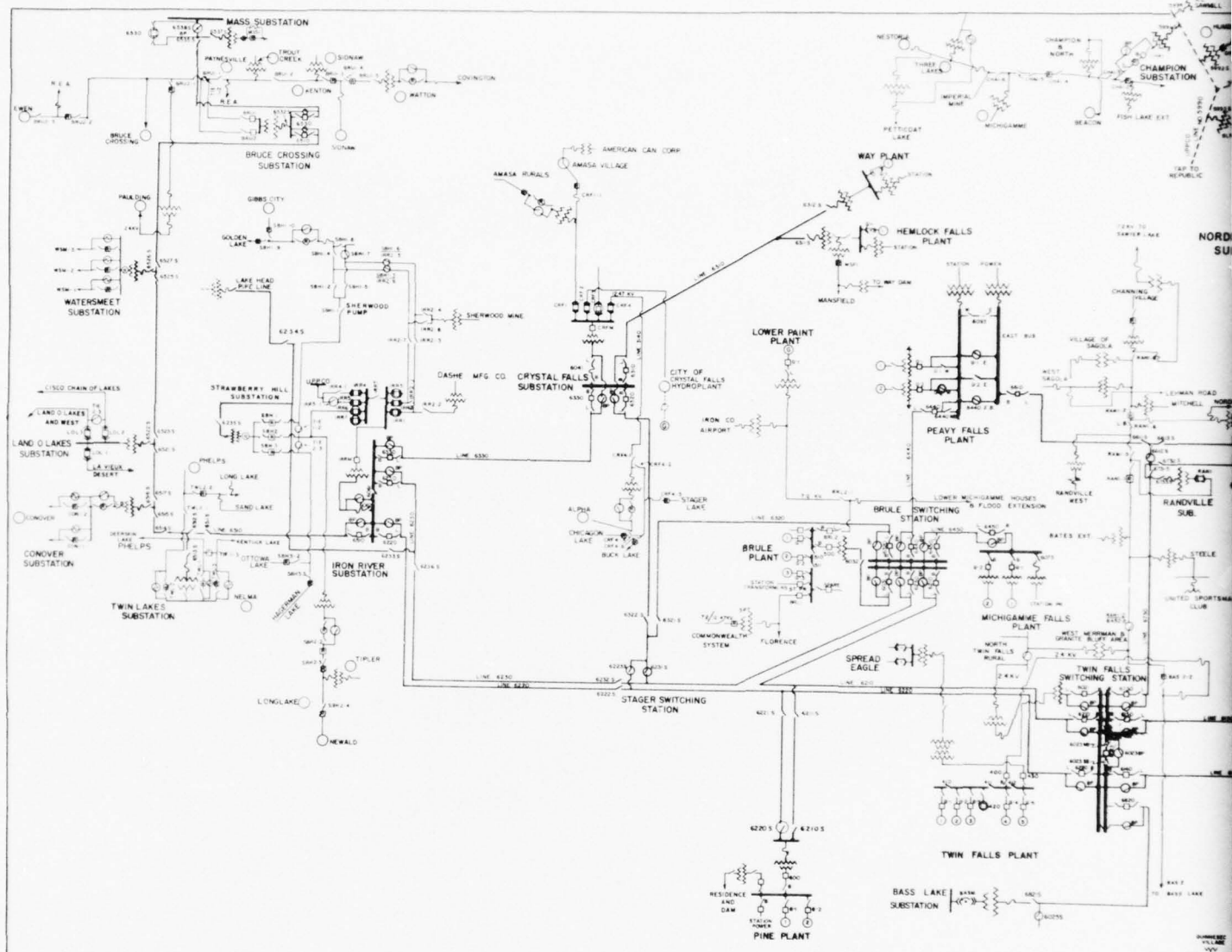
Within the Upper Peninsula, Wisconsin Michigan Power Company develops its power primarily on the Brule and Menominee Rivers on the border between Michigan and Wisconsin. Power is generated at 480 V, 2.3 KV, 4.16 KV, 6.6 KV and 6.9 KV and stepped up to 69 KV for transmission throughout the area. In limited areas, the 7.2 KV, 12.47 KV or 13.8 KV distribution system is utilized for transmitting outputs from hydro generating stations.

The Plains substation, located west of Norway, Michigan, receives power from the 138 KV network. The 138 KV lines to this substation are tied into the Wisconsin bulk electrical energy transmission network. One 138 KV line from Plains substation provides electrical energy to the Nordic substation and to an interconnection with the Upper Peninsula Power Company.

Plains and Nordic substations are the major 69 KV sources for the northern 69 KV network. The Nordic substation is located three miles west of Felch, Michigan. Data on major substations is included in TABLE 2.

The location of generating plants, substations, and transmission and distribution lines are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location on a side of a road right-of-way, pole or tower number, etc. are shown on separate maps prepared by Wisconsin Michigan Power Company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report and prints are available from GTE Sylvania.

The ONE-LINE DIAGRAM delineates the entire Northern Division system of Wisconsin Michigan Power Company.

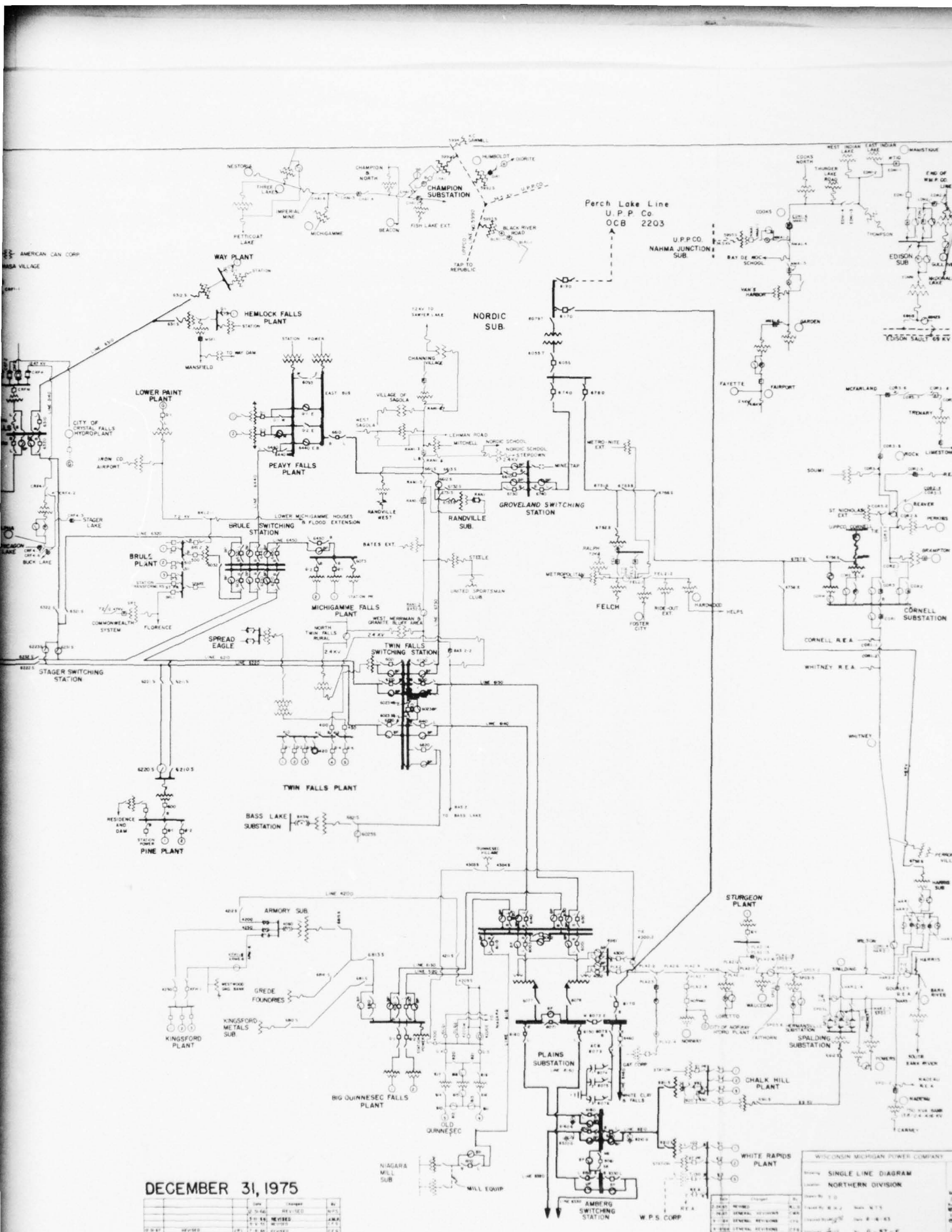


- LEGEND**
- COMMUNITY
 - ⊖ DISCONNECT SWITCH
 - ⚡ ELECTRICAL THROW OVER SWITCH
 - ⊗ LOAD BREAK SWITCH
 - ⊕ SWITCH NORMALLY OPEN
 - ⊖ FUSE
 - ⊖ TWO SHOT FUSE
 - ⊖ THREE SHOT FUSE
 - ⊖ TRANSFORMER
 - ⊖ AIR CIRCUIT BREAKER DRAW OUT TYPE
 - ⊖ OIL CIRCUIT BREAKER
 - ⊖ OIL CIRCUIT BREAKER DRAW OUT TYPE
 - ⊖ OIL CIRCUIT RECLOSER
 - ⊖ REGULATOR
 - ⊖ GENERATOR
 - ⊖ CAPACITOR SWITCHED
 - ⊖ METERING
 - CONNECTED LINES
 - CROSSING LINES
 - 13.8 KV LINE UNLESS OTHERWISE INDICATED
 - 69 KV LINE UNLESS OTHERWISE INDICATED
 - 138 KV LINE

DECEMBER 31, 1975

| NO. | REVISION | DATE | BY | CHKD. |
|-----|----------|----------|--------------|--------------|
| 1 | ISSUED | 12-31-75 | J. W. HARRIS | J. W. HARRIS |
| 2 | REVISED | 1-15-76 | J. W. HARRIS | J. W. HARRIS |
| 3 | REVISED | 2-15-76 | J. W. HARRIS | J. W. HARRIS |
| 4 | REVISED | 3-15-76 | J. W. HARRIS | J. W. HARRIS |





DECEMBER 31, 1975

| DATE | BY | REVISION | DESCRIPTION |
|----------|--------|----------|----------------|
| 12/31/75 | W.P.S. | 1 | INITIAL DESIGN |
| 12/31/75 | W.P.S. | 2 | REVISED |
| 12/31/75 | W.P.S. | 3 | REVISED |
| 12/31/75 | W.P.S. | 4 | REVISED |
| 12/31/75 | W.P.S. | 5 | REVISED |
| 12/31/75 | W.P.S. | 6 | REVISED |
| 12/31/75 | W.P.S. | 7 | REVISED |
| 12/31/75 | W.P.S. | 8 | REVISED |
| 12/31/75 | W.P.S. | 9 | REVISED |
| 12/31/75 | W.P.S. | 10 | REVISED |

WISCONSIN MICHIGAN POWER COMPANY
 SINGLE LINE DIAGRAM
 NORTHERN DIVISION
 6-57-E

2.2.5 Projected Time-Phased Growth and Posture to Support Additional Facilities

Data regarding the capital posture to support additional facilities construction is not readily available. The financial condition as of 1974 is shown in SECTION 4.1.2.

2.2.6 System Right-of-Way, Easements

Except in rare cases where property is deeded to Wisconsin Michigan Power Company, power lines are located in easements or road rights-of-ways. The 69 KV transmission lines are generally located within 100-foot easements. Distribution lines at 13.8 KV and lower voltages are generally located in road rights-of-ways or in trim easements 15 feet either side of the power line. The acquisition of rights to install electric lines on property in Upper Michigan is accomplished utilizing the following described forms:

WMP Co. form 111-33B - used for individuals, corporations, etc. when it is necessary to acquire a right-of-way of substantial width and maintain it free of obstruction.

WMP Co. form 111-34B - used for individuals, corporations, etc. when it is necessary to acquire a right-of-way of minimal width and maintain it free of trees and brush.

Special Use Permit - obtained from the U. S. Department of Agriculture Forest Service for the installation of an electric line on National Forest lands.

Service Line Agreement - obtained from the U. S. Department of the Interior, Bureau of Indian Affairs for the installation of an electric line on Indian lands.

Easement - obtained from the State of Michigan Department of Natural Resources for the installation of an electric line on State of Michigan lands.

Conditional Permit - obtained from the State of Michigan Department of Natural Resources for the installation of a buried cable across a river.

All right-of-way clearing is done by contract and the wood is disposed of as requested by the property owner. Easements are documented and can be obtained from Wisconsin Michigan Power Company in specific areas. A sample of these and other right-of-way documents are included in SECTION 4.2.2.

2.2.7 Construction Cost Experience

Wisconsin Michigan Power Company officials estimate that 1976 construction costs will be:

| | | | |
|---------|-----|------------|-----------------|
| 69.0 KV | 3 Ø | Wood Poles | - \$51,000/mile |
| 13.8 KV | 3 Ø | Wood Poles | - \$19,000/mile |
| 7.2 KV | 1 Ø | Wood Poles | - \$10,000/mile |

2.2.8 Grounding Practices and Insulator Data

Ground type substations have all steel and equipment connected to a ground mass of 10 ohms resistance or less. Transformer cases, grounded wye neutrals, and static wires are connected to the substation ground mass. Substation fences are connected to separate a ground mass of 25 ohms or less.

Steel towers have two grounds driven into the ground at opposite tower legs, with the static wires fastened to the tower steel.

On wooden pole lines (69 KV), each pole has a driven ground rod with a connection to the static wire.

Grounding of distribution lines below 15 KV falls into three classes, depending on the area and line system.

1. Ungrounded wye system which has no ground except equipment grounding.

2. Uniground system which is grounded at the source (substation or transformer) and the ground wire is carried along on insulators. The 3-phase system has 4 wires. Ground is tested for 25 ohms or less. If this is not achieved, two rods (5/8" x 8') are driven.

3. True multiground wye system which has a ground rod (5/8" x 8') driven at every other pole with no testing required and grounded at transformer with connection to transformer neutral.

Insulators on lines are of the voltage class of the line or one voltage class higher.

2.2.9 Power Interruptions/Downtime

SECTION 4.3.1 contains samples of the type of outage records available. Specific outage records are available from Wisconsin Michigan Power Company describing interruptions, downtime, causes, etc., all on computer printouts. The system is thorough and instantly recallable on viewing machines.

2.2.10 Rates and Charges

Complete data pertaining to rates and charges for Wisconsin Michigan Power Company is included in SECTION 4.4.2.

2.2.11 Miles of Power Lines

Within the study area, Wisconsin Michigan Power Company has the following number of miles of both transmission and distribution lines:

| | |
|---------------------------|-----------------|
| 138 KV - | 286 miles |
| 2.4 KV, 7.2 KV, 13.8 KV - | 1,945 miles |
| Underground - | <u>33</u> miles |

TOTAL 2,264 miles

TABLE 2 - MAJOR SUBSTATIONS DATA - WISCONSIN MICHIGAN POWER COMPANY

| Name | Location | No. of Transformers | No. of Bushings | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|----------------------------|---------------------------------|---------------------------------------|-------------------------|----------------------------------|----------|----------------|----------------|--|
| | | | | | Pri. | Sec. | | |
| ARMORY | KINGSFORD, MI | 1-10 MVA 3 Ø | 3 HSA 4 LSY | 1 | 69KV | 13.8KV | 4 | #336 MCM ACSR 2 #336 MCM ACSR 2 #2/0 Cu |
| BASS LAKE | IRON MOUNTAIN CITY | 1-10 MVA 3 Ø | 3 HSA 4 LSY | 1 | 69KV | 13.8KV | 5 | #336 MCM ACSR 3 #336 MCM ACSR #2/0 ACSR #2 ACSR |
| BRULE CROSSING | STANFORD TWP. MONTONAGON CO. | 1-3 MVA 3 Ø | 3 HSA 3 LSA | 2 | 69KV | 13.8KV | 3 | #2/0 & #1/0 ACSR 2 #336 MCM ACSR and #2/0 ACSR |
| CHALKHILL - SPAULDING | HOLMES TWP. | 1-7.5 MVA 3 Ø | 3 LSA 4 HSA | 1 | 2.4KV | 69KV | 1 | Station Bus #2/0 ACSR |
| CHAMPION | CHAMPION TWP. | 6-500 KVA 1 Ø In 2-3 Ø Banks | 2 HSA | (All Delta) | 34.5KV | 13.8KV | 1 | Cust. Bus #336 MCM ACSR |
| CORNELL | CORNELL TWP. | 1-7.5 MVA 3 Ø | 3 HSA 3 LSA | 1 | 69KV | 13.8KV | 3 | #336 MCM ACSR 2 #2/0 ACSR and #1/0 ACSR |
| CRYSTAL FALLS | CRYSTAL FALLS TWP. | 3-2 MVA 1 Ø | 2 HSA 2 HSY | 3 | 69KV | 12.47KV | 3 | #2/0 Cu Strd and #336 MCM ACSR |
| FELCH | FELCH TWP. | 3-420 KVA 1 Ø | 2 HSY | 1 | 69KV | 13.8KV | 2 | #336 MCM ACSR 2 #2 ACSR |
| GREDE* | KINGSFORD CITY | 3-2.5 MVA 1 Ø | 2 HSA | 1 | 69KV | 13.8KV | 1 | #2/0 ACSR Cust. Bus |
| GROVELAND MINE* HARRIS | FELCH TWP. HARRIS TWP. | CUSTOMER OWNED Ø BUS - 1-6 MVA 3 Ø | 4 HY 3 LSA | MINE HAS A 35 MW LOAD ON WMP CO. | 69KV | 13.8KV | 3 | #336 MCM ACSR 2 #2/0 ACSR and #336 MCM ACSR |
| IRON MOUNTAIN EAST SIDE | IRON MOUNTAIN CITY | 1-1.5 MVA 3 Ø | 3 HSA 4 LY | 1 | 13.8K | 4160V | 2 | #2/0 Cu Strd and #336 MCM ACSR 2 #4/0 ACSR and #2/0 ACSR and #336 MCM ACSR |
| IRON RIVER | IRON RIVER CITY | 3-2.5 MVA 1 Ø | 2 HSA | 4 | 69KV | | 4 | 4 #2/0 Cu Strd #2/0 ACSR Cust. Bus |
| KINGSFORD METALS | BREITUNG TWP. | 3-2 MVA 1 Ø | 2 LSA 2 HSA 2 LSA | 1 | 69KV | 7.2KV 4160V | 1 | |

* Customer Owned

TABLE 2 - Major Substations Data - Wisconsin Michigan Power Company - Continued

| Name | Location | No. of Transformers | No. of Bushings | No. of Circuits | Voltages Pri. Sec. | No. of Feeders | Size of Feeders |
|--|------------------------------------|---------------------|-------------------------------------|--|--------------------|----------------|--|
| LAKEHEAD * PIPELINE (GAS) LAND-O-LAKES | IRON RIVER TWP. WATERSMEET TWP. | 1-3.75 MVA 3 Ø | 3 HΔ 4 LΔ | 1 | 69KV 4160V | 1 | #3/0 ACSR Cust Bus #2/0 ACSR |
| MASS | GREENLAND TWP. | 3-500 KVA 1 Ø | 2 HΔ 2 LY | 1 Plus UPPCo Interconnec- tion normally open (69KV) | 69KV 12.47KV | 3 | #2/0 ACSR #1/0 ACSR #2/0 ACSR |
| NORDIC | FELCH TWP. | 1-150 MVA 3 Ø | 4 HY | 2 one from UPP Co, one from WMP Co | 138KV | 1 | #795 MCM ACSR (WM) (UPP Co) |
| PLATTS | BREITUNG TWP. | 2-50 MVA 3 Ø | 4 LY 4(138)Y 4 Ø 138KV 4(69)Y | 4 | 69KV 138KV | 2 4 | 2 #336 MCM ACSR 2 #4/0 ACSR and #795 MCM ACSR |
| RANDVILLE | SAGOLA TWP. | 1-1 MVA 3 Ø | 3(13.8)Δ 3 HΔ | 2 one of which is normally open | 69KV | 5 2 | 3 #4/0 ACSR 2 #1/0 Cu Strd 2 #2/0 Cu Strd 1 #2/0 Cu Strd 1 #336 MCM ACSR |
| SPALDING | SPALDING TWP. | 1-5 MVA 3 Ø | 3 LΔ 3 HΔ 3 LΔ | 1 | 69KV 13.8KV | 2 3 | 2 #1/0 ACSR #2/0 ACSR 2 #336 MCM ACSR and #1/0 Cu Strd |
| TWIN LAKE | | 1-3.75 MVA 3 Ø | 3 HΔ 3 LY | 1 | 69KV 13.8KV | 3 | #2/0 ACSR 2 #2/0 ACSR and #336 MCM ACSR #2/0 ACSR |
| WATERSMEET | WATERSMEET TWP. | 3-500 KVA 1 Ø | 2 HΔ 2 LY | 1 | 69KV 12.47KV | 3 | 2 #2/0 ACSR and #336 MCM ACSR #3/0 ACSR |
| STRAWBERRY HILL | | 1-3.75 MVA 3 Ø | 3 HΔ 4 LY | 1 | 69KV 13.8KV | 3 | 2 #336 MCM ACSR and #4/0 ACSR |

* Customer Owned
Not in area

Note: WMP Co has four mobile substations on flat beds used in emergencies. Voltages are extremely flexible for use in the system up to 69 KV

2.3 MARQUETTE BOARD OF LIGHT AND POWER

The office of the Marquette Board of Light and Power is located at 2200 Wright Street, N.W.; Marquette, Michigan. The telephone number is (906) 228-6900. Mr. Wilbert Wiitala is the Director, Mr. Ed Buska is the Production Superintendent, and Mr. Ted Nelson is the Assistant Production Superintendent.

2.3.1 Service Area

The Marquette Board of Light and Power services the entire City of Marquette and a large area adjacent to the City in all directions.

2.3.2 Outside Power Sources and Interconnections

The Marquette Board of Light and Power buys electrical energy from the Upper Peninsula Power Company. They have an interconnection for the purpose of selling electrical energy with the Alger Delta Cooperative Electrical Association.

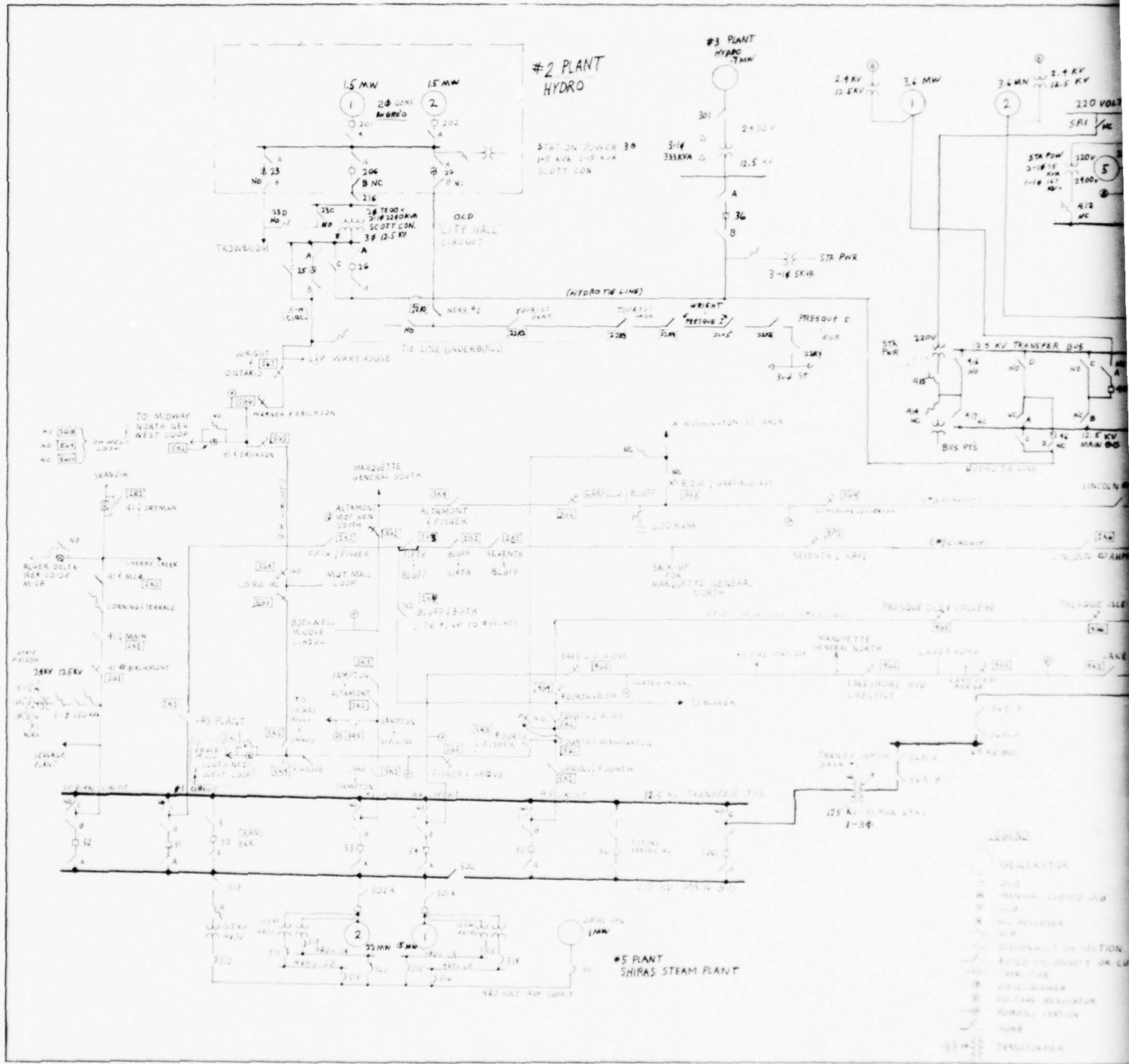
2.3.3 Generating Plants

The following generating plants are operated by the Marquette Board of Light and Power.

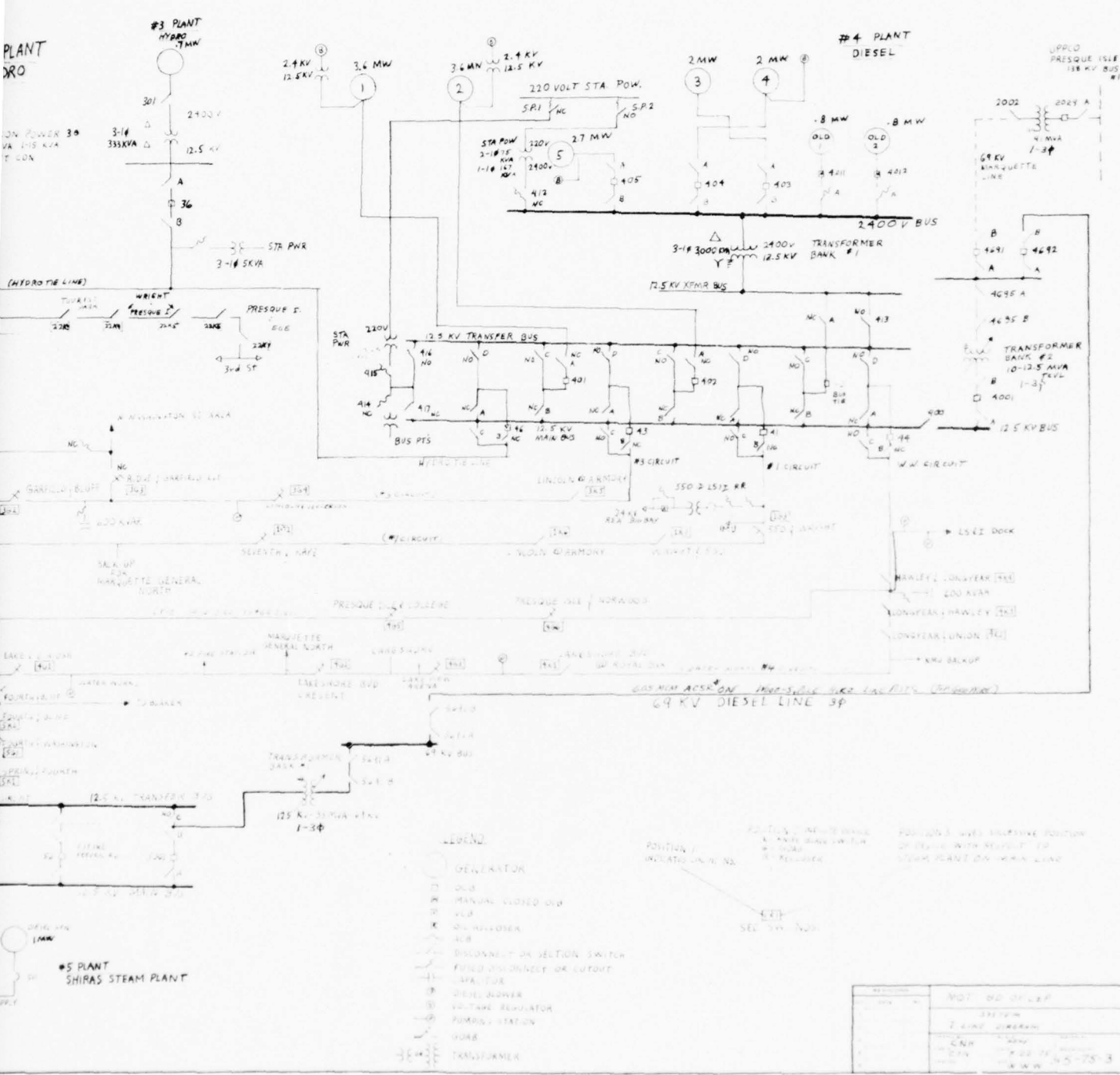
| <u>Name</u> | <u>Location</u> | <u>Capacity KW</u> | <u>Fuel</u> | <u>Utiliza- tion</u> |
|-------------------|-----------------------|------------------------|-------------------------|--------------------------|
| #2 Hydro Station | Dead River/Wright St. | 3,000 | Hydro | 70% |
| #3 Hydro Station | Dead River/CR 550 | 700 | Hydro | 70% |
| #4 Diesel Station | Dead River/CR 550 | 15,500 | Diesel Oil | 60% |
| #5 Shiras Station | Foot of Hampton St. | 38,000 | Diesel Oil & Coal | 60% |
| | | <u>TOTAL</u> | | |
| | | 57,200 | | |

2.3.4 Transmission and Distribution System

Data regarding major substations is included in TABLE 3. A ONE-LINE DIAGRAM is also reproduced for the entire Marquette Board of Light and Power System.



COPY AVAILABLE TO DDC DOES NOT PERMIT FULLY LEGIBLE PRODUCTION



PLANT #3
HYDRO
7 MW

PLANT #4
DIESEL

PLANT #5
SHIRAS STEAM PLANT

LEGEND

- GENERATOR
- OPEN
- ⊗ MANUAL CLOSED OPEN
- ⊙ VCB
- ⊕ AIR BREAKER
- ⊖ DISCONNECT OR SECTION SWITCH
- ⊚ FUSED DISCONNECT OR CUTOFF
- ⊛ PUMP
- ⊜ DIESEL GENERATOR
- ⊝ VOLTAGE REGULATOR
- ⊞ PUMPS SECTION
- ⊟ GURB
- ⊠ TRANSFORMER

POSITION 1 INDICATED IN NO. POSITION 2 INDICATED IN NO. POSITION 3 INDICATED IN NO. POSITION 4 INDICATED IN NO.

| | | | |
|-----|------|----------|----------|
| NO. | REV. | DATE | BY |
| 1 | 1 | 12-25-53 | J. S. W. |

The general location of generating plants, substations and transmission lines (outside the Marquette urban area) are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower number, etc, are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report but prints have been filed with GTE Sylvania.

2.3.5 Projected Time-Phased Growth and Proposed Construction of New Facilities

The Marquette Board of Light and Power has plans to build a 43 MW coal-fired steam turbine generating plant. It is expected that this generating facility will be in operation by approximately 1980 and will provide approximately 25% of its load to areas outside the city. The Marquette Board of Light and Power also plans to extend 69 KV lines to loop the city. A new substation is also planned on the west side of the city (69 KV to 12.5 KV) with a tentative capacity of 12,000 KVA. Data regarding the capital posture to support additional facility construction is not readily available. The financial condition as of 1974 is included in SECTION 4.1.3.

2.3.6 System Right-of-Way, Easements, Land Use/Co-Use Arrangements

Transmission lines are generally on public road rights-of-ways. Some distribution lines are on private property with 20-foot easements. In some areas, the Marquette Board of Light and Power shares poles with the telephone company and cable TV company.

2.3.7 Construction Cost Experience

The Marquette Board of Light and Power estimates construction costs at:

| | | | |
|--------|----------------|---|------------------------|
| 7.2 KV | 3 Ø wood poles | - | \$15,000/mile (approx) |
| 7.2 KV | 1 Ø wood poles | - | \$ 6,000/mile (approx) |

The Marquette Board of Light and Power officials also estimate that the cost of converting 10 KVA single bushing transformers to two bushing transformers is approximately \$500 plus \$85/crew hour.

2.3.8 Grounding Practices and Insulator Data

All power poles are grounded with grounding rods. Nearly all ground wires are at full capacity and run below phase wires.

Insulators are of the voltage class for the line voltage or one voltage class higher.

2.3.9 Power Interruptions/Downtime

Data concerning power interruptions is included in SECTION 4.3.2.

2.3.10 Rates and Charges

Data and complete schedules on rates and charges is included in SECTION 4.4.3

2.3.11 Miles of Power Lines

Within the study area, Marquette Board of Light and Power has the following number of miles of both transmission and distribution lines:

| | | |
|--------------|---|-------------------|
| 69 KV line | - | 4.1 miles |
| 12.5 KV line | - | 152.0 miles |
| 7.2 KV line | - | <u>35.5 miles</u> |
| TOTAL | | 191.6 miles |

TABLE 3 - MAJOR SUBSTATIONS DATA - MARQUETTE BOARD OF LIGHT AND POWER

| Name | Location | No. of Transformers | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|--------------------------|----------------------|---------------------------------|-----------------|----------------------------------|---|---|---------------------------|
| | | | | Pri. | Sec. | | |
| #2 HYDRO | AT HYDRO #2 STATION | 2-2240 KVS 1 Ø Scott Conn. | | 7200V 2 Ø ungrounded | | | |
| #3 HYDRO | AT HYDRO #3 STATION | 3-333 KVA 1 Ø | 2 | 12.5KV 3 Ø grounded | #5H Hydro Tie | #336.400 ACSR Aluminum | |
| #4 DIESEL | AT DIESEL #4 STATION | 3-3000 KVA 1 Ø Trans Bank #1 | 1 | 2400V Delta 3 Ø | 12.5KV Delta 3 Ø | Hydro Tie | #336.400 ACSR Aluminum |
| #5 SHIRAS STEAM PLANT | AT STEAM PLANT | 1-12.5 MVA 3 Ø Trans Bank #2 | Trans Bus | 2400 V Delta 3 Ø | | | |
| | | | 5 | 12.5KV Wye 3 Ø grounded | Hydro Tie #3 Circuit #1 Circuit * MW Circuit Trans. Bank #2 | #336 #336 #470 CU #170 CU Bus | |
| | | | 1 | 12.5KV Delta 3 Ø | | | |
| #5 SHIRAS STEAM PLANT | AT STEAM PLANT | 1-33 MVA 3 Ø Trans Bank #1 | 2 | | 69KV Wye 3 Ø grounded | 69KV Marquette Line 69KV Diesel Line | #605 MCM ACSR |
| | | | 1 | 12.5KV Wye 3 Ø grounded | | | |
| | | | 1 | | 69KV Delta 3 Ø | 69KV Diesel Line | #605 MCM ACSR |
| #5 SHIRAS STEAM PLANT | AT STEAM PLANT | No Transformers | 6 | | 12.5KV | 1-South Rural 2-#1 Circuit 3-#3 Circuit 4-MW Circuit 5-#5 Circuit 6-Trans. Bank #1 | |
| | | | | | | | |

* Alger Delta Big Bay Sub (south) is connected to this circuit.

2.4 ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION

The main offices of the Ontonagon County Rural Electrification Association are located at 511 J. K. Paul Street in Ontonagon, Michigan 49953. The telephone number is (906) 884-2510. Mr. William Chabot is the Manager.

2.4.1 Service Area

The Ontonagon County REA serves three portions of the rural area in the western part of the SEAFARER Study Area.

2.4.2 Outside Power Sources and Interconnections

The Ontonagon County REA is interconnected with and purchases all electrical energy from the Upper Peninsula Power Company and the Wisconsin Michigan Power Company.

2.4.3 Transmission and Distribution System

Data regarding major substations is included in TABLE 4.

The general location of substations and transmission lines are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. However, exact location by section, township and range, actual location of the right-of-way, pole or tower number, etc., are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report but prints have been supplied to GTE Sylvania.

2.4.4 Projected Time-Phased Growth and Proposed Construction

All existing lines are carrying approximately 80 to 90% of their maximum load. The REA plans to change lines in the Aura area from 7.2 KV to 14.4 KV and convert some single-phase lines to 3-phase lines. Data regarding the capital posture to support additional facility construction is not readily available. Financial condition as of 1974 is shown in SECTION 4.1.4.

2.4.5 System Right-of-Way, Easements

In Baraga County, all transmission and distribution lines are 34 feet off the centerline of road rights-of-ways. The standard road right-of-way in rural Michigan counties is 66 feet which places transmission line locations approximately one foot outside public road rights-of-ways on private property. A sample right-of-way form is included in SECTION 4.2.3.

2.4.6 Construction Cost Experience

Ontonagon County REA officials estimate that 7.2 KV single-phase line costs approximately \$6,600/mile to construct and 12.5 KV 3-phase line costs approximately \$11,000/mile.

2.4.7 Grounding Practices and Insulator Data

All grounding is required to be in accordance with REA standards. Every third pole has a (5/8" x 8') driven ground rod including all poles with transformers, capacitor bank, switches, or metering equipment. Insulators are of the voltage class for the line voltage or one voltage class higher.

2.4.8 Power Interruptions/Downtime

SECTION 4.3.3 contains an interruption report for calendar year 1972 indicating typical power interruptions in the REA system.

2.4.9 Rates and Charges

Data concerning rates and charges is included in SECTION 4.4.4.

2.4.10 Miles of Power Lines

Within the study area, Ontonagon County Rural Electrification Association has 141 miles of 7.2 KV/12.5 KV transmission and distribution lines.

TABLE 4 - MAJOR SUBSTATIONS DATA - ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION

| Name | Location | No. of Transformers | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|--------|--|---|-----------------|-----------------------|----------------|----------------|------------------------|
| | | | | Pri. | Sec. | | |
| AURA | SW 1/4 of the SW 1/4 Sec 19 T51N R33W | 3-167 KVA 1 Ø | 1 | 12.5KV X ₄ | 7.2/ 12.5KV | 1 | #170 ACSR #170 ACSR |
| HERMAN | NW 1/4 of the SW 1/4 Sec 22 T50N R33W | No Transformers Meter Station 1 Ø | 1 | 7.2KV | | | |
| DELKTE | SW 1/4 of the NE 1/4 Sec 27 T51N R34W | 2-75 KVA 1 Ø | 1 | 69KV | 7.2KV | 1 | #8A |
| | | | 2 | | 7.2KV | 2 | #8A #8A |

2.5 ALGER DELTA COOPERATIVE ELECTRICAL ASSOCIATION

The main offices of the Alger Delta Cooperative Electrical Association are located at 426 North Ninth Avenue; Gladstone, Michigan 49837. The telephone number is (906) 425-2331. Mr. Roy F. Hawkinson is the Manager and Mr. Edwin Englund is the Superintendent.

2.5.1 Service Area

Alger Delta is a Rural Electrification Association Co-op serving a large portion of the rural area in the south and eastern portion of the Electrical Study Area.

2.5.2 Outside Power Sources and Interconnections

The Alger Delta Co-op purchases all electrical energy from Wisconsin Michigan Power Company, Upper Peninsula Power Company, and Marquette Board of Light and Power.

2.5.3 Transmission and Distribution System

Data regarding major substations is included in TABLE 5.

The general location of substations and transmission lines are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower number, etc., are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report but prints have been filed with GTE Sylvania.

2.5.4 Projected Time-Phased Growth and Construction

Company officials estimate a normal expansion of the entire system at approximately 10% annually. Data regarding the capital posture to support additional facility construction is not readily available. The financial condition as of 1974 is included in SECTION 4.1.5.

2.5.5 System Right-of-Way, Easement

All lines are on private property, approximately one foot off the road right-of-way line, unless otherwise noted.

2.5.6 Construction Cost Experience

Alger Delta Co-op officials estimate that the construction costs of one mile of 7.2 KV primary line including service drops, poles, wire, and transformers (5 KV), is approximately \$5,125. This does not include right-of-way clearing costs.

2.5.7 Grounding Practices and Insulator Data

All grounding is required to be in accordance with REA standards. Every third pole has a (5/8" x 8') driven ground rod including all poles with transformers, capacitor bank, switches, or metering equipment. Insulators are of the voltage class for the line voltage or one voltage class higher.

2.5.8 Power Interruptions/Downtime

In 1974, company officials recorded 394 trouble calls. They estimated that interruptions during this period were equal to approximately 0.15% of the total consumer hours. The maximum outage duration was 12 hours during a particularly severe storm.

2.5.9 Rates and Charges

Data concerning rates and charges of the Alger Delta Co-op is included in SECTION 4.4.5.

2.5.10 Miles of Power Lines

Within the study area, Alger Delta Cooperative Electrical Association has 488 miles of 7.2/12.5 KV transmission and distribution lines.

TABLE 3 - MAJOR SUBSTATIONS DATA - ALGER DELTA COOPERATIVE ELECTRIC ASSOCIATION

| Name | Location | No. of Transformers | No. of Circuits | Voltages | | No. of Feeders | Size of Feeders |
|---|---|---|-----------------|---|---|----------------|--|
| | | | | Prim. | Sec. | | |
| HADEAU 42'-0" x 76'-6" FENCED ENCLOSURE | NEAR HADEAU; SW CORNER SEC. 3; T37N, R26W | 3-250 KVA Westinghouse 3-Spares | 1 | 13,800 | 7,200/ 12,470 | 1 | 3-#2/0 ACSR* #6A #6A |
| MAPLE RIDGE POLE TYPE | NEAR ROCK ON CR432 | 3-167 KVA Westinghouse No spares | 2 | from WM | Ground Y Same as Above | 1 | #4/0 ACSR |
| WHITE RAPIDS GROUND TYPE | NE CORNER; SEC. 31; T36N, R28W | 3-333 KVA - GE 1-333 KVA Spare GE Double Bushing | 1 | 2,400 V from WM | 7,200/ 12,470 Ground Y | 1 | 3-#2/0 ACSR* 2-#ACSR |
| LAFRANCE | NE CORNER, SEC. 33 T40N, R26W | 2-75 KVA 1-75 KVA (Spare) 2-Regulators | 2 | 13,800 from WM | 7,200/ 12,470 Ground Δ | 1 | 3-#2/0 ACSR* 2-#8A 1-#6A 3-#2 ACSR* |
| SOURLEY | ADJACENT TO CR551 SEC. 14; T38N, R25W SW CORNER OF SW 1/4 FENCE ENCLOSURE (56' (NS) x 49'-6" (EW)) GROUND 5R1D AROUND FENCE | 3-667 (Porter Electric) 1-667 KVA Spare (Porter Electric) | 1 | 13,800 from WM | 7,200/ 12,470 Y 14,400/ 24,900 Y | 1 | 3-#4/0 ACSR 1-#1/0 ACSR |
| BIG BAY, (SOUTH) | 3 REGULATORS (57.2) NW 1/4 OF SE 1/4 OF NW 1/4, SEC. 10; T48N, R25W; 25 MI. SE OF BIG BAY, POLE TYPE | 2-333 KVA auto transformer by Kuhlman 1-333 KVA (Spare) 2-38.1 Regulators | 1 | 7,200/ 12,470 Y Ground from MP | 14,400/ 24,900 Ground Y | 1 | 2-#4/0 ACSR** |
| BIG BAY, (NORTH) | CENTER OF SEC. 26 T51N, R27W | 2-333 KVA Auto Transformer Pole Mtd. Triple Bushing | 1 | 14,400/ 24,900 Ground Y | 7,200/ 12,500 Ground Y | 1 | 2-#4A 1-#2 ACSR |
| HARVEY | JUNCTION OF US-41 AND M-28 AT HARVEY | 3-57.2 KVA 1 Ø Regulators | 1 | 7.2/ 12.5KV Ground Y | 7.2/ 12.5KV Ground Y | 1 | 3-#1/0 ACSR 1-#2 ACSR |

* See WM
** See ME

2.6 CRYSTAL FALLS ELECTRIC AND WATER DEPARTMENT

The offices of the Crystal Falls Electrical and Water Department are located at 401 Superior Street, Crystal Falls, Michigan 49920. The information in this report was obtained from Mr. John Ondrus, Superintendent at (906) 875-6650.

2.6.1 Service Area

The Crystal Falls Electric and Water Department primarily serves areas within the City of Crystal Falls; however, they do extend service to a large rural area to the west of the city.

2.6.2 Outside Power Sources and Interconnections

The Crystal Falls Electric and Water Department is interconnected with, and buys electrical energy from, Wisconsin Michigan Power Company.

2.6.3 Generating Plants

The Crystal Falls Electric and Water Department operates one generating plant.

| | |
|----------------|---|
| Name: | Paint River Hydro Power Plant |
| Location: | 3/4 mile north of the center of Crystal Falls, located on North 6th Street in the City of Crystal Falls |
| No. of Units: | 2 |
| Type of Drive: | Water Wheel |
| Capacity: | 350 KVA and 500 KVA |
| Voltage: | 2,400 |
| Transformers: | 3 - 1000 KVA GE 2,400 V to 12,400 V grounded wye |

2.6.4 Transmission and Distribution System

The only major substation is located on Bristol Mine Road at US-2/141. It contains the following:

- 3 - 100 KVA transformers (GE)
- Primary - one 12,400 V (3 wire Δ - #2 aluminum)
- Secondary - one 4,160 V (4 wire grounded wye)

The system is interconnected with Wisconsin Michigan Power Company at 12.4 KV delta through a metering station feeding the area west of Crystal Falls.

The general location of the generating plant, substation and transmission lines are shown on the ELECTRICAL FACILITIES LOCATION MAP in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower numbers, etc., are shown on separate maps provided by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as part of this report but prints have been supplied to GTE Sylvania.

The Crystal Falls Electric and Water Department is currently changing the distribution voltage from 2,400 volts to 12,400 volts and expects to have the work completed within three years.

2.6.5 Grounding Practices and Insulator Data

Transformer neutrals are grounded on 4 wire wye systems. Every fifth or sixth pole has a (5/8" x 8') driven ground rod including all poles with transformers, capacitor banks, switches, or metering equipment. Insulators are of the voltage class for the line voltage or one voltage class higher than line voltage.

2.6.6 Power Interruptions

Company officials report that they experience approximately three interruptions per year with a maximum duration of four hours.

2.6.7 Rates and Charges

Detailed rates and charges are included in SECTION 4.4.6.

2.6.8 Miles of Power Lines

Within the study area, Crystal Falls Electric and Water Department has 30 miles of 2.4 KV and 12.5 KV transmission and distribution lines.

2.7 K. I. SAWYER AIR FORCE BASE *

2.7.1 Electrical Power System

2.7.1.1 Supply

Electrical energy is provided to the base by Upper Peninsula Power Company. The location of lines and the main base substation are shown on ELECTRICAL FACILITIES LOCATION MAP - SHEET 6 in SECTION 3.

The October, 1975 bill from Upper Peninsula Power Company shows a monthly cost of \$152,816.75 including 4,737,000 KWH at a maximum demand of 8.6872 MW.

Consumption rates for calendar year 1971 and 1972 are as follows:

| Month | KWH | | Cost | |
|-----------|-----------|-----------|-----------|-----------|
| | 1973 | 1972 | 1973 | 1972 |
| January | 6,210,760 | 6,480,120 | \$120,442 | \$115,465 |
| February | 5,877,880 | 6,023,320 | 114,543 | 109,477 |
| March | 5,642,640 | 5,677,880 | 111,669 | 103,093 |
| April | 5,404,440 | 5,386,680 | 105,515 | 98,431 |
| May | 5,003,840 | 4,619,600 | 97,941 | 85,056 |
| June | 4,406,840 | 4,290,520 | 87,308 | 82,518 |
| July | 4,510,640 | 4,336,960 | 89,047 | 84,824 |
| August | 4,484,889 | 4,089,760 | 88,819 | 81,701 |
| September | 4,618,120 | 4,562,960 | 94,297 | 87,671 |
| October | 4,910,600 | 4,872,640 | 98,644 | 93,607 |
| November | 5,231,360 | 5,337,400 | 106,321 | 103,724 |
| December | 5,477,040 | 5,695,640 | 111,858 | 112,734 |

2.7.1.2 Distribution

The Upper Peninsula Power Company main is a 69 KV, 3 phase, three-1/0 ACSR wire feeding the power company owned transformers in the Government owned main substation at the southeast corner of the base near the sewage treatment plant. The feeder connects with the Upper Peninsular Power Company's Gwinn substation five miles away.

* All data except the October, 1975 Energy Bill and Rate Schedule was obtained from the K. I. Sawyer Master Plan Report, January, 1974.

Installed in the base substation are two 5,000 KVA Delta to Wye transformers which reduce the supply voltage to 7,200/12,470 volts. These transformers have a 7,000 KVA forced-air capacity. Seven 1,200 amp power circuit breakers (one main and six feeder breakers) limit the load on the transformers. Six fused disconnects and two air break switches are also installed at the station. The power company owns all equipment up to the voltage regulator. Three main feeders, two of four-2 ACSR size and one of four-2/0 ACSR size, furnish power to the distribution network on the base area. Three-four wire feeds (one-2/0, one-1/0 and one-4/0 ACSR) serve the Capehart housing area. Except in the airfield area, all feeders are carried overhead on poles. The airfield area is provided with an underground duct and manhole system. The general condition of wire, poles and transformers is good and apparently adequate to meet base needs.

2.7.1.3 Street Lighting

Street lighting fixtures are located at critical points on the base and in the housing area. Constant current regulators operate the street lights in the housing area. A number of one-6 ACSR series loops are fed from these regulators throughout the area. The main base series system is operated through six constant current regulators feeding six-6 ACSR series loops.

2.7.1.4 Emergency Power Supply

Emergency power is available at the base in the form of fixed and portable power units. The locations in the tabulation are those noted at the time of survey:

| <u>KW</u> <u>Rating</u> | <u>Manufacturer</u> | <u>Type</u> | <u>Serial No.</u> | <u>Location</u> |
|----------------------------|---------------------|-------------|-------------------|-----------------|
| 10 | Consolidated | EMU-10 | 65-0038 | Bldg 531 |
| 10 | Consolidated | EMU-10 | 67-1478 | Bldg 110 |
| 150 | Caterpillar | D-337 | 37B-2981 | Bldg 310 |
| 150 | Cummings | NHRSGA | 210808 | Bldg 400 |
| 60 | Intl Fermont | MB-17 | 70-1478 | Bldg 427 |
| 30 | Intl Fermont | MB-18 | 63-0116 | Bldg 104 |
| 60 | Intl Fermont | MB-17 | 52-60-091 | Bldg 426 |
| 250 | Caterpillar | D-375 | 43B1256 | Bldg 603 |
| 200 | Cummings | VT 12 | 267520 | Bldg 531 |
| 60 | Consolidated | PU-361 | 84746 | Bldg 501 |
| 60 | Intl Fermont | MB-17 | 52-60-115 | Bldg 726 |
| 15 | Intl Fermont | MB-19 | 71-1021 | Bldg 725 |
| 10 | Kohler | 10R061 | 222464 | Bldg 230 |
| 10 | Consolidated | EMU-10 | 66-0405 | Bldg 5046 |
| 10 | Consolidated | EMU-10 | 67-1427 | Bldg 222 |
| 30 | Intl Fermont | MB-18 | 63-0118 | Bldg 200 |
| 30 | Intl Fermont | MB-18 | 691512 | Bldg 209 |
| 100 | Intl Fermont | MB-16 | 67-05-86 | Bldg 215 |
| 15 | Continental | 1780 | HP-26014299 | Bldg 107 |
| 5 | O'Keefe-Merritt | PU58G | 924 | Bldg 20 |
| 10 | Consolidated | EMU-10 | 72-1637 | Bldg 100 |
| 50 | Continental | C0427A18 | R14997 | Bldg 850 |
| 100 | Continental | CD802A18 | R14996 | Bldg 850 |
| 10 | Intl Fermont | MB-19 | 70-0903 | Bldg 422 |
| 150 | Intl Fermont | MB-15 | 70-0321 | SAC POL |
| | Intl Fermont | MB-15 | 70-0327 | SAC POL |
| 60 | Consolidated | 4002 | 333 | Bldg 860 |
| 2-650 | White Superior | 60B518 | 16-5005 & 6 | Bldg 709 |
| 10 | Consolidated | EMU-10 | 67-1286 | Bldg 602 |
| 60 | Kurz & Root | KP-60 | 72,3129 | Bldg 4006 |
| 60 | Consolidated | 4002 | 344 | Bldg 304 |

R.N. 30/650 Houghton, Michigan October 24, 1975

Base Civil Engineer

K. I. Sawyer Air Force Base
Gwinn, Michigan

To UPPER PENINSULA POWER COMPANY Dr.

WP & C-1 (New Rate)

K. I. Sawyer Air Force Base
Contract No. F20613-70-C-0086

Readings:

| Meter No. | | Meter No. | |
|-----------|---------------------------|-----------|---------|
| 10/22/75 | 2600 | 8140 | 2135 |
| 9/22/75 | 4477 | | 2041 |
| | 9722 | | 94 |
| | 4755 | | 10 |
| Constant | 1000 | | 940 KWH |
| | 4,755,000 KWH | | |
| | 18,000 KWH Used by School | | |
| | 4,737,000 KWH | | |

Maximum Demand: 8,856 KW - 168.8 KW = 8,687.2 KW

Demand Charge:

| | |
|---------------------|-------------|
| 200 KW @ \$6.00 | \$ 1,200.00 |
| 2,800 KW @ \$5.10 | 14,280.00 |
| 5,687.2 KW @ \$4.75 | 27,014.20 |

Energy Charge:

| | |
|-----------------------|-----------|
| 500,000 KWH @ 1.50¢ | 7,500.00 |
| 4,237,000 KWH @ 1.40¢ | 59,318.00 |

Fuel Clause Adjustment:

| | |
|-----------------------|--------------|
| 4,737,000 KWH @ .917¢ | 43,438.29 |
| | \$152,750.49 |

Outer Marker:

| | |
|--------------------|-------|
| 940 KWH @ Rate C-1 | 57.64 |
|--------------------|-------|

Fuel Clause Adjustment":

| | |
|-----------------|-------|
| 940 KWH @ .917¢ | 8.62 |
| | 66.26 |

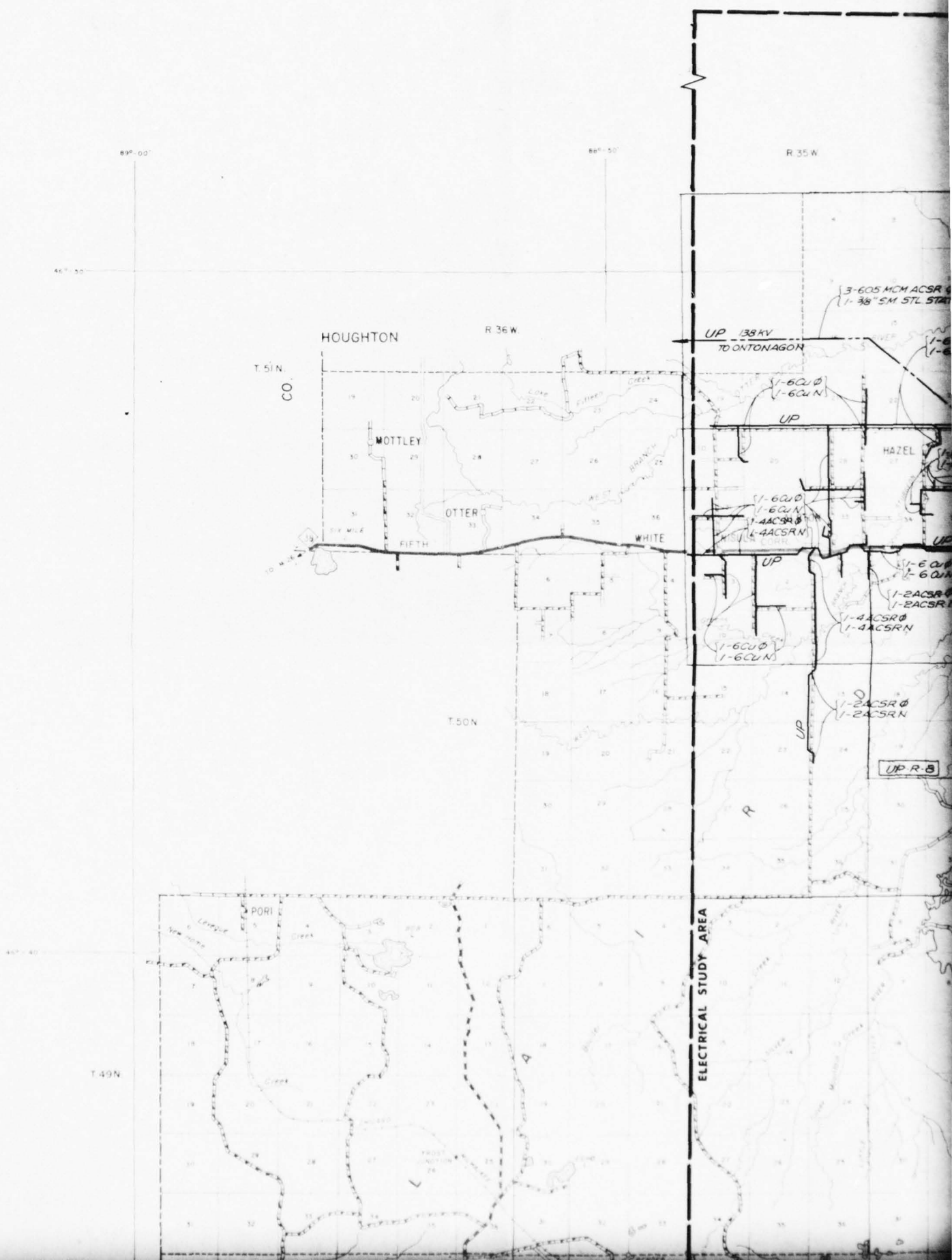
Net Bill for October, 1975 \$152,816.75

Due: November 7, 1975

section 3
electrical facilities location maps

3.0 - ELECTRICAL FACILITIES LOCATION MAPS

| <u>Sheet No.</u> | <u>County</u> | <u>Scale</u> |
|------------------|---------------|--------------|
| 2 | Houghton | 1"=1 Mile |
| 3 | Baraga | 1"-1 Mile |
| 4 | Marquette | 1"-1 Mile |
| 5 | Marquette | 1"=1 Mile |
| 6 | Marquette | 1"-1 Mile |
| 7 | Alger | 1"-1 Mile |
| 8 | Iron | 1"-1 Mile |
| 9 | Iron | 1"-1 Mile |
| 10 | Dickinson | 1"-1 Mile |
| 11 | Menominee | 1"-1 Mile |
| 12 | Delta | 1"-1 Mile |



89° 00'

89° 50'

R 35 W

HOUGHTON

R 36 W

T 51 N
CO.

UP 138KV
TO ONTONAGON

3-605 MCM ACSR
1-38" SM STL STAB

MOTTLEY

HAZEL

OTTER

WHITE

T 50 N

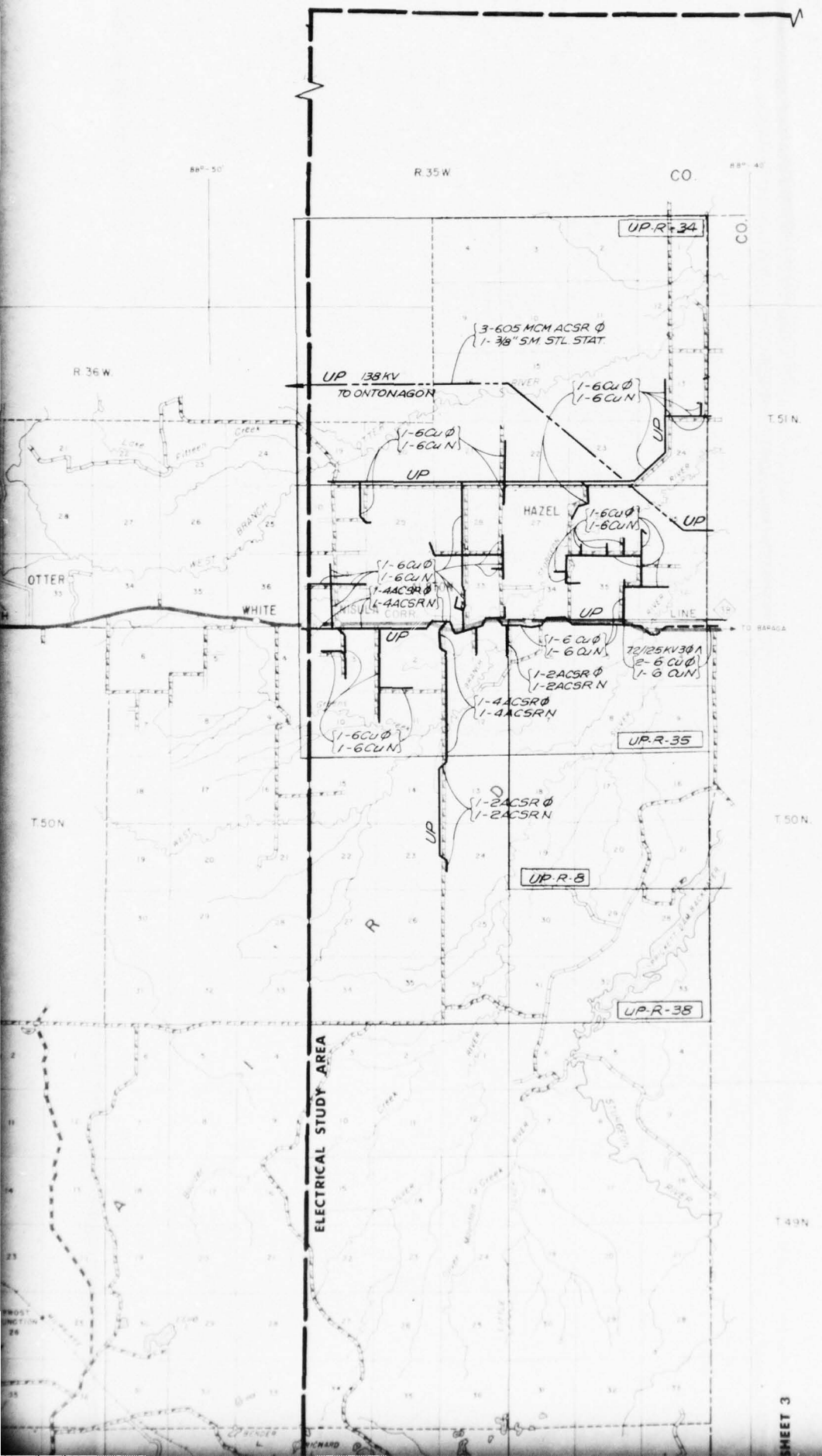
ELECTRICAL STUDY AREA

T 49 N

PORI

UP R-5

2



UP-R-34

UP-R-35

UP-R-8

UP-R-38

ELECTRICAL STUDY AREA

2

T 49N

T 48N

46° 10'

T 47N

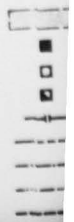
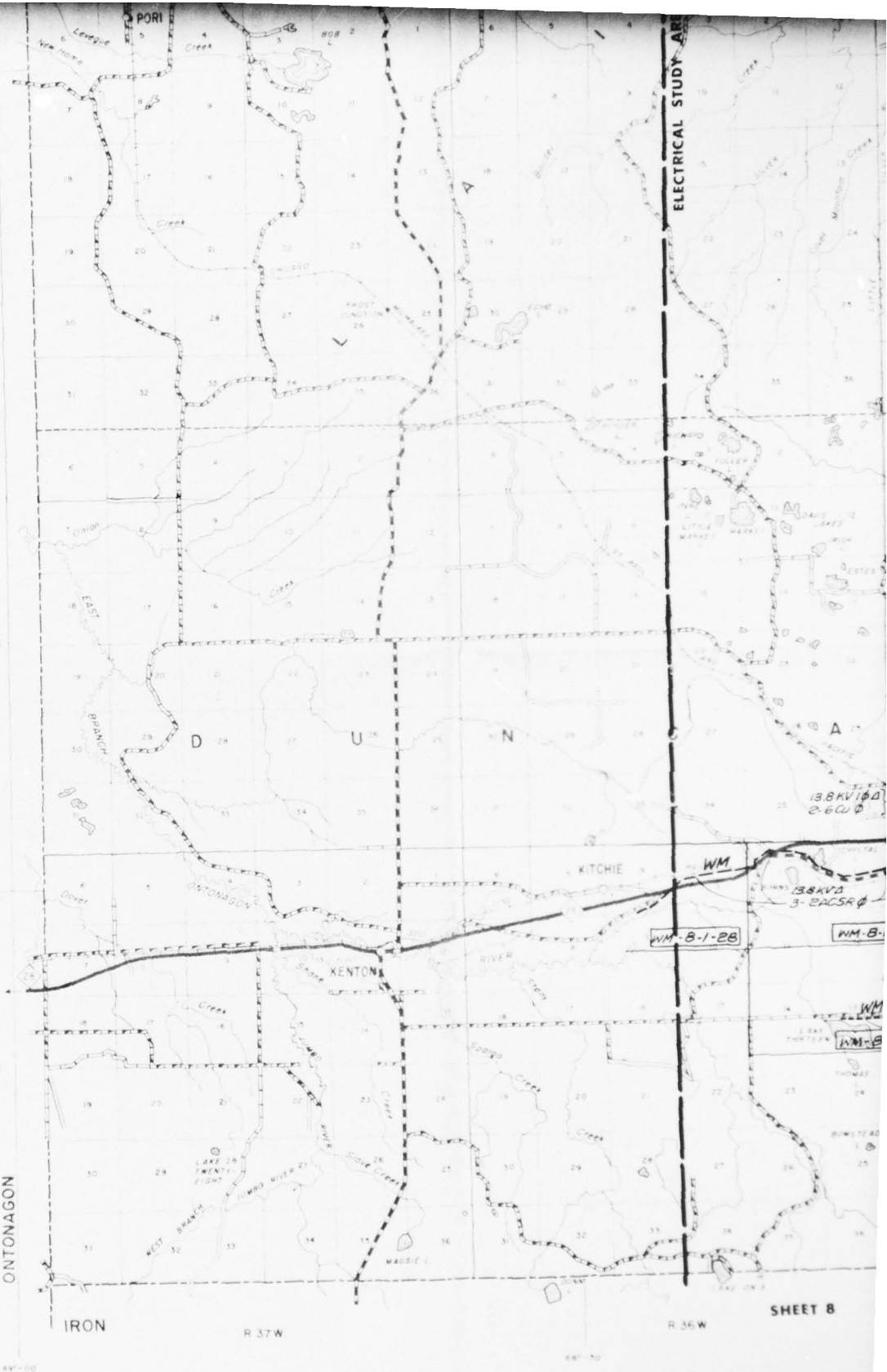
ONTONAGON

IRON

R 37W

R 36W

SHEET 8



3

ELECTRICAL STUDY AREA

T 49N

SHEET 3

T 48N

T 47N

T 47N









BARAGA

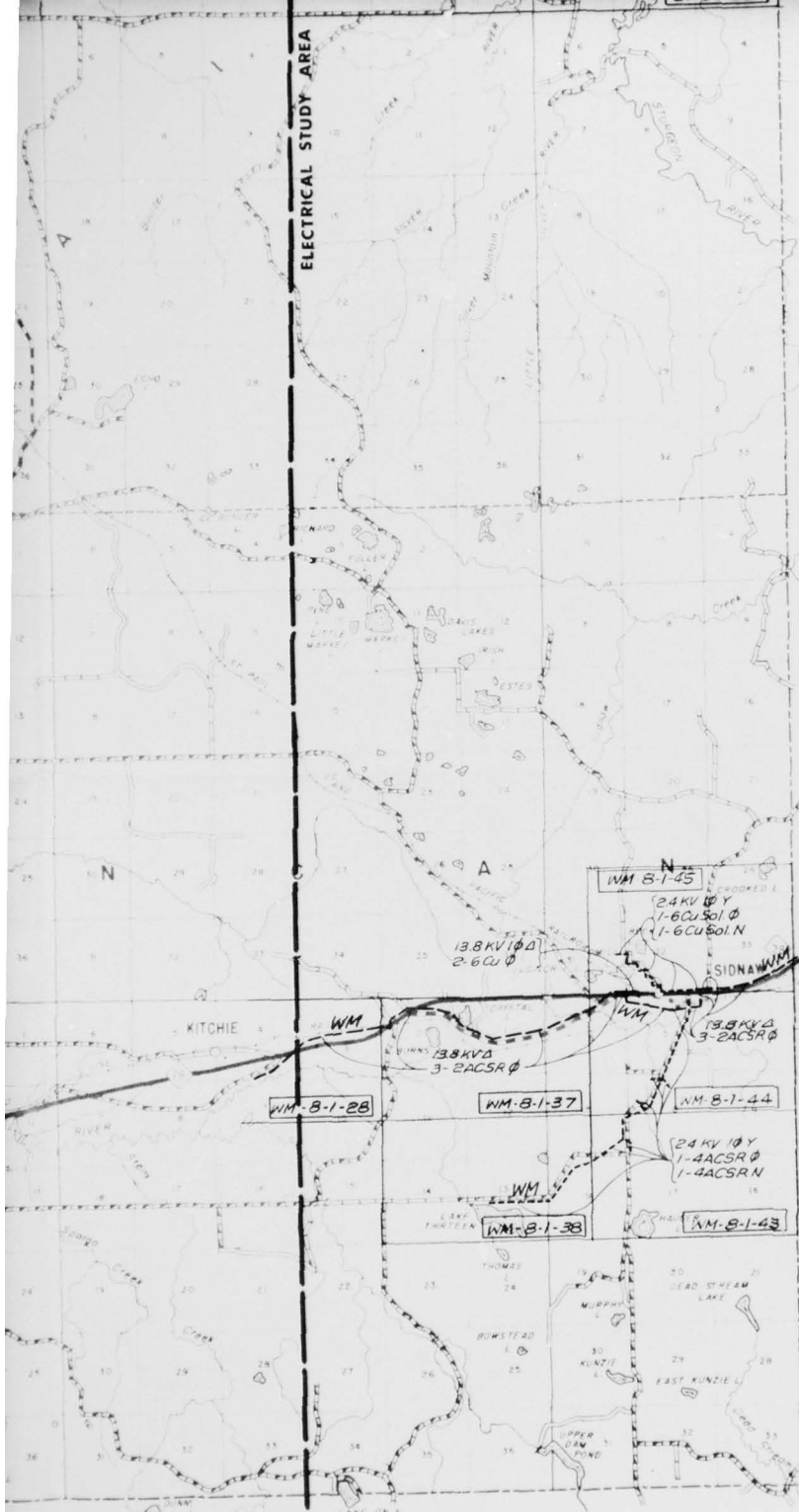
R 36W

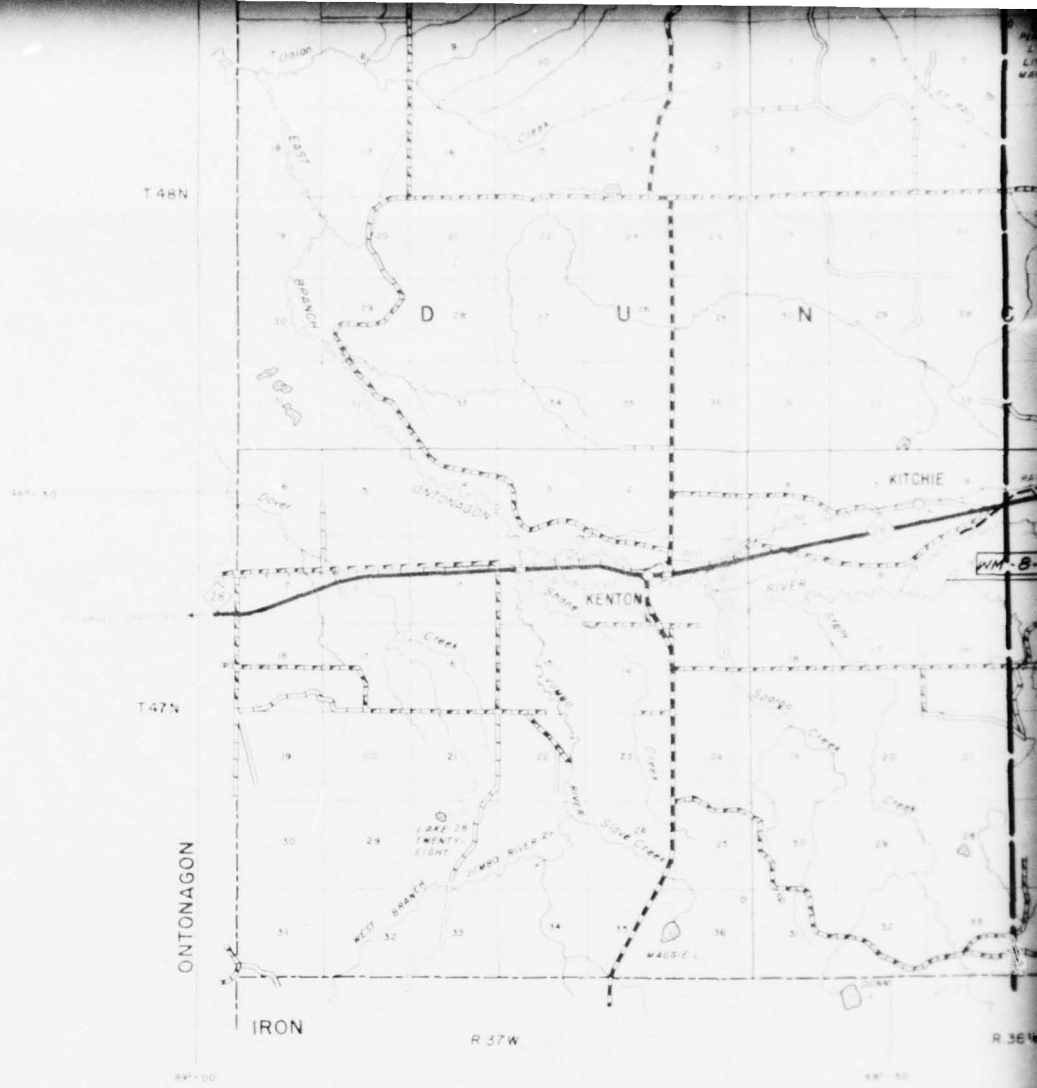
SHEET 8

R 35W CO.

ELECTRICAL FACILITIES LEGEND

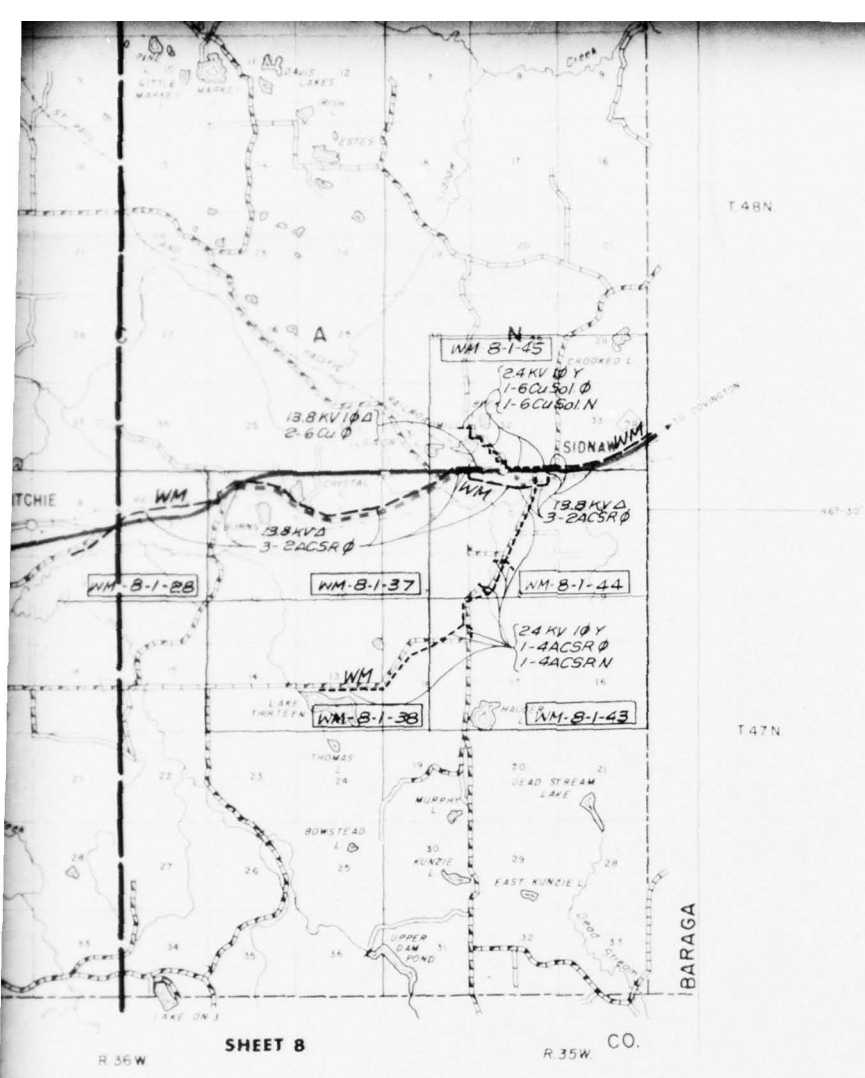
-  EXCLUSION AREA
-  GENERATION PLANT - NAME
-  SUBSTATION - NAME
-  SWITCHING STATION - NAME
-  INTERCONNECTION
-  138 KV, 3 φ LINES
-  69 KV, 3 φ LINES
-  24 KV, 3 φ LINES





GENERAL HIGHWAY MAP
 ONTONAGON COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 AND TRANSPORTATION
 DIVISION
 HIGHWAY PLANNING SURVEY
 COOPERATED IN CONNECTION WITH
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

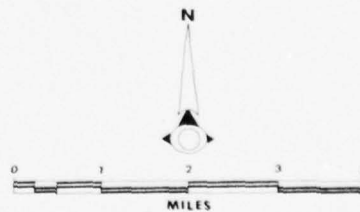
4



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138KV, 3 ϕ LINES
- 69KV, 3 ϕ LINES
- 33KV, 3 ϕ LINES
- 12.5KV, 3 ϕ LINES (OR 13.8KV OR 14.4KV)
- 7.2KV, 1 ϕ LINES
- 2.4KV, 1 ϕ LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE



PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA, INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
HOUGHTON COUNTY, MICHIGAN

WILLIAMS & WORKS
Engineering • Surveying • Planning • Geomatics
833 Cascade West Parkway
Grand Rapids, Michigan 49506

DATE 3/5/76

SHEET NO. 2

5

HOUGHTON R 33 W CO.

ELECTRICAL STUDY AREA

T 52 N

UP-R-1

UP-R-2

UP-R-91

UP-R-93

UP-R-95

UP-R-9

UP-R-17

UP-R-19

HOUGHTON CO.

M-38 SUB (UP)

PELKIE SUB. (OR)

BARAGA SUB (UP)

AURA SUB (OR)

J.H. WARDEN STATION (UP)

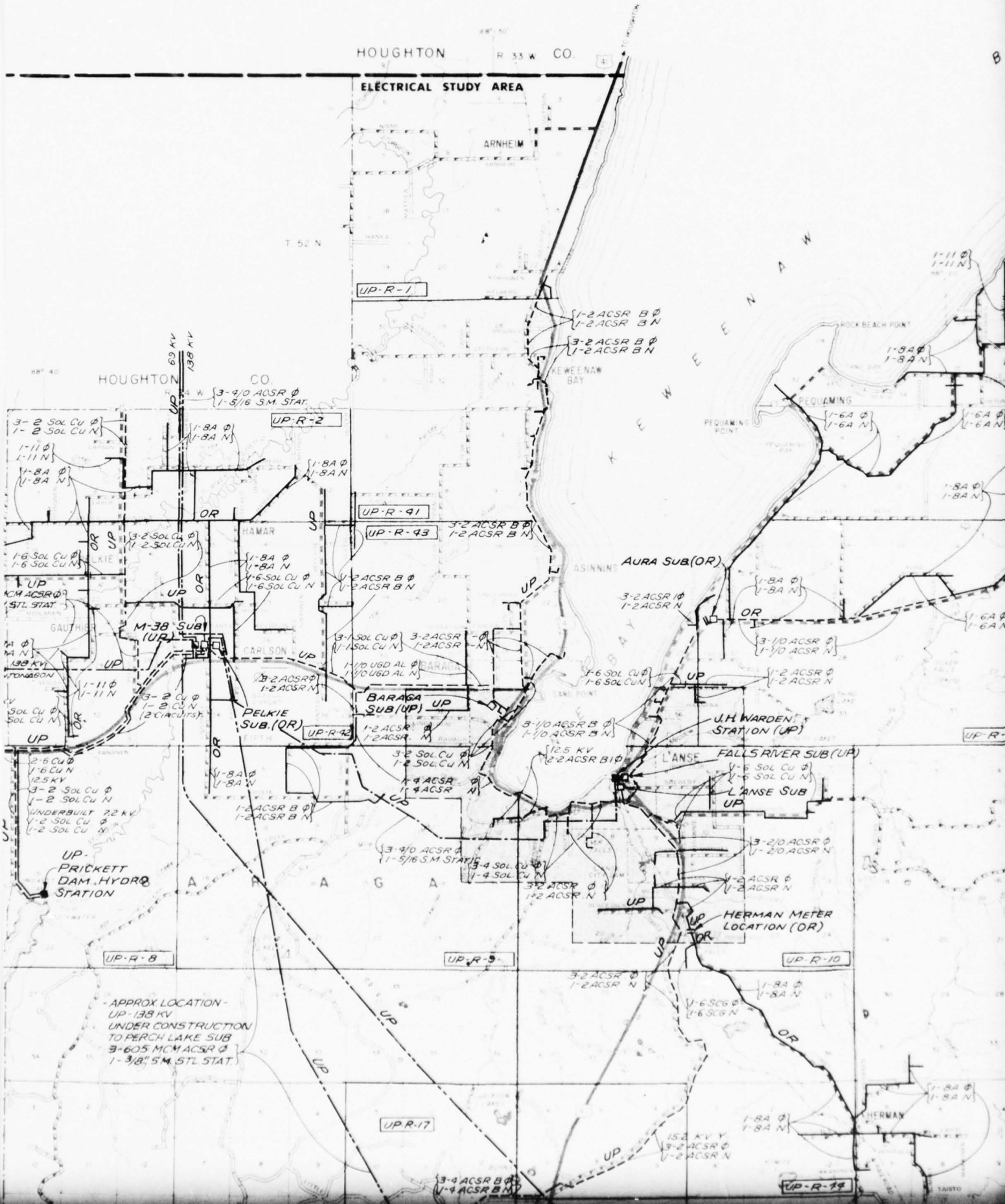
L'ANSE FALLS RIVER SUB (UP)

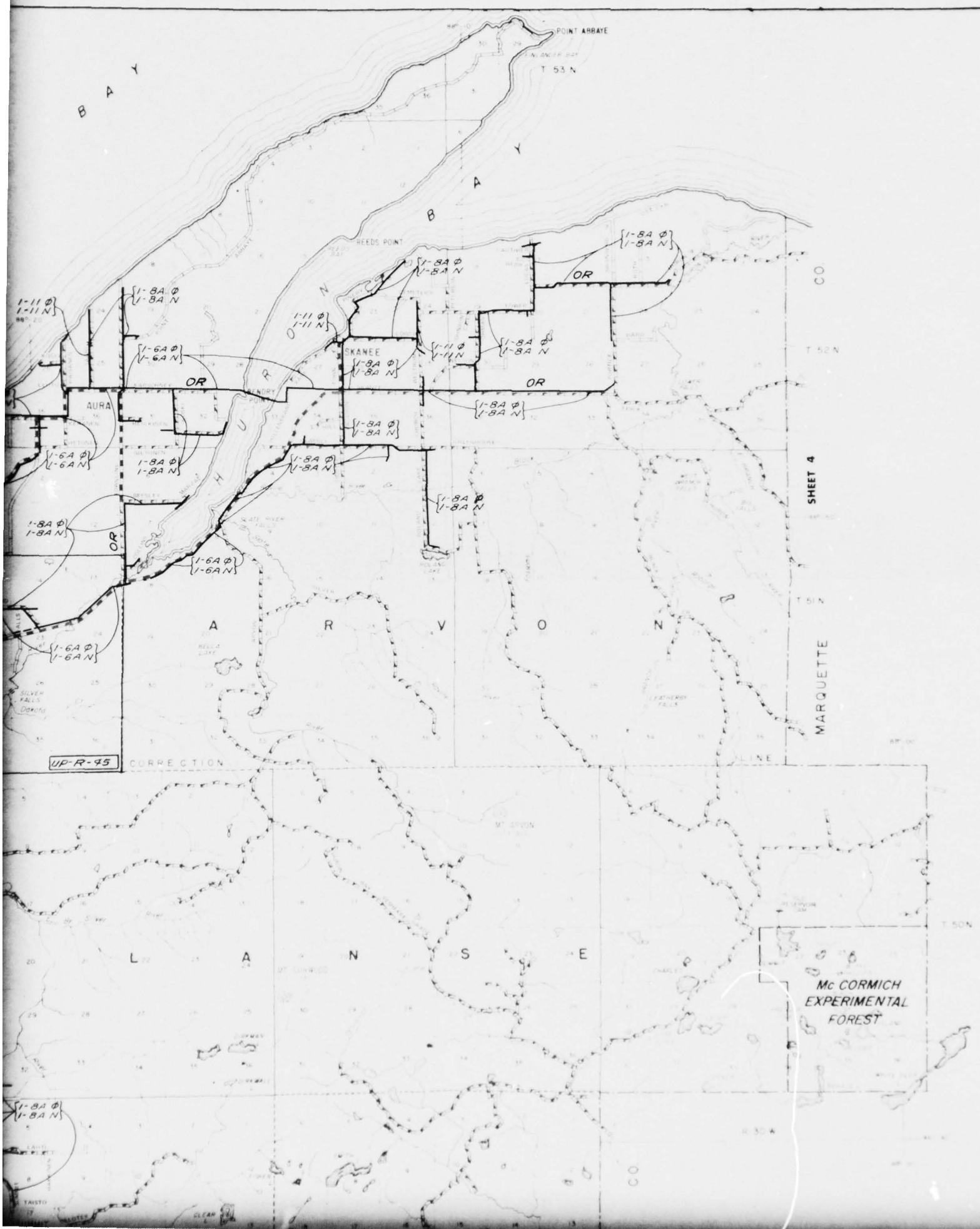
L'ANSE SUB (UP)

HERMAN METER LOCATION (OR)

UP-PRICKETT DAM HYDRO STATION

APPROX LOCATION-
UP-138 KV
UNDER CONSTRUCTION
TO PERCH LAKE SUB
3-605 MCM ACSR Ø
1-3/8" S.M. STL STAT.





TOPARCH LAKE SUB
 3-605 MCM ACSR Ø
 1-3/8" S.M. STL STAT.

3

UP-R-17

3-4 ACSR B Ø
 1-4 ACSR B N

UP-R-17

1-8A Ø
 1-8A N

UP-R-14

152 KV Y
 3-2 ACSR Ø
 1-2 ACSR N

UP-R-16

WM 2-2-17

WM 2-2-32

WM 2-2-15

1-2 ACSR Ø
 1-2 ACSR N

WM 2-2-16

1-4 ACSR Ø
 1-4 ACSR N

1-6 CU Ø
 1-6 CU N

WM 2-2-31

1-4 ACSR Ø
 1-4 ACSR N

WM 2-2-14

1-6 CU Ø
 1-6 CU N

WM 2-2-18

1-4 ACSR Ø
 1-4 ACSR N

WM 2-2-30

1-6 CU Ø
 1-6 CU N

WM 2-2-19

1-2 ACSR Ø
 1-2 ACSR N

WM 2-2-13

WM 2-2-30

1-2 ACSR Ø
 1-2 ACSR N

T 48 N

138 KV Δ
 3-2 ACSR Ø

WM 2-2-3

1-6 CU Ø
 1-6 CU N

WM 2-2-13

24/560 KV Y
 3-2 ACSR Ø
 1-2 ACSR N

WM 2-2-30

1-2 ACSR Ø
 1-2 ACSR N

24 KV Y
 1-2 ACSR Ø
 1-2 ACSR N

WM 2-2-4

1-4 ACSR Ø
 1-4 ACSR N

WM 2-2-13

1-2 ACSR Ø
 1-2 ACSR N

WM 2-2-30

1-4 ACSR Ø
 1-4 ACSR N

138 KV Δ
 2-4 ACSR Ø

WM 2-2-4

1-4 ACSR Ø
 1-4 ACSR N

WM 2-2-20

1-6 CU Ø
 1-6 CU N

24 KV Y
 1-4 ACSR Ø
 1-4 ACSR N

WM 2-2-5

UNDERBUILT
 24/560 KV Y
 3-2 ACSR Ø
 1-2 ACSR N

WM 2-2-13

UNDERBUILT
 24/560 KV Y
 3-2 ACSR Ø
 1-2 ACSR N

T 47 N

C O V I N G T O N S

HOUGHTON

IRON

R 35 W

R 34 W

R 33 W

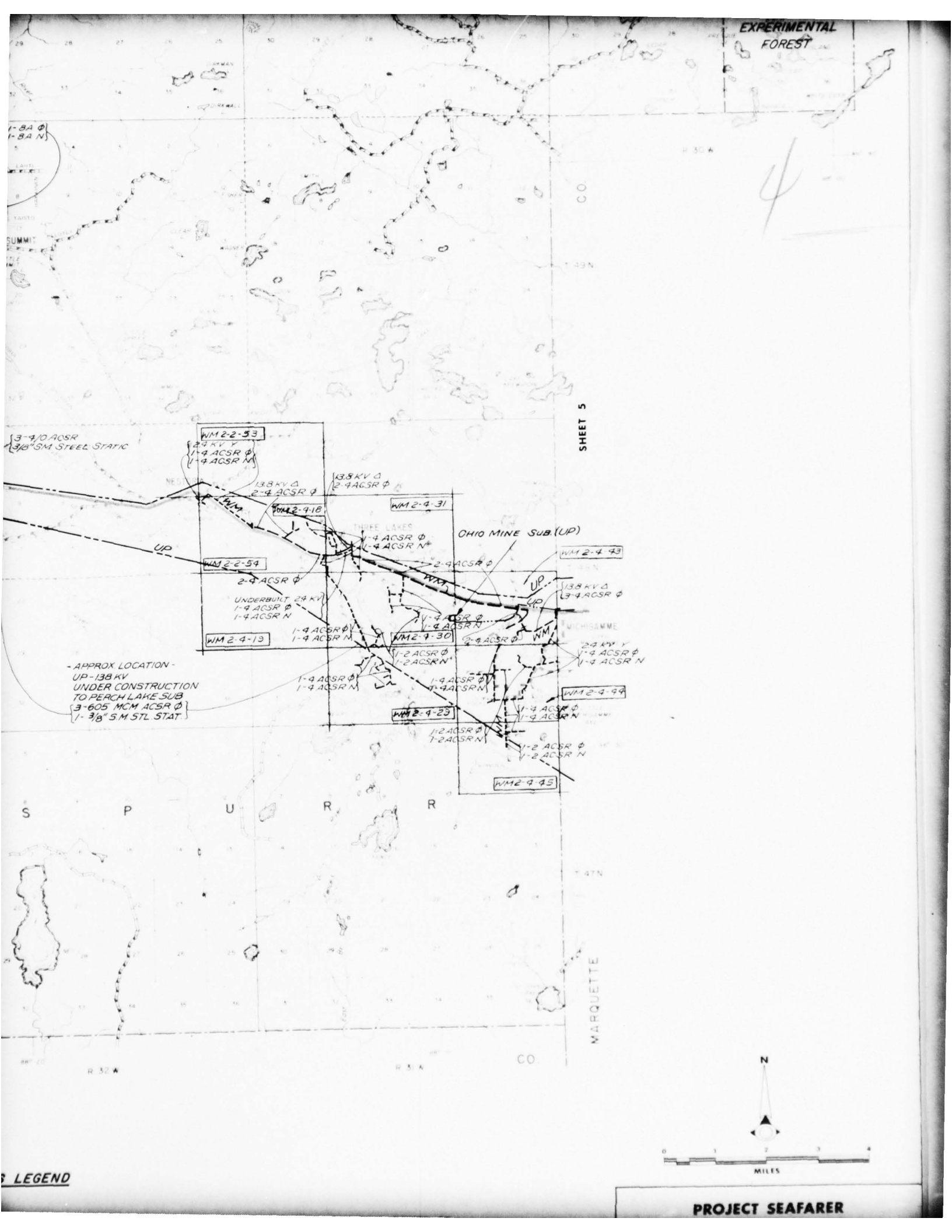
SHEET 9

ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 Ø LINES
- 69 KV, 3 Ø LINES

4

SHEET 5



1-BA Ø
1-BA N

3-4/0 ACSR
3/8" SM STEEL STATIC

WM 2-2-53

2-4 KV Y
1-4 ACSR Ø
1-4 ACSR N

13.8 KV Δ
2-4 ACSR Ø

13.8 KV Δ
2-4 ACSR Ø

WM 2-4-18

WM 2-4-31

THREE LAKES
1-4 ACSR Ø
1-4 ACSR N

OHIO MINE SUB (UP)

WM 2-4-43

WM 2-2-54

2-4 ACSR Ø

13.8 KV Δ
3-4 ACSR Ø

UNDERBUILT 24 KV
1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

WME-7-30

WICHISAMME
2-4 KV Y
1-4 ACSR Ø
1-4 ACSR N

WM 2-4-13

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

WM 2-4-94

- APPROX LOCATION -
UP - 138 KV
UNDER CONSTRUCTION
TO PERCH LAKE SUB
3-605 MCM ACSR Ø
1-3/8" S.M. STL STAT.

WM 2-4-23

1-2 ACSR Ø
1-2 ACSR N

1-2 ACSR Ø
1-2 ACSR N

WME-9-45

S P U R R

MARQUETTE

R 32 W

R 34 W

CO

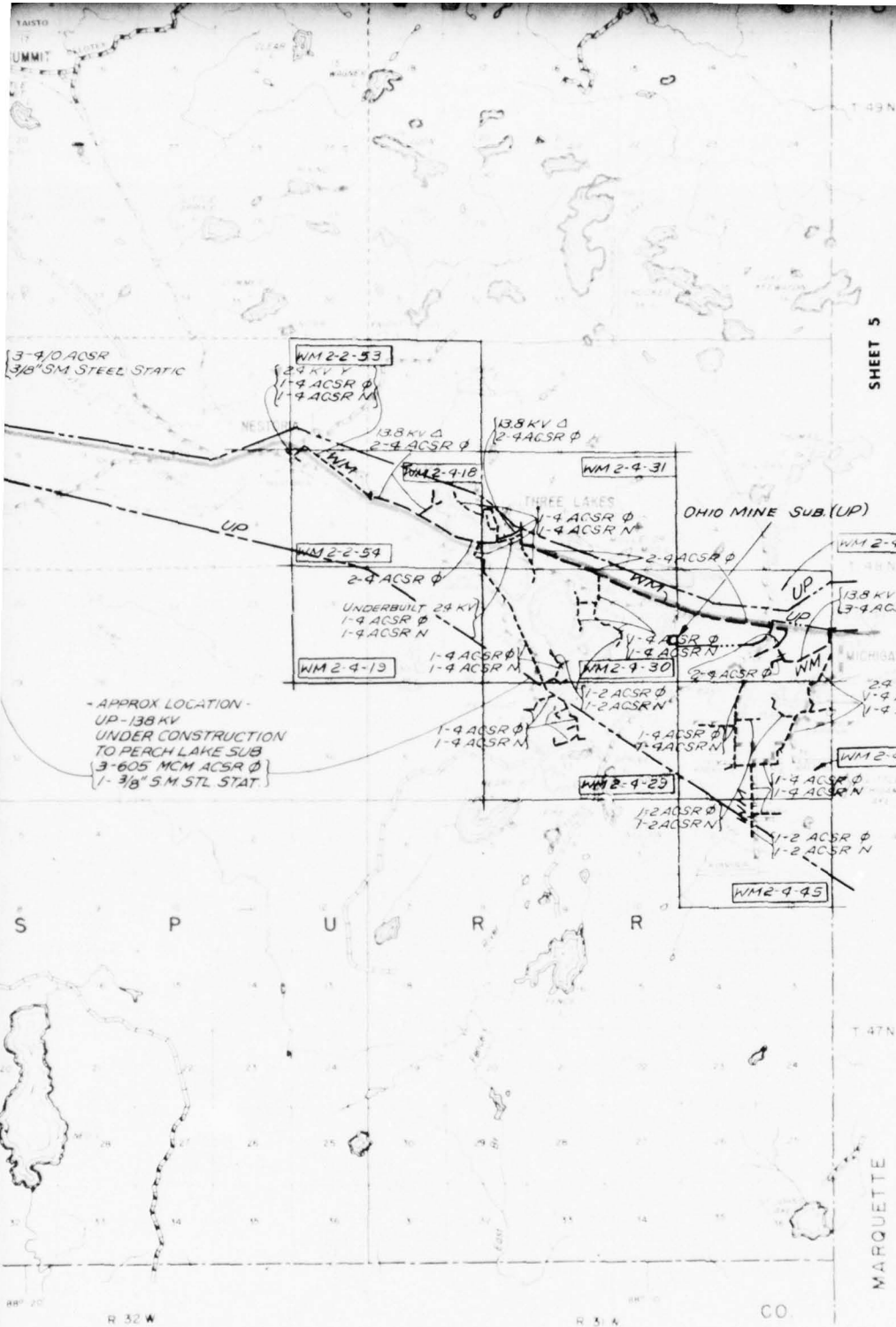


LEGEND



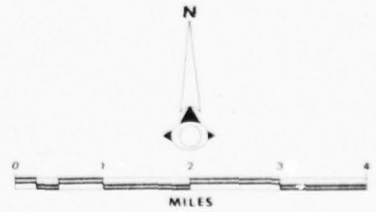
GENERAL HIGHWAY MAP
BARAGA COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 AND TRANSPORTATION
 HIGHWAY PLANNING SURVEY
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

- ELECTRICAL FACILITIES LEGEND**
- EXCLUSION AREA
 - GENERATION PLANT - NAME
 - SUBSTATION - NAME
 - SWITCHING STATION - NAME
 - INTERCONNECTION
 - 138KV, 3 φ LINES
 - 69KV, 3 φ LINES
 - 33KV, 3 φ LINES
 - 12.5KV, 3 φ LINES (OR 13.8KV OR)
 - 7.2KV, 1 φ LINES
 - 2.4KV, 1 φ LINES
 - UGD. UNDERGROUND LINES
 - POWER CO. MAP REFERENCE NUMBER



SHEET 5

MARQUETTE




LEGEND

- UP UPPER PENINSULA POWER CO
- WM WISCONSIN MICHIGAN POWER CO
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE

PROJECT SEAFARER
 COLLECTION OF ELECTRICAL UTILITIES DATA

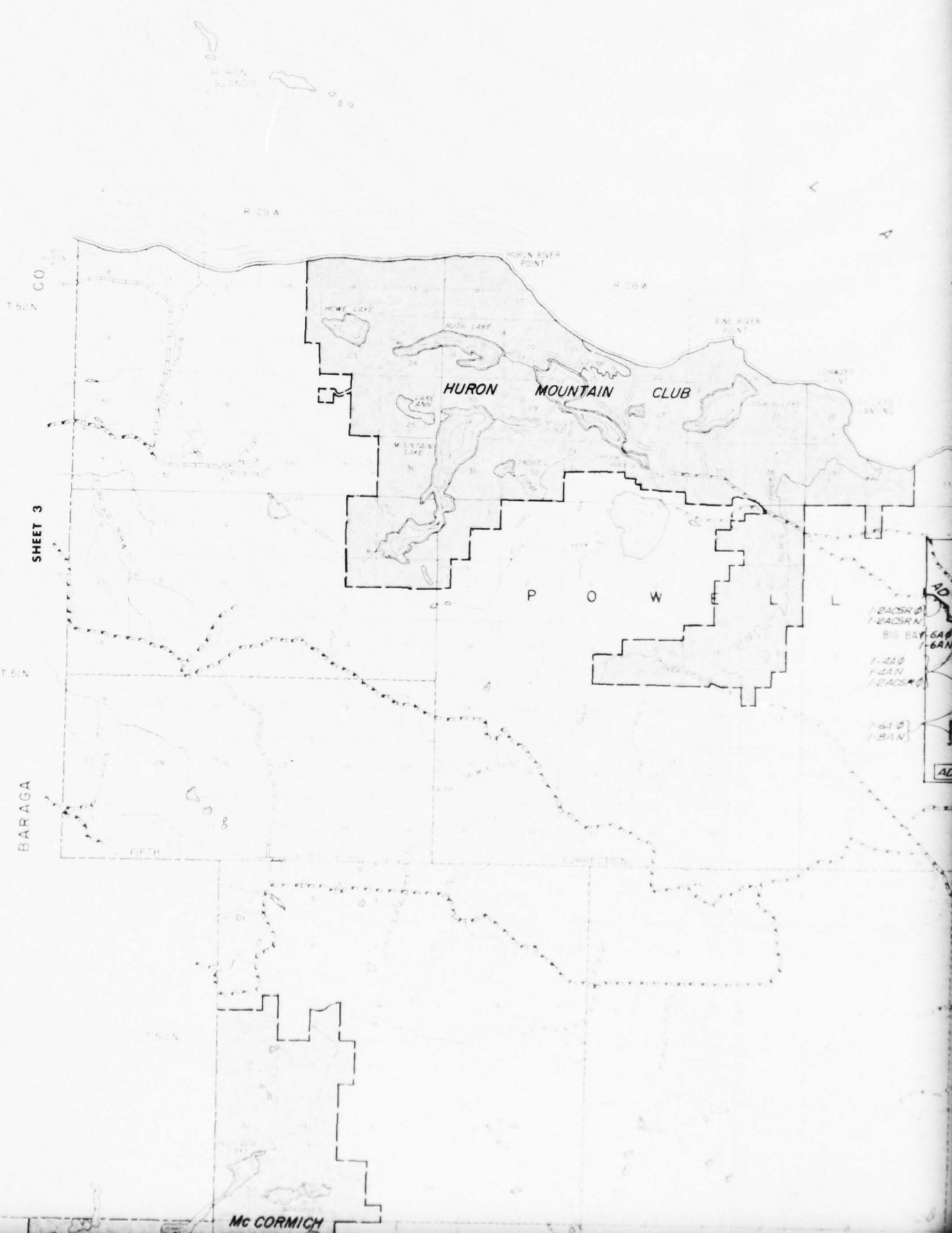
FOR GTE, SYLVANIA INC.
 SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
 BARAGA COUNTY, MICHIGAN



WILLIAMS & WORKS
 Engineers, Surveyors, Planners, Geologists
 611 Casselle West Parkway
 Grand Rapids, Michigan 49508

DATE 3/5/76
 SHEET NO. 3



CO
T56N
SHEET 3
T55N
BARAGA

R 20 W

R 20 W

HURON MOUNTAIN CLUB

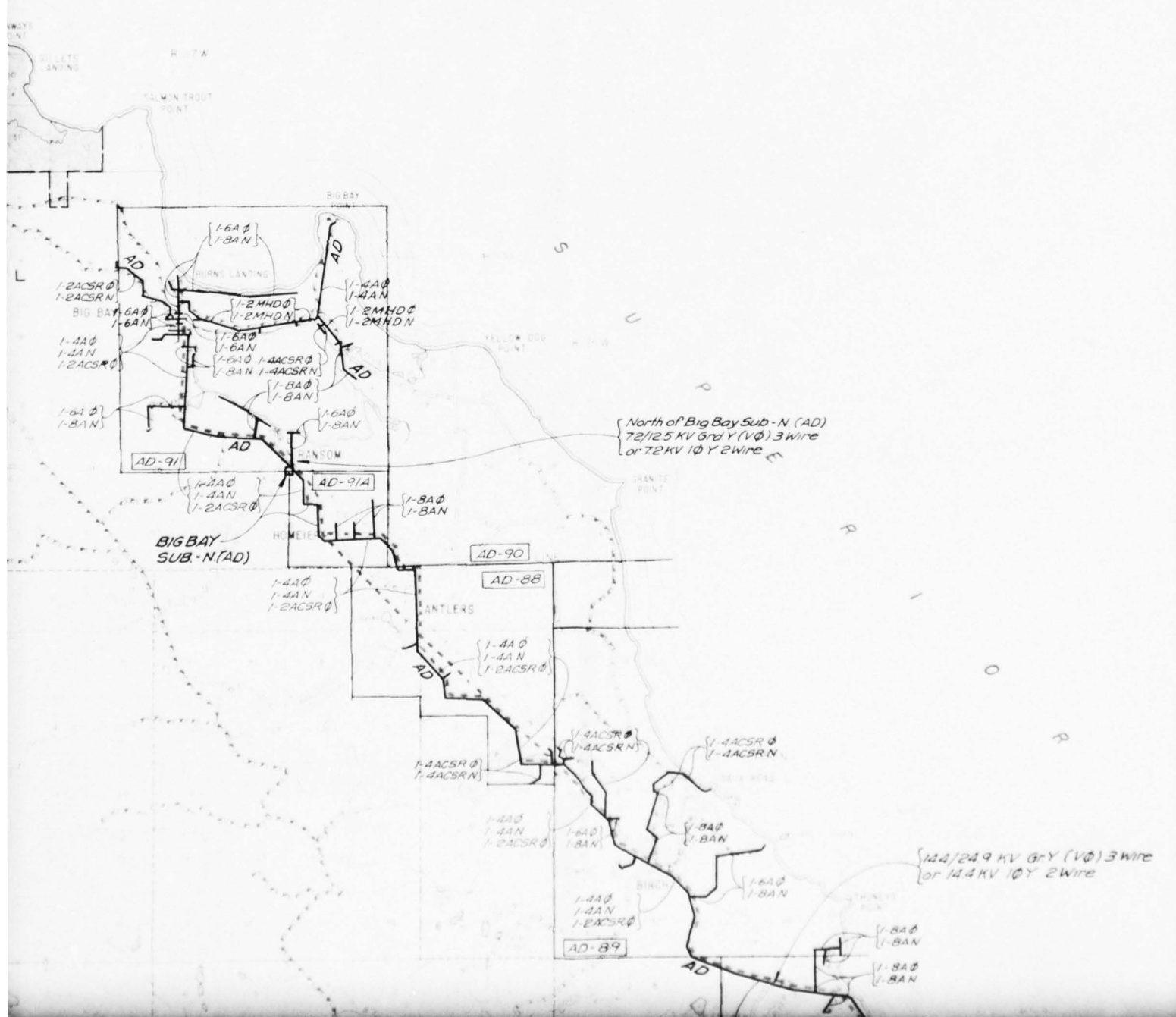
P O W E L

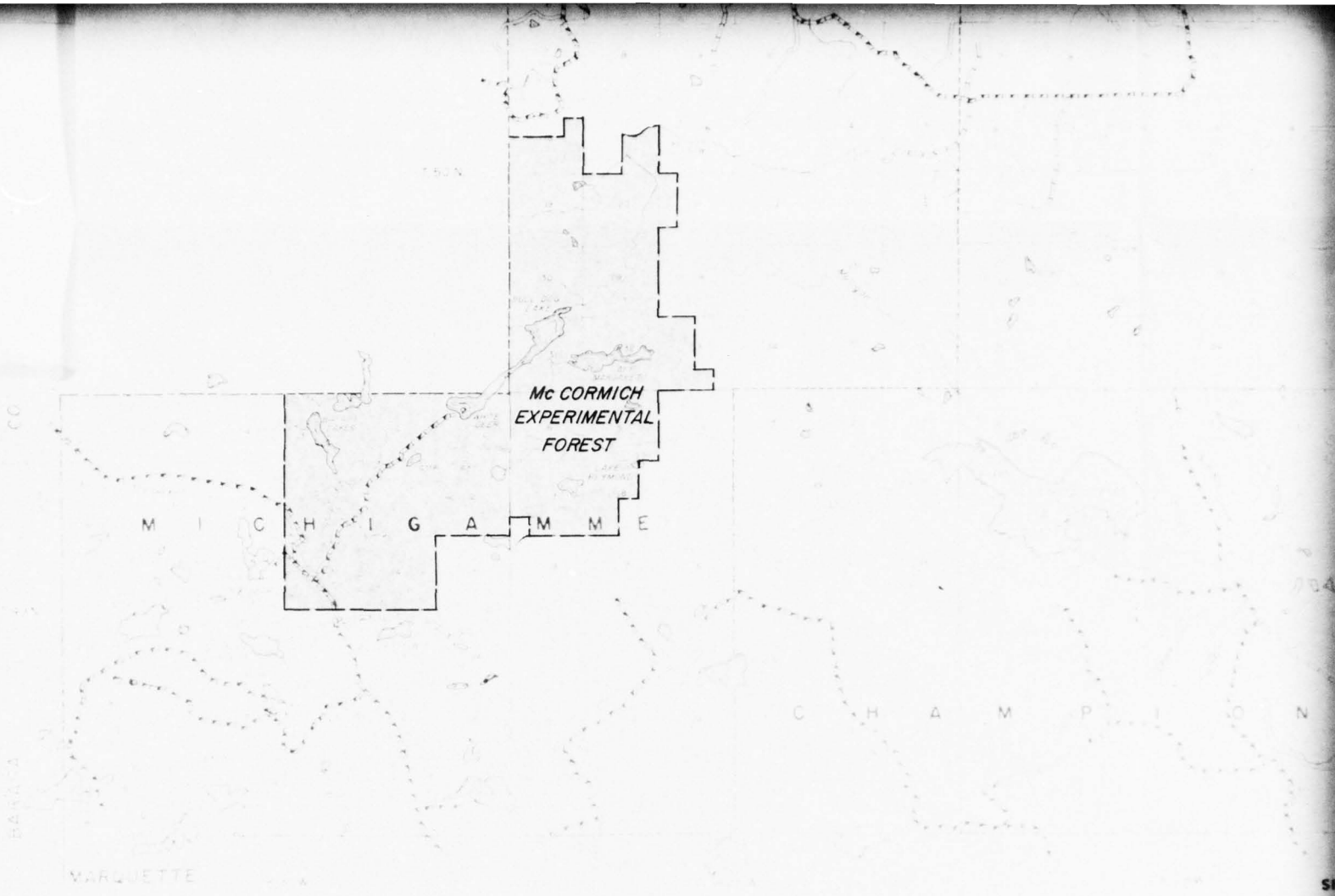
- 1:24000
- 1:24000
- BIG BAY 64
- 1:6400
- 1:6400
- 1:6400
- 1:6400

AD

Mc CORMICH
EXPERIMENTAL

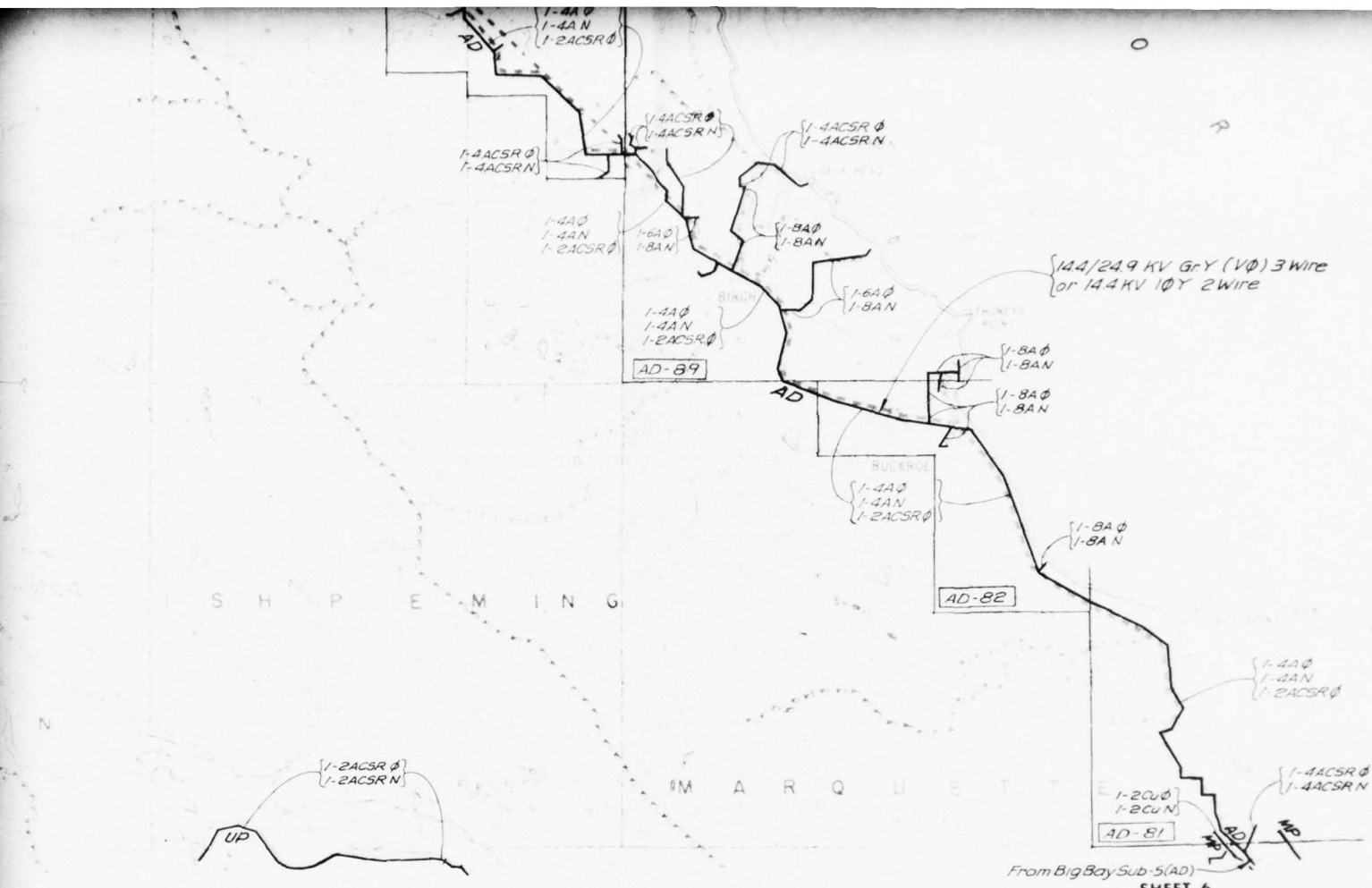
2





REPRODUCED FROM THE
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

3



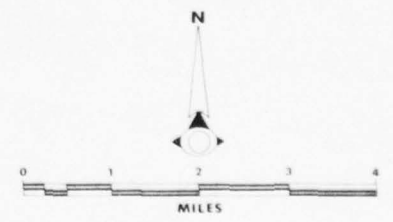
SHEET 5

SHEET 6

ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- +— INTERCONNECTION
- +— 138KV, 3 Φ LINES
- +— 69KV, 3 Φ LINES
- +— 33KV, 3 Φ LINES
- +— 12.5KV, 3 Φ LINES (OR 13.8KV OR 14.4KV)
- +— 7.2KV, 1 Φ LINES
- +— 2.4KV, 1 Φ LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE



PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
MARQUETTE COUNTY, MICHIGAN

WILLIAMS & WORKS

Engineers, Planners, Architects, Scientists
611 Cascade West Parkway
Grand Rapids, Michigan 49506

DATE 3/5/76

SHEET NO. 4

88°-00'

87°-50'

MARQUETTE

R. 30 W.

R. 29 W.

R. 28 W.

CO.

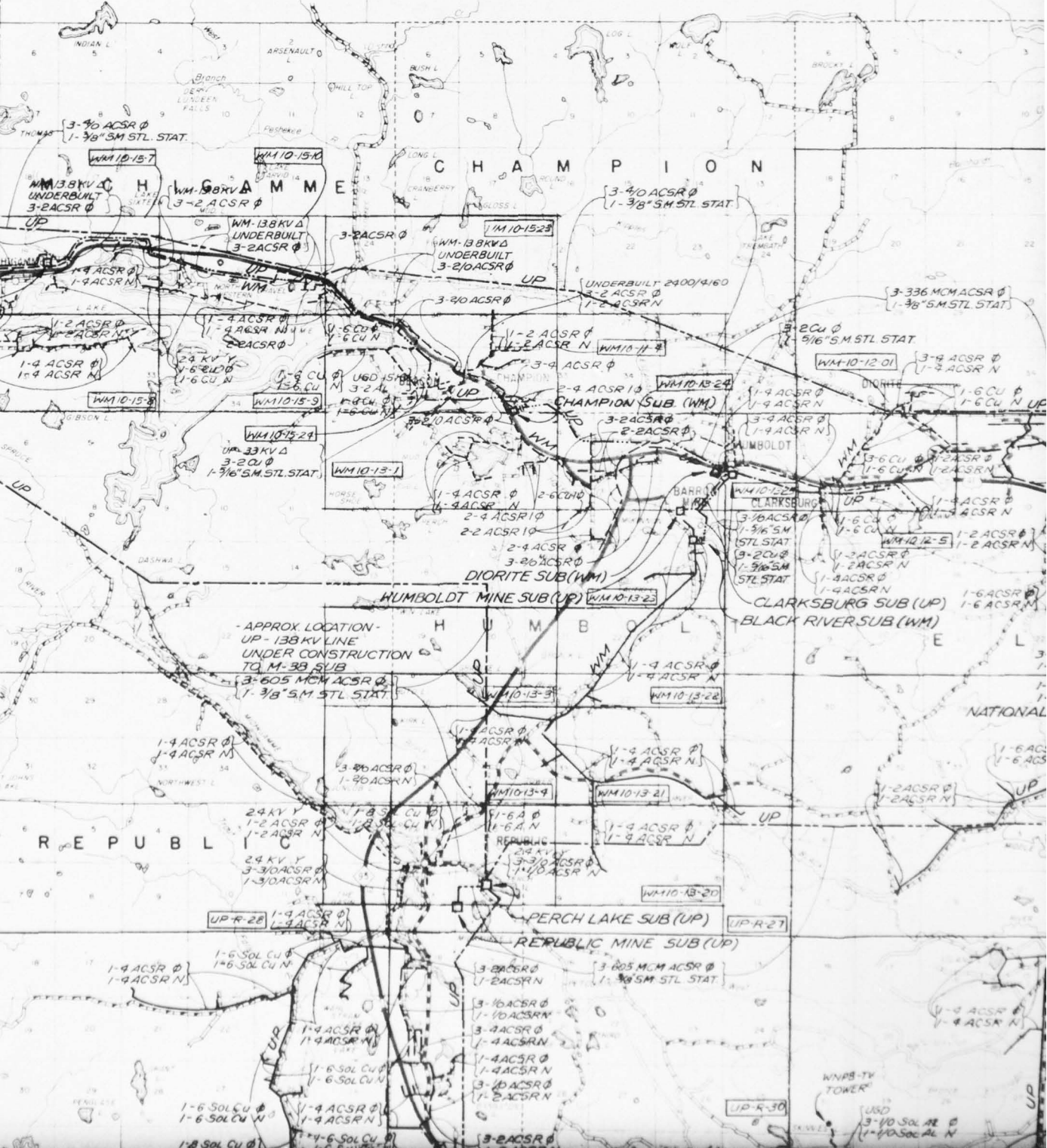
SHEET 3

BARAGA

CO.

T. 46 N.

SHEET 9



3-40 ACSR Ø
1-3/8" SM STL STAT.

WM 138KV Δ
UNDERBUILT
3-2ACSR Ø

WM 138KV Δ
UNDERBUILT
3-2ACSR Ø

WM 138KV Δ
UNDERBUILT
3-2/0ACSR Ø

3-40 ACSR Ø
1-3/8" SM STL STAT.

T. 48 N.
-33KV Δ
2CU Ø
3/16" SM STL STAT.

MICHIGAMME
VILLAGE SUB (WM)

1-2 ACSR Ø
1-2 ACSR N

1-2 ACSR Ø
1-2 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-2 ACSR Ø
1-2 ACSR N

3-4 ACSR Ø

3-24 ACSR Ø
2-2ACSR Ø

3-20 ACSR Ø

3-20 ACSR Ø
1-2 ACSR N

3-336 MCM ACSR Ø
1-3/8" SM STL STAT.

WM 10-15-7

WM 10-15-8

WM 10-15-9

WM 10-15-24

WM 10-13-1

WM 10-13-24

WM 10-12-01

WM 10-12-01

WM 10-12-01

T. 47 N.

HUMBOLDT MINE SUB (UP)

CLARKSBURG SUB (UP)

BLACK RIVER SUB (WM)

- APPROX LOCATION -
UP - 138KV LINE
UNDER CONSTRUCTION
TO M-30 SUB

3-605 MCM ACSR Ø
1-3/8" SM STL STAT.

1-4 ACSR Ø
1-4 ACSR N

3-20 ACSR Ø
1-20 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

24KV Y
1-2 ACSR Ø
1-2 ACSR N

24KV Y
3-30 ACSR Ø
1-30 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-6 SOL CU Ø
1-6 SOL CU N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
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1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-6 SOL CU Ø
1-6 SOL CU N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
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1-4 ACSR Ø
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1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-6 SOL CU Ø
1-6 SOL CU N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-6 SOL CU Ø
1-6 SOL CU N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-6 SOL CU Ø
1-6 SOL CU N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

1-4 ACSR Ø
1-4 ACSR N

WVAB-TV TOWER

UP R-30

R. 28 W.

SHEET 4

R. 27 W.

R. 26 W.



UP - 138 KV LINE UNDER CONSTRUCTION TO FORSYTH SUB

3-336 MCM ACSR Ø 1-3/8\" SM STL STAT

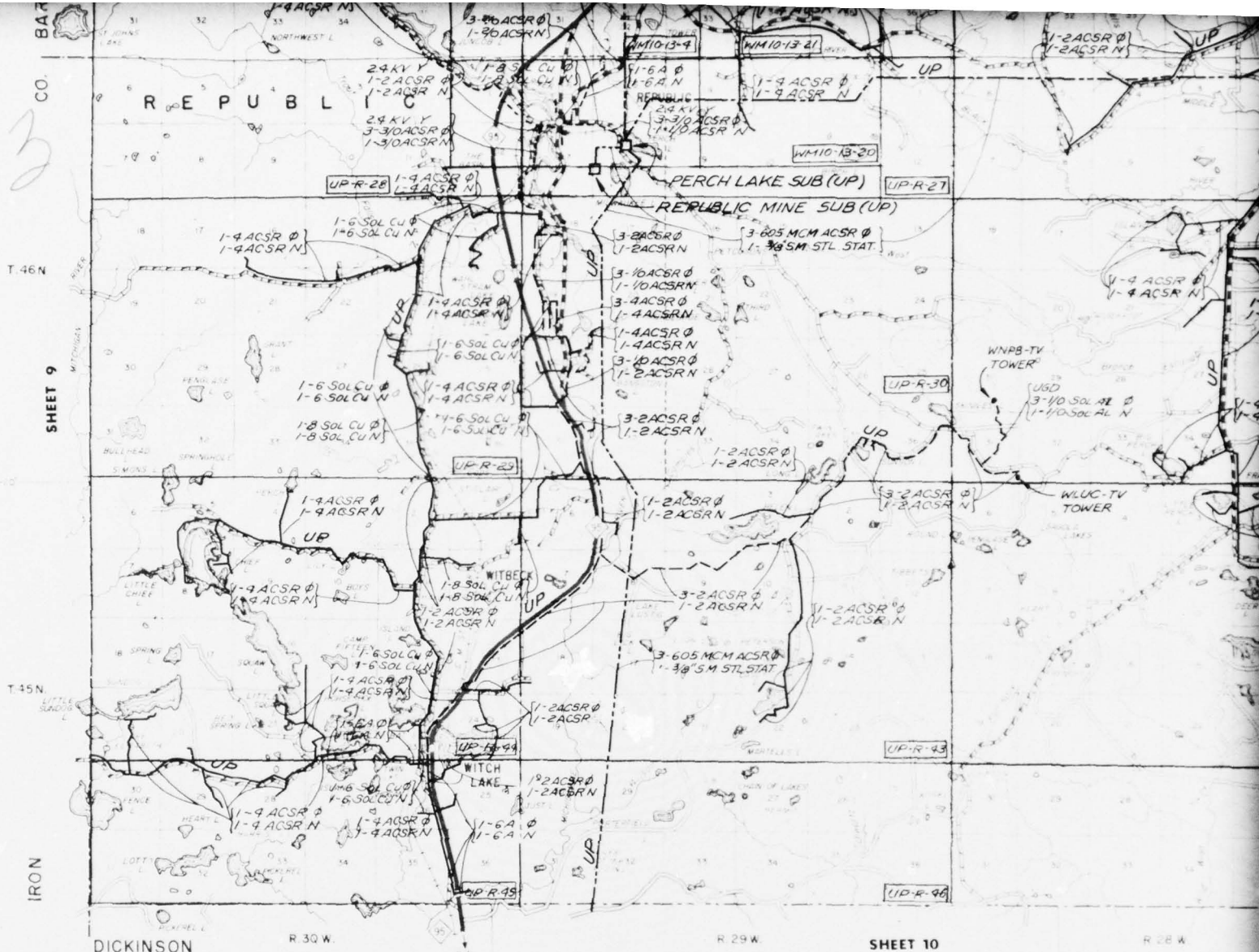
3-336 MCM ACSR Ø 1-3/8\" SM STL STAT

1-4 ACSR Ø 1-4 ACSR N

1-8 SOL CU Ø 8 SOL CU N

1-6 SOL CU Ø 1-6 SOL CU N

1-4 ACSR Ø



3
BAR
CO.

REPUBLIC

T. 46N
SHEET 9

T. 45N

IRON

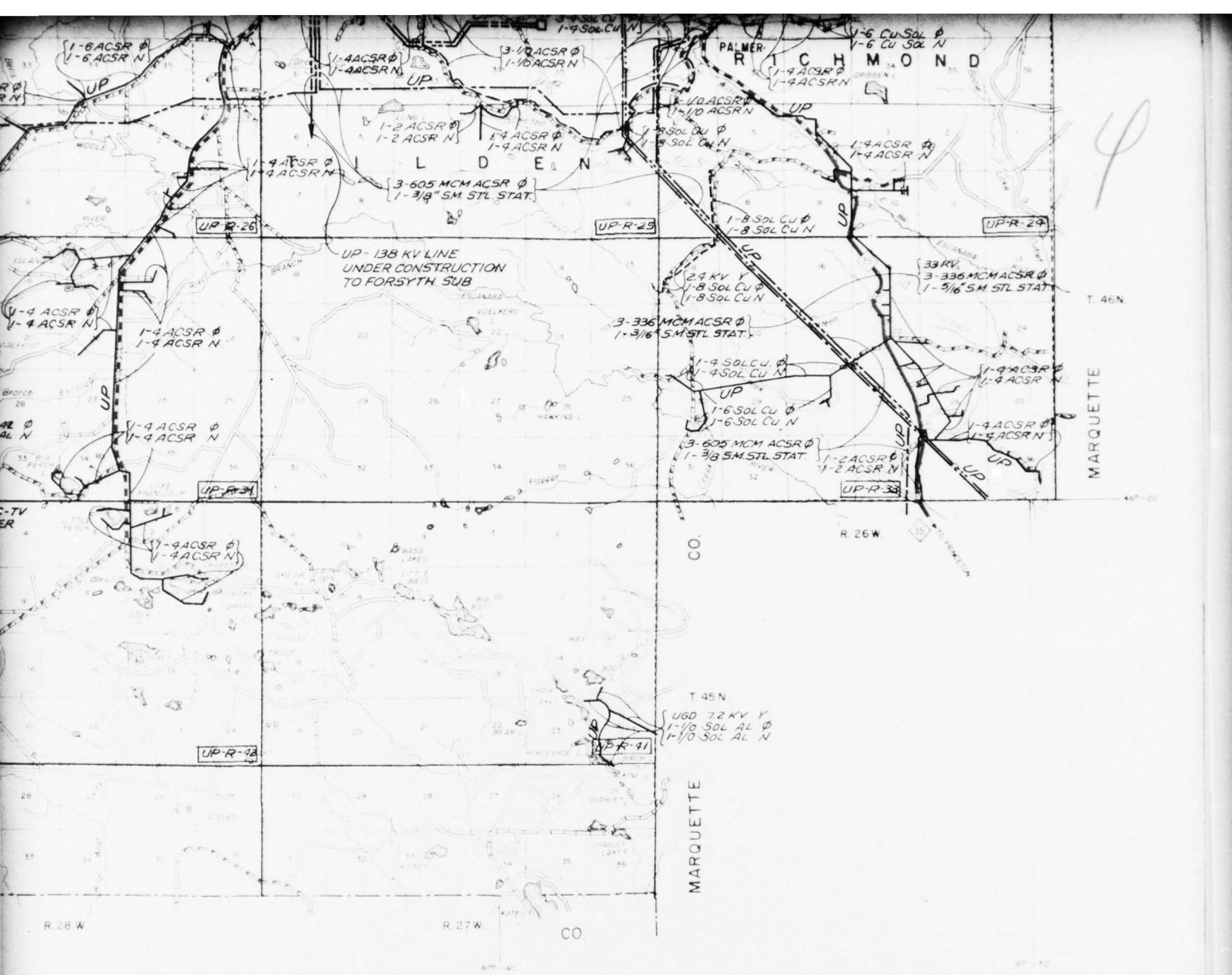
DICKINSON

R 30 W.

R 29 W.

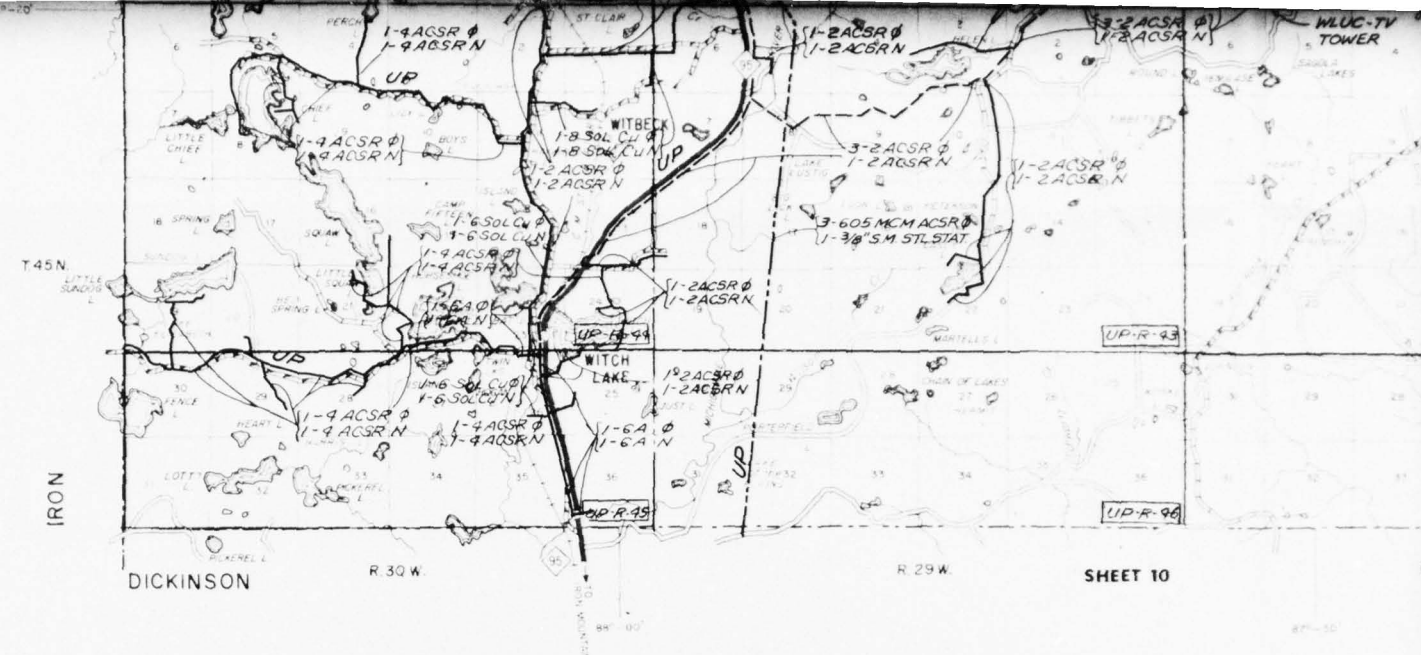
SHEET 10

R 28 W



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT NAME
- SUBSTATION NAME
- SWITCHING STATION NAME

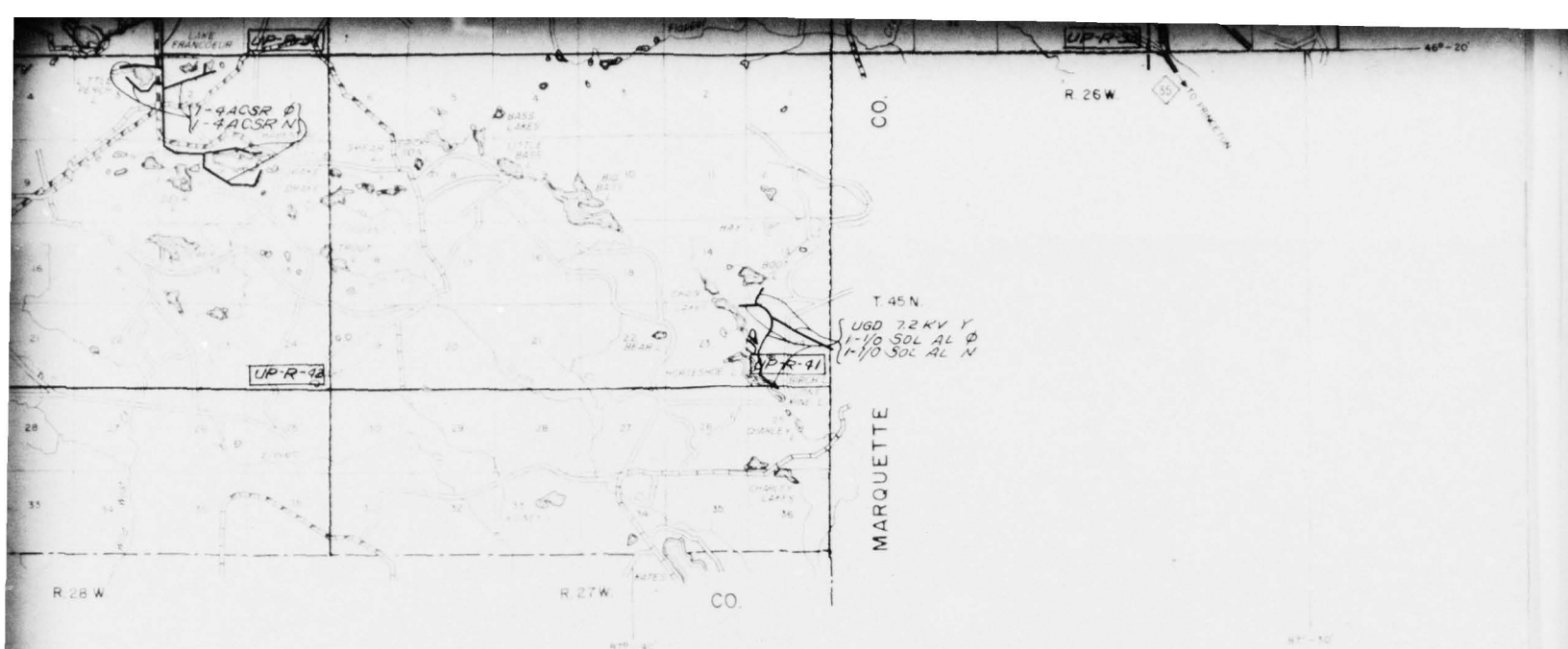


GENERAL HIGHWAY MAP
MARQUETTE COUNTY

MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 HIGHWAY PLANNING SURVEY

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

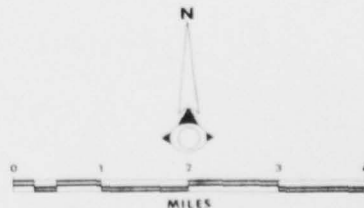
5



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 ϕ LINES
- 69 KV, 3 ϕ LINES
- 33 KV, 3 ϕ LINES
- 12.5 KV, 3 ϕ LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 ϕ LINES
- 2.4 KV, 1 ϕ LINES
- UGD UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER
(MP MAP REFERENCE IS BY SECTION, TWP & RANGE)

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE



PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC
SUBCONTRACT NO. CSD-C-75-1048

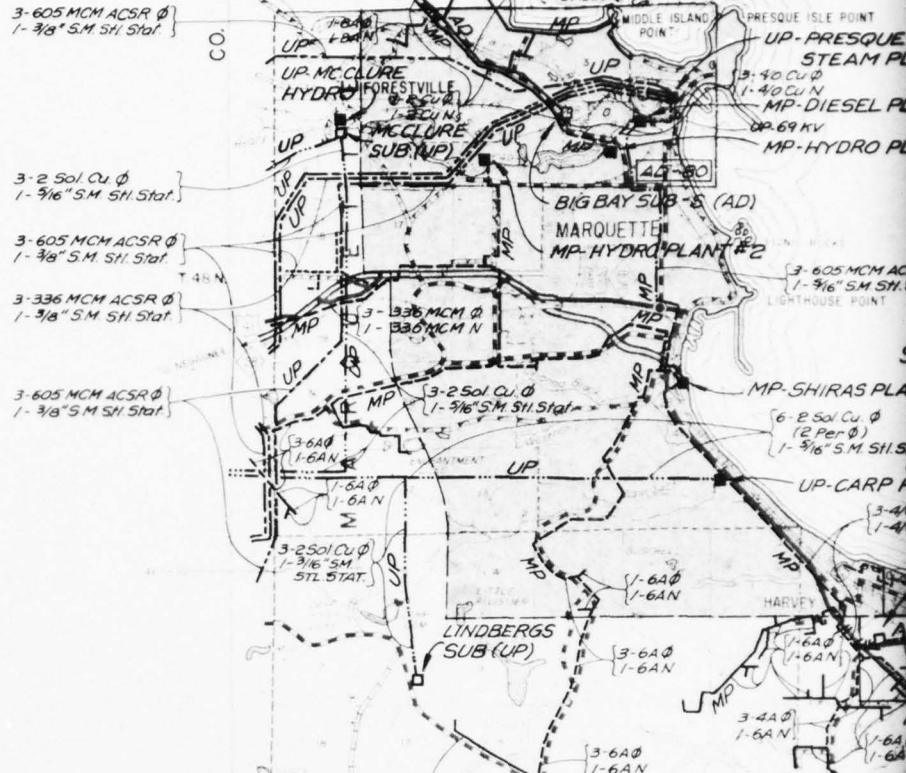
ELECTRICAL FACILITIES LOCATION
MARQUETTE COUNTY, MICHIGAN



WILLIAMS & WORKS
Engineers, Surveyors, Planners, Geologists
611 Cascade West Parkway
Grand Rapids, Michigan 49506

DATE 3/5/76

SHEET NO. 5

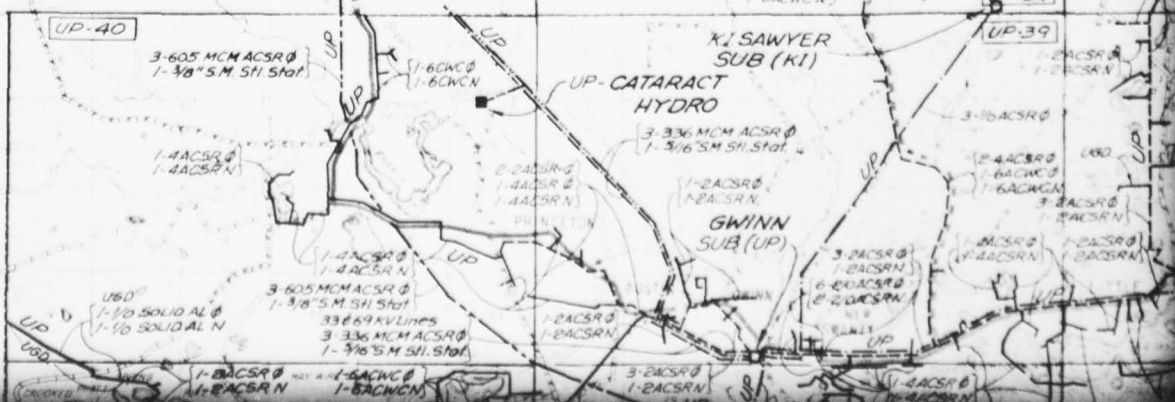


ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138KV, 3 ϕ LINES
- 69KV, 3 ϕ LINES
- 33KV, 3 ϕ LINES
- 12.5KV, 3 ϕ LINES (OR 13.8KV OR 14.4KV)
- 7.2KV, 1 ϕ LINES
- 2.4KV, 1 ϕ LINES
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- POWER CO. MAP REFERENCE NUMBER
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- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
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- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE

SHEET 5



2

PRESQUE ISLE POINT
UP-PRESQUE ISLE
STEAM PLANT (UPGen Co.)
MP-DIESEL PLANT #4
MP-HYDRO PLANT #3

L A K E

S U P E R I O R

LANT #2
3-605 MCM ACSR Ø
1-3/16" S.M. SH. Stat.
LIGHTHOUSE POINT

MP-SHIRAS PLANT #5

6-2.501 Cu Ø
(2 Per Ø)
1-3/16" S.M. SH. Stat.

UP-CARP HYDRO

3-40 Cu Ø
1-40 Cu N

HARVEY SUB (AD)
R 24W

1-4ACSR Ø
1-4ACSRN

2-2ACSR Ø
1-2ACSRN

1-4ACSR Ø
1-4ACSRN

1-8A Ø
1-8AN

R 23W

SHOT POINT
1-6A Ø
1-6AN

1-6A Ø
1-6AN

1-8A Ø
1-8AN

1-8A Ø
1-8AN

AD70A

AD70

AD70

AD-69

AD-69A

3-40 Cu Ø
1-40 Cu N

1-6A Ø
1-6AN

1-6A Ø
1-6AN

1-6A Ø
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1-6A Ø
1-6AN

1-4ACSR Ø
1-4ACSRN

1-2ACSR Ø
1-2ACSRN

1-6A Ø
1-6AN

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1-6A Ø
1-6AN

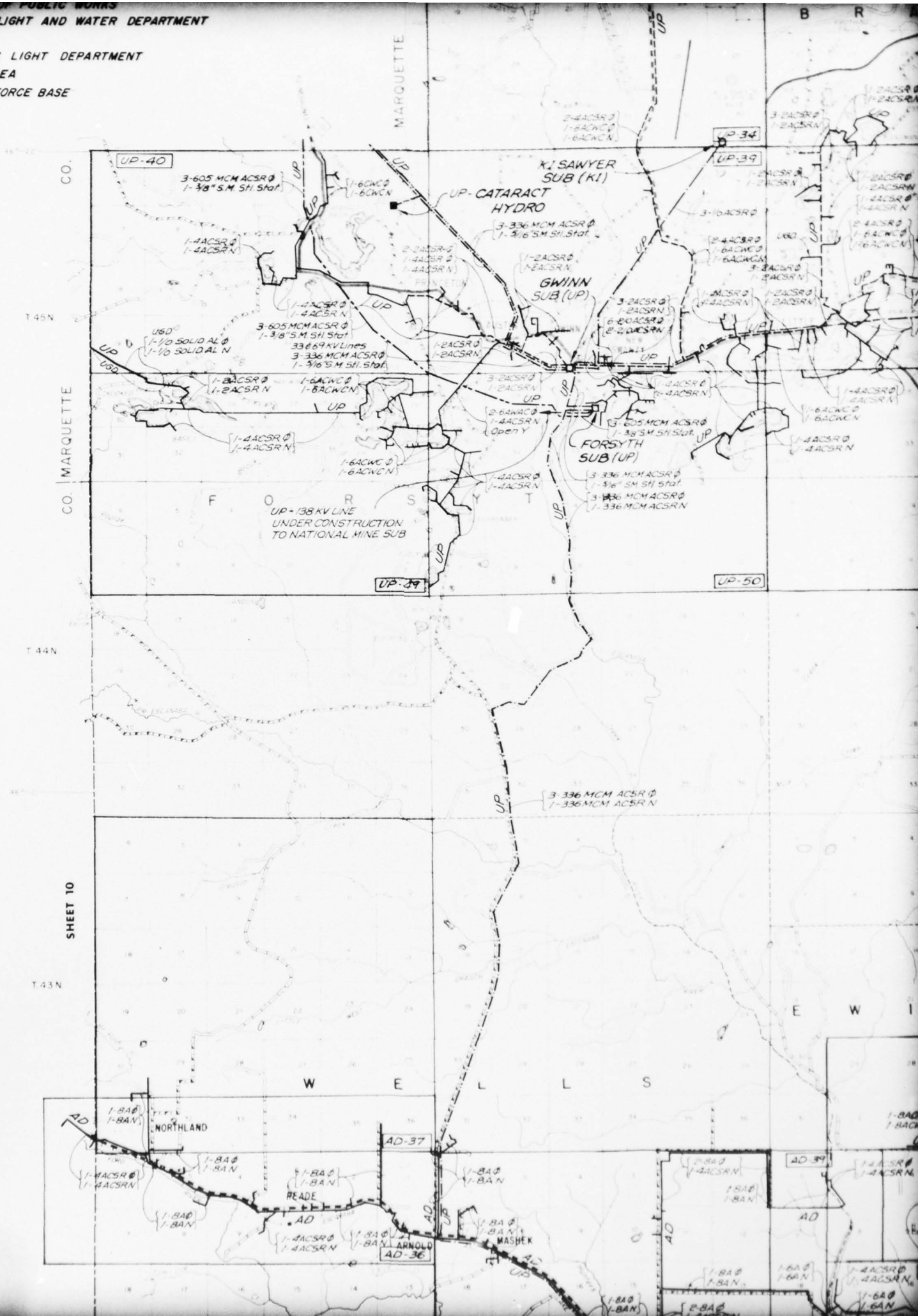
1-6A Ø
1-6AN

1-6A Ø
1-6AN

3-30 ACSR Ø
1-3/16" S.M. SH. Stat.

SHEET 7

CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
 ONTONAGON REA
 NORWAY ELECTRIC LIGHT DEPARTMENT
 ALGER DELTA REA
 KI SAWYER AIR FORCE BASE



SHEET 10

CO. MARQUETTE

CO. MARQUETTE

T.44N

T.43N

MARQUETTE

B R

E W I

AD

AD-37

AD-36

AD-39

UP-40

UP-34
UP-39

UP-39

UP-50

CO.

46° 20'

T.45N

46° 00'

45° 40'

F O R S Y T H
 UP-138KV LINE
 UNDER CONSTRUCTION
 TO NATIONAL MINE SUB

KI SAWYER
 SUB (KI)

UP-CATARACT
 HYDRO

GWINN
 SUB (UP)

FORSYTH
 SUB (UP)

USØ
 1-1/2 SOLID AL Ø
 1-1/2 SOLID AL N

3-605 MCM ACSR Ø
 1-3/8\"/>

3-336 MCM ACSR Ø
 1-3/8\"/>

3-605 MCM ACSR Ø
 1-3/8\"/>

33869 KV Lines
 3-336 MCM ACSR Ø
 1-3/8\"/>

1-2 ACSR Ø
 1-2 ACSR N

1-2 ACSR Ø
 1-2 ACSR N

1-6 ACWC Ø
 1-6 ACWC N

3-2 ACSR Ø
 1-2 ACSR N

2-6 ANAC Ø
 1-4 ACSR N

2-6 ANAC Ø
 1-4 ACSR N

3-605 MCM ACSR Ø
 1-3/8\"/>

3-336 MCM ACSR Ø
 1-3/8\"/>

3-336 MCM ACSR Ø
 1-3/8\"/>

3-336 MCM ACSR Ø
 1-3/8\"/>

1-8A Ø
 1-8A N

1-4 ACSR Ø
 1-4 ACSR N

1-8A Ø
 1-8A N

1-8A Ø
 1-8A N

1-8A Ø
 1-8A N

1-4 ACSR Ø
 1-4 ACSR N

1-8A Ø
 1-8A N

1-8A Ø
 1-8A N

1-8A Ø
 1-8A N

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1-8A Ø
 1-8A N

1-8A Ø
 1-8A N

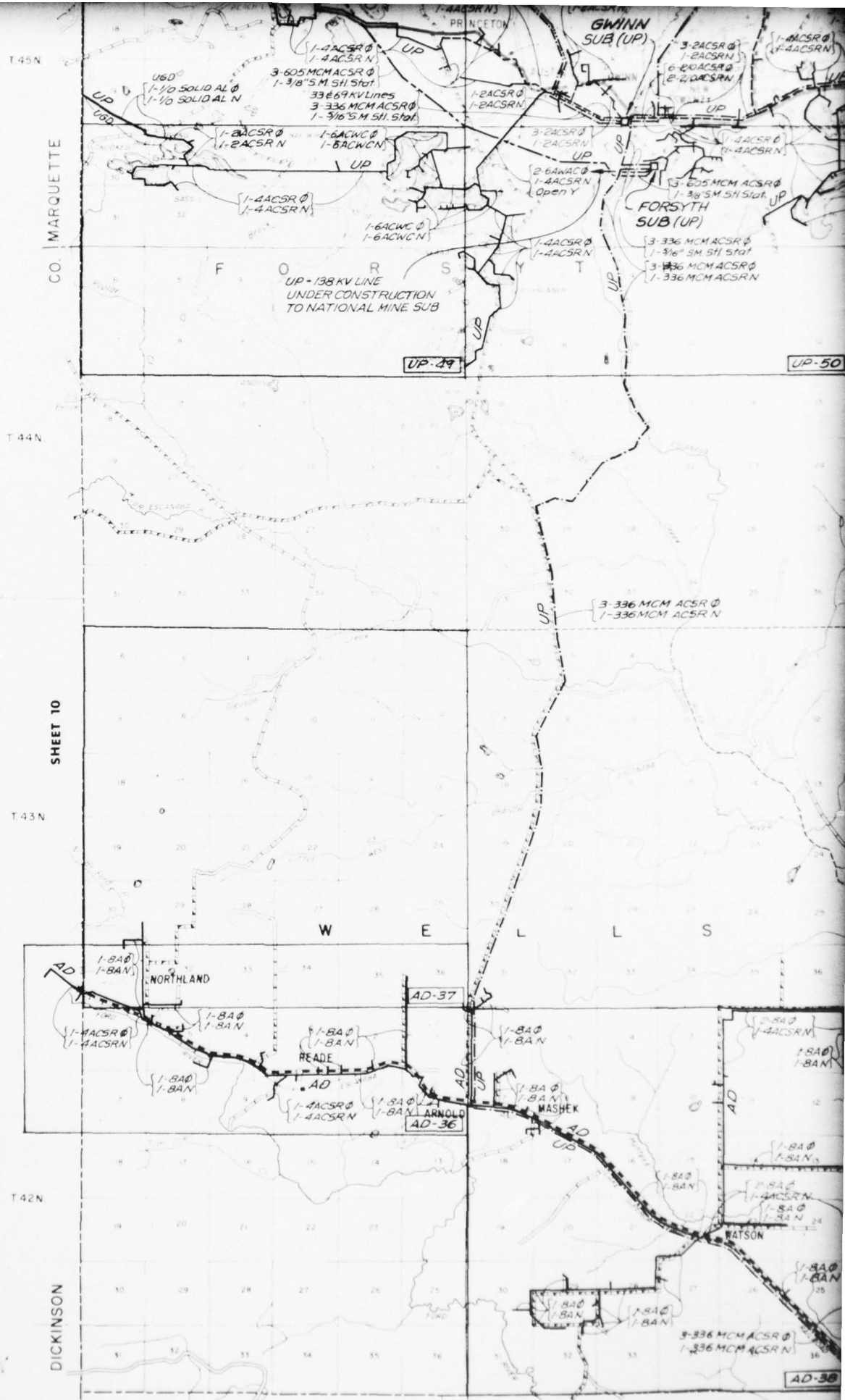
1-8A Ø
 1-8A N

1-8A Ø
 1-8A N

1-4 ACSR Ø
 1-4 ACSR N

1-8A Ø
 1-8A N

1-8A Ø
 1-8A N



CO. MARQUETTE

SHEET 10

DICKINSON

GENERAL HIGHWAY MAP
MARQUETTE COUNTY

WISCONSIN
DIVISION OF HIGHWAY COMMISSION
DESIGNED BY
HARRY F. JENNINGS SURVEY

MENOMINEE

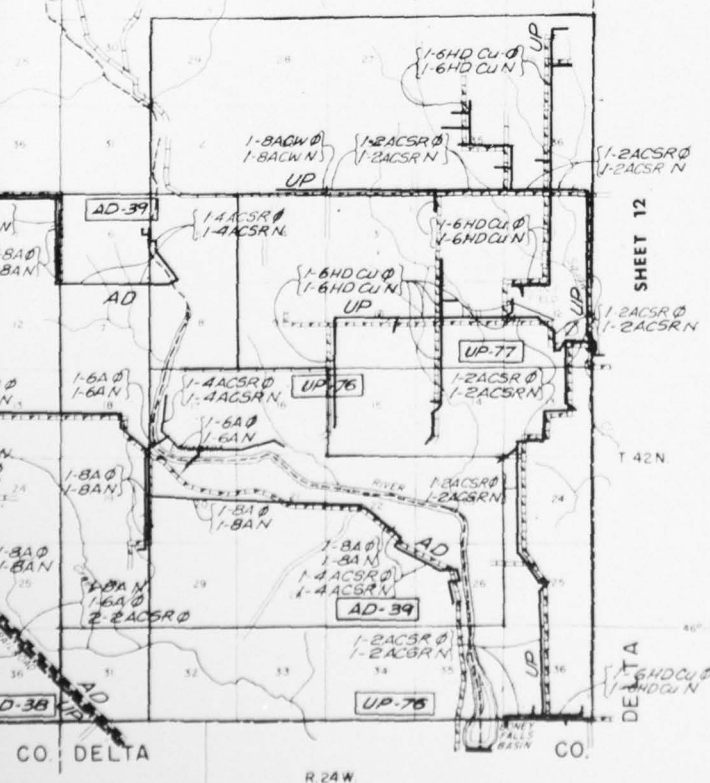
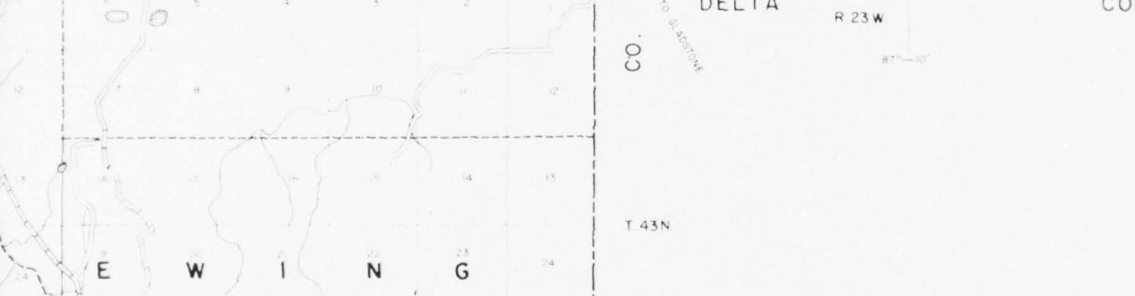
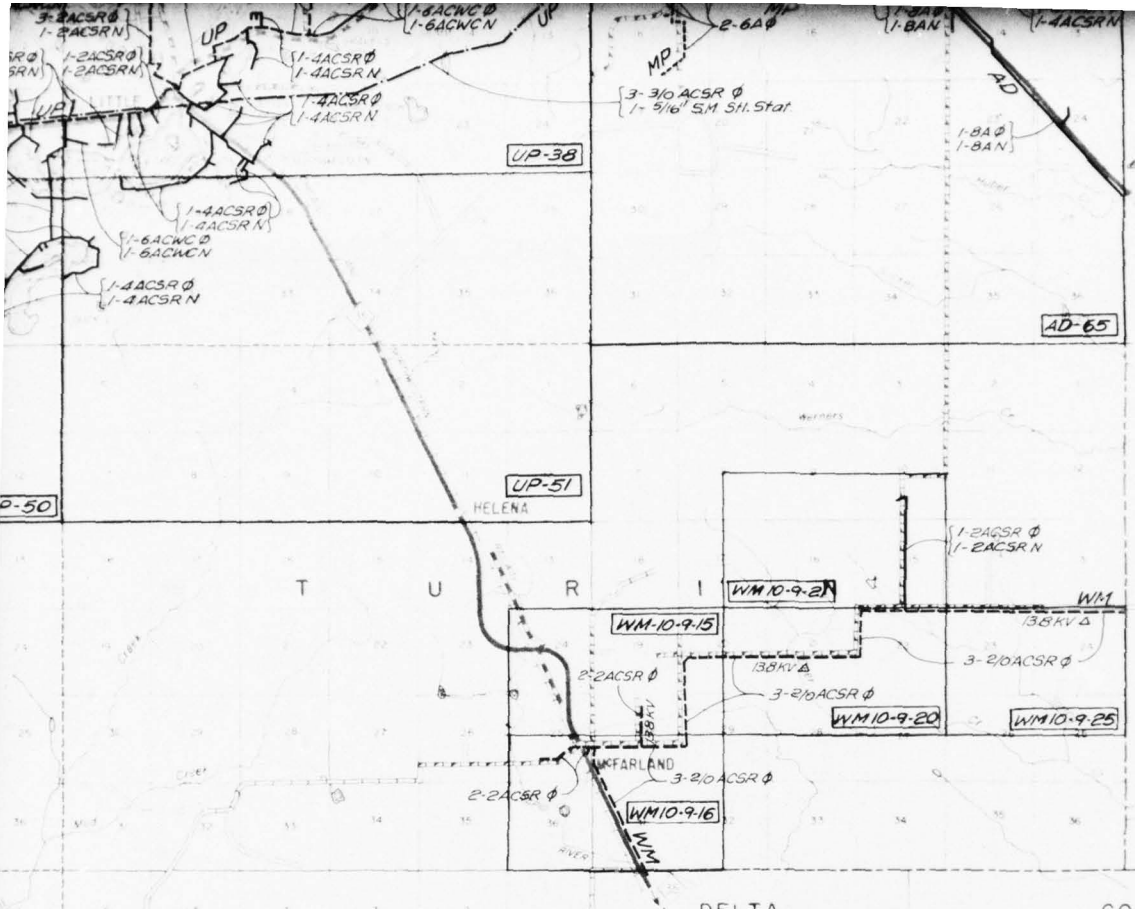
R. 26 W

SHEET 11

R. 25 W

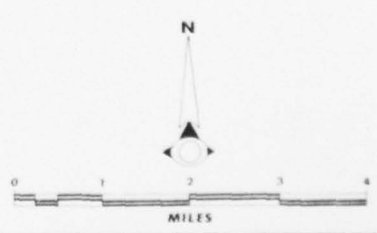
CO.

5



T 45 N
T 44 N
ALGER
R 23 W
T 43 N
E W I N G
T 42 N


CO. DELTA
R 24 W
87-10



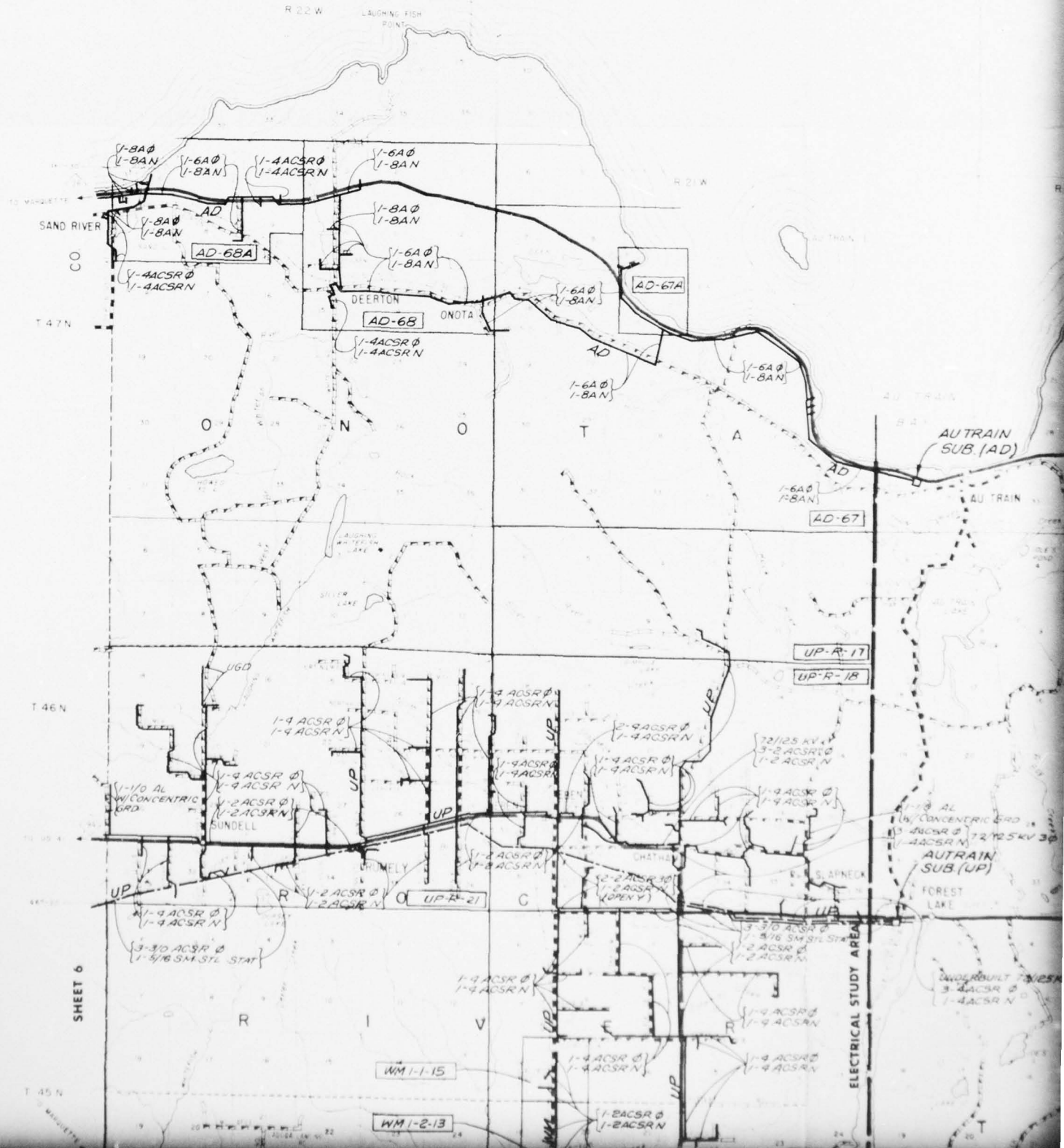
PROJECT SEAFARER
COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
MARQUETTE COUNTY, MICHIGAN

| | | |
|---|--|-------------|
|  | <small>ENGINEERS, SURVEYORS, PLANNERS, CONSULTANTS</small> <small>811 Cascade West Parkway</small> <small>Grand Rapids, Michigan 49508</small> | DATE 3/5/76 |
| | SHEET NO. 6 | |

L A K E S U P E R I O R



SHEET 6

T 45 N

T 46 N

T 47 N

CO

R 22 W

R 21 W

R 20 W

R 19 W

R 18 W

R 17 W

R 16 W

R 15 W

2

R I O R

GRAND ISLAND

R 20W

AUTRAIN SUB. (AD)

AU TRAIN

CHRISTMAS

MUNISING

RIDGE

G

CO

WETMIRE

N

CO

CO

CO

1-1/2 AL
W/CONCENTRIC BRD
3-4ACSR @ 72/125KV 30
1-4ACSR N

AUTRAIN SUB. (UP)

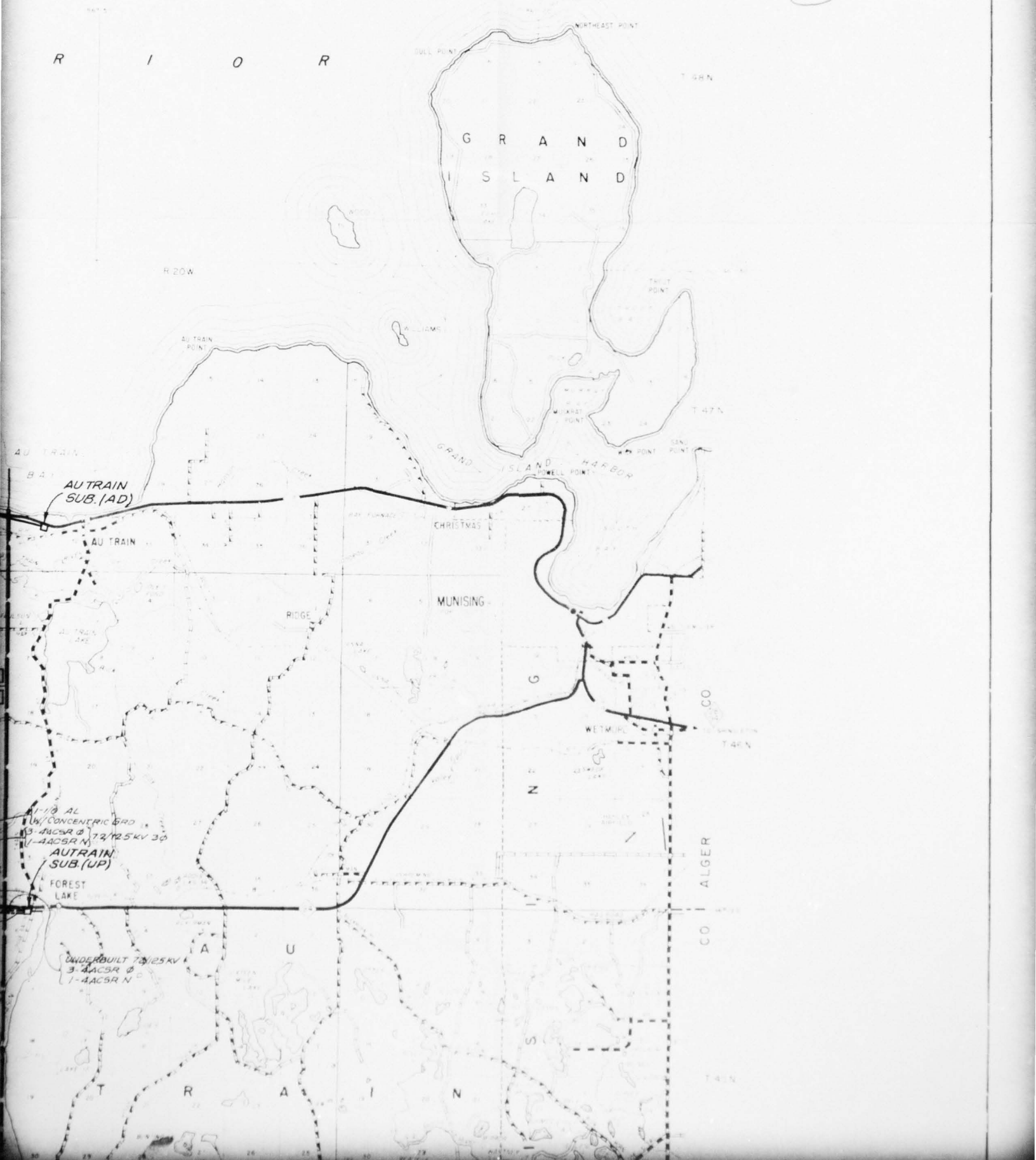
FOREST LAKE

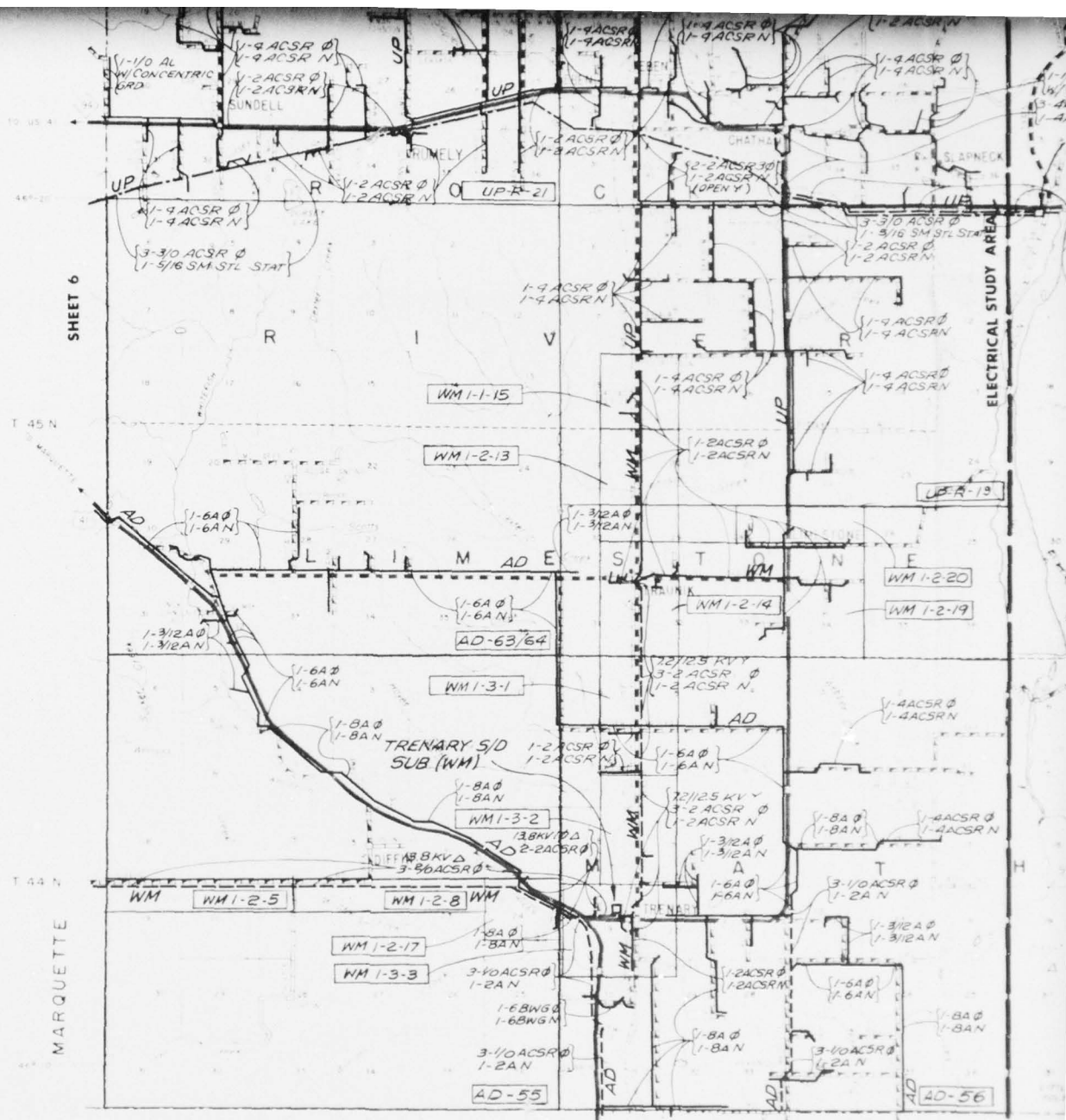
UNDERBUILT 72/125KV
3-4ACSR @
1-4ACSR N

A U

S

T R A I N





GENERAL HIGHWAY MAP
 ALGER COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF HIGHWAY CONSTRUCTION
 1957
 HIGHWAY PLANNING SURVEY
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

AD-A036 407

GTE SYLVANIA INC NEEDHAM HEIGHTS MASS COMMUNICATIONS--ETC F/G 17/2
ELF COMMUNICATIONS SEAFARER PROGRAM. SITE SURVEY, MICHIGAN REGI--ETC(U)
MAR 76

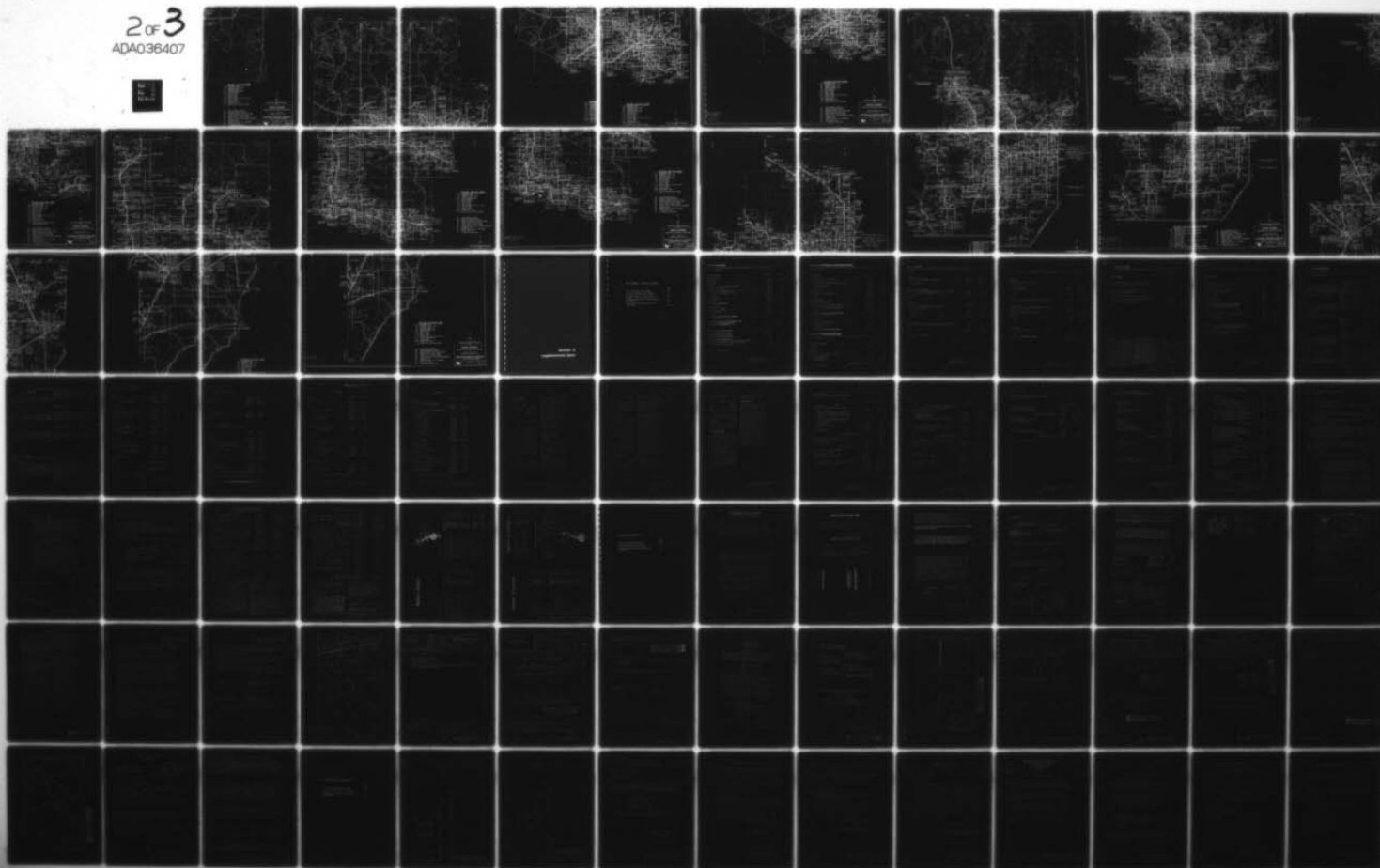
N00039-75-C-0309

UNCLASSIFIED

NL

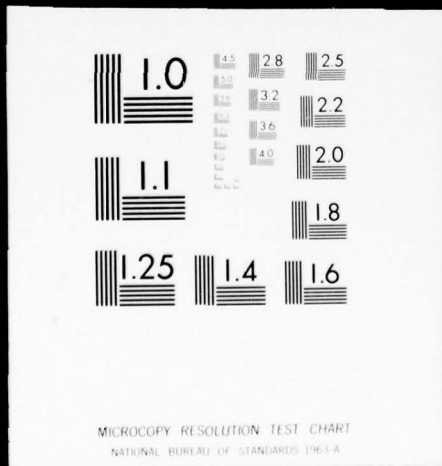
2 of 3

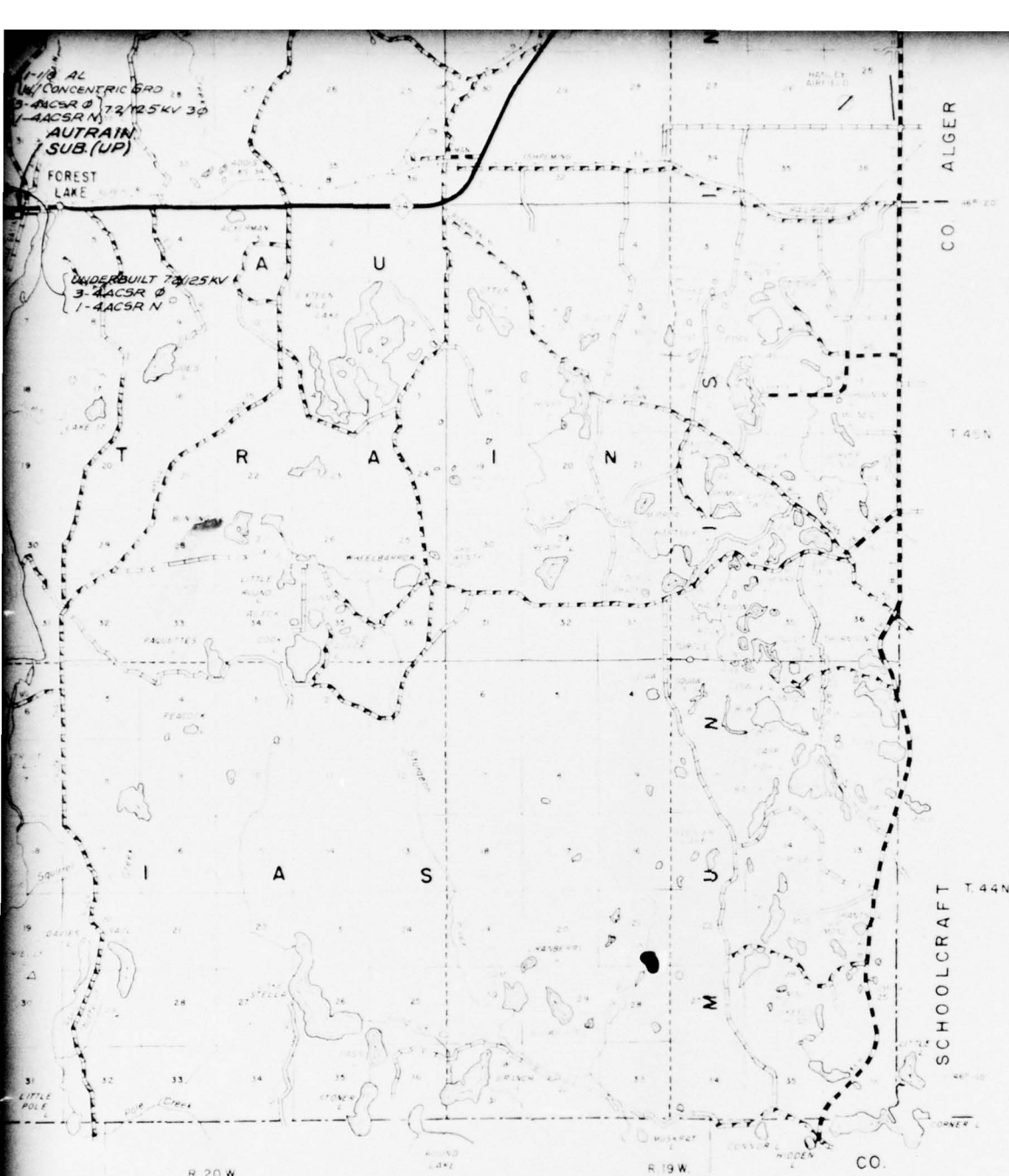
ADA036407



2 OF 3

ADA036407





ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 Ø LINES
- 69 KV, 3 Ø LINES
- 33 KV, 3 Ø LINES
- 12.5 KV, 3 Ø LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 Ø LINES
- 2.4 KV, 1 Ø LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

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- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE

PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

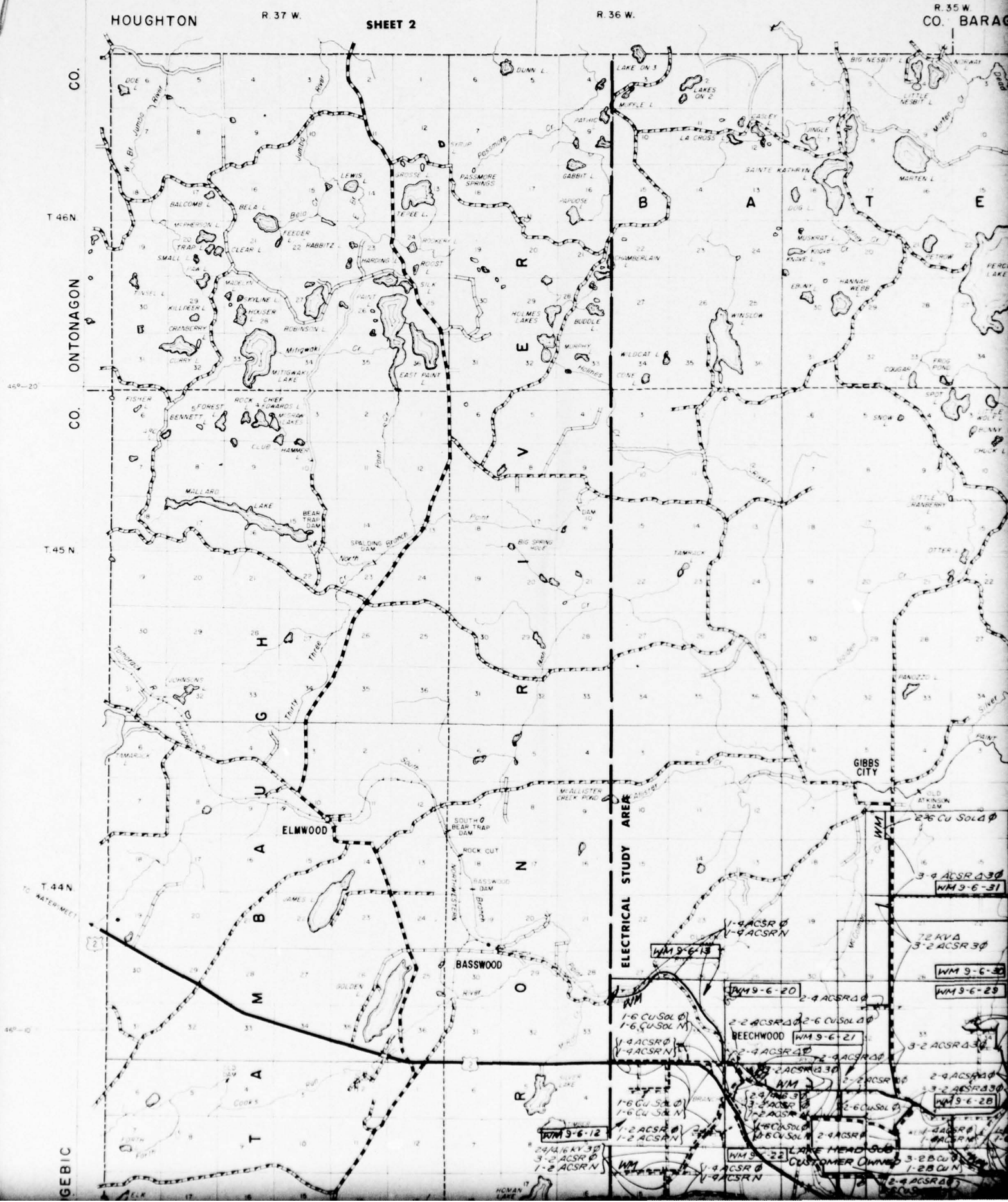
FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
ALGER COUNTY, MICHIGAN



WILLIAMS & WORKS
Engineers, Surveyors, Planners, Geologists
611 Cascade West Parkway
Grand Rapids, Michigan 49506

DATE 3/5/76
SHEET NO. 7



ELECTRICAL STUDY AREA

GIBBS CITY

ELMWOOD

BASSWOOD

Handwritten notes and annotations on the map, including:

- WM 9-6-13
- WM 9-6-20
- WM 9-6-21
- WM 9-6-28
- WM 9-6-29
- WM 9-6-30
- WM 9-6-31
- WM 9-6-32
- WM 9-6-33
- WM 9-6-34
- WM 9-6-35
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- WM 9-6-93
- WM 9-6-94
- WM 9-6-95
- WM 9-6-96
- WM 9-6-97
- WM 9-6-98
- WM 9-6-99
- WM 9-6-100

2

R 36 W.

R 35 W.
CO. BARAGA CO.
SHEET 3

CO.

T 46 N

SHEET 9

T 45 N

IRON

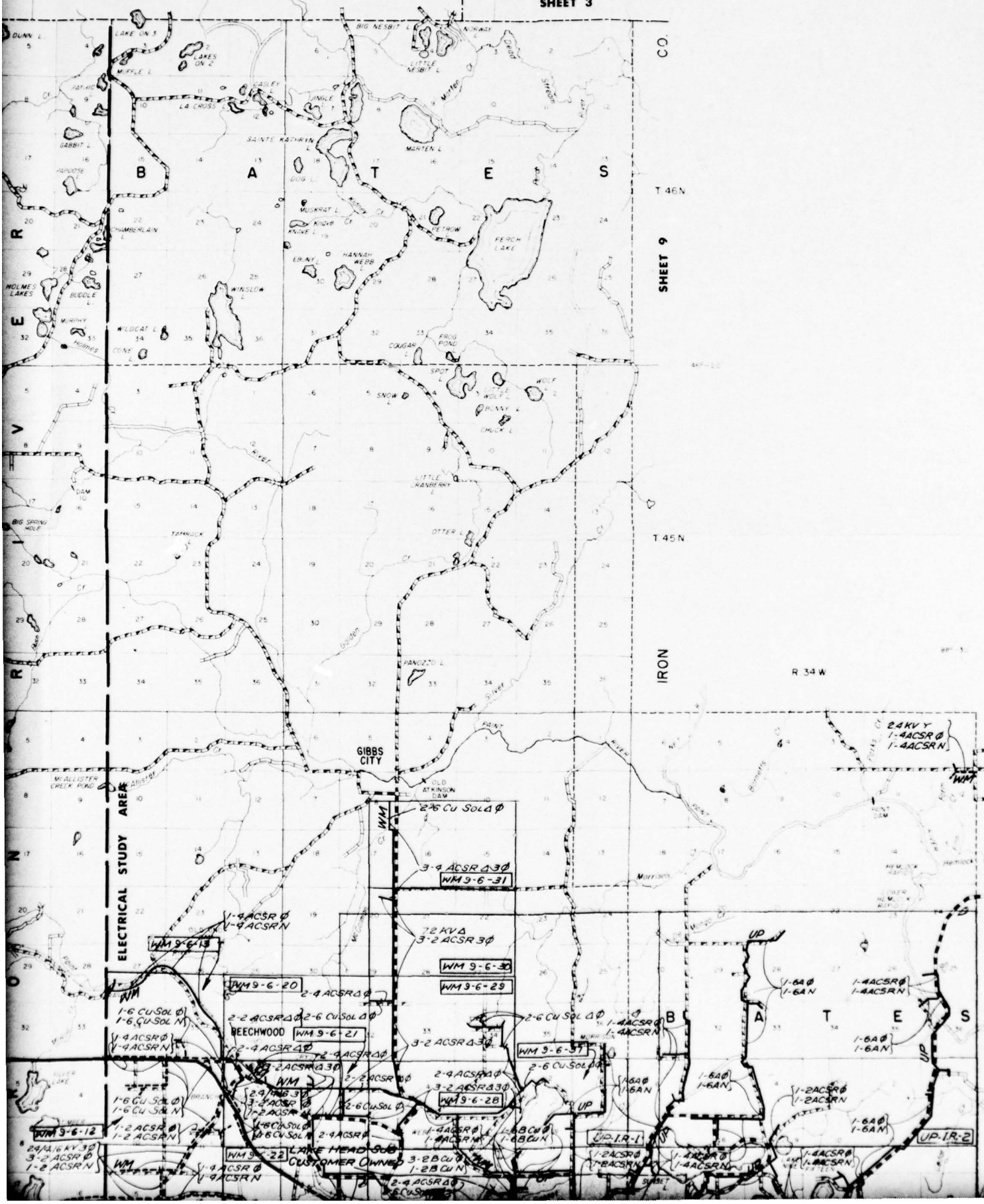
R 34 W

CO.

T 44 N

SHEET 9

T 43 N



ELECTRICAL STUDY AREA

GIBBS CITY

REECHWOOD

LAKE HEAD SUB
CUSTOMER OWNED

24KV Y
1-4ACSR Ø
1-4ACSRN

2-6 CU SOLID Ø

3-4 ACSR Ø 30
WM 9-6-31

2-6 CU SOLID Ø

2-4 ACSR Ø 30
WM 9-6-29

2-4 ACSR Ø 30
WM 9-6-20

2-4 ACSR Ø 30
WM 9-6-21

2-4 ACSR Ø 30
WM 9-6-28

2-4 ACSR Ø 30
WM 9-6-22

2-4 ACSR Ø 30
WM 9-6-23

2-4 ACSR Ø 30
WM 9-6-24

2-4 ACSR Ø 30
WM 9-6-25

2-4 ACSR Ø 30
WM 9-6-26

2-4 ACSR Ø 30
WM 9-6-27

2-4 ACSR Ø 30
WM 9-6-28

2-4 ACSR Ø 30
WM 9-6-29

2-4 ACSR Ø 30
WM 9-6-30

2-4 ACSR Ø 30
WM 9-6-31

2-4 ACSR Ø 30
WM 9-6-32

2-4 ACSR Ø 30
WM 9-6-33

2-4 ACSR Ø 30
WM 9-6-34

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WM 9-6-42

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WM 9-6-43

2-4 ACSR Ø 30
WM 9-6-44

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WM 9-6-45

2-4 ACSR Ø 30
WM 9-6-46

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WM 9-6-47

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WM 9-6-48

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WM 9-6-51

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WM 9-6-54

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WM 9-6-55

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WM 9-6-71

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WM 9-6-72

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WM 9-6-73

2-4 ACSR Ø 30
WM 9-6-74

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WM 9-6-75

2-4 ACSR Ø 30
WM 9-6-76

2-4 ACSR Ø 30
WM 9-6-77

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WM 9-6-78

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WM 9-6-79

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WM 9-6-80

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WM 9-6-81

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WM 9-6-82

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WM 9-6-83

2-4 ACSR Ø 30
WM 9-6-84

2-4 ACSR Ø 30
WM 9-6-85

2-4 ACSR Ø 30
WM 9-6-86

2-4 ACSR Ø 30
WM 9-6-87

2-4 ACSR Ø 30
WM 9-6-88

2-4 ACSR Ø 30
WM 9-6-89

2-4 ACSR Ø 30
WM 9-6-90

2-4 ACSR Ø 30
WM 9-6-91

2-4 ACSR Ø 30
WM 9-6-92

2-4 ACSR Ø 30
WM 9-6-93

2-4 ACSR Ø 30
WM 9-6-94

2-4 ACSR Ø 30
WM 9-6-95

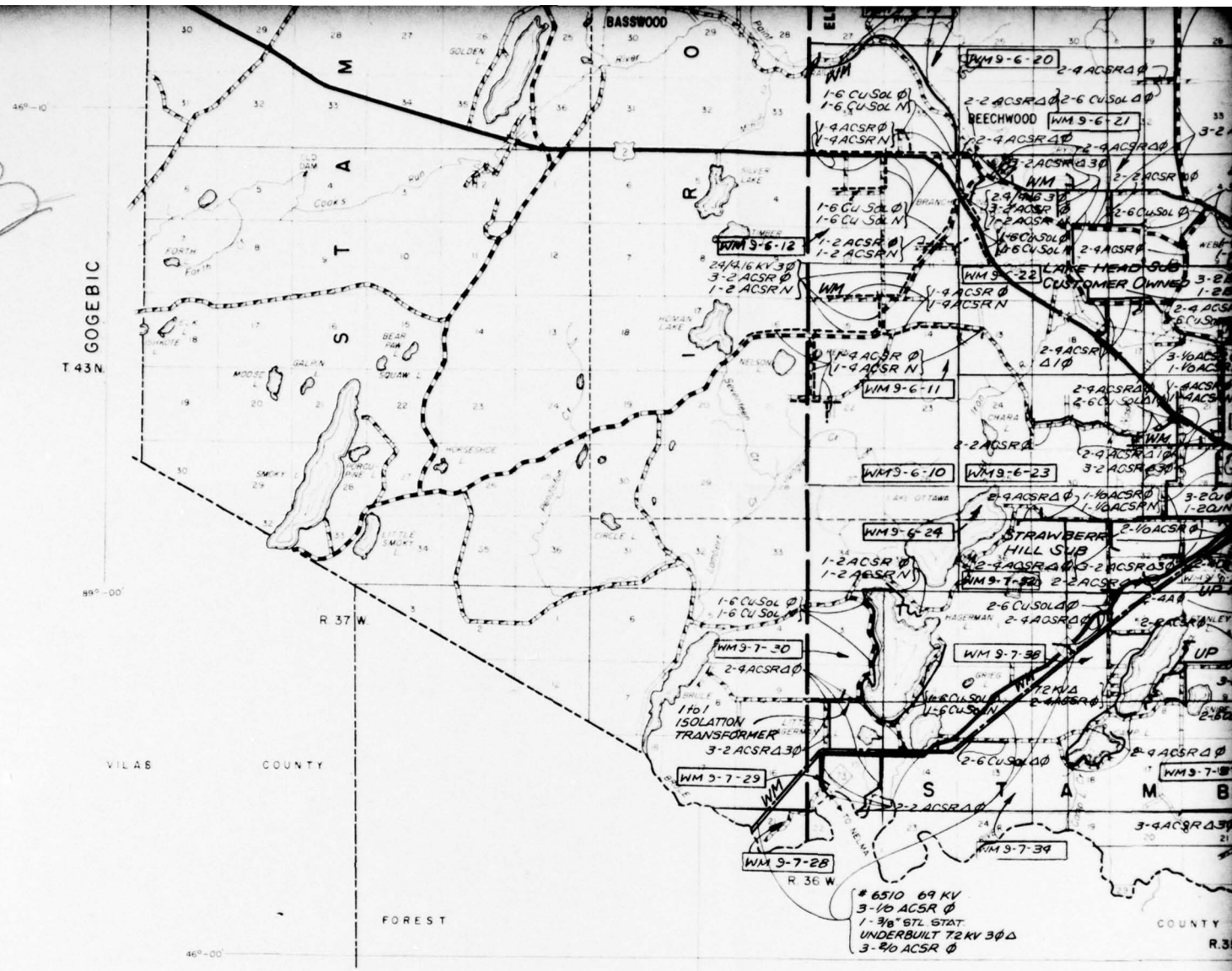
2-4 ACSR Ø 30
WM 9-6-96

2-4 ACSR Ø 30
WM 9-6-97

2-4 ACSR Ø 30
WM 9-6-98

2-4 ACSR Ø 30
WM 9-6-99

2-4 ACSR Ø 30
WM 9-6-100



32
 GOGEBIC
 T 43N

89°-00'

VILAS COUNTY

R 37 W

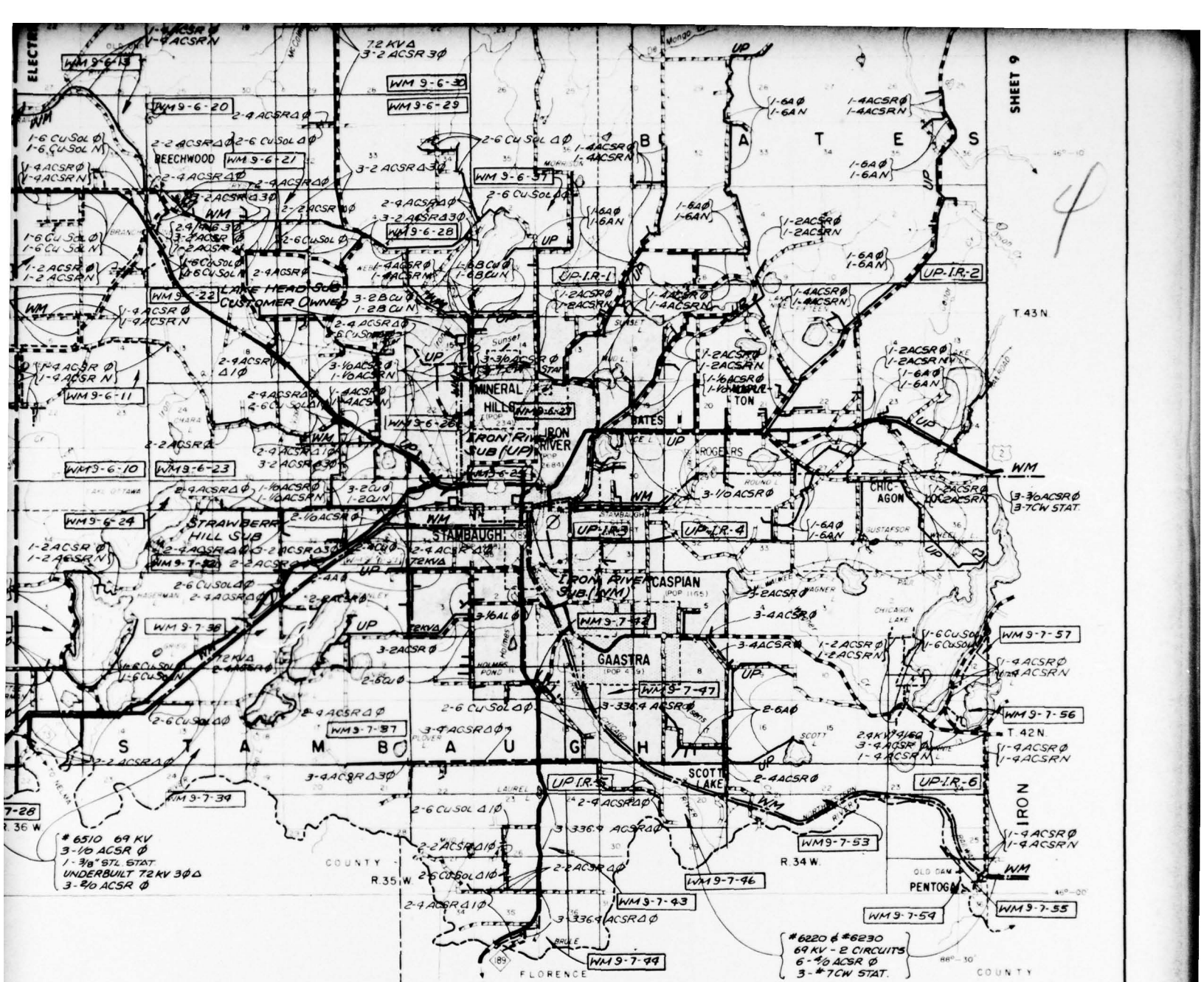
FOREST

46°-00'

W I S C O N S I N

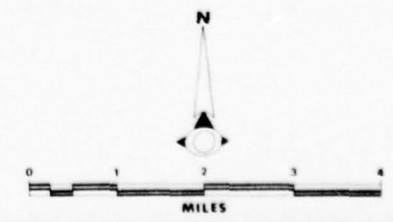
- ELECTRICAL**
- EXCLUSION
 - GENERATION
 - SUBSTATION
 - SWITCHING
 - INTERCONN
 - 138 KV, 3 Ø L
 - 69 KV, 3 Ø L
 - 33 KV, 3 Ø L
 - 125 KV, 3 Ø L
 - 7.2 KV, 1 Ø L
 - 2.4 KV, 1 Ø L
 - UGD. UNDERGROUND
 - POWER CO.

6510 69 KV
 3-1Ø ACSR Ø
 1-3Ø STL STAT
 UNDERBUILT 72 KV 3Ø Δ
 3-3Ø ACSR Ø

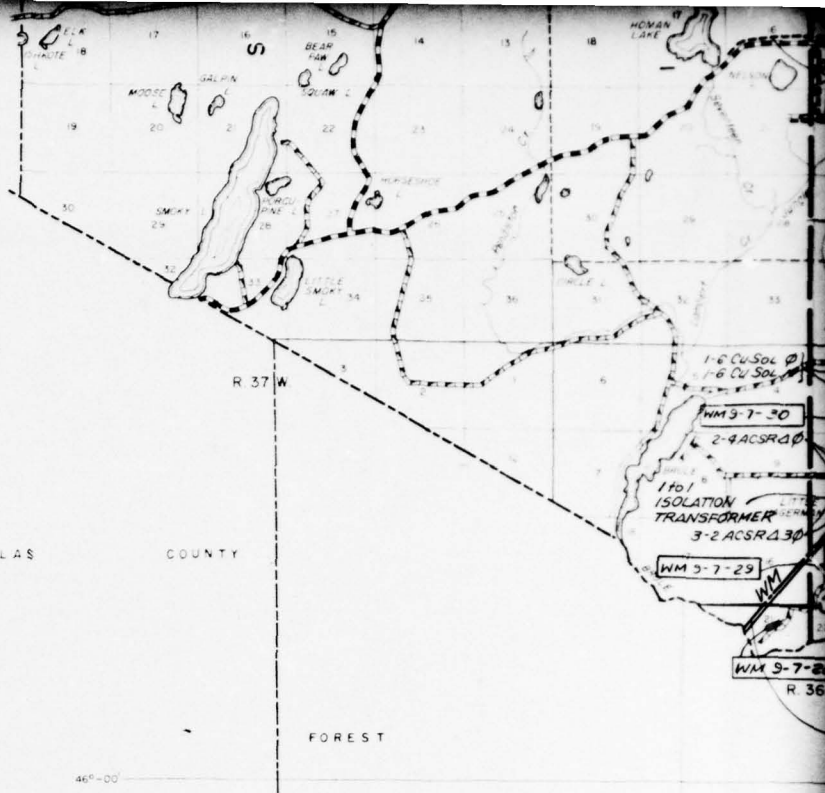


ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 Ø LINES
- 69 KV, 3 Ø LINES
- 33 KV, 3 Ø LINES
- 12.5 KV, 3 Ø LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 Ø LINES
- 2.4 KV, 1 Ø LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER



GOGUE
T 43N



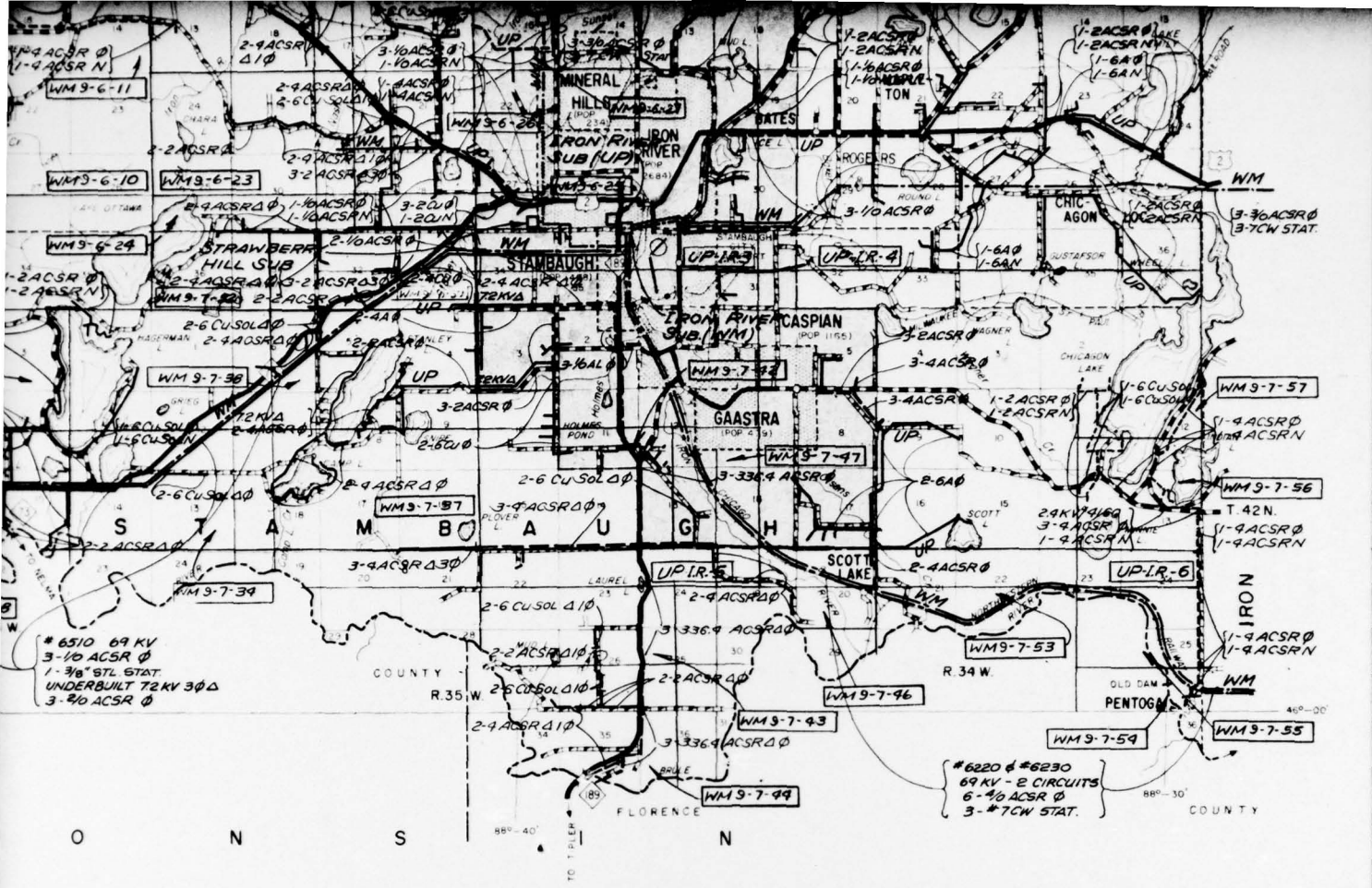
VILAS COUNTY

FOREST

W I S C

GENERAL HIGHWAY MAP
IRON COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 ALL TRAVEL INFORMATION
 DATA SUPPLIED BY
 HIGHWAY PLANNING SURVEY
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

5



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 ϕ LINES
- 69 KV, 3 ϕ LINES
- 33 KV, 3 ϕ LINES
- 12.5 KV, 3 ϕ LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 ϕ LINES
- 2.4 KV, 1 ϕ LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE

PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
IRON COUNTY, MICHIGAN



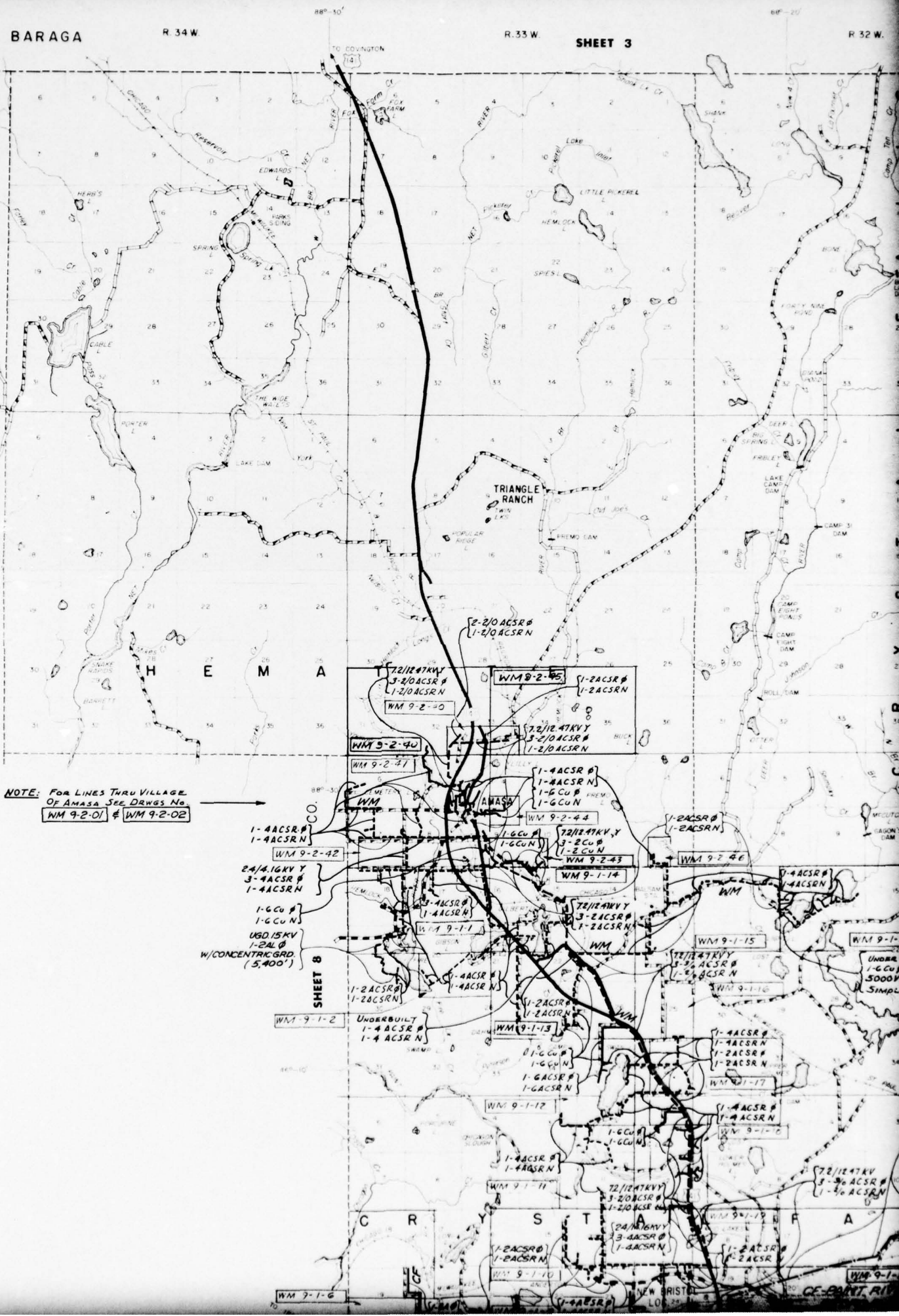
WILLIAMS & WORKS
Engineers, Surveyors, Planners, Geologists
811 Cassville West Parkway
Grand Rapids, Michigan 49506

DATE 3/3/76

SHEET NO. 8

CO

IRON



NOTE: FOR LINES THRU VILLAGE
 OF AMASA SEE DRWS No
 WM 9-2-01 & WM 9-2-02

SHEET 8

1-4ACSR
 1-4ACSRN
 WM 9-2-42
 24/4.16KV
 3-4ACSR
 1-4ACSRN
 1-GCUN
 1-GCUN
 USD.15KV
 1-2AL
 W/CONCENTRICGRD.
 (5,400')

WM 9-1-2
 UNDERBUILT
 1-4ACSR
 1-4ACSRN

WM 9-2-40
 WM 9-2-41
 WM 9-2-44
 WM 9-2-43
 WM 9-1-14
 WM 9-2-46

WM 9-1-13
 WM 9-1-12
 WM 9-1-11
 WM 9-1-10

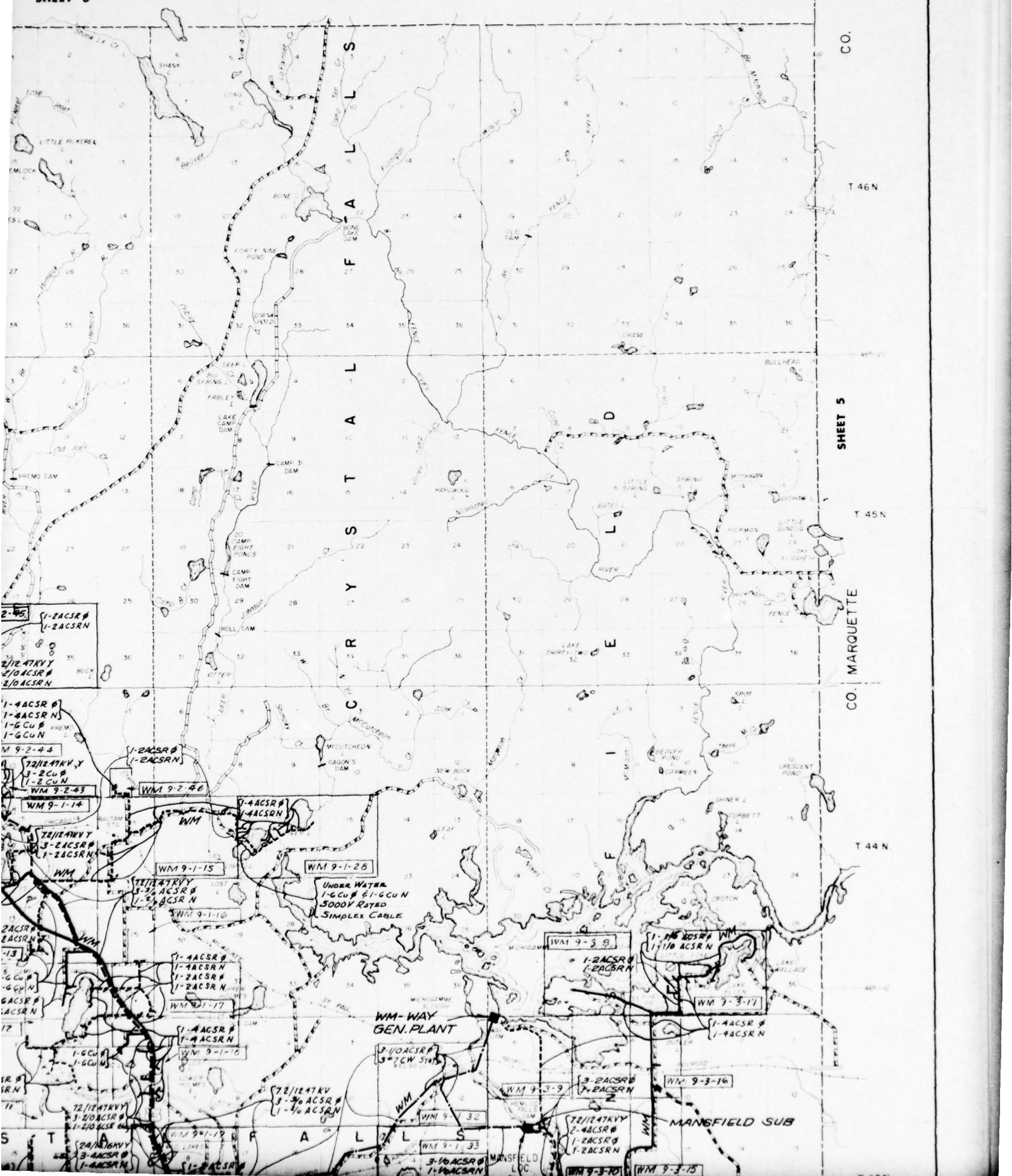
WM 9-1-15
 WM 9-1-16
 WM 9-1-17
 WM 9-1-18

WM 9-1-2
 UNDERBUILT
 1-GCUN
 5000V
 SIMPLE

WM 9-1-6

WM 9-1-19

2



2-45
1-2ACSR #
1-2ACSRN

2/2/2ATKVY
2/10ACSR #
2/10ACSRN

1-4ACSR #
1-4ACSRN
1-GCU #
1-GCUN

M 9-2-44

2/2/2ATKVY
3-2CUB
1-2CUN

WM 9-2-43

2/2/2ATKVY
3-2ACSR #
1-2ACSRN

WM

2ACSR #
2ACSRN

-13

1-GCU #
1-GCUN

1-4ACSR #
1-4ACSRN
1-2ACSR #
1-2ACSRN

WM 9-1-17

1-4ACSR #
1-4ACSRN

WM 9-1-18

2/2/2ATKVY
3-20ACSR #
1-20ACSRN

WM 9-1-19

2/2/2ATKVY
3-4ACSR #
1-4ACSRN

WM 9-1-20

UNDER WATER
1-GCU # 61-GCU N
3000V RATED
SIMPLEX CABLE

WM-WAY
GEN. PLANT

2/10ACSR #
3-7CW STAB

WM 9-3-9
1-2ACSR #
1-2ACSRN

WM 9-3-11
1-4ACSR #
1-4ACSRN

WM 9-3-10
1-4ACSR #
1-4ACSRN

WM 9-3-9
3-2ACSR #
2-2ACSRN

WM 9-3-16

WM 9-3-9
2-4ACSR #
1-2ACSR #
1-2ACSRN

WM 9-3-10
WM 9-3-15

MANSFIELD SUB

MANSFIELD LOC

3



NOTE: FOR LINES THRU VILLAGE
 OF ALPHA SEE DWGS No.
 9-30-1, 930-3, 9-30-4 AND
 9-30-5

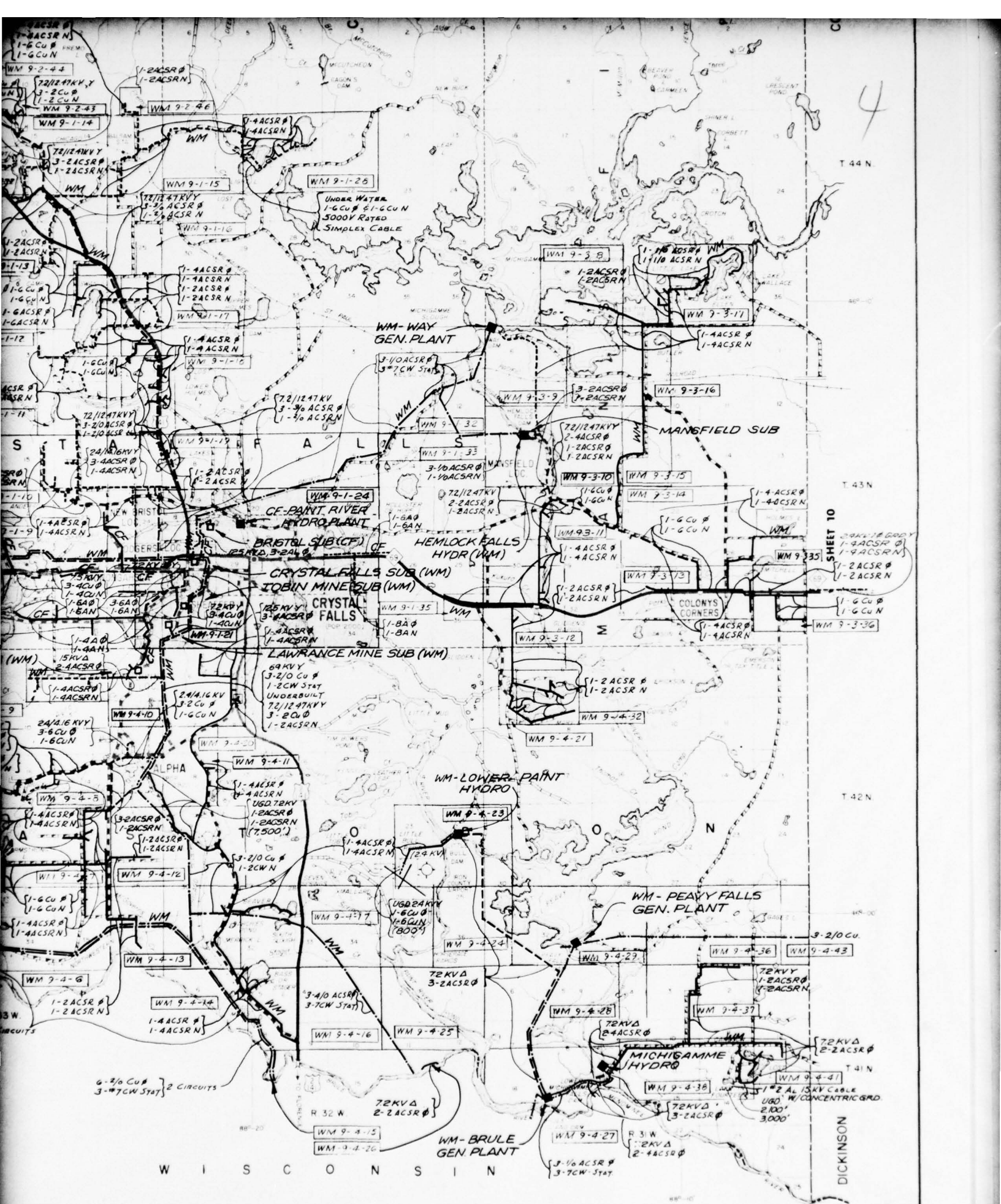
72/124KV
 3-1/0 ACSR #
 1-4 ACSR N

FLORENCE

W I S C O N

ELECTRICAL FACILITIES

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION



4

ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME

COUNTY

W I S C O N S I N

DICKINSON



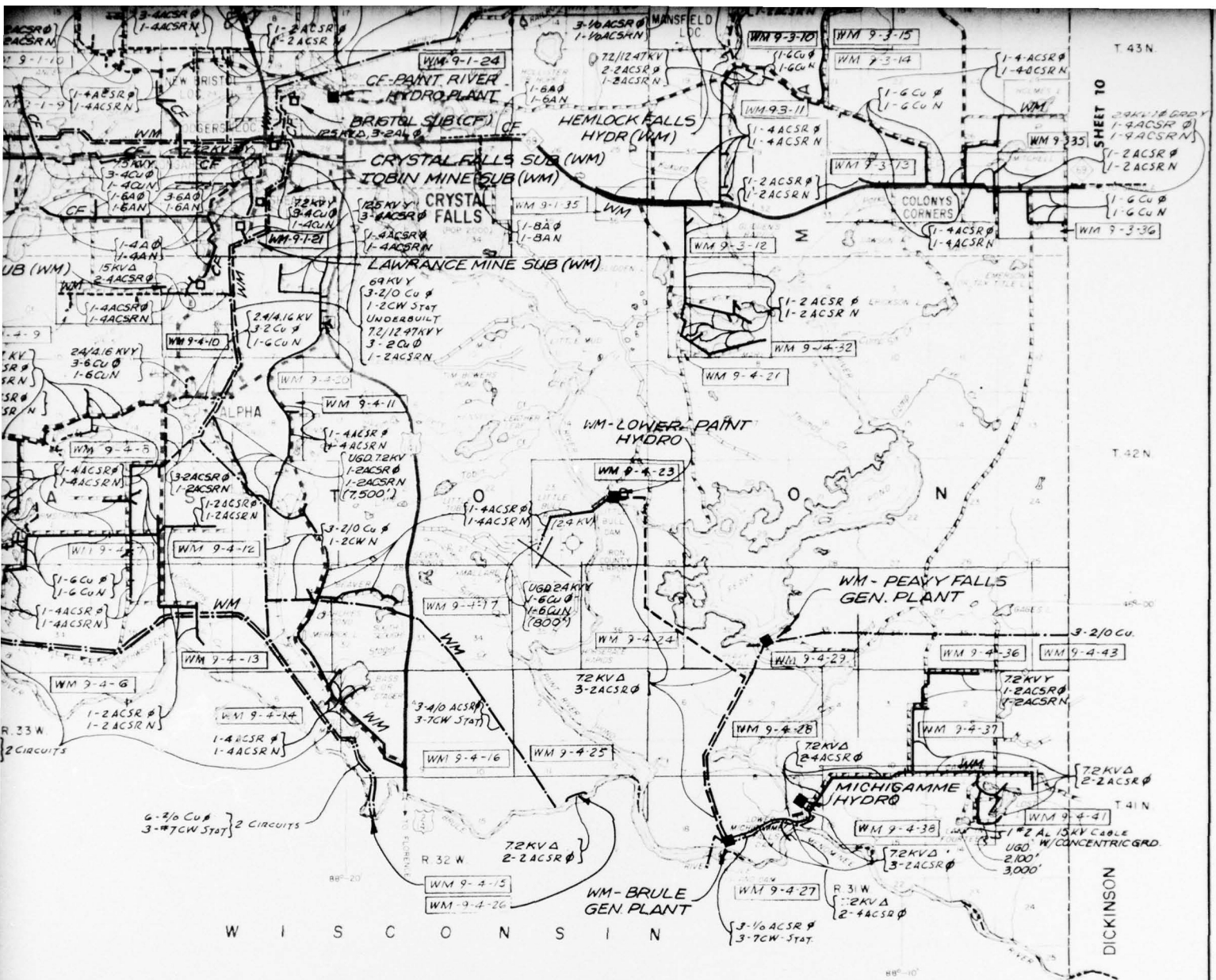
NOTE: FOR LINES THRU VILLAGE
 OF ALPHA SEE DRWS No.
 9-30-1, 9-30-3, 9-30-4 AND
 9-30-5

72/124KV
 3-1/0 ACSR P
 1-4 ACSR N

FLORENCE

GENERAL HIGHWAY MAP
IRON COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 ALL INFORMATION
 DATA DERIVED FROM
 HIGHWAY PLANNING SURVEY
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

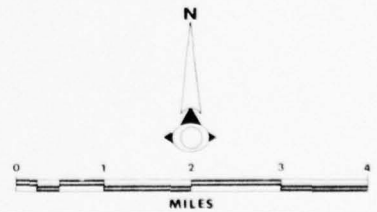
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ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 ϕ LINES
- 69 KV, 3 ϕ LINES
- 33 KV, 3 ϕ LINES
- 12.5 KV, 3 ϕ LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 ϕ LINES
- 2.4 KV, 1 ϕ LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER (CF MAP REFERENCE IS (CF-1))

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE



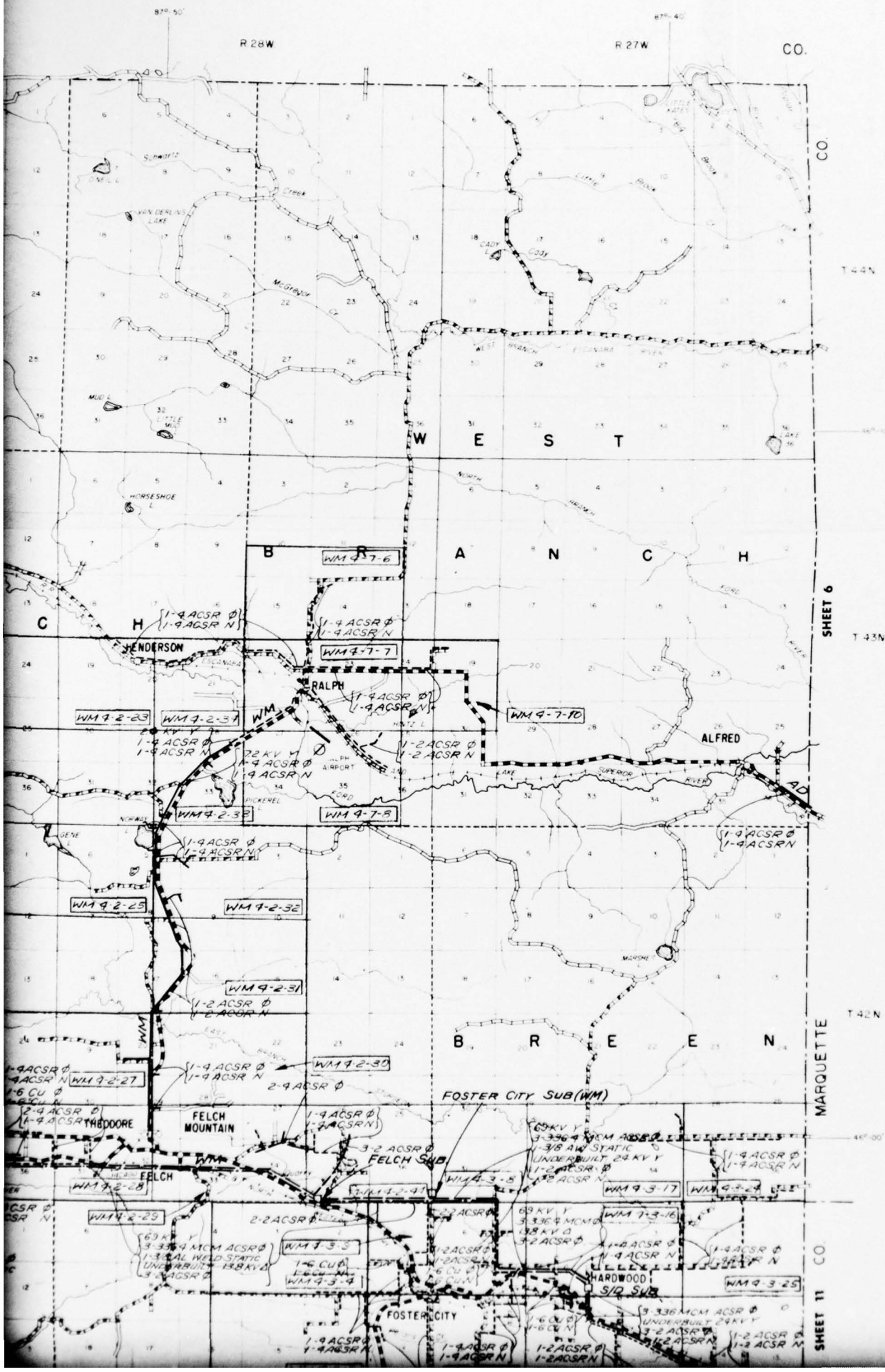
PROJECT SEAFARER
COLLECTION OF ELECTRICAL UTILITIES DATA

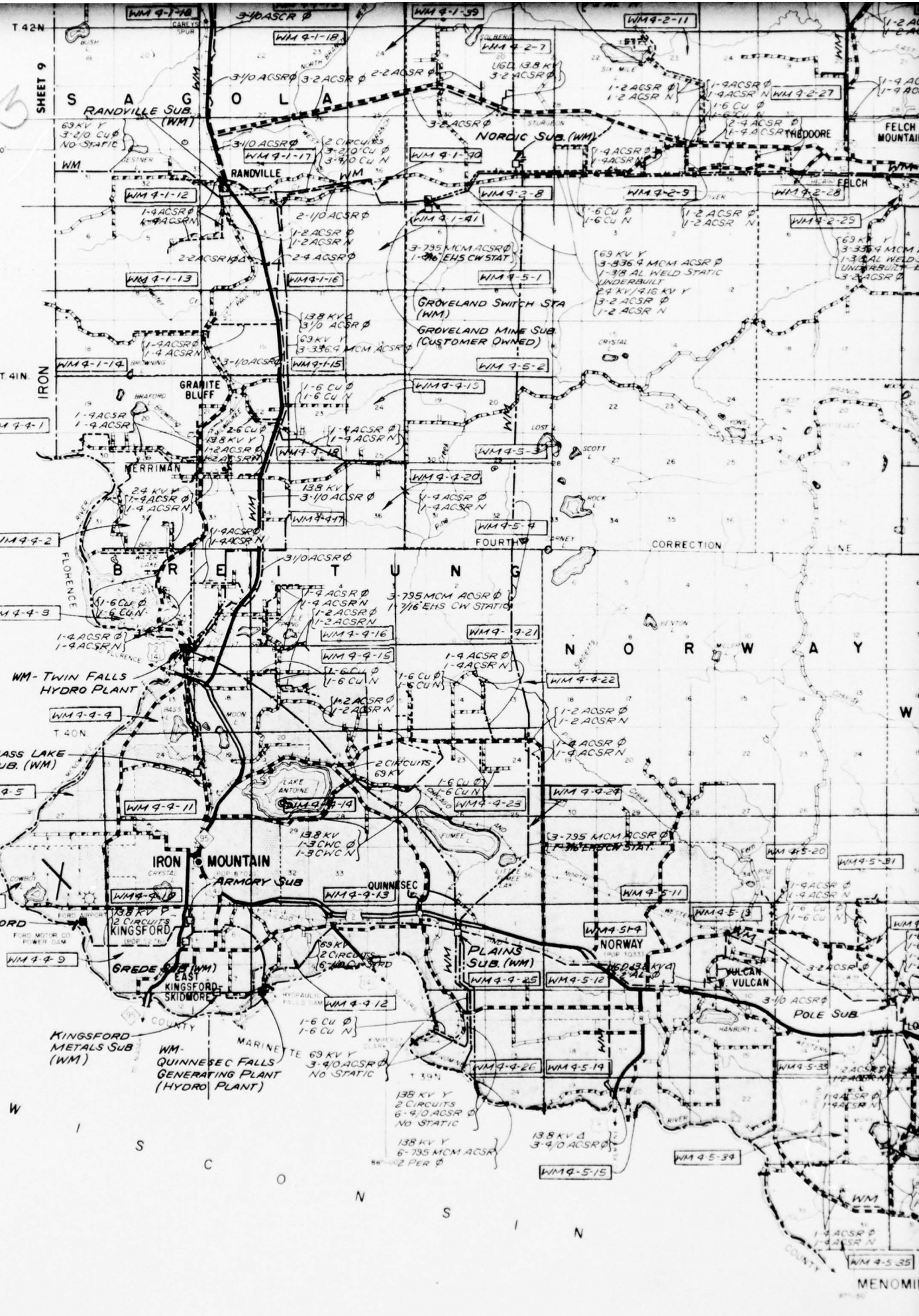
FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
IRON COUNTY, MICHIGAN

| | | |
|--|--|-------------|
| | WILLIAMS & WORKS <small>Engineers, Planners, Plotters, Cartographers 611 Cambridge West Parkway Grand Rapids, Michigan 49506</small> | DATE 3/5/76 |
| | SHEET NO. 9 | |

3





SHEET 9
3

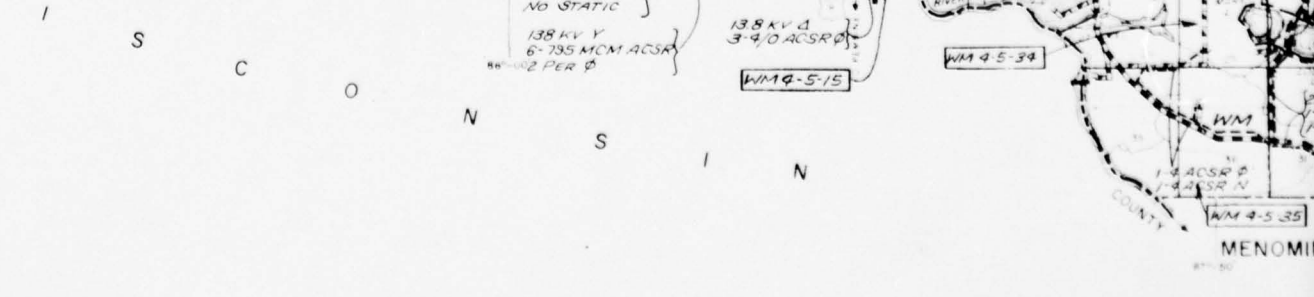
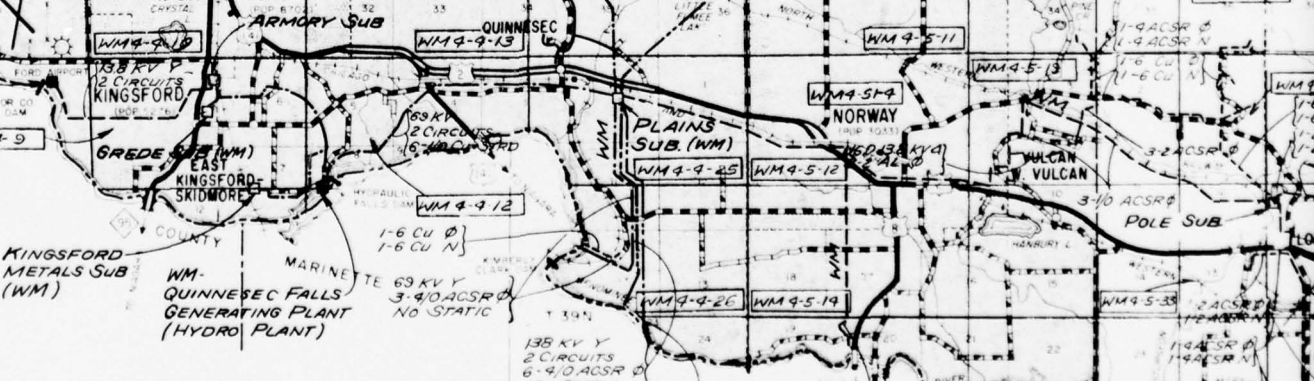
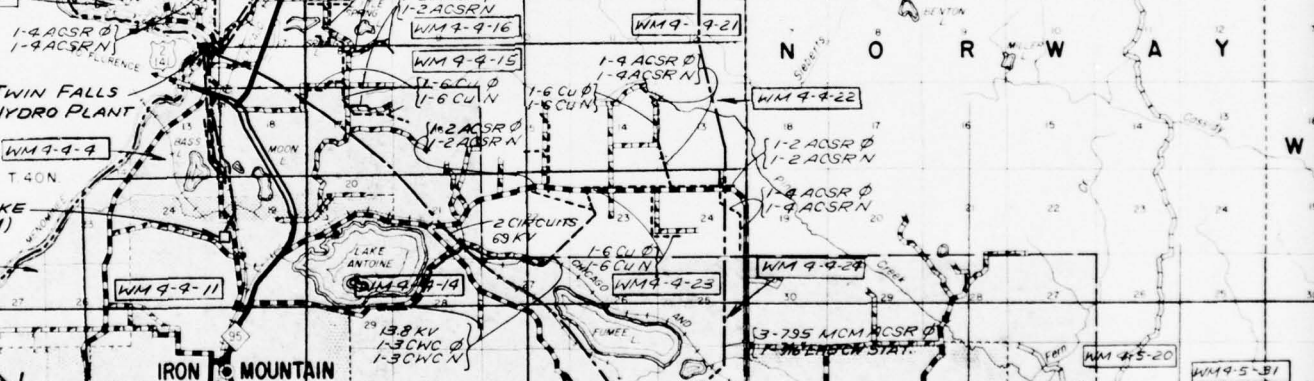
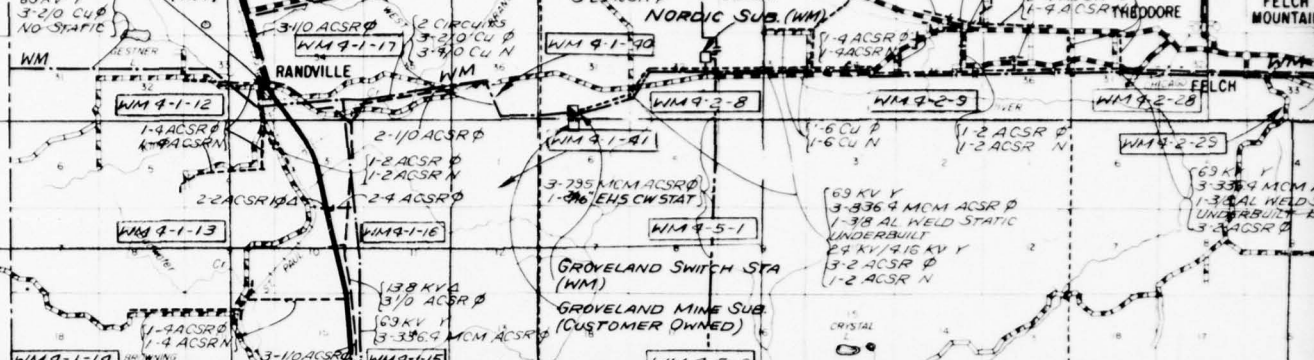
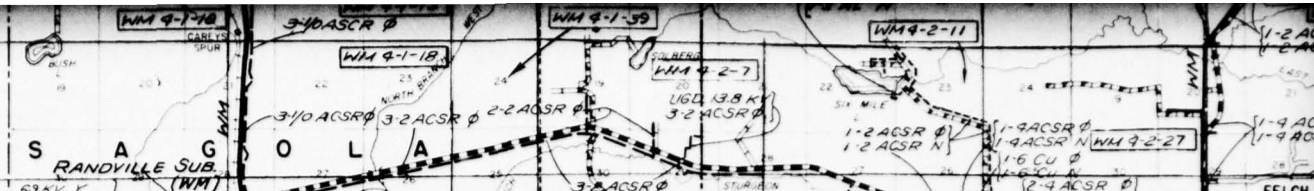
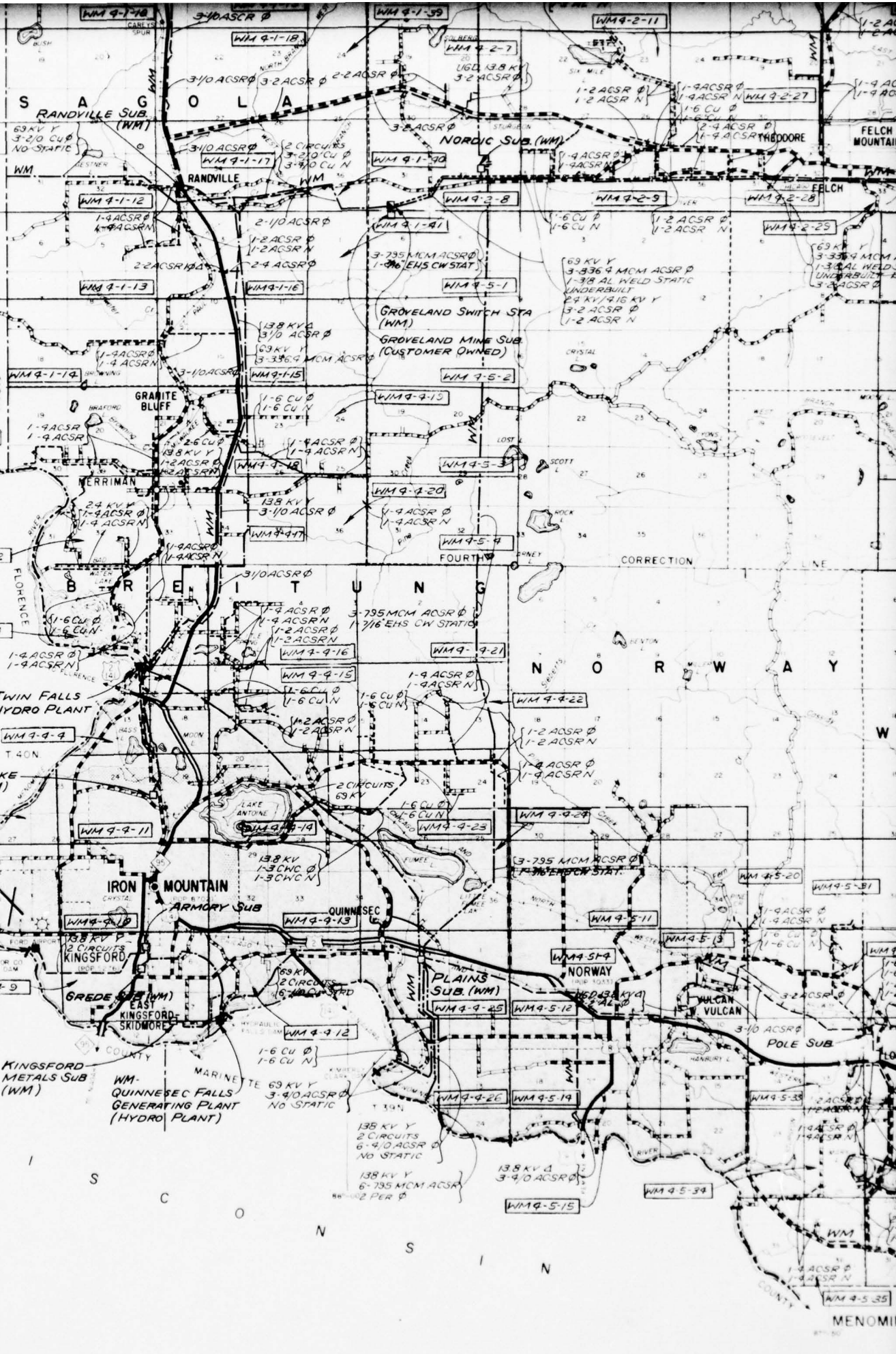
T 42N
T 41N
IRON

T 40N
FLORENCE
WM-TWIN FALLS HYDRO PLANT

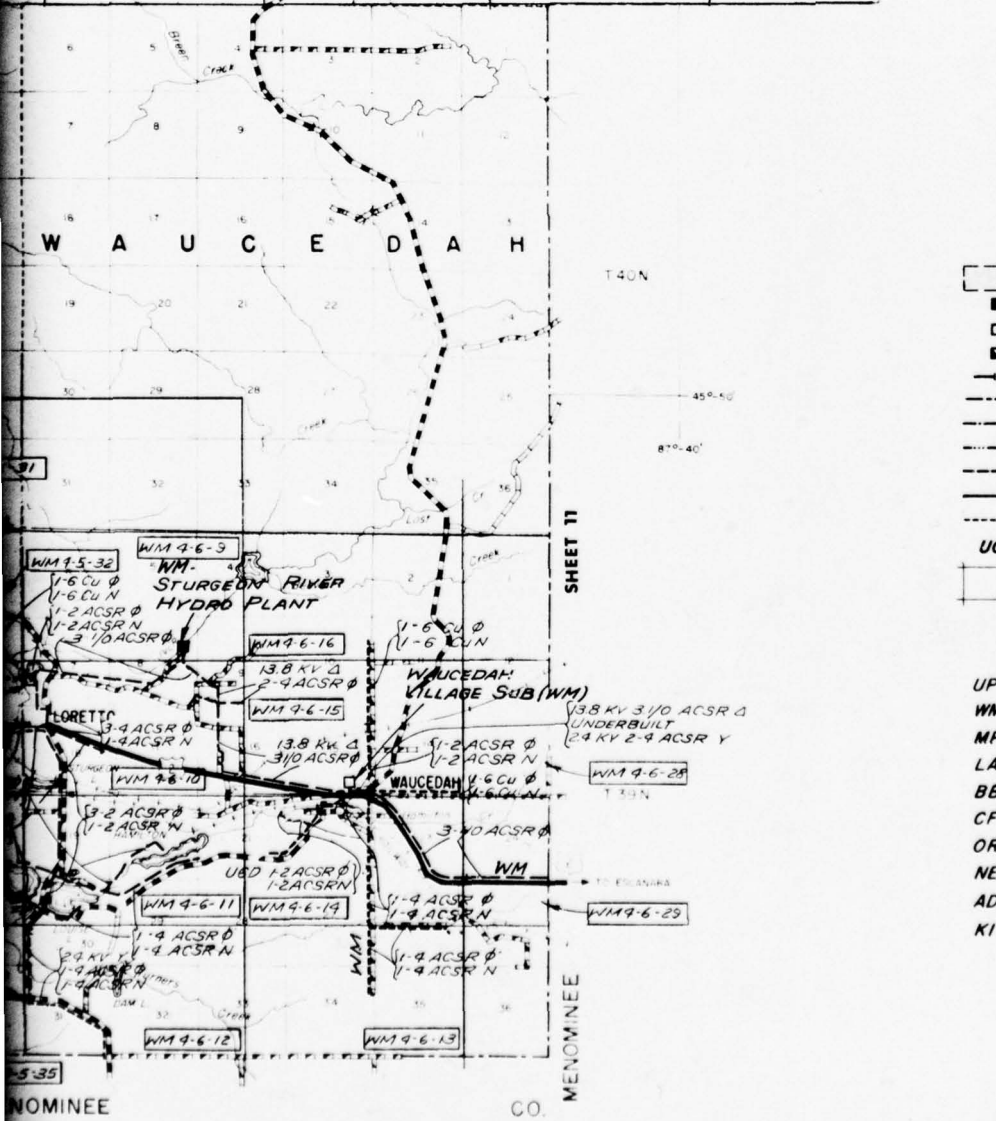
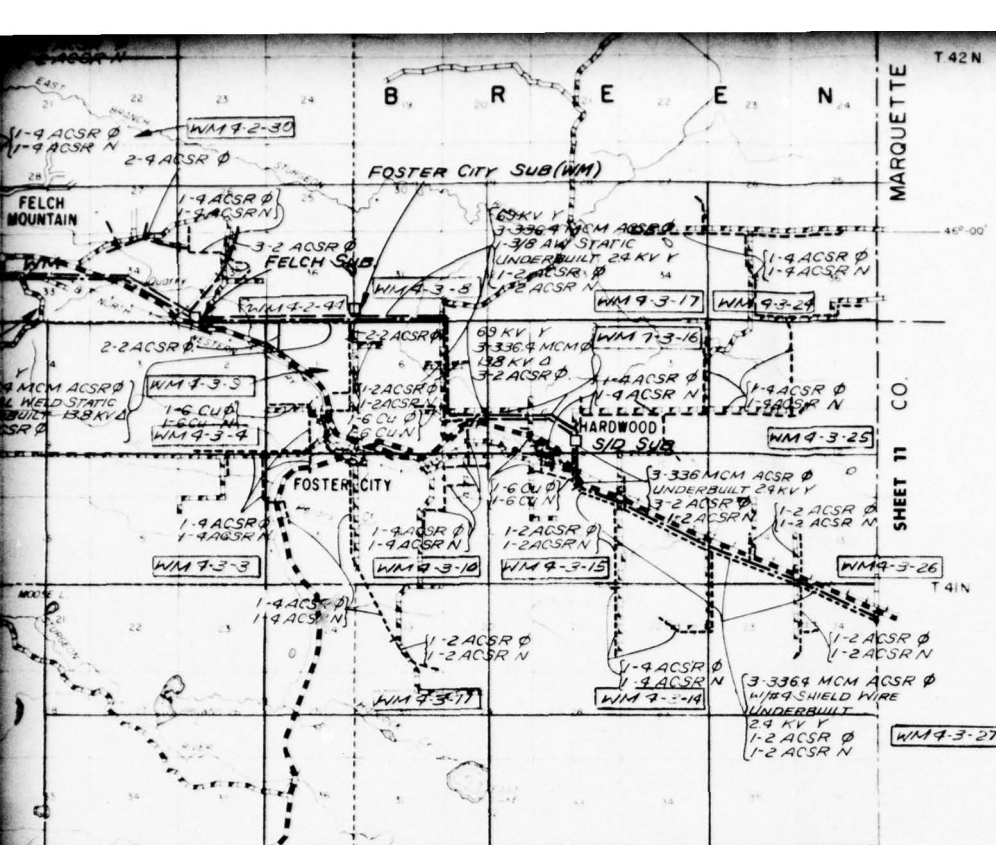
BASS LAKE SUB. (WM)
IRON MOUNTAIN
ARMORY SUB

WM-KINGSFORD HYDO
GREDE EAST (WM)
KINGSFORD METALS SUB (WM)
WM-QUINNESEC FALLS GENERATING PLANT (HYDRO PLANT)

W
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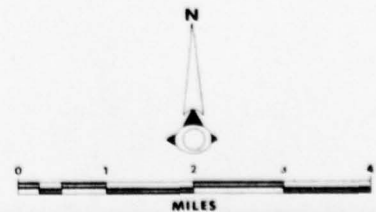
MENOMINON
MENOMONIE COUNTY
MENOMONIE COUNTY
MENOMONIE COUNTY

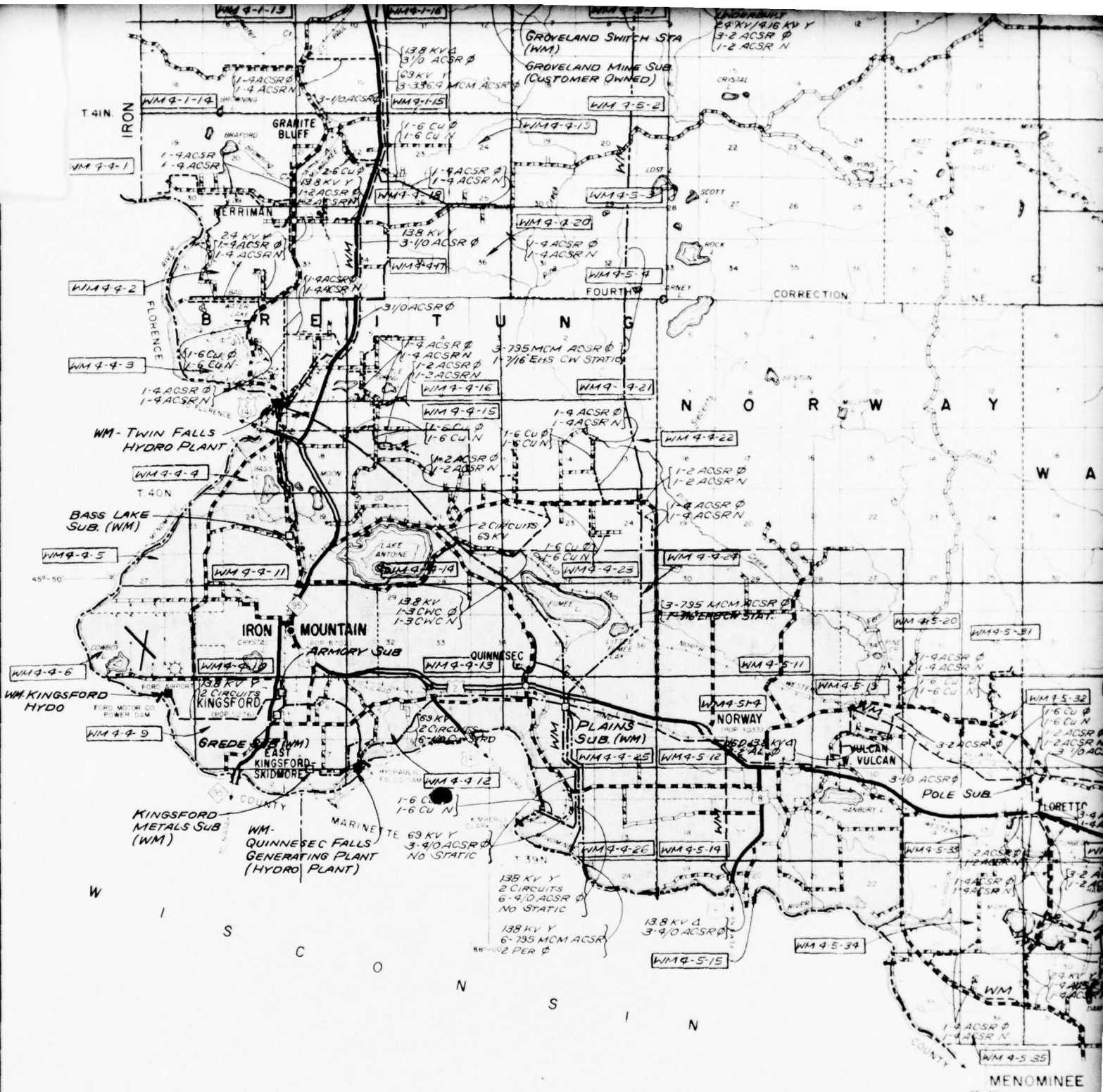


ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138KV, 3 Ø LINES
- 69KV, 3 Ø LINES
- 33KV, 3 Ø LINES
- 12.5KV, 3 Ø LINES (OR 13.8KV OR 14.4KV)
- 7.2KV, 1 Ø LINES
- 2.4KV, 1 Ø LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

- UP UPPER PENINSULA POWER CO
- WM WISCONSIN MICHIGAN POWER CO
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE





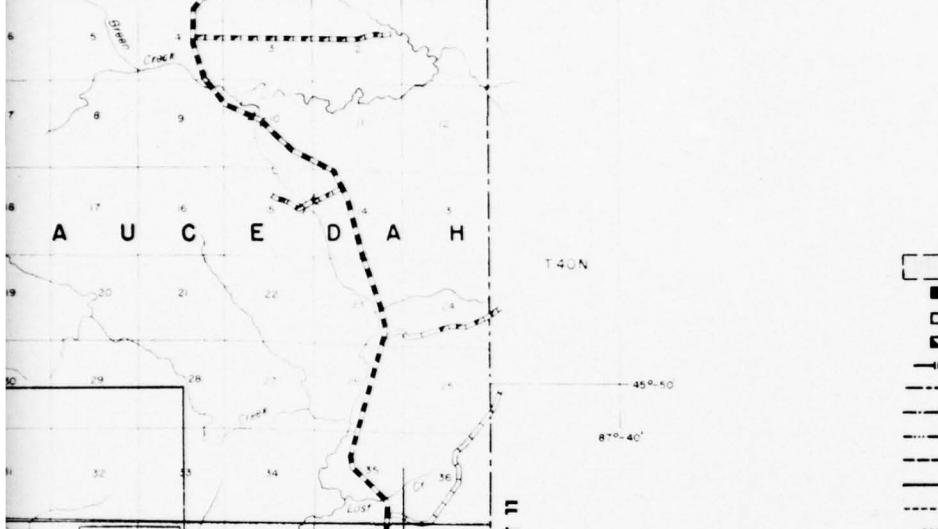
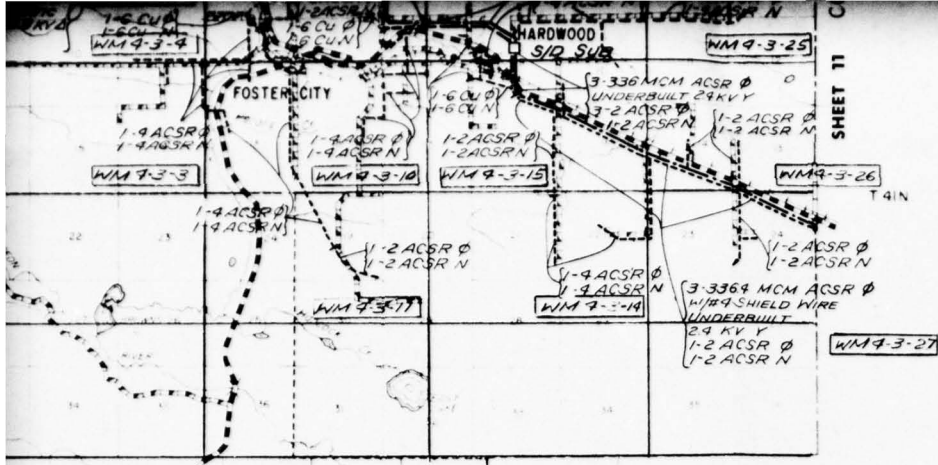
GENERAL HIGHWAY MAP
DICKINSON COUNTY

MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 HIGHWAY PLANNING SURVEY

5

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 AV. M.
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 COL Y
 MICH

MENOMINEE
 87-50



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 Ø LINES
- 69 KV, 3 Ø LINES
- 33 KV, 3 Ø LINES
- 12.5 KV, 3 Ø LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 Ø LINES
- 2.4 KV, 1 Ø LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE



PROJECT SEAFARER
COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC.
 SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
 DICKINSON COUNTY, MICHIGAN

| | | |
|--|--|---|
| | WILLIAMS & WORKS <small>Engineers, Surveyors, Planners, Geologists 611 Cascade West Parkway Grand Rapids, Michigan 49506</small> | DATE 3/5/76 SHEET NO. 10 |
|--|--|---|

MARQUETTE

R 26A

SHEET 6

SHEET 10

T 41N

T 40N

S P A L D I N

DICKINSON
SHEET 10

M E Y E R

T 39N

CO

DICKINSON

R 28A

SHEET 10

WM 12-4-6

24KVY
1-6ACWCN
1-4ACSRN

WM 12-4-18
138KVΔ
2-4ACSRΔ

138KVΔ
3-10ACSRΔ
138KVA
2-2ACSRΔ
CUNARD

138KVΔ 2-6CΔ
138KVΔ 3-10ACSRΔ
138KVΔ 2-2ACSRΔ
138KVΔ 3-2ACSRΔ

WM 12-1-21
138KVΔ 2-6CΔ
138KVΔ 3-10ACSRΔ
138KVΔ 3-10ACSRΔ

24KVY
1-4ACSR
1-4ACSRN

WM 2-4-a
24KVY
1-4ACSR
1-4ACSRN

FAITHORN S/D SUB (WM)
WM 12-4-11
24KVY
1-4ACSR
1-4ACSRN

WM 12-2-10
24KVY
1-6CΔN

WM 12-2-9
24KVY
2-2ACSR
1-4ACSRN

WM 12-2-7
138KVΔ
2-2ACSRΔ

WM 12-2-5
138KVΔ
2-2ACSRΔ

WM 12-1-5
24KVY
2-6CΔ

WM 12-1-22
24KVY
2-2ACSRΔ

WM 12-1-25
138KVΔ
1-6CΔN
1-6CΔN

HELES
WM 12-1-3
24KVY
UNDERBUILT
1-2ACSRΔ
1-2ACSRN

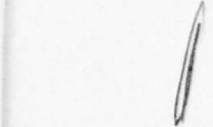
69KVY
3-136.4 MCM ACSR Δ

WM 12-1-12
ADJA

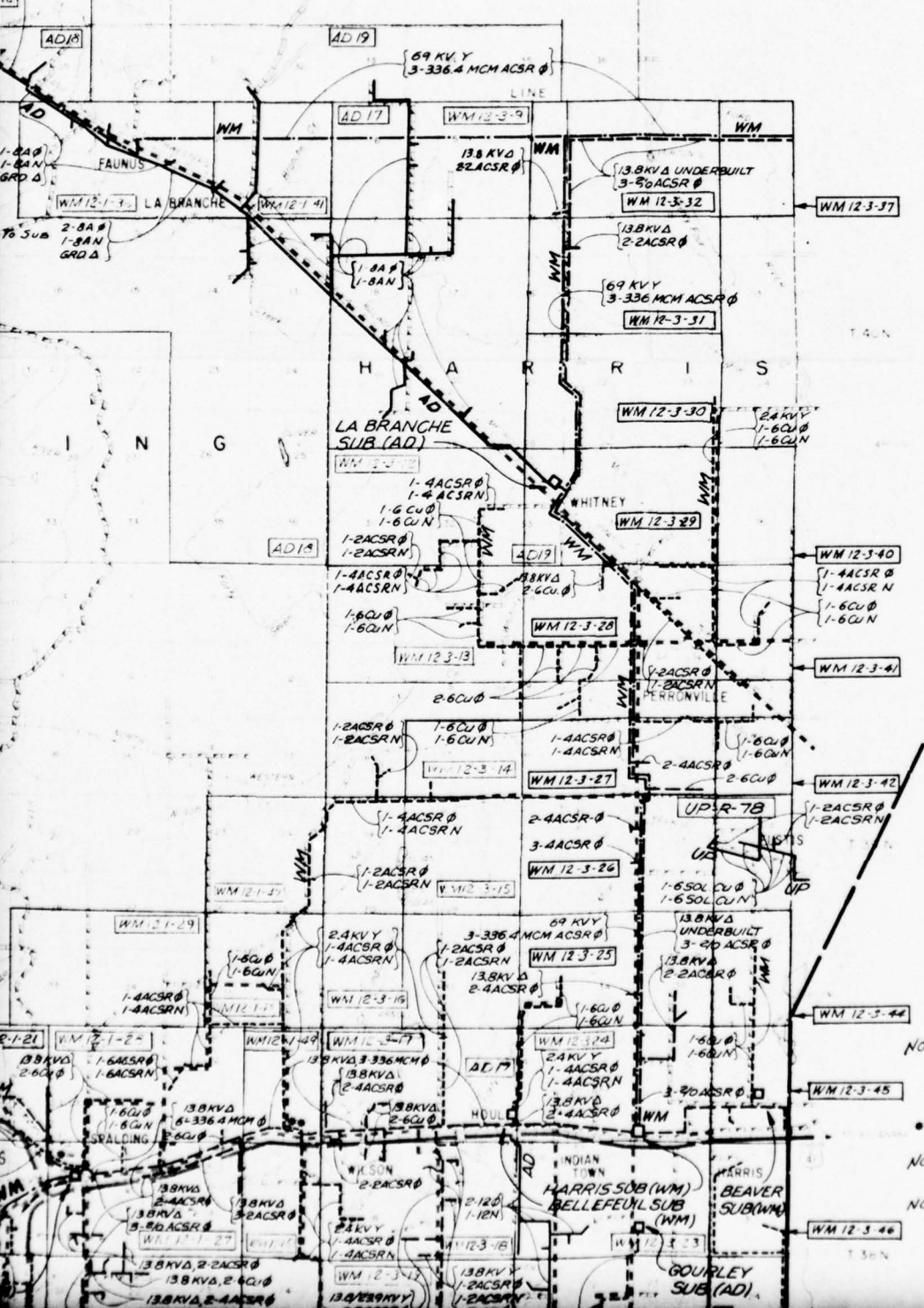
WM 12-1-4
CORRECTION

1-8Δ
1-8AN
GRD Δ

WM 12-1-7
2-8Δ
1-8AN
GRD Δ
To SUB



2



NOTE: FOR LINES IN VILLAGE OF MERRONVILLE
SEE DRAWINGS WM 12-2-01 & 12-2-02

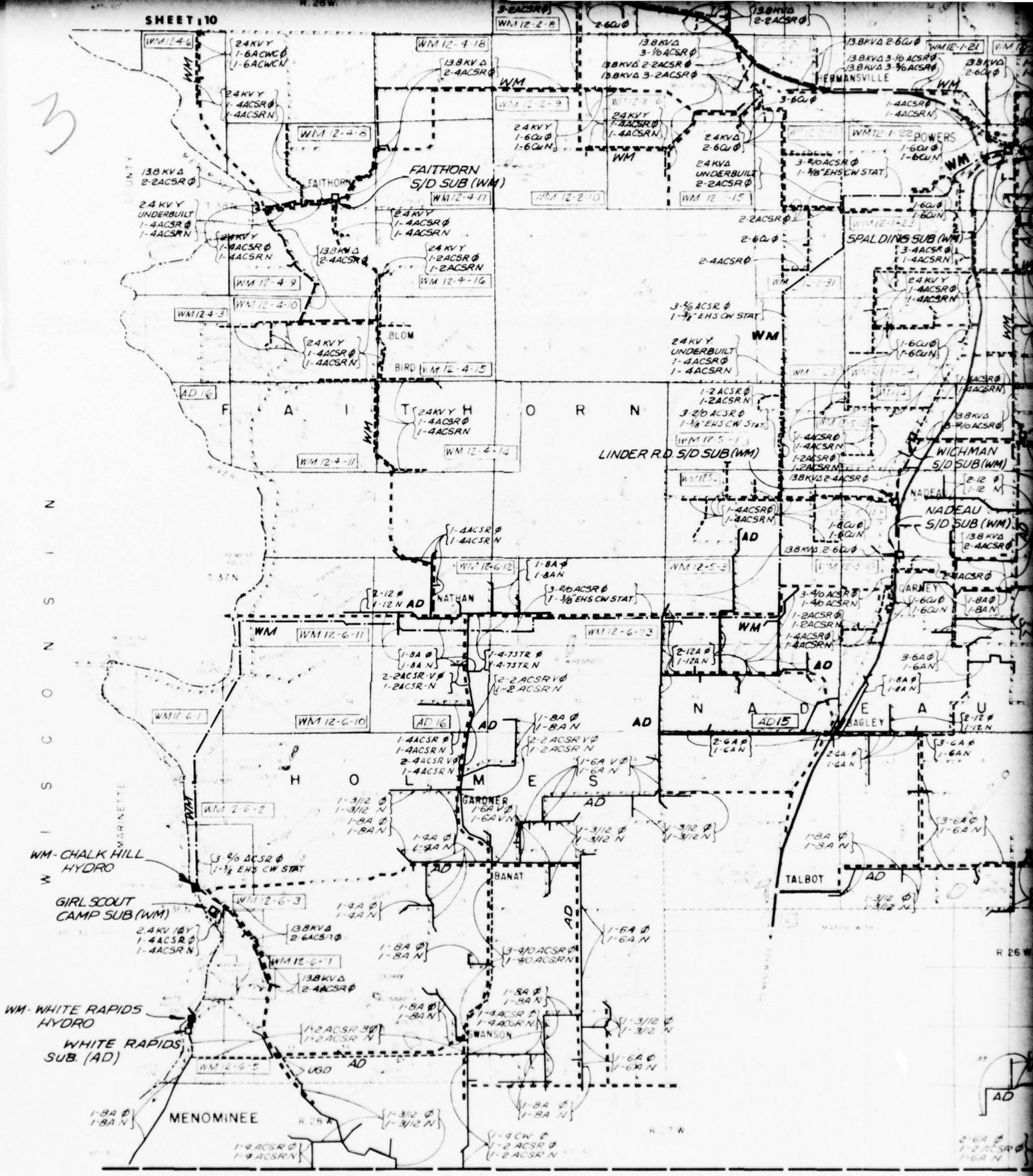
• 13.8KV Δ, 3-1/2 ACSR Ø
UNBUILT 24KVY, 1-6CU Ø & 1-6CUN

•• 13.8KV Δ, 3-336.4 MCM Ø
UNBUILT 24KVY, 1-2ACSR Ø & 1-2ACSRN

NOTE: FOR LINES IN VILLAGE OF SPALDING
SEE DRAWING WM 12-1-01

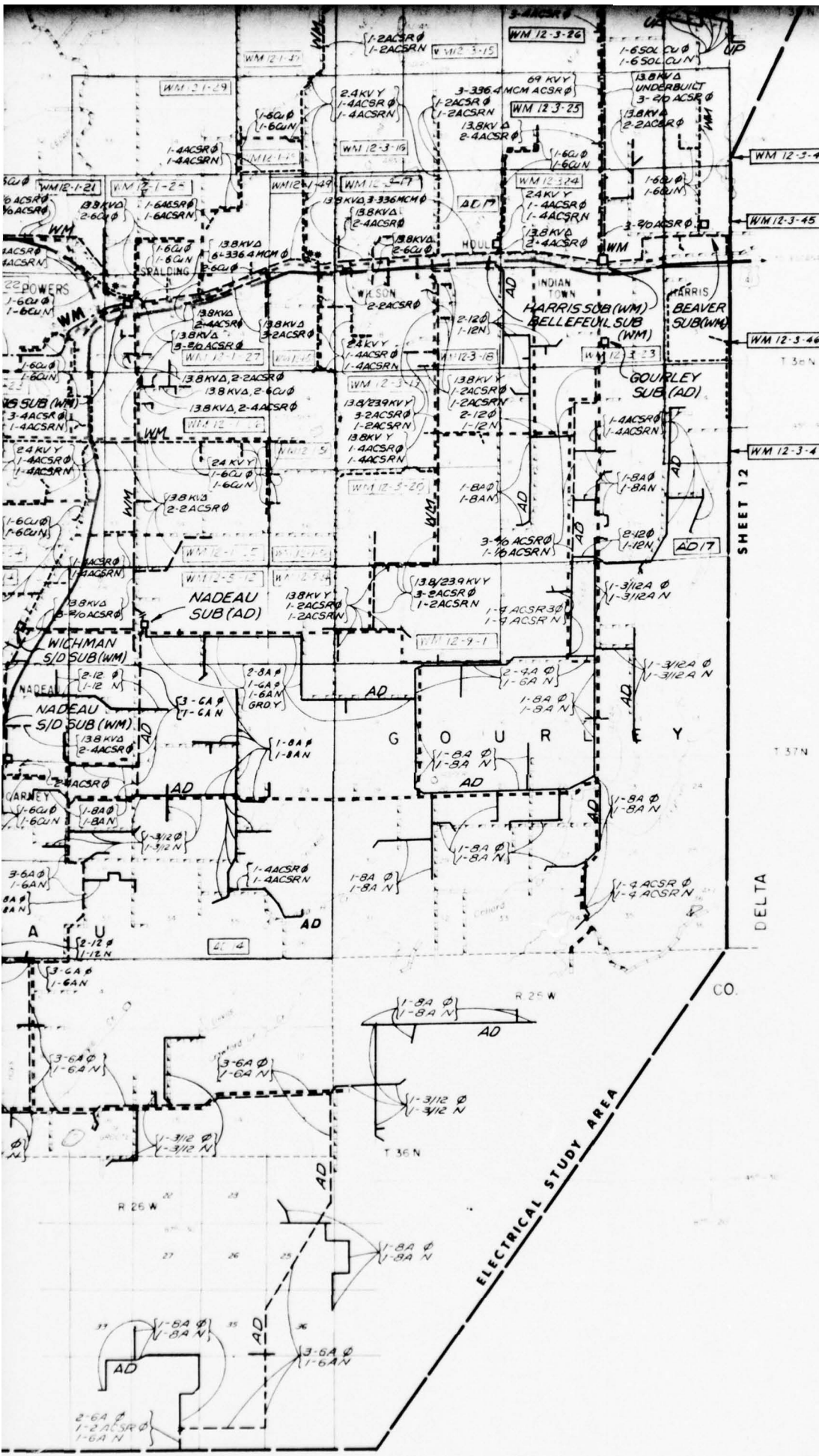
NOTE: FOR LINES IN VILLAGE OF PONES
SEE DRAWINGS WM 12-30-1
12-30-2
12-30-3

3



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138KV, 3 φ LINES



NOTE: FOR LINES IN VILLAGE OF HERMANVILLE
SEE DRAWINGS WM 12-2-01 & 12-2-02

- 13.8KVΔ, 3-1/2 ACSRØ UNDERBUILT 24KVY, 1-6CUØ & 1-6CUN
- 13.8KVΔ, 3-336.4 MCM Ø UNDERBUILT 24KVY, 1-2ACSRØ & 1-2ACSRN

NOTE: FOR LINES IN VILLAGE OF SPALDING
SEE DRAWING WM 12-1-01

NOTE: FOR LINES IN VILLAGE OF POWERS
SEE DRAWINGS WM 12-30-1
12-30-2
12-30-3

NOTE: FOR LINES IN VILLAGE OF NADEAU
SEE DRAWING WM 12-5-11

NOTE: FOR LINES IN VILLAGE OF CARNEY
SEE DRAWING WM 12-5-10.1

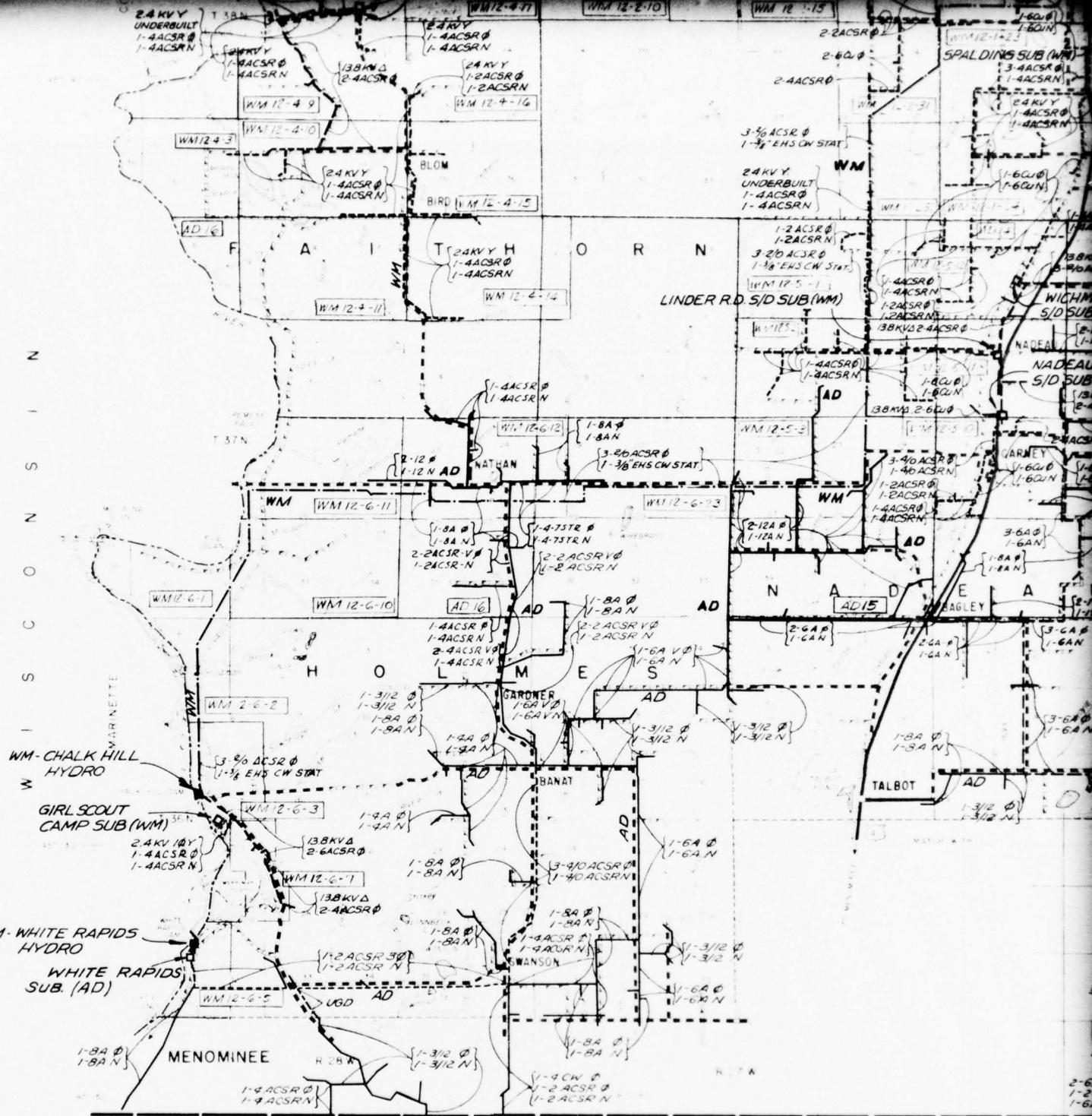
4

SHEET 12

DELTA



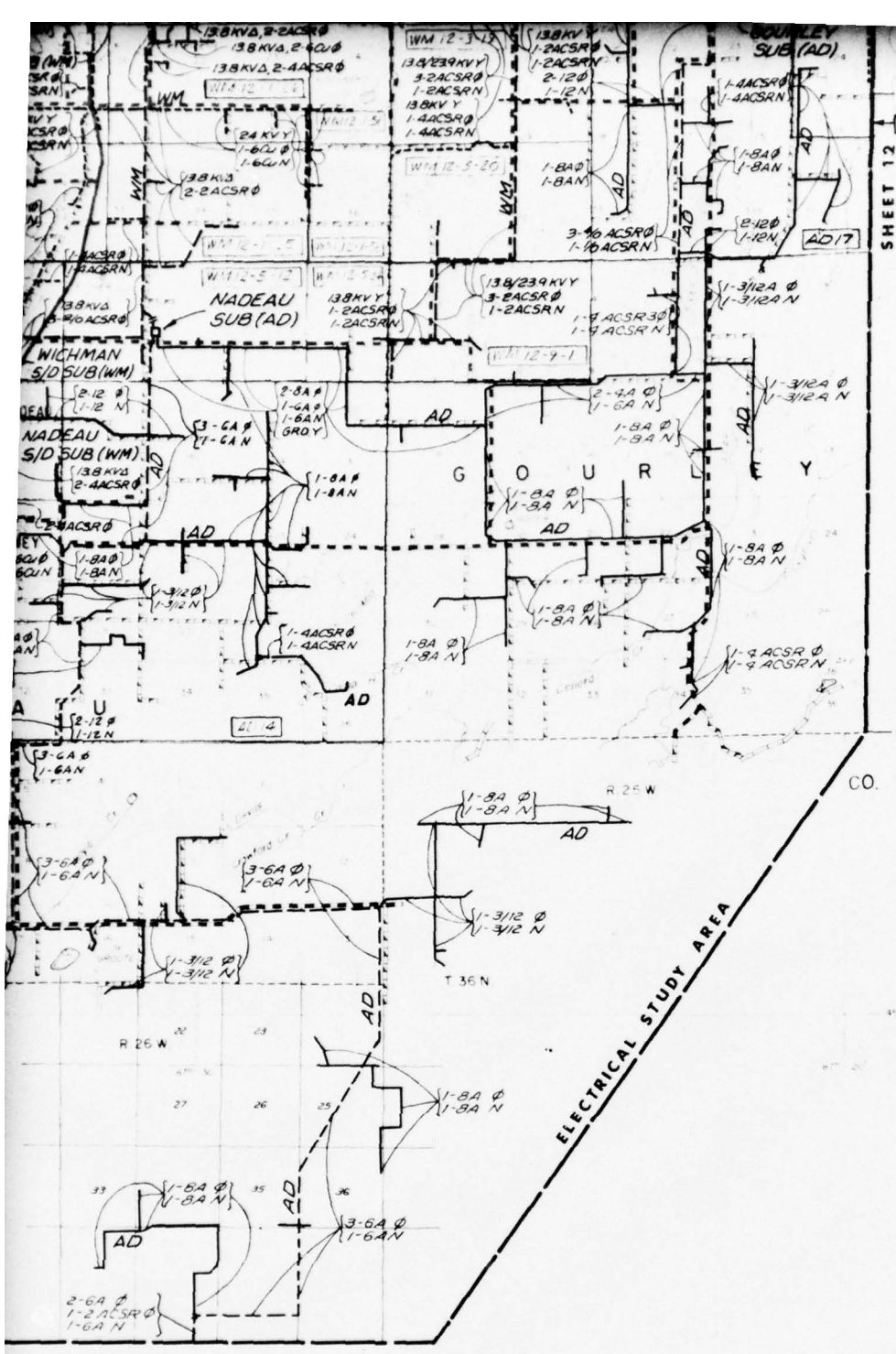
FACILITIES LEGEND



ELECTRICAL FACILITIES L

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138KV, 3 Ø LINES
- 69KV, 3 Ø LINES
- 33KV, 3 Ø LINES
- 12.5KV, 3 Ø LINES (OR 13.8KV Ø)
- 7.2KV, 1 Ø LINES
- 2.4KV, 1 Ø LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE

GENERAL HIGHWAY MAP
MENOMINEE COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DEPARTMENT OF STATE HIGHWAYS
 HIGHWAY PLANNING SURVEY



NOTE: FOR LINES IN VILLAGE OF NADEAU
SEE DRAWING WM 12-5-11.

NOTE: FOR LINES IN VILLAGE OF CARNEY
SEE DRAWING WM 12-5-10.

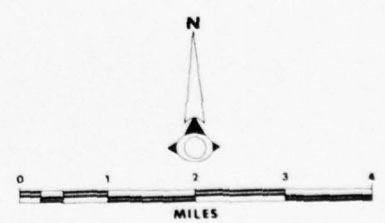
UTILITIES LEGEND

| | | |
|-------|----|--|
| -NAME | UP | UPPER PENINSULA POWER CO. |
| -NAME | WM | WISCONSIN MICHIGAN POWER CO. |
| | MP | MARQUETTE BOARD OF LIGHT AND POWER |
| | LA | L'ANSE BOARD OF PUBLIC WORKS |
| | BB | BARAGA BOARD OF PUBLIC WORKS |
| | CF | CRYSTAL FALLS LIGHT AND WATER DEPARTMENT |
| | OR | ONTONAGON REA |
| | NE | NORWAY ELECTRIC LIGHT DEPARTMENT |
| | AD | ALGER DELTA REA |
| | KI | KI SAWYER AIR FORCE BASE |

PROJECT SEAFARER
COLLECTION OF ELECTRICAL UTILITIES DATA

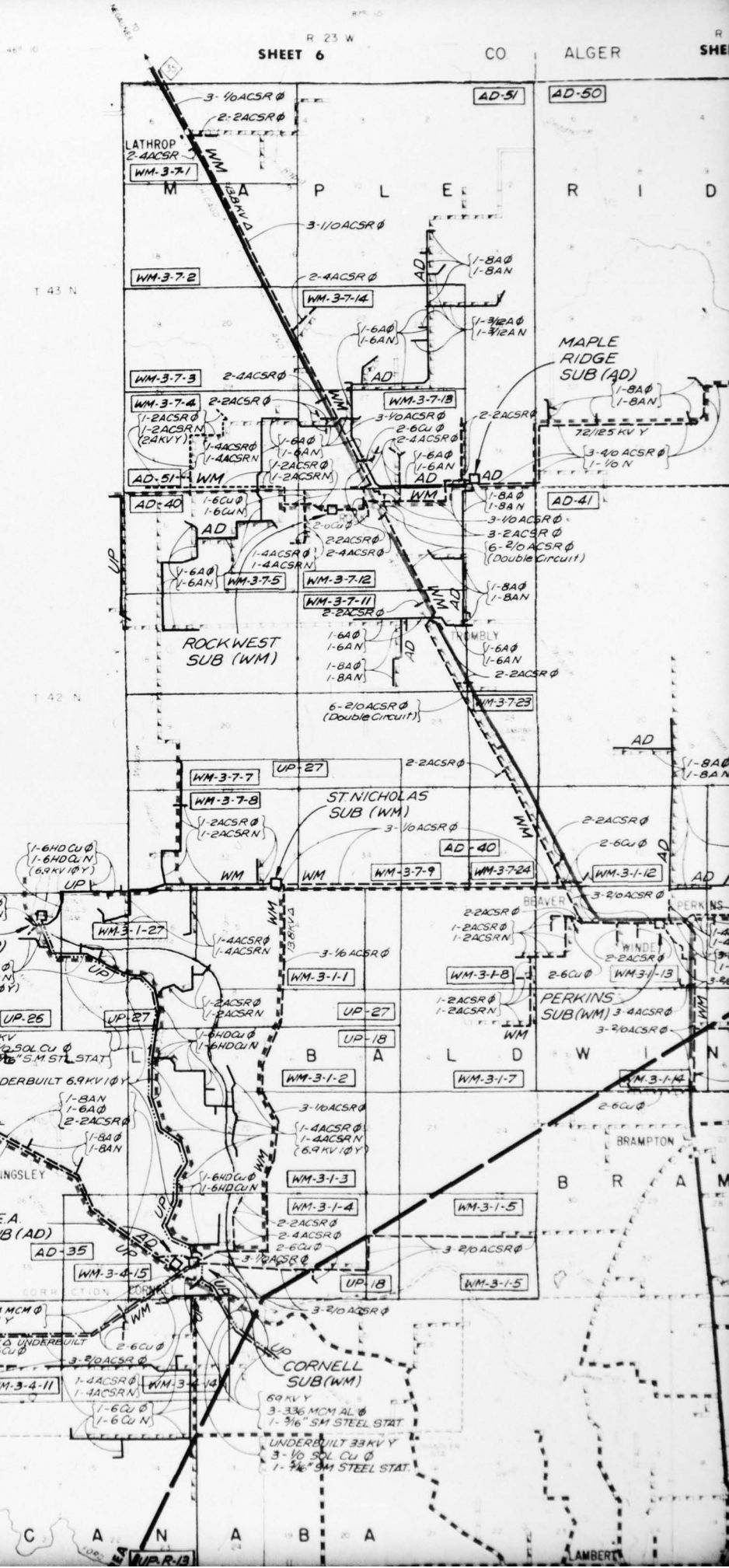
FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
MEMONIEE COUNTY, MICHIGAN

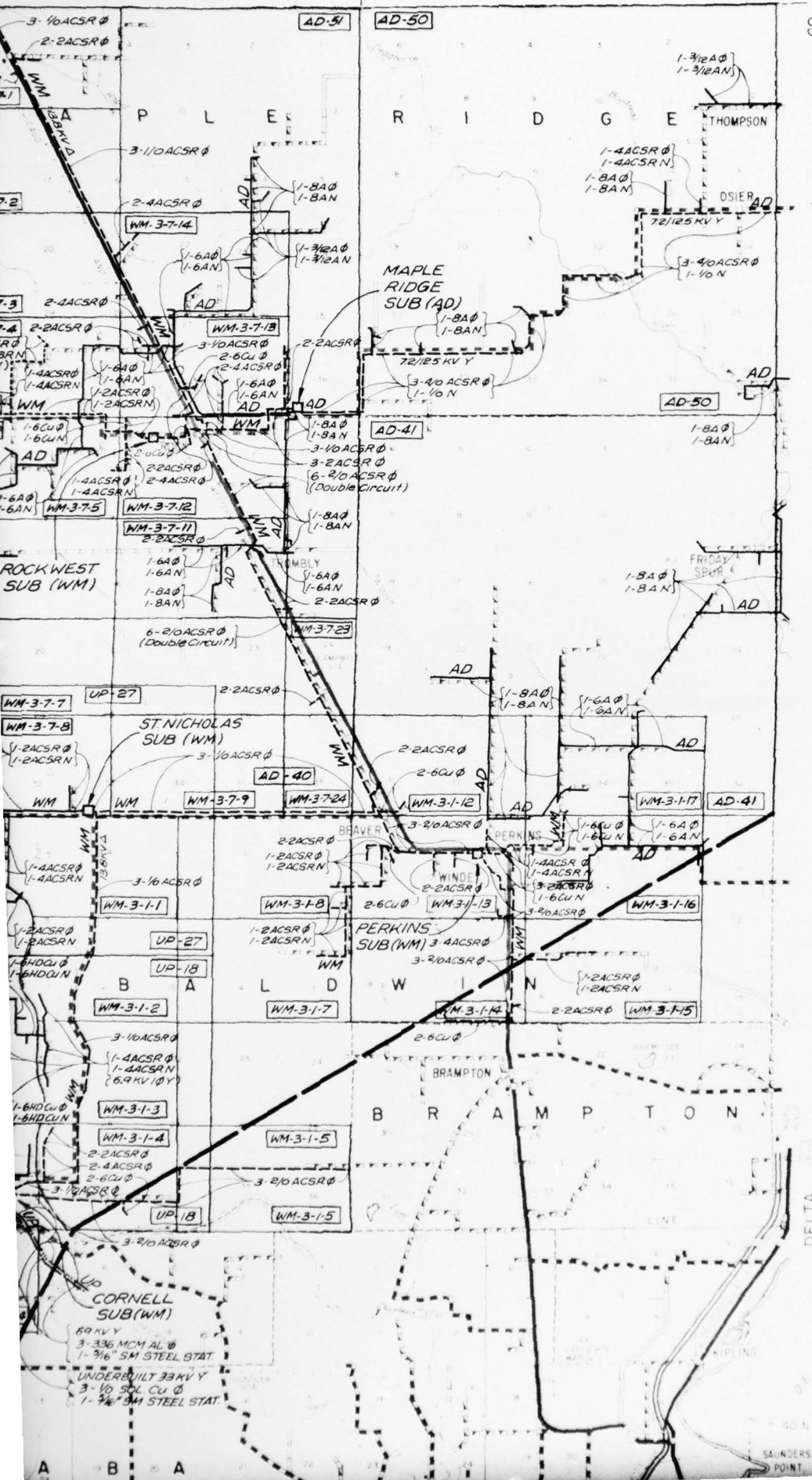


WILLIAMS & WORKS
ENGINEERS, SURVEYORS, PLANNERS, DESIGNERS
811 Cassette West Parkway
Grand Rapids, Michigan 49506

DATE 3/5/76
SHEET NO. 11



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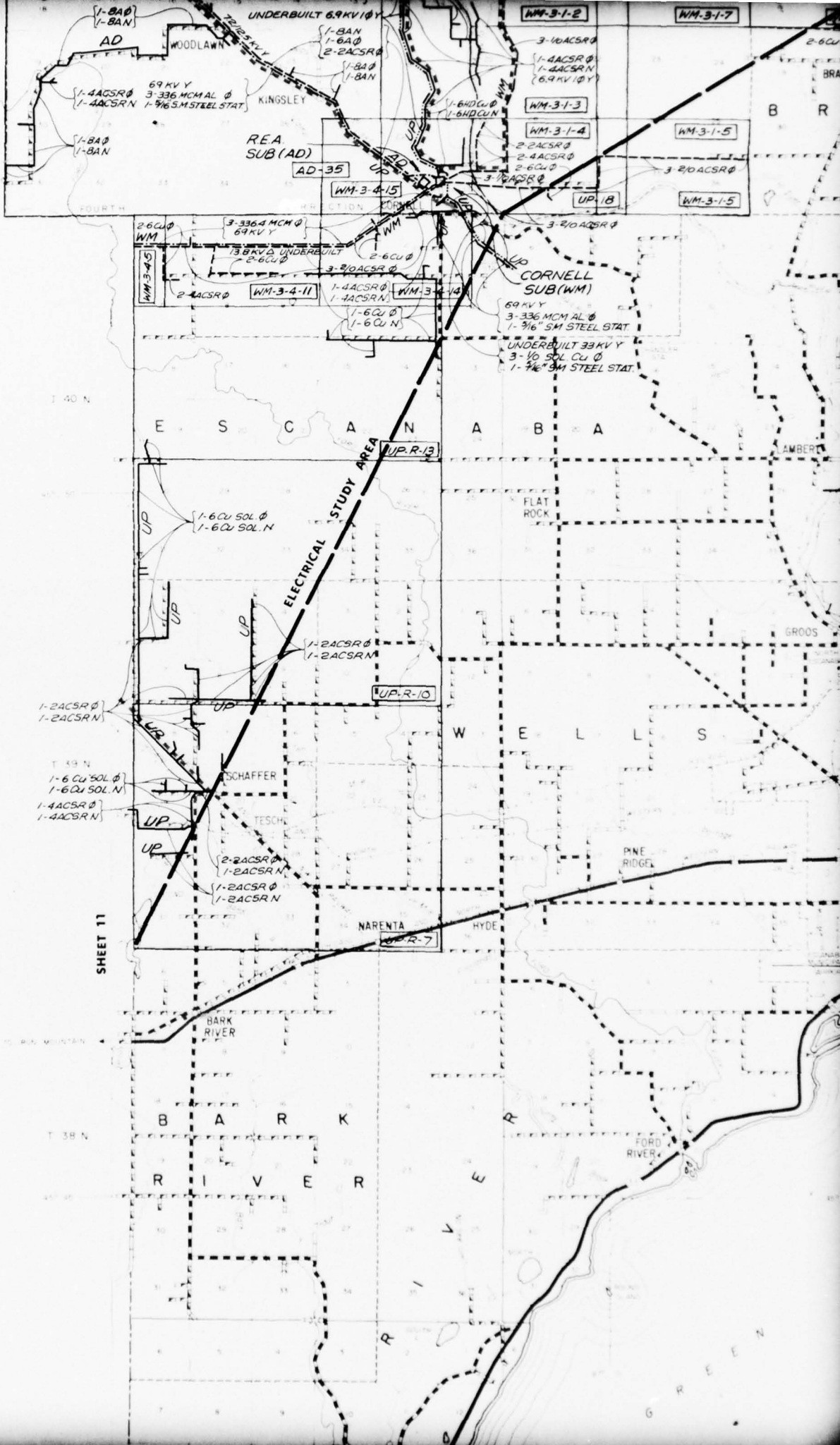
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BARK RIVER

FORD RIVER

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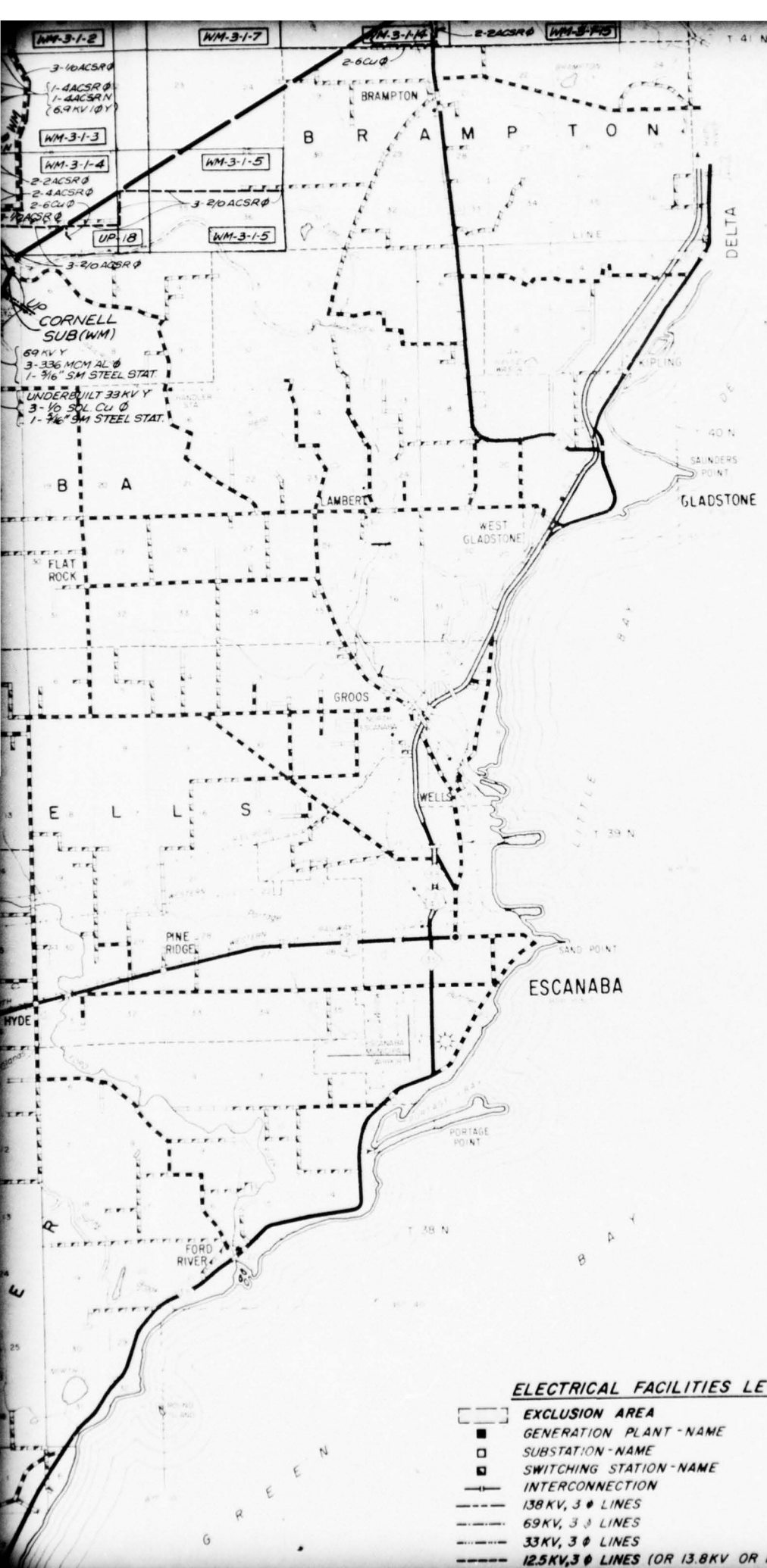
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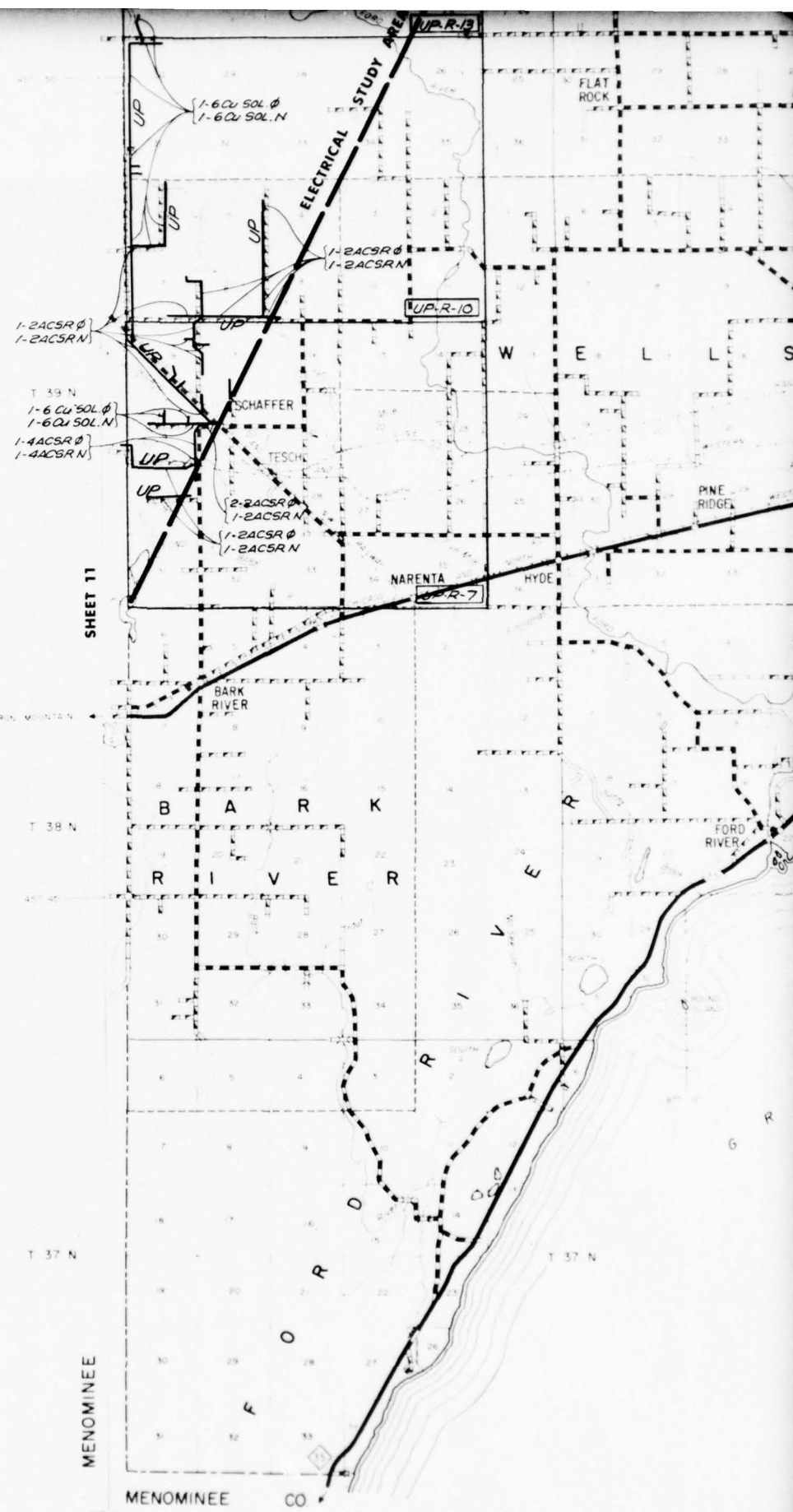


4

ELECTRICAL FACILITIES LEGEND

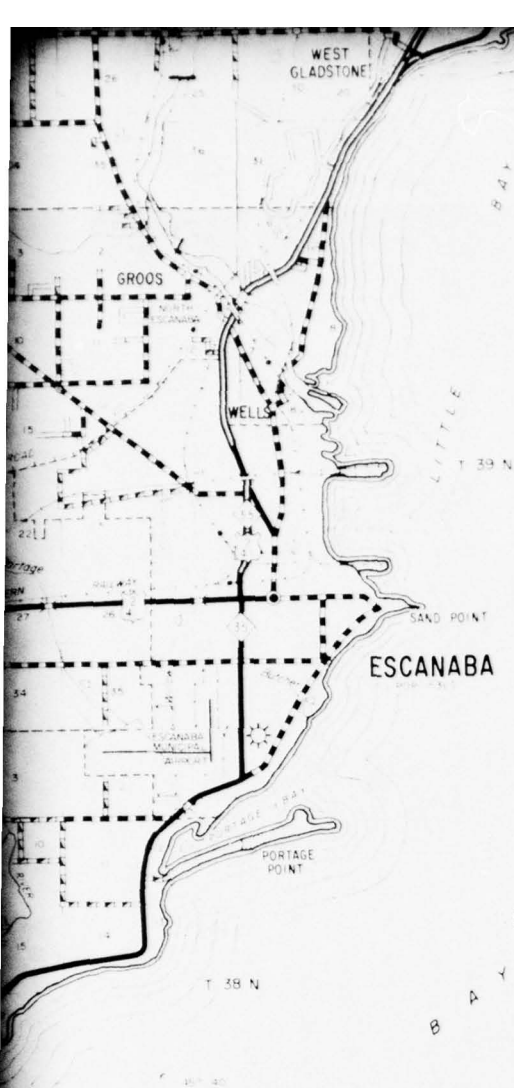
- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138KV, 3 ∅ LINES
- 69KV, 3 ∅ LINES
- 33KV, 3 ∅ LINES
- 12.5KV, 3 ∅ LINES (OR 13.8KV OR 14.4KV)





5

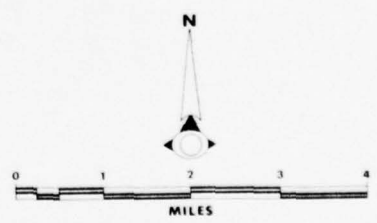
GENERAL HIGHWAY MAP
 DELTA COUNTY
 MICHIGAN
 STATE HIGHWAY COMMISSION
 DIVISION OF HIGHWAYS
 1964 PLANNING SURVEY



ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA
- GENERATION PLANT - NAME
- SUBSTATION - NAME
- SWITCHING STATION - NAME
- INTERCONNECTION
- 138 KV, 3 Ø LINES
- 69 KV, 3 Ø LINES
- 33 KV, 3 Ø LINES
- 12.5 KV, 3 Ø LINES (OR 13.8 KV OR 14.4 KV)
- 7.2 KV, 1 Ø LINES (OR 6.9 KV)
- 2.4 KV, 1 Ø LINES
- UGD. UNDERGROUND LINES
- POWER CO. MAP REFERENCE NUMBER

- UP UPPER PENINSULA POWER CO.
- WM WISCONSIN MICHIGAN POWER CO.
- MP MARQUETTE BOARD OF LIGHT AND POWER
- LA L'ANSE BOARD OF PUBLIC WORKS
- BB BARAGA BOARD OF PUBLIC WORKS
- CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT
- OR ONTONAGON REA
- NE NORWAY ELECTRIC LIGHT DEPARTMENT
- AD ALGER DELTA REA
- KI KI SAWYER AIR FORCE BASE



PROJECT SEAFARER
COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC.
 SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION
 DELTA COUNTY, MICHIGAN

WILLIAMS & WORKS
 Engineers, Surveyors, Planners, Cartographers
 611 Colquhoun Road, Grand Rapids, Michigan 49506

| |
|--------------|
| DATE 3/5/76 |
| SHEET NO. 12 |

6

section 4
supplemental data

4.1 - POWER COMPANIES' FINANCIAL STATEMENTS

| | <u>Page</u> |
|---|-------------|
| Upper Peninsula Power Company | 4-1 |
| Wisconsin Michigan Power Company | 4-9 |
| Marquette Board of Light and Power | 4-16 |
| Ontonagon County Rural Electrification Association | 4-24 |
| Alger Delta Cooperative Electrical Association | 4-26 |

Income Statement

| Year Ended December 31 | 1974 | 1973 |
|---|--------------|--------------|
| Operating Revenues | \$21,805,618 | \$18,821,923 |
| Operating Expenses: | | |
| Operation | 13,971,517 | 10,175,266 |
| Maintenance | 1,074,937 | 1,027,817 |
| Depreciation | 1,442,461 | 1,371,788 |
| Taxes: | | |
| Other Than Income — Principally Property Taxes | 1,267,350 | 1,172,056 |
| Federal Income — Current | 140,273 | 849,547 |
| State Income — Current | 41,110 | 189,271 |
| Federal Income — Deferred (Note 5) | 364,444 | 217,104 |
| Investment Tax Credit Adjustments — Net | 124,062 | 238,037 |
| Total | 18,426,154 | 15,240,886 |
| Operating Income | 3,379,464 | 3,581,037 |
| Other Income — Net | 168,025 | 95,987 |
| Income Before Interest Charges | 3,547,489 | 3,677,024 |
| Interest Charges: | | |
| Interest on Long Term Debt | 1,526,489 | 1,147,485 |
| Amortization of Debt Expense | 11,475 | 10,822 |
| Other Interest Expense | 587,573 | 510,257 |
| Total | 2,125,537 | 1,668,564 |
| Income Before Cumulative Effect of a Change in Accounting Method | 1,421,952 | 2,008,460 |
| Cumulative Effect on Prior Years to December 31, 1972 of a Change to a Different Billing Method, Net of Taxes of \$136,921 (Note 7) | | 126,105 |
| Net Income | 1,421,952 | 2,134,565 |
| Preferred Stock Dividend Requirements | 339,243 | 137,243 |
| Balance Applicable to Common Stock | \$ 1,082,709 | \$ 1,997,322 |
| Average Number of Shares Outstanding | 721,087 | 864,950 |
| Earnings per Share of Common Stock: | | |
| Income Before Cumulative Effect of a Change in Accounting Method | \$1.50 | \$2.81 |
| Cumulative Effect of a Change to a Different Billing Method | | .19 |
| Balance Applicable to Common Stock | \$1.50 | \$3.00 |

See Notes to Financial Statements.

Upper Peninsula Power Company
Financial Statement

Statement of Changes in Financial Position

| Year Ended December 31 | 1974 | 1973 |
|---|---------------------|---------------------|
| Source of Funds: | | |
| From Operations: | | |
| Net Income | \$ 1,421,952 | \$ 2,134,565 |
| Expenses not requiring outlay of funds: | | |
| Depreciation | 1,442,461 | 1,371,788 |
| Deferred Federal income taxes and investment tax credit | 488,506 | 495,141 |
| Other | 24,491 | 34,123 |
| Total from Operations | 3,377,410 | 3,995,617 |
| Long Term Debt | 385,810 | 5,000,000 |
| Common Stock | 38,334 | 1,356,929 |
| Preferred Stock | | 3,000,000 |
| Increase (Decrease) in Notes Payable | 8,500,000 | (2,600,000) |
| Other — Net | (246,095) | 8,146 |
| Total | \$12,055,459 | \$10,760,692 |
| Application of Funds: | | |
| Plant Additions and Replacements | \$ 5,908,016 | \$ 6,978,472 |
| Dividends Declared | 1,579,196 | 1,232,672 |
| Retirements of Long Term Debt and Preferred Stock | 293,400 | 140,000 |
| Investment in Upper Peninsula Generating Company | | 937,500 |
| Increase (Decrease) in Working Capital (see below) | 4,274,847 | 1,472,048 |
| Total | \$12,055,459 | \$10,760,692 |
| Changes in Working Capital excluding Notes Payable: | | |
| Increase (Decrease) in Current Assets: | | |
| Cash | \$ 1,235,591 | \$ (107,706) |
| Accounts Receivable | 2,810,980 | (202,011) |
| Inventories | 2,741,744 | 921,915 |
| Prepayments | 368,902 | 356,032 |
| Decrease (Increase) in Current Liabilities: | | |
| Maturity of Long Term Debt | (50,000) | 690,000 |
| Accounts Payable | (2,354,474) | (297,109) |
| Accrued Accounts | (477,896) | 110,929 |
| Increase (Decrease) in Working Capital | \$ 4,274,847 | \$ 1,472,048 |

Statement of Retained Earnings

| Year Ended December 31 | 1974 | 1973 |
|---|---------------------|---------------------|
| Balance at Beginning of Year | \$ 5,320,446 | \$ 4,537,726 |
| Net Income | 1,421,952 | 2,134,565 |
| Total | 6,742,398 | 6,672,291 |
| Deductions: | | |
| Dividends Declared: | | |
| Preferred | 339,243 | 137,243 |
| Common — per share: 1974, \$1.72; 1973, \$1.675 | 1,239,953 | 1,095,429 |
| Expense of Issuing Capital Stock | | 119,173 |
| Total Deductions | 1,579,196 | 1,351,845 |
| Balance at End of Year (Note 3) | \$ 5,163,202 | \$ 5,320,446 |

Upper Peninsula Power Company
Financial Statement

See Notes to Financial Statements.

Balance Sheet

| December 31 | 1974 | 1975 |
|--|---------------------|---------------------|
| Assets | | |
| Utility Plant — at Original Cost | \$60,009,417 | \$54,630,108 |
| Less Accumulated Depreciation and Amortization | <u>12,695,765</u> | <u>11,770,970</u> |
| Net Utility Plant | <u>47,313,652</u> | <u>42,859,138</u> |
| Investments and Other Property: | | |
| Investment in Upper Peninsula Generating Company — at cost (Note 2) | 4,229,050 | 4,229,050 |
| Nonutility Property and Other Investments | <u>230,948</u> | <u>230,712</u> |
| Total | <u>4,459,998</u> | <u>4,459,762</u> |
| Current Assets: | | |
| Cash | 2,173,234 | 937,643 |
| Accounts Receivable — Net | 4,002,047 | 2,076,837 |
| Receivable from Upper Peninsula Generating Company | 885,770 | |
| Inventories — at average cost: | | |
| Fuel | 3,609,220 | 1,480,439 |
| Materials and Supplies | 1,446,331 | 833,368 |
| Prepayments | <u>1,226,953</u> | <u>858,051</u> |
| Total | <u>13,343,555</u> | <u>6,186,338</u> |
| Deferred Debits: | | |
| Unamortized Debt Expense (being amortized over the lives of debt issues) | 262,155 | 216,154 |
| Other | <u>195,258</u> | <u>20,745</u> |
| Total | 457,413 | 236,899 |
| | <u>\$65,574,618</u> | <u>\$53,742,137</u> |

See Notes to Financial Statements.

Upper Peninsula Power Company
Financial Statement

| | 1974 | 1973 |
|--|---------------------|---------------------|
| Liabilities | | |
| Proprietary Capital (see Capitalization Data): | | |
| Capital Stock: | | |
| Common Stock | \$ 6,498,081 | \$ 6,478,173 |
| Cumulative Preferred Stock | 5,008,500 | 5,075,900 |
| Premium on Capital Stock | 3,451,600 | 3,418,869 |
| Retained Earnings (Note 3) | 5,163,202 | 5,320,446 |
| Total | <u>20,121,383</u> | <u>20,293,388</u> |
| | | |
| Long Term Debt, less current maturities (see Capitalization Data) | <u>23,473,810</u> | <u>23,314,000</u> |
| | | |
| Current Liabilities: | | |
| Long Term Debt Due Within One Year (less \$70,000 held by Trustee) | 165,000 | 115,000 |
| Notes Payable — Banks (Note 4) | 10,600,000 | 2,100,000 |
| Accounts Payable | 4,870,356 | 2,082,288 |
| Payable to Upper Peninsula Generating Company | | 433,594 |
| Accrued Accounts: | | |
| Taxes | 1,562,189 | 1,312,052 |
| Interest | 426,667 | 198,346 |
| Dividends | 56,364 | 56,926 |
| Total | <u>17,680,576</u> | <u>6,298,206</u> |
| | | |
| Deferred Credits: | | |
| Customer Advances for Construction | 157,530 | 183,730 |
| Investment Tax Credit | 877,177 | 753,115 |
| Total | <u>1,034,707</u> | <u>936,845</u> |
| | | |
| Accumulated Deferred Federal Income Taxes | 3,264,142 | 2,899,698 |
| | <u>\$65,574,618</u> | <u>\$53,742,137</u> |

Upper Peninsula Power Company
Financial Statement

Capitalization Data

| December 31 | 1974 | 1973 |
|---|---------------------|---------------------|
| CAPITAL STOCK | | |
| Common Stock, \$9 Par Value — Authorized, 1,000,000 shares; | | |
| Issued and outstanding shares, 722,009 in 1974; 719,797 in 1973 | <u>\$ 6,498,081</u> | <u>\$ 6,478,173</u> |
| Cumulative Preferred Stock, \$100 Par Value — Authorized, | | |
| 100,000 shares (issuable in series): | | |
| 5¼% Series — | | |
| Issued and outstanding shares, 6,885 in 1974; 7,259 in 1973 | \$ 688,500 | \$ 725,900 |
| 4.70% Series — | | |
| Issued and outstanding shares, 13,200 in 1974; 13,500 in 1973 | 1,320,000 | 1,350,000 |
| 8% Series — | | |
| Issued and outstanding shares, 30,000 | <u>3,000,000</u> | <u>3,000,000</u> |
| | <u>\$ 5,008,500</u> | <u>\$ 5,075,900</u> |

Common Stock — On November 8, 1973, the Company sold 65,000 shares of \$9 par value Common Stock to the public through Underwriters at a net price of \$20.35 per share. During 1974 and 1973, 2,212 and 1,633 shares, respectively, of Common Stock were sold under the Employee Stock Purchase Plan at an average price of \$17.33 and \$20.93 per share, respectively. In 1974 and 1973, \$19,908 and \$599,697, respectively, were credited to the Common Stock account and \$18,426 and \$757,231, respectively, to the Premium on Capital Stock account. At December 31, 1974, 14,991 shares of unissued Common Stock were reserved for purposes of the Plan.

Preferred Stock — On November 8, 1973, the Company sold \$3,000,000, 30,000

shares, of Cumulative Preferred Stock, 8% Series, to an institutional investor.

The outstanding series are currently redeemable in whole or in part at the option of the Company or in the case of voluntary liquidation at the following amounts (plus accumulated dividends): \$105.00 per share for the 5¼% Series; \$102.25 per share through May 1, 1978 and thereafter \$101.00 per share for the 4.70% Series; and at \$108.00 per share up to November 1, 1978 and thereafter up to November 1, 1983 at \$106.40 per share and at decreasing amounts of \$1.60 per share at 5-year intervals through November 1, 1998 and at \$101.00 per share thereafter for the 8% Series.

Purchase funds for all series provide that the Company will annually offer to purchase on May 1 (1976 for the 8% Series), at prices not to exceed \$100 per share plus accrued dividends, 2% of the maximum number of shares of each series issued prior to March 15 of such year, less any shares theretofore purchased and surrendered by the Company to the Transfer Agent as a purchase fund credit for such year. All shares so purchased and surrendered shall be cancelled and shall not be reissued. During 1974, \$14,305 was credited to the Premium on Capital Stock account representing the discount on the purchase of Preferred Stock as described above.

1974

1973

LONG TERM DEBT**First Mortgage Bonds:**

| | | |
|--|---------------------|---------------------|
| 3 1/4% Series due 1977 (excluding \$42,000 in 1974 and \$56,000 in 1973 held by Trustee) | \$ 2,513,000 | \$ 2,534,000 |
| 3% Series due 1980 | 380,000 | 385,000 |
| 4% Series due 1983 | 800,000 | 810,000 |
| 4 1/4% Series due 1988 (excluding \$95,000 in 1974 and \$40,000 in 1973 held by Trustee) | 2,880,000 | 2,970,000 |
| 5 1/4% Series due 1991 | 1,760,000 | 1,780,000 |
| 4.60% Series due 1993 | 4,500,000 | 4,500,000 |
| 9 1/4% Series due 2001 | 4,900,000 | 4,900,000 |
| 8% Series due 2003 | 5,000,000 | 5,000,000 |
| 5 1/4% Debentures due 1978 | 520,000 | 550,000 |
| Installment Sales Contract For Air Pollution Control Equipment— | | |
| \$230,000 5.60% Serial Bonds due 1984 and \$1,170,000 6.90% Term Bonds due 1999 (excluding \$1,014,190 held by Trustee at December 31, 1974) | 385,810 | |
| Total | 23,638,810 | 23,429,000 |
| Less — amounts due within one year (excluding amounts held by Trustee) | 165,000 | 115,000 |
| Total Long Term Debt | <u>\$23,473,810</u> | <u>\$23,314,000</u> |

Annual maturities of long term debt for the five years subsequent to December 31, 1974 aggregate \$210,000 for 1975, \$238,000 for 1976, \$2,705,000 for 1977, \$645,000 for 1978, and \$250,000 for 1979, of which \$145,000 annually may be met by property additions.

Substantially all electric utility property was subject to lien and collateralized under First Mortgage Bonds.

Upper Peninsula Power Company
Financial Statement

Notes to Financial Statements

1. Summary of Significant Accounting Policies

Electric Plant

The cost of additions to utility plant and replacement of retirement units of property is capitalized. Cost includes material, labor, engineering, supervision, transportation and other related items. The Company also capitalizes an allowance for funds used during construction. Maintenance and repairs are charged to operations, and replacements and betterments are capitalized. The original cost of property retired, plus cost of removal, less salvage, is charged to the accumulated provision for depreciation.

Depreciation and Investment Credit

For financial statement purposes, the Company generally is depreciating the original cost of property by the straight-line method over its estimated remaining service life as determined by independent engineers. For tax purposes, the Company uses accelerated methods of depreciation for which related deferred income taxes are provided.

Amounts of investment tax credits contained in deferred credits are being amortized ratably over the estimated service lives of the related properties.

Revenues

Revenues include amounts actually billed for services rendered. No estimate of unbilled revenue is recorded.

Pension Plan

The Company has a non-contributory retirement plan, as amended, covering full-time officers and employees, subject to age and period-of-employment conditions. The total cost of the plan was \$310,311 and \$297,928 for 1974 and 1973, respectively. Normal costs are accrued annually, and prior service costs are being amortized over a period of twenty years. The Company's policy is to fund pension cost accrued.

2. Investment in Upper Peninsula Generating Company

Upper Peninsula Generating Company is jointly owned by the Company (19%) and Cliffs Electric Service Company (81%), a subsidiary of The Cleveland-Cliffs Iron Company, and operates a steam electric generating plant in Marquette, Michigan with a

present net generating capacity of 258,900 kw. During 1974 Cliffs Electric Service Company acquired additional shares of Generating Company stock for \$6,204,000 increasing its ownership from 74% to 81%.

The power contract, as amended, between Generating Company and its owners provides, among other things, that Generating Company will sell its production of power only to the owners and that the owners covenant to pay to Generating Company as energy and demand charges, all operating costs and other charges.

In 1973 an environmentalist group filed suit against Generating Company and other parties. The plaintiff seeks, among other things, a declaration that a certain easement and agreement is null and void, injunctions preventing further construction, and payment of damages not to exceed \$100 million. At this writing a firm date for trial has not yet been set.

Condensed financial information relating to Generating Company follows:

| | 1974 | 1973 |
|--|--------------|--------------|
| Results of Operations | | |
| Revenues: | | |
| Upper Peninsula Power Company | \$ 5,948,365 | \$ 4,053,331 |
| Cliffs Electric Service Company | 12,081,602 | 8,100,858 |
| Other | 1,393 | — |
| Total | 18,031,360 | 12,154,189 |
| Expenses: | | |
| Production fuel | 13,085,224 | 8,248,611 |
| Other operating expenses | 1,674,218 | 1,198,800 |
| Depreciation | 876,814 | 785,741 |
| Property and other taxes | 929,302 | 852,731 |
| Interest charges | 1,465,797 | 1,062,922 |
| Total | 18,031,360 | 12,154,189 |
| Net Income | \$ -0- | \$ -0- |
| Financial Position | | |
| Utility Plant, net of accumulated depreciation | \$80,939,609 | \$62,067,121 |
| Other assets | 22,552,909 | 11,216,333 |
| Total | 103,492,518 | 73,283,454 |
| Less: | | |
| Long term debt | 62,321,000 | 47,007,000 |
| Current liabilities | 18,965,518 | 10,274,450 |
| Total | 81,286,518 | 57,281,450 |
| Proprietary Capital | \$22,206,000 | \$16,002,004 |

Upper Peninsula Power Company
Financial Statement

3. Restrictions on Retained Earnings

At December 31, 1974, under the most restrictive provisions of the Company's long term debt indentures, approximately \$3,659,000 of retained earnings was unrestricted as to the payment of cash dividends on Common Stock.

4. Notes Payable — Banks

Short term borrowings normally bear interest at the prevailing prime commercial rate. The Company generally has been expected to maintain a compensating balance of 10% of the line of credit (\$10,600,000) or 20% of the debt outstanding whichever is greater.

5. Income Taxes

Deferred Federal income taxes are provided on the timing difference resulting from the use of accelerated methods of depreciation for tax return purposes. Total income tax expense is less than the amounts computed by applying in 1974 and 1973 the U.S. Federal income tax rate of 48% primarily because of the following:

State income tax, net of Federal income tax benefit, \$24,579 and \$110,159; additional depreciation for tax purposes, \$82,023 and \$97,983; items capitalized in utility plant and deducted for tax purposes, \$107,992 and \$94,576; and investment tax credit amortization, \$30,251 and \$22,131, respectively.

6. Commitments

The Company operates and maintains a steam electric generating station owned by the City of Escanaba, Michigan and has contracted to pay \$279,400 annually for the privilege of using the excess capacity of the station. The contract expires in May 1978 and is subject to renewal by the City for an additional ten-year period.

7. Change in Billing Method

In January 1973 the Company changed from a bimonthly to a monthly billing basis. In the opinion of management, this change will correlate the billing of revenue more closely to the rendition of service than under the former method.

Auditors' Opinion

To the Board of Directors of
Upper Peninsula Power Company:

We have examined the balance sheet of Upper Peninsula Power Company as of December 31, 1974 and 1973 and the related statements of income, retained earnings, and changes in financial position for the years then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Company at December 31, 1974 and 1973 and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles consistently applied during the period subsequent to the change, with which we concur, made as of January 1, 1973, in the billing method described in Note 7 to the financial statements.

Haskins & Sells
Chicago, February 14, 1975

Upper Peninsula Power Company
Financial Statement

Income
Statement year ended december 31

| | 1974 | 1973 |
|---|---------------------|---------------------|
| Operating Revenues | | |
| Electric | \$51,932,433 | \$46,419,591 |
| Gas | 14,202,593 | 12,470,338 |
| Total Operating Revenues | <u>66,135,026</u> | <u>58,889,929</u> |
| Operating Expenses | | |
| Fuel | 8,048,893 | 6,163,252 |
| Purchased power | 536,997 | 482,001 |
| Power cost allocation — parent company | (1,022,009) | (726,563) |
| Gas purchased for resale | 9,348,249 | 8,226,675 |
| Other operations expense (Note A) | 8,954,710 | 8,677,709 |
| Maintenance | 4,157,084 | 3,371,599 |
| Taxes other than income taxes | 5,193,116 | 5,319,685 |
| Depreciation | | |
| Straight line | 7,143,358 | 6,860,565 |
| Deferred income taxes (Note B) | 3,829,600 | 2,938,400 |
| Federal income tax (Note B) | 4,930,000 | 3,805,600 |
| Investment tax credit adjustments — net | 195,800 | 524,350 |
| State income tax | 857,700 | 628,700 |
| Total Operating Expenses | <u>52,173,498</u> | <u>46,271,973</u> |
| Operating Income | 13,961,528 | 12,617,956 |
| Other Income and Deductions | | |
| Allowance for funds used during construction (Note C) | 12,750 | 214,927 |
| Miscellaneous — net | 217,405 | 109,942 |
| Income taxes | (29,200) | 19,800 |
| Total Other Income and Deductions | <u>200,955</u> | <u>344,669</u> |
| Income Before Interest Charges | 14,162,483 | 12,962,625 |
| Interest Charges | <u>4,986,568</u> | <u>4,970,656</u> |
| Net Income | <u>\$ 9,175,915</u> | <u>\$ 7,991,969</u> |

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

Retained
Earnings
Statement year ended december 31

| | <u>1974</u> | <u>1973</u> |
|----------------------------|---------------------|---------------------|
| Balance, January 1 | \$18,331,222 | \$18,788,024 |
| Net Income | 9,175,915 | 7,991,969 |
| | <u>27,507,137</u> | <u>26,779,993</u> |
| Deductions | | |
| Dividends | | |
| On Preferred Stock | 180,021 | 180,021 |
| On Common Stock | 8,268,750 | 8,268,750 |
| | <u>8,448,771</u> | <u>8,448,771</u> |
| Balance, December 31 | <u>\$19,058,366</u> | <u>\$18,331,222</u> |

Statement of Changes
in Financial Position year ended december 31

| | <u>1974</u> | <u>1973</u> |
|---|---------------------|---------------------|
| Source of Funds | | |
| Operations | | |
| Net income | \$ 9,175,915 | \$ 7,991,969 |
| Depreciation | 10,972,958 | 9,798,965 |
| Investment tax credit adjustments — net | 195,800 | 524,350 |
| Allowance for funds used during construction | (12,750) | (214,927) |
| Nuclear fuel reprocessing and contract warranty costs | 1,785,855 | 661,958 |
| Other non-cash items | (120,799) | (128,796) |
| Total Funds from Operations | <u>21,996,979</u> | <u>18,633,519</u> |
| Short term borrowings | (4,555,102) | 5,199,558 |
| Contributions in aid of construction | 71,962 | 163,259 |
| Miscellaneous | 373,357 | 65,659 |
| | <u>17,887,196</u> | <u>24,061,995</u> |
| Use of Funds | | |
| Construction expenditures | 9,381,638 | 12,827,734 |
| Payments of cash dividends | 8,448,771 | 8,448,771 |
| Retirement of long term debt | 267,907 | 656,516 |
| | <u>18,098,316</u> | <u>21,933,021</u> |
| Change in Net Current Assets (other than short term borrowings) | <u>\$ (211,120)</u> | <u>\$ 2,128,974</u> |

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

Balance Sheet

ASSETS

| | 1974 | 1973 |
|--|----------------------|----------------------|
| Utility Plant | | |
| Electric (Note D) | \$208,296,298 | \$203,386,900 |
| Gas | 21,084,440 | 20,293,583 |
| | 229,380,738 | 223,680,483 |
| Accumulated provision for depreciation | (54,183,258) | (44,417,938) |
| | 175,197,480 | 179,262,545 |
| Construction work in progress | 3,428,432 | 1,264,872 |
| Net Utility Plant | 178,625,912 | 180,527,417 |
| Nonutility Property | 871,008 | 870,846 |
| Accumulated provision for depreciation | (3,261) | (2,497) |
| Net Nonutility Property | 867,747 | 868,349 |
| Current Assets | | |
| Cash | 553,916 | 526,644 |
| Temporary cash investments | — | 1,456,504 |
| Accounts receivable | 6,720,069 | 4,869,139 |
| Due from parent company | 76,388 | 641,406 |
| Materials and supplies (at average cost) | 3,134,035 | 2,294,505 |
| Prepayments and other assets | 2,012,232 | 1,510,943 |
| Total Current Assets | 12,496,640 | 11,299,141 |
| Deferred Charges | | |
| Unamortized debt expense | 294,211 | 312,875 |
| Other | 168,981 | 198,733 |
| Total Deferred Charges | 463,192 | 511,608 |
| | \$192,453,491 | \$193,206,515 |

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

Wisconsin Michigan Power Company
Financial Statement

Liabilities

| | 1974 | 1973 |
|---|----------------------|----------------------|
| Capitalization | | |
| Common Stock and Retained Earnings | | |
| Common stock (authorized 4,500,000 shares, \$20 par value; issued 3,675,000 shares) | \$ 73,500,000 | \$ 73,500,000 |
| Retained earnings | 19,058,366 | 18,331,222 |
| | <u>92,558,366</u> | <u>91,831,222</u> |
| Preferred Stock — Cumulative (authorized 80,000 shares, \$100 par value) 4½% Series, issued 40,000 shares; redemption price \$105 | 4,000,000 | 4,000,000 |
| Long Term Debt (Note E) | | |
| First Mortgage Bonds | | |
| 3% Series due 1978 | 10,530,000 | 10,710,000 |
| 2¾% Series due 1980 | 640,000 | 640,000 |
| 3⅝% Series due 1981 | 2,358,000 | 2,378,000 |
| 3⅜% Series due 1984 | 2,316,000 | 2,316,000 |
| 4¾% Series due 1991 | 3,660,000 | 3,735,000 |
| 4½% Series due 1993 | 5,201,000 | 5,310,000 |
| 5⅞% Series due 1996 | 9,310,000 | 9,310,000 |
| 6½% Series due 1997 | 11,577,000 | 11,577,000 |
| 6⅝% Series due 1998 | 9,934,000 | 9,934,000 |
| 8½% Series due 1999 | 11,880,000 | 11,880,000 |
| 9¼% Series due 2000 | 9,900,000 | 9,900,000 |
| | <u>77,306,000</u> | <u>77,690,000</u> |
| Unamortized premium — net | 125,772 | 137,746 |
| | <u>77,431,772</u> | <u>77,827,746</u> |
| Total Capitalization | 173,990,138 | 173,658,968 |
| Current Liabilities | | |
| Notes payable to banks (Note F) | — | 4,350,000 |
| Commercial paper (Note F) | 1,094,194 | 1,299,296 |
| Accounts payable | 3,799,906 | 2,773,963 |
| Payroll and vacation accrual | 1,153,191 | 969,803 |
| Taxes accrued — income and other | 3,660,150 | 3,584,494 |
| Interest accrued | 1,382,541 | 1,405,147 |
| Customer deposits | 73,301 | 92,824 |
| Other | 355,445 | 189,684 |
| Total Current Liabilities | 11,518,728 | 14,665,211 |
| Deferred Credits | | |
| Accumulated deferred investment tax credits | 2,413,300 | 2,217,500 |
| Nuclear fuel reprocessing and contract warranty costs | 3,217,698 | 1,431,843 |
| Other | 76,224 | 67,998 |
| Total Deferred Credits | 5,707,222 | 3,717,341 |
| Amortization Reserve — Federal | 330,000 | 329,554 |
| Contributions in Aid of Construction | 907,403 | 835,441 |
| | <u>\$192,453,491</u> | <u>\$193,206,515</u> |

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

NOTES

to Financial Statements

Summary of Significant Accounting Policies

General

The accounting records of the Company are maintained in accordance with the Uniform System of Accounts prescribed by the Federal Power Commission, modified where appropriate by requirements of the Public Service Commission of Wisconsin.

Revenues

Utility revenues are recognized at time of billing.

Property

Utility property is recorded at original cost and nonutility property is recorded at cost. The costs of additions to and replacements of significant units of property are charged to utility plant. Costs include material, labor and indirect charges for employee pensions and benefits, payroll taxes, administrative and general expense, and allowance for funds used during construction (see Note C). Replacements of minor items of property are charged to maintenance expense. The cost of depreciable property, together with removal cost less salvage, is charged to Accumulated Provision for Depreciation when property is retired.

Income Taxes

Federal and state income tax expense is computed using accelerated depreciation methods. Straight line depreciation is used for financial statement purposes. The income tax reduc-

tion resulting from the use of accelerated depreciation and the current deduction of property removal cost is deferred by recording a corresponding increase in depreciation expense as prescribed by the Public Service Commission of Wisconsin. The income tax effects of other differences between tax and financial accounting are not deferred. These differences in the aggregate are not significant. The Federal investment tax credit is accounted for on the deferred basis and is reflected in income ratably over the life of the property subject to the credit.

Research and Development

Research and development costs are charged to expense or construction as incurred in accordance with the Federal Power Commission system of accounts.

Debt Premium, Discount and Expense

Long term debt premium or discount and expense of issuance are amortized by the straight line method over the lives of the debt issues to which they pertain. Unamortized debt premium, discount and expense pertaining to debt reacquired for sinking fund purposes is written off currently.

A. Pension Plans

The Company has two noncontributory pension plans covering all eligible employees. Company policy is to accrue and fund annual normal employee pension cost together with interest on the unfunded prior service liability. The unfunded prior service liability of the pen-

sion plans is not significant. All vested benefits under the pension plans have been funded.

Pension expense was \$489,000 in 1974 and \$561,000 in 1973. The decrease in pension expense in 1974 resulted principally from a change from 4% to 4¼% in the actuarial assumption for rate of earnings of pension fund investments.

B. Income Tax Expense

Federal income tax expense as a percent of income before Federal income taxes was 49.0% and 47.2% for the years 1974 and 1973, respectively, compared to the statutory tax rate of 48%.

In 1974 the Company was granted a Federal income tax refund for the years 1968 and 1969 based on its retroactive election of the use of guideline lives for income tax depreciation purposes. Consistent with the Company's policy of deferring the tax reduction resulting from the difference between depreciation expense for book and tax purposes, the refund was recorded by an increase of \$443,000 in depreciation expense and a corresponding decrease in current income tax expense. Similar refund claims have been filed for the years 1970-1972.

C. Allowance for Funds Used During Construction

Since 1969 the Company has capitalized the cost of debt and equity funds used to finance construction work in progress in conformity with predominant industry practice. Income is cor-

respondingly increased by the amounts so capitalized and is termed Allowance for Funds Used During Construction (AFDC). However, during 1974 the Company discontinued capitalizing AFDC pursuant to an order of the Public Service Commission of Wisconsin. The elimination of AFDC had no significant effect on net income.

D. Licenses for Hydroelectric Projects

A new license for Hydroelectric Project No. 1759 has been issued by the Federal Power Commission replacing the original license which expired June 30, 1970. The new license expires December 31, 2001.

The original license for Hydroelectric Project No. 2131 expired June 30, 1974 and the project is subject to take-over by the Federal government or relicensing to the Company or to another licensee. The Company has made application for a new 50-year license and has received an annual license extending to June 30, 1975. If Project No. 2131, which had a depreciated cost of \$800,000 at December 31, 1974, is taken over by the Federal government or another licensee, it is expected the Company would be entitled to receive approximately the depreciated cost of the project plus severance damages, if any.

E. Long Term Debt

The maturities and sinking fund requirements through 1979 for the aggregate amount of long term debt outstanding at December 31, 1974 are shown below. Of the annual sinking fund

requirements, \$540,000 may be satisfied by certifying additional mortgaged property.

| | Maturities | Sinking Fund |
|------|------------|--------------|
| 1975 | \$ — | \$855,000 |
| 1976 | — | 855,000 |
| 1977 | — | 855,000 |
| 1978 | 10,320,000 | 715,000 |
| 1979 | — | 715,000 |

The sinking fund requirements have been anticipated by advance purchases of bonds to the extent of \$569,000 and certification of property in the amount of \$540,000.

Substantially all utility plant and nonutility property is subject to the lien of the mortgage. The First Mortgage Bonds rank equally as to Series.

F. Notes Payable and Commercial Paper

The average interest rate for commercial paper outstanding at December 31, 1974 was 10.00%. Average short term borrowings outstanding during 1974 amounted to \$1,850,000 with an average interest rate of 10.00%. Maximum short term borrowing during 1974 was \$2,800,000. Commercial paper matures in January, 1975.

Unused lines of credit for short term borrowing amounted to \$3,700,000 at December 31, 1974. The informal line of credit arrangements are generally renewed annually. In support of various lines of credit with lending banks, the Company has informally agreed to maintain unrestricted compensating balances. At December 31, 1974 the cash

balance shown on the balance sheet included \$280,000 which represented compensating balances.

G. Rental Expense

Total rental expense was \$6,824,000 in 1974 and \$5,657,000 in 1973, of which \$6,769,000 and \$5,591,000, respectively, was for the lease of nuclear fuel.

The Company and its parent, Wisconsin Electric Power Company, each has an undivided one-half interest in a nuclear fuel lease agreement. Except for termination by casualty, default by the lessees or certain other remote contingencies, the lease is terminable by the companies or the lessor on two years notice. The companies may purchase the leased nuclear fuel material at the higher of fair market value or unamortized cost in the event of termination of the lease by the lessor.

Rental payments are made monthly during the term of the lease based on the amount of nuclear fuel material leased and the amount of nuclear fuel burned. Lease payments are recorded as fuel expense based on the amount of fuel burned.

BALANCE SHEET
 BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

| | June 30, | |
|---|---------------------|---------------------|
| ASSETS | 1975 | 1974 |
| CURRENT ASSETS | | |
| Operation and maintenance fund - Note B: | | |
| Cash | \$ 147,049 | \$ 55,985 |
| Savings certificates and accrued interest | 96,917 | 139,734 |
| United States Government securities at cost and accrued interest (approximates market) | | 49,319 |
| Accounts receivable, less allowance for losses in collection (1975 - \$18,551; 1974 - \$12,447) | 418,111 | 288,900 |
| Inventories: | | |
| Materials and supplies | 106,348 | 118,078 |
| Coal | 1,171,683 | 707,058 |
| Diesel fuel | 91,683 | 83,092 |
| Prepaid expenses | 21,558 | 19,329 |
| TOTAL CURRENT ASSETS | 2,053,349 | 1,461,495 |
| RESTRICTED ASSETS - Note B | | |
| Bond and interest redemption fund cash | 601,729 | 624,254 |
| Bond reserve fund | 627,148 | 589,449 |
| Replacement fund | 195,500 | 181,918 |
| TOTAL RESTRICTED ASSETS | 1,424,377 | 1,395,621 |
| UNAMORTIZED BOND ISSUANCE EXPENSE | 32,328 | 35,082 |
| UTILITY PLANT IN SERVICE | | |
| Land, buildings and equipment | 19,319,695 | 18,934,510 |
| Less allowances for depreciation | 7,319,701 | 6,782,748 |
| | 11,999,994 | 12,151,762 |
| Cash appropriated for construction - Note C | 80,970 | 1,357,464 |
| Construction work in progress | 1,524,997 | 98,949 |
| | 13,605,961 | 13,608,175 |
| | <u>\$17,116,015</u> | <u>\$16,500,373</u> |

Marquette Board of Light and Power
 Financial Statement

| | June 30, | |
|---|---------------------|---------------------|
| | 1975 | 1974 |
| LIABILITIES, RESERVES, CONTRIBUTIONS AND RETAINED EARNINGS | | |
| CURRENT LIABILITIES | | |
| Payable from current assets: | | |
| Accounts payable | \$ 724,525 | \$ 565,610 |
| Employee compensation | 74,570 | 55,518 |
| Accumulated sick leave | 83,000 | 74,000 |
| Customer deposits including accrued interest | <u>140,347</u> | <u>119,814</u> |
| | 1,022,442 | 814,942 |
| Payable from restricted assets: | | |
| Current maturities of revenue bonds payable | 400,000 | 400,000 |
| Accrued interest payable | <u>201,546</u> | <u>217,034</u> |
| | 601,546 | 617,034 |
| TOTAL CURRENT LIABILITIES | 1,623,988 | 1,431,976 |
| OTHER LIABILITIES | | |
| Revenue bonds payable, less current maturities - | | |
| Note D | 7,500,000 | 7,900,000 |
| Retainage due contractors | <u>180,516</u> | <u>29,898</u> |
| | 7,680,516 | 7,929,898 |
| RESERVES | | |
| Bond reserve | 627,148 | 589,449 |
| Plant replacement reserve | <u>195,500</u> | <u>181,918</u> |
| | 822,648 | 771,367 |
| CONTRIBUTIONS FROM CUSTOMERS | 44,020 | 34,759 |
| RETAINED EARNINGS | 6,944,843 | 6,332,373 |
| | <u>\$17,116,015</u> | <u>\$16,500,373</u> |

See notes to financial statements.

STATEMENT OF EQUITY
 BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

| | Year ended June 30, | |
|---------------------------------------|---------------------|--------------------|
| | 1975 | 1974 |
| CONTRIBUTIONS FROM CUSTOMERS | | |
| Balance at beginning of year | \$ 34,759 | \$ 29,505 |
| Contributions for the year | <u>9,261</u> | <u>5,254</u> |
| BALANCE AT END OF YEAR | <u>\$ 44,020</u> | <u>\$ 34,759</u> |
| RETAINED EARNINGS | | |
| Balance at beginning of year | \$6,332,373 | \$6,031,340 |
| Net income for the year | <u>663,749</u> | <u>353,175</u> |
| | 6,996,122 | 6,384,515 |
| Deduct: | | |
| Transfer to bond reserve | 37,698 | 38,883 |
| Transfer to plant replacement reserve | <u>13,581</u> | <u>13,259</u> |
| BALANCE AT END OF YEAR | <u>\$6,944,843</u> | <u>\$6,332,373</u> |

See notes to financial statements.

STATEMENT OF REVENUE AND EXPENSE
 BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

| | Year ended June 30, | |
|---------------------------------------|---------------------|-------------------|
| | 1975 | 1974 |
| Operating Revenues: | | |
| Electricity sales: | | |
| Urban | \$3,006,662 | \$2,584,158 |
| Rural | 1,271,808 | 955,871 |
| Street lighting | 97,345 | 84,613 |
| Other municipal departments | 164,766 | 114,393 |
| Rent and other | <u>18,918</u> | <u>11,196</u> |
| | 4,559,499 | 3,750,231 |
| Operating Expenses: | | |
| Production | 1,949,327 | 1,514,923 |
| Distribution | 163,826 | 136,180 |
| Customers' accounting | 81,981 | 66,715 |
| Administrative and general | 462,575 | 403,849 |
| Provision for depreciation | 542,879 | 536,995 |
| Property taxes paid municipality | <u>457,172</u> | <u>448,131</u> |
| | 3,657,760 | 3,106,793 |
| | OPERATING INCOME | 901,739 |
| | | 643,438 |
| Other income: | | |
| Investment income | 70,412 | 71,989 |
| Gain on sale of fixed assets | 37,249 | |
| Miscellaneous | <u>3,504</u> | |
| | 111,165 | 71,989 |
| | 1,012,904 | 715,427 |
| Other deductions: | | |
| Interest on bonds | 343,244 | 357,243 |
| Amortization of bond issuance expense | 2,753 | 2,753 |
| Interest on customer deposits | <u>3,158</u> | <u>2,256</u> |
| | 349,155 | 362,252 |
| | NET INCOME | <u>\$ 663,749</u> |
| | | <u>\$ 353,175</u> |

See notes to financial statements.

Marquette Board of Light and Power
 Financial Statement

STATE OF MICHIGAN
BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

| | Year ended June 30, | |
|--|--------------------------|-------------------------|
| | 1975 | 1974 |
| FUNDS PROVIDED | | |
| From operations: | | |
| Net income for the year | \$ 663,749 | \$ 353,175 |
| Items not requiring current outlay of funds: | | |
| Provision for depreciation | 558,563 | 551,691 |
| Amortization of bond issuance expense | <u>2,753</u> | <u>2,753</u> |
| TOTAL FUNDS PROVIDED FROM OPERATIONS | 1,225,065 | 907,619 |
| Revenue bond proceeds | | 1,400,000 |
| Contributions from customers for the year | 9,261 | 5,254 |
| Increase in current maturities of revenue bonds | | 125,000 |
| Increase in accrued interest payable | | 32,413 |
| Decrease in bond and interest redemption fund | 22,525 | |
| Increase in retainage due contractors | <u>150,618</u> | |
| Total funds provided | 1,407,469 | 2,470,286 |
| FUNDS USED | | |
| Current installment on revenue bonds | 400,000 | 400,000 |
| Net additions to utility plant in service | 556,349 | 1,748,826 |
| Increase in unamortized bond issuance expense | | 12,573 |
| Increase in bond and interest redemption fund | | 164,374 |
| Increase in bond reserve fund | 37,698 | 38,883 |
| Increase in replacement fund | 13,581 | 13,259 |
| Decrease in accrued interest payable | 15,487 | |
| Decrease in retainage due contractors | | <u>49,918</u> |
| Total funds used | <u>1,023,115</u> | <u>2,427,833</u> |
| INCREASE IN WORKING CAPITAL | <u>\$ 384,354</u> | <u>\$ 42,453</u> |
| CHANGES IN COMPONENTS OF WORKING CAPITAL | | |
| Increase (decrease) in current assets: | | |
| Cash | \$ 91,064 | \$ 33,146 |
| Savings certificates and accrued interest | (42,817) | 10,951 |
| United States Government securities and accrued interest | (49,319) | (939) |
| Accounts receivable | 129,211 | 82,827 |
| Inventories | 461,486 | 376,959 |
| Prepaid expenses | <u>2,229</u> | <u>4,438</u> |
| Increase in current assets | 591,854 | 507,382 |
| Increase (decrease) in current liabilities: | | |
| Accounts payable | 158,915 | 420,869 |
| Employee compensation | 19,052 | 8,163 |
| Accumulated sick leave | 9,000 | 10,000 |
| Customer deposits | <u>20,533</u> | <u>25,897</u> |
| Increase in current liabilities | <u>207,500</u> | <u>464,929</u> |
| INCREASE IN WORKING CAPITAL | <u>\$ 384,354</u> | <u>\$ 42,453</u> |

Marquette Board of Light and Power
Financial Statement

See notes to financial statements. 4-20

BOARD OF LIGHT AND POWER, CITY OF MARQUETTE
June 30, 1975

NOTE A - STATEMENT OF ACCOUNTING POLICIES

The significant accounting policies followed by the Board are summarized below.

Revenues and Expenditures

Revenues and expenditures are recognized on the accrual basis in accordance with the requirements of Act 2 of the Public Acts of 1968.

Inventories

Inventories are stated at lower of cost or replacement market. Cost is determined generally on an average cost method.

Utility Plant in Service

Utility plant acquired prior to 1940 is stated on the basis of values determined by independent appraisers as of that date. Subsequent additions are stated at cost. Depreciation is provided for on the straight-line method based on estimated useful lives. Costs related to the providing of service to additional customers are capitalized and in some cases a related fee is charged to customers and recorded as a contribution from customers (equity). Interest on bonds is capitalized during construction.

Accumulated Sick Leave Benefits

The Board has a policy of allowing employees to accumulate sick leave benefits. At retirement or certain terminations of employment, employees with ten years or more of service are paid for one half of the accumulated days at their then current rate of pay. Such benefits are recognized when earned.

NOTE B - RESTRICTED ASSETS

The Ordinances authorizing issuance of revenue bonds require that operating revenues be used generally in the following order:

1. Transfers must be made from the Receiving Fund, which is used for initial deposit of all receipts, to the Operation and Maintenance Fund (included under current assets) to cover expenses of administration and operation including maintenance. The balance in the Fund at June 30, 1975, was \$243,966 and the required amount is \$345,000.
2. Transfers must be made to the Bond and Interest Redemption Fund for payment of current bond and interest maturities. The balance in the Fund at June 30, 1975 was \$601,729 and the required amount is \$601,546.
3. Transfers must be made to the Bond Reserve Fund for payment of principal and interest on bonds otherwise in default. The various bond ordinances require that \$50,000 be credited to this fund annually until \$850,000 is accumulated. The balance in the Fund at June 30, 1975 was \$627,148 and the required amount is \$570,000. Marquette Board of Light and Power

NOTE B - RESTRICTED ASSETS (Continued)

4. Transfers must be made to the Replacement Fund for major repairs and replacements. The various bond ordinances require that \$20,000 be credited to this Fund annually until \$300,000 is accumulated. Whenever monies are used from this fund for replacements, they will be restored from the net revenues not required for the Operation and Maintenance Fund and the Bond and Interest Redemption Fund, including the Bond Reserve Fund. The balance in the Fund at June 30, 1975 is \$195,500 and the required amount is \$210,000.
5. Transfers may be made to an Improvement and Extension Fund for improvement, enlargements, extensions or repairs as deemed necessary by the Board.
6. Transfers may be made to a Surplus Fund for accumulating amounts in excess of the requirements outlined above. Any excess so remaining may be transferred to any other Fund or Funds of the System or may be used for any other purpose permitted by the Constitution and laws of the State of Michigan or the Charter of the City of Marquette, provided, however, that in the event there is a deficit in the Operation and Maintenance Fund, Bond and Interest Redemption Fund (including the Bond Reserve Fund) or the Replacement Fund, on account of defaults in setting aside monies as required, then transfers of remaining revenues shall be made to these Funds in the priority and order as herein enumerated.

The composition of the various restricted asset accounts is as follows:

| | June 30, | |
|---|------------------|------------------|
| | 1975 | 1974 |
| Bond Reserve Fund | | |
| Cash | \$ 72,143 | \$ 44,764 |
| Savings certificates | 121,517 | 95,781 |
| United States Government obligations - at cost (approximates market) | 424,658 | 440,094 |
| Accrued interest | 8,830 | 8,810 |
| | <u>\$627,148</u> | <u>\$589,449</u> |
| Replacement Fund | | |
| Cash | \$ 587 | \$ 587 |
| Savings certificates | 104,278 | 82,644 |
| United States Government obligations - at cost (approximates market) | 88,304 | 96,421 |
| Accrued interest | 2,331 | 2,266 |
| | <u>\$195,500</u> | <u>\$181,918</u> |

Marquette Board of Light and Power
Financial Statement

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE C - CASH APPROPRIATED FOR CONSTRUCTION

Cash appropriated for construction at June 30, 1975 represents the unexpended proceeds of the 1973 Revenue Bond issue totaling \$60,970 and the 1970 Revenue Bond issues totaling \$20,000. This money can be expended only for certain improvements to the System as described in the ordinances authorizing the issues.

NOTE D - REVENUE BONDS

Details of outstanding revenue bonds are as follows:

| | June 30, | |
|--|--------------------|--------------------|
| | 1975 | 1974 |
| Issue of May 1, 1963, 3 - 3.5% payable in variable annual installments through 1987 | \$2,700,000 | \$2,900,000 |
| Issue of April 1, 1970, 5 - 8% payable in variable annual installments through 1990 | 3,600,000 | 3,700,000 |
| Issue of December 1, 1973, 4.2 - 6% payable in variable annual installments through 1984 | <u>1,200,000</u> | <u>1,300,000</u> |
| | <u>\$7,500,000</u> | <u>\$7,900,000</u> |

NOTE E - RETIREMENT PLAN

The Board has under the Michigan Municipal Employees Retirement System a contributory pension plan covering substantially all of its employees. The plan includes the employees of the City of Marquette. The Board's policy is to fund pension costs accrued, which includes amortization of prior service costs over 12 - 24 years.

Total pension expense for the years was approximately \$81,130 and \$70,841 during 1975 and 1974 respectively. The actuarially computed value of vested benefits for the plan as of December 31, 1973 (the last valuation by the actuary) exceeded the assets of the plan by approximately \$908,493 (including amounts applicable to employees of the City of Marquette).

COMPARATIVE FINANCIAL REPORT
AS OF DECEMBER 31, 1973 AND 1974

| WHAT WE OWN (ASSETS) | 1974 | 1973 |
|---|---------------------|-------------------|
| CASH-GENERAL FUND----- | 11,987.96 | 11,405.31 |
| CASH-CONSTRUCTION FUND----- | 32,067.56 | 68,017.64 |
| INVESTMENTS----- | 139,722.19 | 13,811.05 |
| ACCOUNTS RECEIVABLE-CONSUMERS' LESS--- RESERVE | 32,985.38 | 29,795.38 |
| ACCOUNTS RECEIVABLE-OTHER, LESS RESERVE | 3,959.43 | 1,839.33 |
| MATERIALS AND SUPPLIES----- | 88,979.34 | 61,912.69 |
| PREPAYMENTS----- | 4,771.90 | 4,569.73 |
| DEFERRED CHARGES----- | 16,643.90 | 9,346.71 |
| UTILITY PLANT & OTHER PROPERTY,----- LESS DEPRECIATION | <u>1,176,742.83</u> | <u>998,047.41</u> |
| TOTAL ASSETS | \$1,507,860.49 | \$1,198,745.25 |
| WHAT WE OWE (LIABILITIES) | | |
| LONG TERM OBLIGATIONS TO REA----- | 1,162,113.34 | 1,003,203.00 |
| CURRENT & ACCRUED LIABILITIES----- | 155,231.05 | 94,252.19 |
| OTHER LONG TERM DEBT-CFC----- | 124,127.05 | - |
| CONTRIBUTIONS IN AID OF CONSTRUCTION-- | - | 22,314.41 |
| MEMBERSHIP FEES----- | 15,990.00 | 15,660.00 |
| DONATED CAPITAL----- | 5,537.15 | 5,377.15 |
| PATRON EQUITIES----- | <u>44,861.90</u> | <u>57,938.50</u> |
| TOTAL LIABILITIES AND OTHER CREDITS | \$1,507,860.49 | \$1,198,745.25 |

Statement of Nondiscrimination

The Ontonagon County Rural Electrification Association has filed with the Federal Government a Compliance Assurance in which it assures the Rural Electrification Administration that it will comply fully with all requirements of Title VI of the Civil Rights Act of 1964 and the Rules and Regulations of the Department of Agriculture issued thereunder, to the end that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the conduct of its program and the operation of its facilities. Under this Assurance, this organization is committed not to discriminate against any person on the ground of race, color or national origin in its policies and practices relating to applications for service or any other policies and practices relating to treatment of beneficiaries and participants including rates, conditions and extension of service, use

of any of its facilities, attendance at and participation in any meetings of beneficiaries and participants or the exercise of any rights of such beneficiaries and participants in the conduct of the operations of this organization.

"Any person who believes himself, or any specific class of individuals, to be subjected by this organization to discrimination prohibited by Title VI of the Act and the Rules and Regulations issued thereunder may, by himself or a representative, file with the Secretary of Agriculture, Washington, D. C. 20250 or the Rural Electrification Administration, Washington, D. C. 20250, or this organization, or all, a written complaint. Such complaint must be filed not later than 90 days after the alleged discrimination, or by such later date to which the Secretary of Agriculture or the Rural Electrification Administration extends the time for filing. Identity of complainants will be kept confidential except to the extent necessary to carry out the purposes of the Rules and Regulations."

RECEIPTS AND EXPENSE REPORT

| | 1974 | 1973 |
|---|-------------------|-------------------|
| OPERATING REVENUES----- | 558,226.47 | 525,648.95 |
| NON-OPERATING REVENUES----- | <u>959.73</u> | <u>742.90</u> |
| TOTAL REVENUES | <u>559,186.20</u> | <u>526,391.85</u> |
| COST OF POWER----- | 307,203.68 | 246,296.05 |
| OPERATIONS EXPENSE----- | 15,267.92 | 16,443.41 |
| MAINTENANCE EXPENSE----- | 43,157.84 | 30,871.48 |
| CONSUMERS' ACCOUNTING & COLLECTING---- | 28,243.78 | 24,666.10 |
| DEMONSTRATION & PROMOTION EXPENSE----- | 272.72 | 583.69 |
| GENERAL OFFICE SALARIES & EXPENSES---- | 30,597.55 | 25,914.82 |
| LEGAL AND ACCOUNTING----- | 4,132.59 | 1,561.75 |
| INSURANCE & EMPLOYEES SAFETY PROGRAM-- | 16,890.41 | 15,114.52 |
| MAINTENANCE OF GENERAL PROPERTY----- | 3,824.53 | 2,701.91 |
| MISCELLANEOUS GENERAL EXPENSE----- | 13,671.73 | 11,799.86 |
| DEPRECIATION AND AMORTIZATION----- | 46,604.22 | 41,965.09 |
| TAXES----- | 31,988.59 | 32,798.97 |
| INTEREST ON LONG-TERM DEBT AND----- AMORTIZATION OF LOAN | <u>30,407.24</u> | <u>20,309.94</u> |
| TOTAL EXPENSES | <u>572,262.80</u> | <u>471,027.59</u> |
| NET MARGIN (LOSS) | (13,076.60) | 55,364.26 |

Alfred V. Hill & Company, Certified Public
Accountants - Marshfield, Wisconsin 54449

OPINION

Board of Directors
The Ontonagon County Rural Electrification Assn.
Ontonagon, Michigan

Gentlemen:

We have examined the Balance Sheet of THE ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION as of December 31, 1974 and the related Statements of Revenue and Expense, Patron Capital and Other Equities, and Changes in Financial Position for the year ended on that date.

Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We have previously examined and reported on the financial statements for the preceding year.

In our opinion, the accompanying statements present fairly the financial position of The Ontonagon County Rural Electrification Association at December 31, 1974 and the results of its operations and the Changes in Financial Position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Respectfully submitted, Alfred V. Hill & Co.
Marshfield, Wis., March 15, 1975.

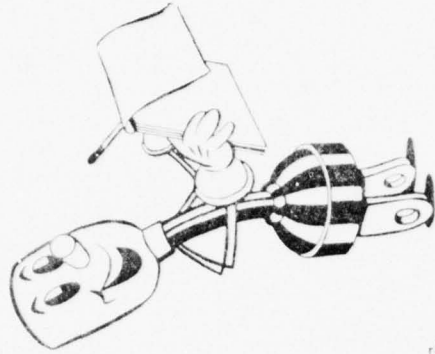
A delicious lunch will be served free to members attending.

Door prizes will be awarded to holders of lucky tickets. Each member registered in person will receive a ticket. One ticket to a family.

Balance Sheet

December 31, 1974

With Comparative Figures for 1973



WHAT WE HAVE:

| | Dec. 31, 1974 | Dec. 31, 1973 |
|---|-----------------------|-----------------------|
| Electric & General Plant, Lines, Office Bldg., Trucks, Equipment, etc. | \$4,701,259.48 | \$4,224,155.97 |
| Less: Reserve for Depreciation | 1,541,974.25 | 1,438,804.63 |
| NET PLANT | \$3,159,285.23 | \$2,785,351.34 |
| Cash in Banks | \$ 131,662.23 | \$ 73,214.48 |
| Accounts Receivable -- Power | 156,912.87 | 137,361.14 |
| Accounts Receivable -- Other | 3,479.41 | 4,230.01 |
| Amount due us for Notes on Appliances | - | 67.35 |
| Material Supplies & Small Tools | 262,162.83 | 74,822.03 |
| Prepaid Insurance & Expenses | 19,867.50 | 14,123.54 |
| Preliminary Surveys & Work Plans | 41,527.01 | 13,439.53 |
| Investment in Savings & Loan Assn. | 35,060.41 | 105,073.28 |
| Investment in Certificates of Deposit | 23,776.09 | 52,042.75 |
| Investment in other Cooperatives | 90,053.86 | 65,527.32 |
| | \$ 764,522.01 | \$ 549,964.43 |
| TOTAL OF WHAT WE HAVE | \$3,923,807.24 | \$3,335,315.77 |

WHAT WE OWE:

| | Dec. 31, 1974 | Dec. 31, 1973 |
|--|-----------------------|-----------------------|
| To REA, Long Term Loans | \$2,849,235.24 | \$2,487,553.26 |
| Long Term Obligations -- CFC | 73,282.00 | - |
| Other Long Term Obligations, Misc. | 2,751.82 | 3,669.08 |
| Accounts Payable & Notes Payable | 161,979.37 | 60,805.81 |
| Accrued Interest Payable to REA | 7,435.62 | 4,191.03 |
| Property and Payroll Taxes | 35,670.40 | 32,199.27 |
| Michigan State Sales Tax | 4,992.49 | 4,670.57 |
| Customer -- Meter Deposits | 1,877.98 | 2,227.96 |
| Accrued Payroll & Vacations Allowance | 8,417.39 | 11,765.24 |
| Contribution in Aid of Construction | - | 75,911.04 |
| Prepaid Power Bills | 114,871.06 | 113,039.51 |
| Miscellaneous Deferred Credits | 18,239.23 | 16,724.03 |
| Current Maturities on Long Term Obligations | 118,914.63 | - |
| TOTAL OF WHAT WE OWE | \$3,397,667.23 | \$2,814,756.82 |

OUR EQUITY IN WHAT WE HAVE:

| | | |
|---|-----------------------|-----------------------|
| Membership Fees | \$ 29,416.31 | \$ 27,618.31 |
| Patronage Capital Allocated | 478,413.28 | 474,552.22 |
| Other Equities | 18,368.42 | 18,368.42 |
| TOTAL EQUITY IN WHAT WE HAVE | \$ 526,140.01 | \$ 520,578.95 |
| TOTAL | \$3,923,807.24 | \$3,335,315.77 |

Operating Statistics

Income Statement

December 31, 1974

With Comparative Figures for 1973

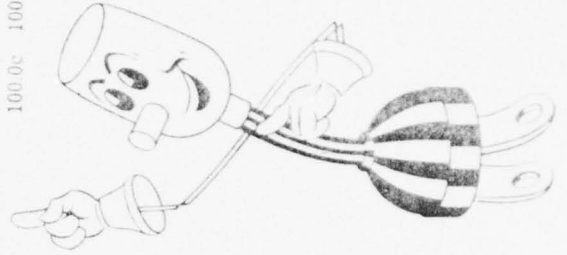
| WHERE IT CAME FROM: | Dec. 31, 1974 | Dec. 31, 1973 |
|--------------------------------------|-----------------------|---------------------|
| Sale of Electric Power | \$ 987,502.71 | \$911,413.02 |
| Pole Rental Income | 4,819.80 | 4,948.90 |
| Consumer Penalties | 4,503.83 | 3,664.77 |
| Miscellaneous Electric Revenue | 1,940.34 | 1,559.24 |
| Interest Earned | 10,735.29 | 12,653.29 |
| Miscellaneous Income | 2,583.17 | 3,193.95 |
| TOTAL | \$1,012,085.14 | \$937,433.17 |
| WHERE IT WENT: | | |
| Power Purchased | \$ 566,428.50 | \$449,568.67 |
| Operations | 22,135.41 | 20,225.08 |
| Maintenance | 78,822.86 | 68,851.25 |
| Consumer Accounting & Collecting | 28,351.00 | 27,380.98 |
| Power Use and Member Information | 4,982.10 | 6,365.17 |
| General Office Salaries & Expense | 30,262.57 | 24,809.72 |
| Special Services: CPA and Legal | 4,762.17 | 4,581.68 |
| Insurance, Injuries & Damages (Comp) | 4,955.91 | 4,828.96 |
| Employees Welfare & Insurance | 9,475.20 | 8,040.90 |
| Directors Fees and Expenses | 7,486.29 | 9,087.71 |
| Dues Paid Assoc. Organizations | 3,642.25 | 3,147.23 |
| Donations | 938.15 | 1,380.05 |
| Maintenance of General Property | 3,891.44 | 3,716.25 |
| Miscellaneous Expense (General) | 21,039.96 | 21,837.75 |
| Depreciation and Amortization | 115,919.00 | 109,201.60 |
| Property Taxes | 36,833.67 | 33,587.16 |
| Payroll Taxes | 10,563.60 | 9,590.89 |
| Other Taxes | (368.54) | 7,133.61 |
| Interest on REA on Long Term Debt | 57,695.08 | 46,389.83 |
| TOTAL | \$1,007,807.62 | \$859,424.56 |
| NET MARGIN | \$ 4,277.52 | \$ 78,008.61 |

| | 1974 | 1973 |
|---|------------|------------|
| Miles of Line in Operation | 1170 | 1149 |
| Average Number of members served | 5760 | 5551 |
| KWH Purchased | 32,305,810 | 29,237,300 |
| KWH Sold | 28,376,117 | 25,752,666 |
| Percent of line loss | 12.0% | 11.9% |
| Average KWH per full-time member per month | 659 | 627 |
| Average Bill per full-time member per month | \$20.36 | \$19.09 |
| Average KWH per seasonal member per month | 95 | 89 |
| Average Bill per seasonal member per month | \$ 6.25 | \$ 6.03 |

WHERE YOUR DOLLAR WENT

COMPARISON BY YEARS

| | 1970 | 1971 | 1972 | 1973 | 1974 |
|-----------------------------------|--------|--------|--------|--------|--------|
| Power Costs | 42.5c | 46.2c | 49.1c | 48.0c | 55.9c |
| Billing | 2.9c | 2.8c | 3.1c | 2.9c | 2.8c |
| Operations, Maint., & Admin. Exp. | 20.3c | 19.4c | 17.4c | 17.5c | 17.6c |
| Taxes and Insurance | 6.2c | 6.1c | 6.7c | 6.7c | 6.1c |
| Depreciation | 14.1c | 13.6c | 12.4c | 11.6c | 11.5c |
| Interest on Loans | 6.4c | 6.2c | 5.6c | 5.0c | 5.7c |
| Margin | 7.6c | 5.7c | 5.7c | 8.3c | 4c |
| | 100.0c | 100.0c | 100.0c | 100.0c | 100.0c |



4.2 - RIGHT-OF-WAY/EASEMENT DATA

| | <u>Page</u> |
|---|-------------|
| Upper Peninsula Power Company | 4-28 |
| Wisconsin Michigan Power Company | 4-30 |
| Ontonagon County Rural Electrification Association | 4-50 |

UPPER PENINSULA POWER COMPANY
RIGHT OF WAY and EASEMENT GRANT

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned, _____

hereinafter called "Grantor", whether one or more, for and in consideration of _____

_____ (\$ _____), Dollars cash by hand paid, receipt of which is hereby acknowledged, does hereby grant and convey unto UPPER PENINSULA POWER COMPANY, a Michigan Corporation of Houghton, Michigan, hereinafter called "Grantee", its successors and assigns, a right of way and easement for the construction, operation, maintenance, inspection, patrol (including aerial patrol), alteration, removal, replacement, reconstruction and/or repair of one or more line or lines of wires for the transmission and/or distribution of electric current for light, heat and power purposes, together with all the works of the Company necessary for the undertaking, including but without limitation the generality of the foregoing, all such supports, poles and/or other structures, with its guys, anchors, installations and other fixtures, equipment and appurtenances as may be necessary or convenient in connection therewith for the construction and operation of said electric power line or lines over, through, upon, under and across the following described land situated in _____

County, State of _____ to-wit:

Section _____ Township _____ Range _____, together with the right to clear the right of way and remove or trim trees and brush and remove other obstructions from that portion of said lands lying within _____ feet of the center line of said electric power line or lines and to cut, trim, or remove from the area adjacent to the right of way any trees or branches which by reason of their proximity may endanger or interfere with the said electric power line or lines or the operation thereof, and at any time the Grantee may use a non toxic spray on said right-of-way for the purpose of restricting brush and tree growth; and together with the right of ingress and egress to and from said right of way through and over said above described land for any and all purposes necessary, convenient, or incidental to the exercise by Grantee of the rights herein granted.

The said strip of land comprising the right of way and easement shall be selected by grantee and shall be ascertained as follows:

That portion of the above described property lying between lines parallel to and situate _____ feet to the _____ and _____ feet to the _____, measured at right angles, from the center line as surveyed and laid out for the location of the electric power line or lines to be built by Grantee across the said lands of Grantor or across lands adjacent to the said lands of Grantor, if the electric power line or lines are not actually built on Grantor's lands, such parallel lines being extended to the boundary lines of Grantor's said property so as to enclose the right of way and easement.

Grantor covenants with Grantee that he is the lawful owner of the aforesaid lands, that he has the right and authority to make this grant, and that he will forever warrant and defend the title thereto.

TO HAVE AND TO HOLD the said right of way and easement unto said UPPER PENINSULA POWER COMPANY, its successors and assigns.

The Grantee, by the acceptance hereof, agrees that insofar as it is practicable so to do, it will build said electric power line or lines so as not to interfere with the ordinary use of the surface of the land, and also to pay any damage to crops, trees and timber which may arise from constructing, laying, maintaining, operating or removing said lines. Said damage, if not mutually agreed upon, shall be ascertained and determined by three (3) disinterested persons, one (1) to be appointed by Grantor, one (1) by Grantee, its successors and assigns, and the third by the two persons aforesaid, and the award of such three (3) arbitrators, or any two (2) of them, in writing, shall be final and conclusive. The cost of such arbitration shall be borne equally by Grantor and Grantee.

The Grantor covenants that he will, if so requested by the Grantee, execute such further and other documents of title in respect of the said right of way and easement as may be requisite.

This Agreement shall be assignable by the Grantee and shall inure to the benefit of and be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto; and wherever the singular or masculine is used, it shall be considered as if the plural or the feminine or the neuter, as the case may be, had been used, where the context or the party or parties hereto so require and the rest of the sentence shall be construed as if the grammatical and terminological changes hereby rendered necessary have been made.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal this _____ day of _____

19____

SIGNED, SEALLED AND DELIVERED _____ (L.S.)

In the Presence of _____

_____ (L.S.)

_____ (L.S.)

(CONTINUED ON REVERSE SIDE)

Upper Peninsula Power Company
Right-of-Way/Easement Data

INDIVIDUAL ACKNOWLEDGMENT FORM

State of _____ }
County of _____ } ss.

On this _____ day of _____ 19____ before me, a Notary Public in and for _____ County, State of _____ personally appeared _____ and _____ personally known to me to be the person described in and who executed the foregoing instrument, and acknowledged to me that _____ executed the same as _____ free act and deed, and for the uses and purposes therein expressed.

Notary Public, _____ County
State of _____
My Commission expires _____

(Notarial Seal)

CORPORATION ACKNOWLEDGMENT FORM

State of _____ }
County of _____ } ss.

On this _____ day of _____ 19____ before me, a Notary Public in and for _____ County, State of _____ personally appeared _____ and _____ to me personally known to be, and who, being by me duly sworn, did say that they were, respectively, the _____ President and _____ of _____ the corporation described in and which executed the foregoing instrument; that the seal affixed hereunto is the corporate seal of said corporation; that said instrument was signed and sealed in behalf of said corporation by authority of its board of directors, and acknowledged that such corporation executed said instrument and that said instrument was and is the free act and deed of said corporation, and that they executed the same as such officers as the deed of said corporation, by its authority.

Notary Public, _____ County
State of _____
My Commission expires _____

(Notarial Seal)

Dated _____ A.D. 19____

and
UPPER PENINSULA POWER COMPANY

**RIGHT OF WAY and
EASEMENT GRANT**

Upper Peninsula Power Company

Doc. File No _____

FOR AND IN CONSIDERATION of the sum of One Dollar (\$1.00) and other valuable consideration, receipt of which is hereby acknowledged, the undersigned grantor does hereby convey unto

WISCONSIN MICHIGAN POWER COMPANY

a Wisconsin corporation, grantee, its successors and assigns, the right, permission and authority to construct, maintain, operate, relocate, and replace an electric transmission line of conductors and structures of such material as said grantee may select, together with anchors, guy wires, and such other underground and overhead accessories and appliances as may be from time to time necessary or convenient for the purpose of transmitting electrical energy upon, along, and across the hereinafter described strip of land One Hundred feet in width, being a part of the premises of the undersigned grantors described as

The NWxSW of Section 3, Town 46 North, Range 39 West, Township of Haight, Ontonagon County, Michigan.

The center line of said strip of land is described as follows:

Beginning at a point on the west section line and 938' more or less south of the east and west quarter line thence running north 10°16' east for a distance of 555' more or less; thence running north 1°50' east for a distance of 392' more or less to a point on the east and west quarter line and 112' more or less east of the west section line.

The right, permission and authority is also granted to said grantee to cut down and remove or trim all trees and overhanging branches now or hereafter existing on said strip of land of said width, to cut down and remove brush or apply chemicals for purposes of brush control, and to cut down and remove or trim such trees or parts thereof now or hereafter existing on the premises of the undersigned located outside of said strip of land of said width which by falling might interfere with or endanger said electric line.

The undersigned covenant s and agree s that no structure will be erected, or hay, grain, or straw stack, or other inflammable material placed, or trees planted on said strip of land of said width.

Said grantee and its agents shall have the right to enter upon the premises of the undersigned for the purpose of patrolling said line and exercising the rights herein acquired and shall have the right to use trucks and other mechanical equipment appropriate to the exercising of such rights, but payment shall be made by the Company for damage, if any, to crops, fences or livestock.

The said owner for herself, her heirs, executors and administrators, successors and assigns, covenant and agree to and with the said grantee, its successors and assigns that at the time of the sealing and delivery of this easement she is well seized of the premises above described, as of a good, sure, perfect, absolute and indefeasible estate of inheritance in the law, in fee simple, and that the same are free and clear from all incumbrances whatever, except mortgage lien of _____

_____ and will forever warrant and defend the said easement against all and every person or persons lawfully claiming the whole or any part thereof.

This agreement shall be binding upon and/or inure to the benefit of the heirs, successors or assigns of all parties hereto.

in Presence of:

Rosmond Haluska

Katheryn Behlow

(SEAL)

James Haluska

(SEAL)

(SEAL)

(SEAL)

(SEAL)

(SEAL)

Wisconsin Michigan Power Company

4-30

Right-of-Way/Easement Data

Copy available to DDC does not permit fully legible reproduction

Ontonagon) SS.
County)

Personally came before me this 15th day of March, 1973, the above named
Katheryn Behlow, widow
to me known to be the person who executed the foregoing instrument and acknowledged the same.
M. T. Gibson

A NOTARY PUBLIC
DICKINSON COUNTY, MICHIGAN
Ontonagon
ACTING IN
____ COUNTY, MICHIGAN
STATE OF WISCONSIN)
) SS.
____ County)

Notary Public, Dickinson County, Wxx Mich.
My Commission expires 10-11-75

Personally came before me this _____ day of _____, 19____, the above named _____
to me known to be the person who executed the foregoing instrument and acknowledged the same.

Notary Public, _____ County, Wis.
My Commission expires _____

STATE OF WISCONSIN)
) SS.
____ County)

Personally came before me this _____ day of _____, 19____, the above named _____
and _____ who acknowledged themselves
to be respectively the _____ and _____ of the Corporation
which executed the foregoing instrument and that they, as such officers, being authorized so to do, executed the
foregoing instrument for the purposes therein contained and as the free act and deed of said Corporation.

Notary Public, _____ County, Wis.
My Commission expires _____



This instrument was drafted by
M. T. Gibson
on behalf of Wisconsin Michigan Power
Company.

Easement No. 11441

Wisconsin Michigan Power Co
Right-of-Way/Easement
4-31
Recorded: 5-2-73
Volume: 38 Misc.
Page: 231
Marion Lg. Braunk, Dep.
R/D

From: Katheryn Behlow
Bruce Crossing, Michigan
To: Wisconsin Michigan Pwr. Co
Iron Mountain, Michigan
Ontonagon County
T. 46N Range, 39W Sec. 3
District: NW/4SW
Easement No. 11441 R/W No. 3-8123-1
File 152 Date 5/16/73
Checked: MB Date 5-21-73
For Register of Deeds' Stamp

EASEMENT

FOR AND IN CONSIDERATION of the sum of One Dollar (\$1.00) and other valuable consideration, receipt of which is hereby acknowledged, the undersigned grantor do hereby convey unto

WISCONSIN MICHIGAN POWER COMPANY

Wisconsin Corporation, grantee, its successors, assigns, lessees and permittees the right, permission and authority to construct, maintain, operate, relocate and replace a transmission line or lines of conductors, poles and other structures for the purpose of transmitting electrical energy, messages or signals, under and above ground, upon, along or across (or along highways abutting the hereinafter described strip of land) Forty feet in width, being a part of the premises of the undersigned grantors described as:

The SWxSE and SExSE, Section 33, Town 45 North, Range 33 West, Township of Hematite, Iron County, Michigan.

The center line of said strip of land is described as follows:

Beginning at a point on the north and south quarter line and 824' more or less north of the south quarter corner; thence running north 87°17' east for a distance of 1360' more or less; thence running north 77°30' east for a distance of 294' more or less; thence running south 83°59' east for a distance of 675' more or less to a point 881' more or less north and 2317' more or less east of the south quarter corner.

Together with the right to cut down, remove, trim and keep trimmed all trees and shrubbery (including roots) which the Company deems necessary to be cut down, removed or trimmed in order to clear the above described lines by 20 feet; and to relocate said lines in a corresponding position with respect to the highway upon or adjacent to which such lines are located in the event such highway be widened or relocated by public authority so as to interfere with such lines.

The Company may use trucks or other mechanical equipment to do any work appropriate to the installation and maintenance of said lines, provided, however, the Company shall be liable for all damages to livestock, growing farm or garden plantings, fences and shrubbery arising from the construction and operation of said lines except in the exercise of the hereinabove granted cutting, removal and trimming rights.

Nothing herein contained shall prevent the grantors from exploring and mining all minerals in said lands.

IN WITNESS WHEREOF, this instrument has been duly executed by the grantors this 26th day of October, 1973

WITNESSES
Harold T. Hansen
HAROLD T. HANSEN

Christine Streeter
CHRISTINE STREETER

AMERICAN CAN COMPANY
John W. Bard (SEAL)
Vice-President
James J. Vandenberg (SEAL)
Assistant-Secretary

STATE OF Wisconsin }
County of Marathon } SS

PERSONALLY, came before me this 26th day of October, 1973 the above named John W. Bard and James J. Vandenberg and Christine Streeter to me known to be persons who executed the foregoing instrument and severally acknowledged the same.

NOTARY PUBLIC
County of Marathon State of Wisconsin
(My commission expires 15 February)

STATE OF Wisconsin }
County of Marathon } SS
PERSONALLY, came before me this 26th day of October, 1973 the above named John W. Bard and James J. Vandenberg and Christine Streeter known to me to be respectively Vice-President, Assistant-Secretary and Witness of the corporation which executed the foregoing instrument and they severally acknowledged that said instrument was the free act and deed of said corporation.

NOTARY PUBLIC
Lucene C. Phillis
County of Marathon State of Wisconsin
(My commission expires 15 February)

This instrument was drafted by
M. T. Gibson
on behalf of Wisconsin Michigan Power Company

SWxSE 11481
SExSE 11482

Easement No.
Wisconsin Michigan Power Company
Right-of-Way/Easement Data

EASEMENT

From American Can Co.

Rothschild, Wisconsin

To WISCONSIN MICHIGAN POWER COMPANY

Iron Mountain, Michigan

Iron County

County

T. 45N Range 33W Sec. 33

Description SWxSE 11481

SExSE 11482

Easement No.

Right of Way Order No. 3-8123-121

File 157

Date 8-6-74

Checked M.B. Date 8-8-74

For Register of Deeds' Stamp

Recorded: 11-19-73
Volume: 174 Deeds
Page: 532
Eileen Stepic Dep. R/D

To Document File

| | | | |
|--|---------------------|-----------------------|------------------------|
| U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE SPECIAL USE PERMIT FOR ELECTRIC TRANSMISSION LINE <small>Act of February 15, 1901</small> <small>This permit is revocable and nontransferable.</small> | a. Record No. (1-2) | b. Region (3-4) | c. Forest (5-6) |
| | d. District (7-8) | e. User Number (9-12) | f. Kind of use (13-15) |
| | g. State (16-17) | h. County (18-20) | k. Card no. (21) |
| | 70 | 09 | 07 |
| | 04 | 4017 | 814 |
| | 26 | 061 | 1 |

Wisconsin-Michigan Power Company 1401 South Carpenter Avenue
(Name) of Iron Mountain, MI 49801

(hereafter called the permittee) is hereby authorized to use National Forest lands, for the construction, buried electric distribution line energized at 7200 volts operation and maintenance of a _____ ~~_____~~ within the _____ ~~_____~~ Ottawa National Forest, subject to the general provisions and to the special provisions and requirements, items 23 to 32 on page(s) 3 to 4 attached hereto and made a part of this permit. The location of this use is shown on the map ~~_____~~ which is ~~(xxx)~~ a part of this permit, and is ~~(xxx)~~ identified as follows:

E1SE1/2 Section 8, W1SW1/2 Section 9 and SE1NE1/2 Section 17
T47N, R36W, Houghton County, Michigan

Length in. $\frac{0.51}{\text{(Miles) or } \frac{2674}{\text{(Feet)}}} \times \text{Width } \frac{15}{\text{(Feet)}} = \frac{0.92}{\text{(Acres)}}$

Construction or occupancy under this permit shall begin within 1 ~~_____~~ (Months) and construction shall be completed within 3 ~~_____~~ (Number) months.

For this use, the permittee shall pay to the Forest Service, U.S. Department of Agriculture, the sum of Ten and no/100 ~~_____~~ Dollars (\$ 10.00 ~~_____~~) from May 23 ~~_____~~ 19 75, to December 31 ~~_____~~ 19 75, and thereafter, annually on January 1 ~~_____~~ Ten and no/100 ~~_____~~ Dollars (\$ 10.00 ~~_____~~):

provided, however, charges for this use may be made or readjusted whenever necessary to place the charges on a basis commensurate with the value of the use authorized by this permit.

~~XX~~

XX XXXXX
 XX XXXXX
 XX XXXXX

GENERAL PROVISIONS

1. Development plans, layout plans, construction, reconstruction, or alteration of improvements; or revision of layout or construction plans for this area must be approved in advance and in writing by the Forest Supervisor.

2. No timber shall be cut or destroyed during construction of the transmission line without first obtaining permission from the Forest Service. The permittee shall clear only the minimum area required for site transmission line use. All timber cut, destroyed or injured shall be paid for at current stumpage rates applicable to the sale by the Forest Service of similar timber in the National Forest.

3. All waste material from constructing or maintaining the line shall be buried or otherwise disposed of as directed by the Forest Service. However, no material shall be disposed of by burning during any closed season established by law or regulation without a written permit from the Forest Service.

4. All waste material from constructing or maintaining the line shall be buried or otherwise disposed of as directed by the Forest Service. However, no material shall be disposed of by burning during any closed season established by law or regulation without a written permit from the Forest Service.

5. The permittee shall protect the scenic and esthetic values of the right-of-way and the adjacent land as far as possible consistent with the authorized use during the construction, operation, and maintenance of the facility.

6. The permittee shall place and maintain suitable structures and devices to reduce to a reasonable degree the possibility of contact between its powerlines and telegraph, telephone, signal or other powerlines heretofore constructed and not owned by the permittee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the possibility of any structures or wires falling and obstructing, traffic or endangering life on highways or roads. The transmission line shall be designed and constructed in accordance with accepted standards (National Electrical Safety Code) and specifications for transmission lines of similar voltage, capacity, and purpose.

7. The permittee shall make provision, or bear the reasonable cost of making provision for avoiding inductive or conductive interference between any transmission facility or other works constructed, operated, or maintained by it and authorized under the permit, and any radio installation, telephone line, or other communication facilities existing when the permit is authorized or any such installation, line or facility hereafter constructed or operated by the United States or any agency thereof. This provision shall not relieve the permittee from any responsibility or requirement which may be imposed by other lawful authority for avoiding or eliminating inductive or conductive interference.

8. The permittee shall protect all government and other telephone, telegraph, and power transmission lines at crossings or end at all places in proximity to the permittee's power transmission line or lines, and shall maintain said power transmission line or lines in such a manner as not to menace said property.

9. The permittee shall maintain the improvements on all premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the Forest Service.

10. The permittee, in exercising the privileges granted by this permit, shall comply with the regulations of the U.S. Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations which are applicable to the area or operations covered by this permit.

11. The permittee shall do everything reasonably within its power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of the Forest Service to prevent and suppress fires on or near the lands to be occupied under this permit.

12. The permittee shall pay the United States for any damage resulting from this use.

13. The temporary use and occupancy of the premises and improvements herein described may be sublet by the permittee to third parties only with the prior written approval of the Forest Supervisor, but the permittee shall continue to be responsible for compliance with all conditions of this permit by persons to whom such premises may be sublet.

14. This permit is subject to all valid claims.

15. No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit that may arise herefrom unless it is made with a corporation for its general benefit.

16. Upon abandonment, termination, revocation, or cancellation of this permit, the permittee shall remove within a reasonable time all structures and improvements except those owned by the United States, and shall restore the site, unless otherwise agreed upon in writing or in this permit. If the permittee fails to remove all such structures or improvements within a reasonable period, they shall become the property of the United States, but that will not relieve the permittee of liability for the cost of their removal and restoration of the site.

17. This permit is not transferable. If the permittee, through voluntary sale or transfer, or through enforcement of contract, foreclosure, tax sale or other valid legal proceeding shall cease to be the owner of the physical improvements other than those owned by the United States situated on the land described in this permit and is unable to furnish adequate proof of ability to redeem or otherwise reestablish title to said improvements, this permit shall be subject to cancellation. But if the person to whom title to said improvements shall have been transferred in either manner above provided, is qualified as a permittee and is willing that his future occupancy of the premises shall be subject to such new conditions and stipulations as existing or prospective circumstances may warrant, his continued occupancy of the premises may be authorized by permit to him if, in the opinion of the issuing officer or his successor, issuance of a permit is desirable and in the public interest.

18. This permit may be terminated upon breach of any of the conditions herein by the issuing officer or at the discretion of the Regional Forester or the Chief, Forest Service, provided the permittee shall have had a reasonable time-not to exceed ninety (90) days-within which to show cause why such termination should not be made.

19. This permit confers no rights upon the permittee to use this National Forest land for purposes other than constructing, maintaining, and operating a transmission line thereon.

20. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

21. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

22. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

23. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

24. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

25. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

26. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

27. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

28. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

29. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

30. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

31. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

32. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

33. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

34. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

35. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

36. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

37. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

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39. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

40. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

41. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

42. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

43. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

44. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

45. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

46. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, roads, trails, roads, trails, canals, and other lines of travel not inconsistent with the enjoyment of said project by the permittee for the purpose herein set forth.

47. In the event of any conflict between any of the provisions printed above and any provisions of a local law or ordinance, the following clause or any provision thereof shall prevail: "The provisions of this permit shall control."

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Wisconsin-Michigan Power Company
Buried Electric Transmission Line
Permit 05-23-75

23. The lands herein described is subject to certain rights reserved by or outstanding in parties other than the United States, and nothing herein shall abridge said rights or authorize prevention or obstruction of the reasonable exercise thereof.
24. The permittee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest lands under this permit.
25. Rising waters, high winds, falling limbs or trees and other hazards are natural phenomenons in the forest that present risks which the permittee assumes. The permittee has the responsibility of inspecting his site, lot, right-of-way, and immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, of removing such hazards.
26. A service charge in addition to the regular fees shall be made for failure to meet the fee payment due date or any of the dates specified for submission of statements required for fee calculation. The service charge shall be one (1.0) percent per month of the fee from the date statement and fees were due or \$15, whichever is greater. If a due date falls on a nonworkday, the service charge will not apply until the end of the next workday.
27. Unless sooner terminated or revoked by the Regional Forester, in accordance with the provisions of the permit, this permit shall expire and become void on May 23, 1995, but a new permit to occupy and use the same National Forest land may be granted provided the permittee will comply with the then-existing laws and regulations governing the occupancy and use of National Forest lands and shall have notified the District Ranger not less than two years prior to said date that such new permit is desired.
28. The permittee agrees to permit the free and unrestricted access to and upon the premises at all times for all lawful and proper purposes not inconsistent with the intent of the permit or with the reasonable exercise and enjoyment by the permittee of the privileges thereof.
29. This permit is granted with the express understanding that should future location of Government improvements or road rights-of-way require the relocation of the permittee's improvements, such relocation will be done by the permittee at his expense within sixty (60) days following request to relocate.

Wisconsin-Michigan Power Company
Buried Electric Transmission Line
Permit 05-23-75

30. The permittee agrees that no substantial change or alteration shall be made in the design, location, construction, voltage, or capacity of this line until application for such change shall have been submitted to and approved by the Forest Officer issuing this permit, his successor, or his authorized representative.
31. This permit shall not be exclusive. The Forest Service reserves the right to use or permit others to use any part of the permitted area for any purpose, provided such use does not interfere with the rights and privileges hereby authorized.
32. This permit shall have no force and effect until the permittee has signified acceptance of its provisions and conditions by signing below and returning the duplicate copies to the Forest Supervisor.

U. S. DEPARTMENT OF AGRICULTURE
Forest Service

May 23, 1975

Arnold D. Sartori

Arnold D. Sartori
Acting Forest Supervisor

WISCONSIN-MICHIGAN POWER COMPANY

June 17, 1975
Date

By: J. K. Babbitt

J. K. Babbitt

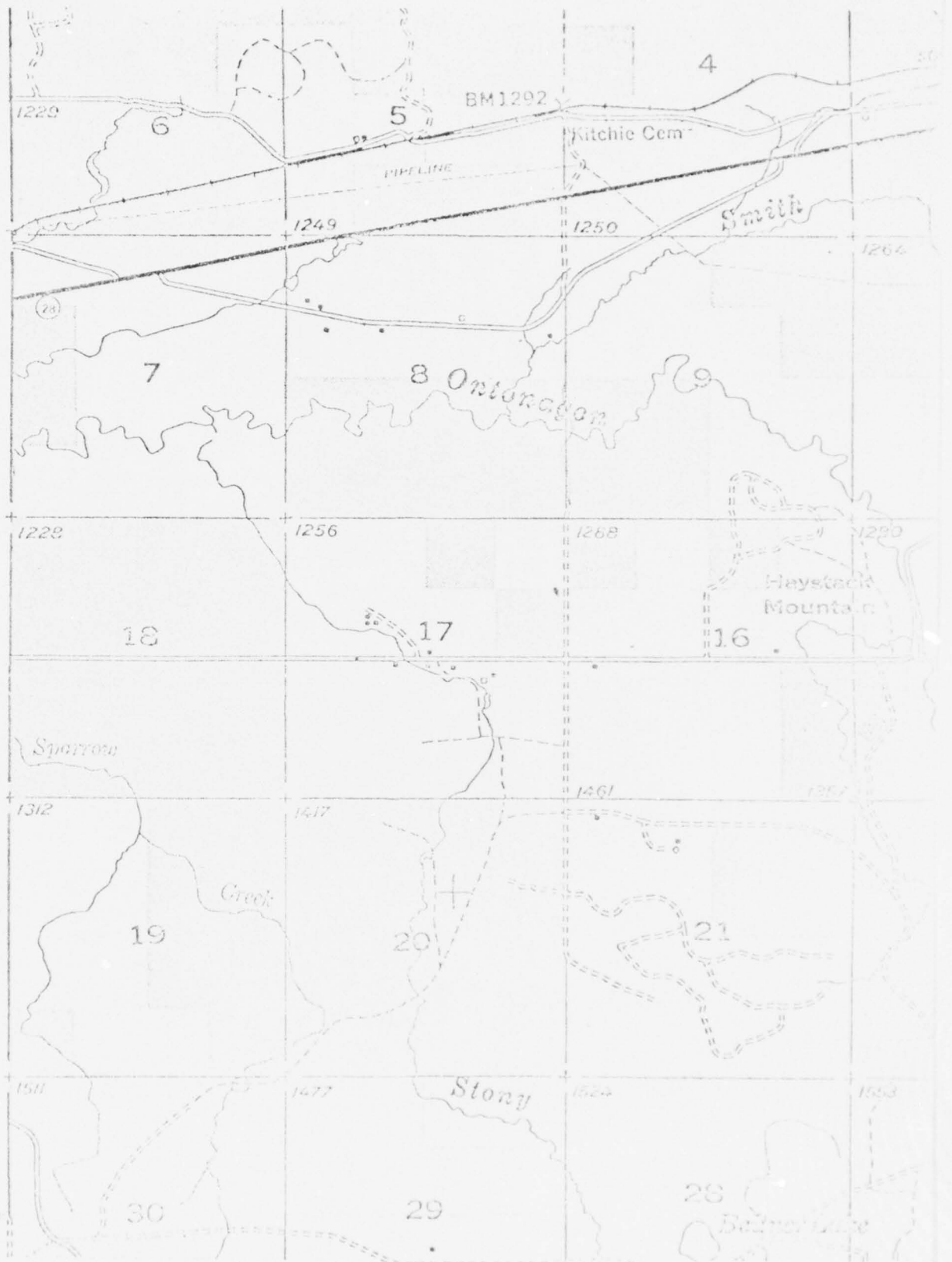
Title: Vice Pres. & Gen. Mgr.

I certify that the terms and conditions of this permit have/have not been discussed with the permittee (if not, state why).

N379
0
RFB
RKR
W

Terry W. Hoffmann
Terry W. Hoffmann, District Ranger

Inspected the site and approved
on 6/17/75 during initial planning
of installation. See other permit
for line diagram.



2790 Special Use Permit
Wisconsin-Michigan Power Co.

— Buried Power Line
- - - Overhead Line

OTTAWA
NATIONAL SURVEY
T. 41 N., R. 34 W.

Wisconsin Michigan Power Company

Right-of-Way/Easement Data

SPECIAL USE FEE
DOCUMENTATION
FSM 2715

| | | | |
|-------------------------------------|------------|----------------|------------------------------|
| Forest | Ottawa | Permittee | Wisconsin-Michigan Power Co. |
| District | Kenton | Date of Permit | 05-23-75 |
| Initial Fee | New Permit | | |
| Present Fee and Date of Last Review | | | |

Prepare in duplicate - Original to District, copy to Supervisor

Detailed Fee Appraisal (attach supporting documents)

1. Fee based on 5% of land value
 $\$100 \text{ per acre} \times 5\% = \5.00
 $1 \text{ acre} \times \$5.00 \text{ per acre} = \5.00
2. Minimum annual fee per mile or fraction thereof is \$10.00 (Fef. FSM 2728.12d).
 $1 \text{ mile} \times \$10.00 \text{ per mile} = \10.00

Recommended Fee (Not less than \$5.00)

\$10.00

| | |
|--|--|
| PREPARED BY (Signature) <i>Robert E. Harju</i> Robert E. Harju | APPROVED BY (Signature) <i>Arnold D. Sartori</i> Arnold D. Sartori |
| Title Forester | Title Acting Forest Supervisor |
| Date 5/22/75 | Date 5/23/75 |

SPECIAL USE
APPLICATION AND REPORT

Ref: FSM 2712

| | | | |
|-------------------------|---------------------|-----------------------|------------------------|
| FOREST SERVICE USE ONLY | a. Record No. (1-2) | b. Region (3-4) | c. Forest (5-6) |
| | d. District (7-8) | e. User number (9-12) | f. Kind of use (13-15) |
| | g. State (16-17) | h. County (18-20) | k. Cord No. (21) |

PART I - APPLICATION (To be completed by applicant)

Application is hereby made for a permit to use National Forest land as indicated below:

1. Description of land: (Attach MAP or PLAT)

See attached drawings, NSK 031375-RA-1
NSK 031375-RA-1

Route shown in yellow

Amendment No. 3 to Permit dated 10-29-69

*Not an amendment
Per 8 License and amendment
as a separate district
marked*

2. Purpose of use:

To extend electric service to Donald Schweitzer, who has applied for service at 4 locations.

3. Land Area applied for (For Right-of-Way show length and width and convert to acres; for other uses show acres)

Length in: $\frac{2674 \text{ (Feet)}}{5280 \text{ (Feet)}} \times \text{Width } \frac{20 \text{ (Feet)}}{5280 \text{ (Feet)}} = 1.22 \text{ (Acres)}$

4. Improvements

a. Description

The cable will be #2 Al. cable 1.065" outside diameter, with cross linked polyethylene insulation & copper concentric neutral around cable. 25,000 V. cable.

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b. Plans attached: Yes No. If "NO" show date plans will be furnished

c. Estimated cost

8,000

d. Construction will begin within

3 months

e. Construction will be completed within

6 months

Date of Application

3-13-75

Applicant's name (Print name)

R. Aschom
R. Aschom, Eng. Technician
Wisconsin Michigan Power Co.

Applicant's address

1401 South Carpenter Ave.
Iron Mountain, Michigan
49801

(OVER)

4-40

Wisconsin Michigan Power Company
Right-of-Way/Easement Data

PART II - REPORT ON APPLICATION *(To be completed by Forest Officer)*

1. General description of the area and adaptability for the proposed use. Outline area on separate Map Sheet if needed to clarify proposed use. *(Use Field Map Sheet Form 5400-19, if needed)*

Reference EAR

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2. If previously under permit indicate:

a. None (Name of Permittee) b. _____ (Date of Permit) c. _____ (Date Closed)

3. Describe any encumbrances on the land, such as withdrawals, power projects, easements, rights-of-way, mining claims, leases, etc. Show on map provided or on Form 5400-19.

Reference EAR

4. State approximate amount and kinds of timber to be cut, recommended stumpage prices, method of scaling; include recommendation on disposal of merchantable timber (a) to permittee at current damage appraisal or (b) to others than permittee under regular timber sale procedure.

None

5. Is the proposed use in conformity with the District Multiple Use Plan?

| | |
|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| <input checked="" type="checkbox"/> Yes (<i>limited</i>) | <input type="checkbox"/> No |
| <input type="checkbox"/> Yes (<i>strictly</i>) | <input checked="" type="checkbox"/> No |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

Is the proposed use in conformity with EAR?

Environmental impact statement prepared? (P.L. 91-190)

Does it conform with the District Land Adjustment Plan?

(NOTE: If "NO" is checked in answer to any of the above questions, explain under No. 6 below)

6. Recommendations, including any factors which might effect the granting of the permit or future use of the land.

Reference EAR

7. List conditions which should be made a part of this permit (see FSM 2769)

Reference EAR

8. Fee recommendation (describe fee in separate sheet attached)

Same as present permit rate.

9. Name and Address of Permittee exactly as it should be shown on the permit.

Wisconsin-Michigan Power Co.
1401 South Carpenter Ave.
Iron Mountain, Michigan 49801

RECOMMEND: Approved/Disapproved: 5/21/75
Approved/Disapproved: 5-23-75

FOR NEXT OFFICER: *Arnold Sactori*

TITLE: *District Ranger*
Acting Forest Supervisor

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
Great Lakes Agency
Ashland, Wisconsin 54806

SERVICE LINE AGREEMENT

This agreement, entered into between Wisconsin-Michigan Power Company of Iron Mountain, Michigan, and Hannahville Indian Community, Benosinee County, Michigan, is for the sole purpose of granting to Wisconsin-Michigan Power Company, the right to erect and maintain electrical distribution system, the primary voltage of which does not exceed 7200 volts, over and across land described as follows and more definitely located on a plat to be furnished by the Wisconsin-Michigan Power Company to be attached hereto and made a part hereof:

Township 39 North, Range 25 West

Section 32 SW $\frac{1}{4}$ SE $\frac{1}{4}$

Section 32 NE $\frac{1}{4}$

~~Section 32 NE $\frac{1}{4}$~~

Full right and authority is hereby vested in Wisconsin-Michigan Power Company, its successors and assigns, to enter at all times upon the above described land for the purpose of constructing, repairing, removing, or replacing any portion of line or poles deemed necessary, with the further right to trim, remove, destroy or otherwise control any trees and brush which may, in the opinion of Wisconsin-Michigan Power Company interfere or threaten to interfere with or constitute a hazard in the construction and maintenance of said service line.

Payment of damages incident to construction of said service line will be waived in this instance, as the construction of this electric service line is expected to greatly benefit the residents of the Hannahville Indian Community.

The authority for granting this service line right-of-way is contained in the Act of Congress approved on February 5, 1948 (62 Stat. 17) and Departmental Regulations 25 C.F.R. 161, Rights-of-Way, and is contingent on Wisconsin-Michigan Power Company, its successors and assigns, expressly agreeing to the following:

- (a) To construct and maintain the right-of-way in a workmanlike manner.
- (b) To indemnify the landowners against any liability for damages to life or property arising from the occupancy or use of the lands by Wisconsin-Michigan Power Company.
- (c) To restore the lands as nearly as may be possible to their original condition upon completion of construction.
- (d) That Wisconsin-Michigan Power Company will not interfere with the use of the lands by or under authority of the landowners for any purpose not inconsistent with the primary purpose for which the right-of-way or service line is granted.

Wisconsin Michigan Power Company
Right-of-Way/Leasement Data

4-42

11116-ER
11116-22
11116-22

Dated this 22 day
of December, 1948

WITNESSES:

Edwin Laird
Maurice De Bruin

WISCONSIN-MICHIGAN POWER COMPANY

By: J. K. Babbitt
J. K. Babbitt
Vice President and General Manager
(title)

HANNAHVILLE INDIAN COMMUNITY

By: Joe Sagataw
Chairman, Tribal Council, Joe Sagataw

Billy Bolin
Billy Bolin
William G. Haliburton
William G. Haliburton

Genevieve Sagataw
Secretary, Tribal Council, Genevieve
Sagataw

Approved in accordance with the Act of February 5, 1948 (62 Stat. 17), and
Departmental Regulation 25 C.F.R. 161, for a period of 50 years.

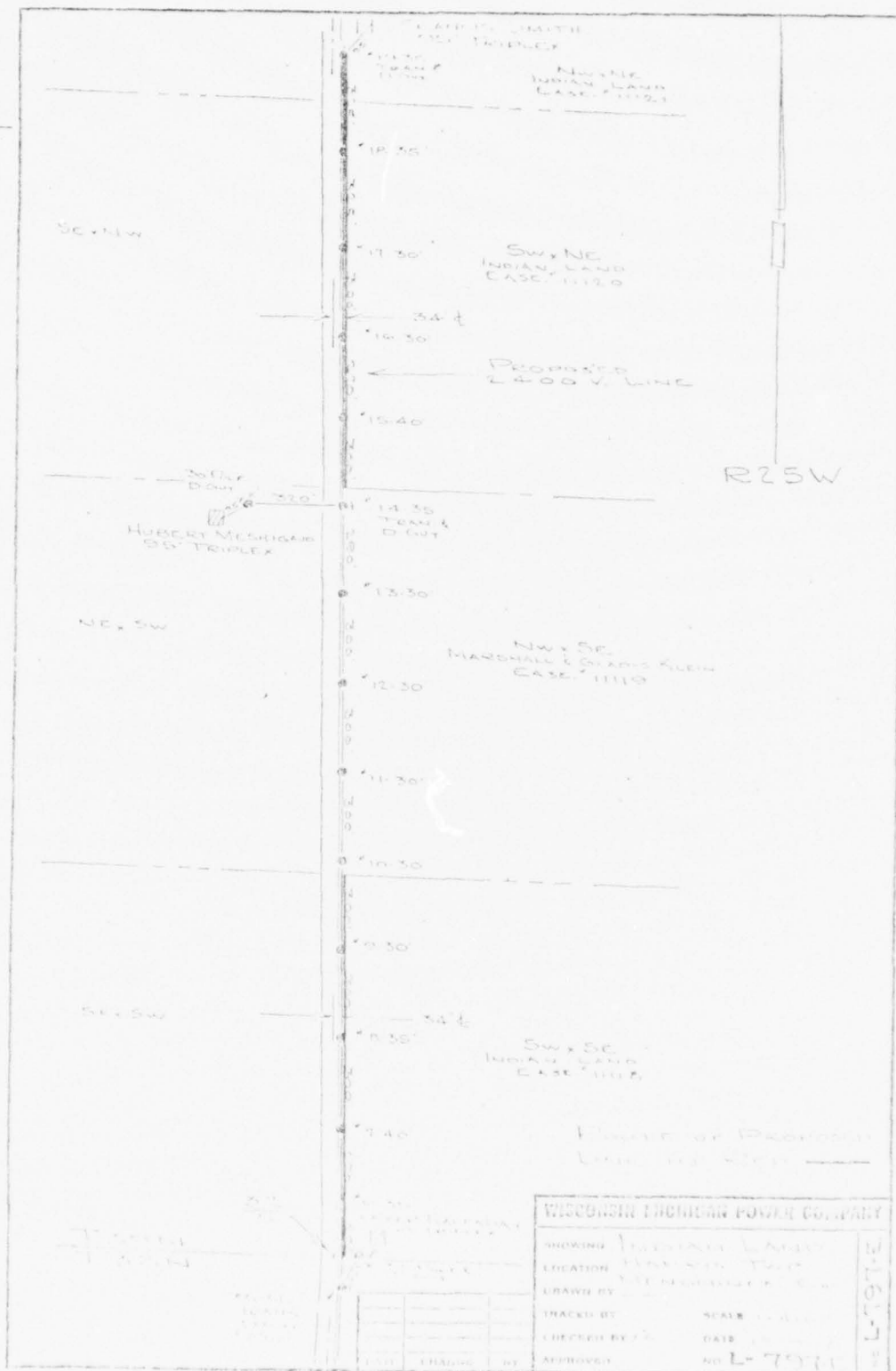
11118
FEB 22 1948
(Date) E. J. Kelley
E. J. Kelley, Superintendent
Great Lakes Agency
Ashland, Wisconsin 54806

Easement No. SWNE 11118 - L2
SWNE 11120 - L2
NWNE 11121 - "

--2--

4-43 Wisconsin Michigan Power Company
Right-of-Way/Easement Data

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DATE: 1974-07-24

4-44

Wisconsin Michigan Power Company
Right-of-Way/Easement Data

RESOLUTION

WHEREAS, Wisconsin-Michigan Power Company of Iron Mountain, Michigan, has made application to erect and install a electrical distribution system not to exceed 4200 volts over the following described lands of the Tanshville Indian Community, and the installation of this electric service line is expected to greatly benefit the Tanshville Indian Community.

Resolved, that, June 25 1964

Section 32 SW 1/4

Section 32 NE 1/4

Section 32 SE 1/4

DOY, THOMPSON, MC ELLIEMAN, ROSSIGNOL, by the Tanshville Indian Community Tribal Council in Special session assembled,

1. That the application of Wisconsin-Michigan Power Company for construction of the requested electric service over the above lands is hereby granted, and
2. That any suit or claim in incident to construction of this electric service line hereby are waived.

RESOLUTION

I, the undersigned, as Secretary of the Tanshville Indian Community Tribal Council, hereby certify that the Tribal Council is composed of 12 members, of which 10 are present and a quorum was present at a meeting held on 18th Dec 1964 at 10 o'clock, 0 minutes, and that the resolution has been passed and is hereby certified.

Genevieve Sagataw
Secretary of Council

DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

CONFIDENTIAL

PROPERTY OF THE BUREAU OF INDIAN AFFAIRS
U.S. DEPARTMENT OF THE INTERIOR

[Handwritten initials]

EASEMENT TO CONSTRUCT AND MAINTAIN ELECTRIC distribution LINE

FOR AND IN CONSIDERATION OF Twenty-five Dollars (\$25.00)

in land paid, the receipt of which is hereby acknowledged, the STATE OF MICHIGAN by the DEPARTMENT OF NATURAL RESOURCES (hereinafter referred to as "Department") acting under authority of the NATURAL RESOURCES COMMISSION, and by virtue of the authority conferred by Act No. 10, P.A. 1953, does hereby Convey and Quit Claim to Wisconsin Michigan Power Company, a corporation (hereinafter referred to as "Grantor"), whose post office address is 507 South Canada Street, Appleton, Wisconsin and to its successors and assigns, the easement and right to erect and maintain an electric distribution line consisting of poles, towers, structures, wires, cables and conduits, together with anchors, guy wires and other appurtenances and fixtures necessary for the purpose of transmitting and distributing electricity and/or conducting a communication business, together with the right to go upon the land herein described and maintain same on, over and across the following State-owned land:

Land in the Township of Mastodon County of Iron State of Michigan, as follows, to-wit:

Town 41 North, Range 32 West
N41NW, Section 9

REGISTER'S OFFICE)
IRON COUNTY, MICH.) SS
RECEIVED FOR RECORD THIS 26 DAY OF
March A. D. 1975 #
9:30 O.C.L.G. V. REG. DEPT. IN LIFE
179 of 1000
OR PAGE 481-491
Arthur D. Schubert
REGISTER OF DEEDS

This easement is granted subject to the following regulations and conditions:

(1) The route to be taken by said line of poles, towers, structures, wires, cables and conduits across, over and under said land being more specifically described as follows:

As shown on drawing marked Exhibit "A", dated 3-7-74, attached hereto and made a part hereof.

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PERMIT FULLY LEGIBLE PRODUCTION

THIS DOCUMENT WAS FILED IN THE
Iron County
REGISTER OF DEEDS OFFICE
ON March 26 1975

Easement No. 9223-A

APPROVED AND
FORWARDED BY THE
DEPARTMENT OF NATURAL RESOURCES
July

Wisconsin Michigan Power Company
Right-of-Way/Easement Data

4-46
470

EASEMENT TO CONSTRUCT AND MAINTAIN ELECTRIC distribution LINE

FOR AND IN CONSIDERATION OF Twenty-five Dollars (\$25.00)

in hand paid, the receipt of which is hereby acknowledged, the STATE OF MICHIGAN by the DEPARTMENT OF NATURAL RESOURCES (hereinafter referred to as "Department") acting under authority of the NATURAL RESOURCES COMMISSION, and by virtue of the authority conferred by Act No. 10, P.A. 1953, does hereby Convey and Quit-Claim to Wisconsin Michigan Power Company, a corporation (hereinafter referred to as "Grantee"), whose post office address is 807 South Cascade Street, Appleton, Wisconsin and to its successors and assigns, the easement and right to erect and maintain an electric distribution line consisting of ~~poles, towers, structures,~~ wires, cables and conduits, together with ~~anchors, cross-arms and other appurtenances~~ and fixtures necessary for the purpose of transmitting and distributing electricity and/or conducting a communication business, together with the right to go upon the land herein described and maintain same on, over and across the following State-owned land:

Land in the Township of Mastodon County of Iron State of Michigan as follows, to-wit:

Town 41 North, Range 32 West
R4xNW, Section 9

REGISTER'S OFFICE)
IRON COUNTY, MICH.) SS
RECEIVED FOR RECORD THIS 26 DAY OF
March A.D. 1975 #
9:30 O.C.L.C. # 179 OF Book
ON FILE 481-491
Arden D. Shuler
REGISTER OF DEEDS

COPY AVAILABLE TO DDG PAGES NOT
PERMIT FULLY LEGIBLE PRODUCTION

This easement is granted subject to the following regulations and conditions:

(1) The route to be taken by said line of poles, towers, structures, wires, cables and conduits across, over and under said land being more specifically described as follows:

As shown on drawing marked Exhibit "A", dated 3-7-76, attached hereto and made a part hereof.

THIS DOCUMENT WAS FILED IN
M.A. 10/22/75
WISCONSIN MICHIGAN POWER COMPANY
IRON COUNTY, MICHIGAN

Easement No. 9223-A

APPROVED BY
COMMISSIONER OF NATURAL RESOURCES
DATE 4/11/75

Wisconsin Michigan Power Company
Right-of-Way/Easement Data
4-46
3-7-75

(2) Grantee, its successors or assigns or the authorized representative, agrees to notify the authorized representative of the Department prior to commencing operations under this easement, so that the Department shall be properly notified as to the time and place that such operations shall begin. The state owned land herein described. Said Department representative is: Carl Brousseau, Area Forester, SAR Field Office,
Crystal Falls, Michigan 49920 or his successor.

(3) Grantee, its successors or assigns by the acceptance of this instrument, agrees that any relocation of the line constructed under this easement will be made only upon approval of the Department before such relocation takes place.

(4) Grantee, its successors or assigns, accepts this easement subject to all prior and valid easements, permits, licenses, leases and other rights existing or pending at the time of the issuance of this easement, which may have been granted on said land.

(5) Grantee, its successors or assigns, and its or their agents and employees may cut, trim and remove all brush and trees which may interfere or threaten to interfere with or be hazardous to the construction, operation and maintenance of said line on a strip of land 20 feet wide, being 0 feet on each side of the center line of the CLSLEIDHULLON line as herein described.

(6) Grantee, its successors or assigns, agrees that no herbicides to control tree, shrub, or other plant growth on the land herein described shall be used without first securing written permission from the Department or its authorized field representative.

(7) Grantee, its successors or assigns, agrees that all commercial forest products cut by the Grantee hereunder in the construction and maintenance of said line shall be the property of the Department and shall be cut and piled or decked as directed by the Department's authorized representative.

(8) Grantee, its successors or assigns, for themselves and their agents and employees agree to take all reasonable precautions to prevent and suppress forest fires and shall cause no unnecessary damage to natural tree growth or to any plantation, and shall pay all damage other than ordinary to state property arising out of its neglect or failure to act.

(9) Grantee, its successors or assigns, shall obtain the required permit from the Department or its authorized representative before burning any refuse or setting any fires whatsoever.

(10) It is understood that all slash and forest growth cut, resulting from operations under this easement, shall be handled in accordance with the provisions of Act 35, P.A. 1955, and the rules and regulations pertaining thereto.

(11) In case the said easement herein conveyed shall not be used by Grantee, its successors and assigns, for a period of 10 years, from and after the date of issuance, then and in that event said easement shall terminate. The Grantee herein, for itself, its successors and assigns, agrees upon abandonment of its line and upon request of the owner of said land showing a prima facie title to same, to release and quit-claim all rights secured hereby on said land to the then owner.


(12) In the event of abandonment of the rights herein conveyed, Grantee agrees to remove its property from the premises in a good and workmanlike manner and in a condition satisfactory to the Department's authorized field representative.

(13) It is expressly understood that the Grantee shall not assign this easement or any portion thereof to any person other than the owner of said land, as provided in paragraph 11 hereof, without first securing the written approval of the Department of Natural Resources for the State of Michigan. No application to assign will be considered unless the assignee is organized for the purpose of operating a public utility business.

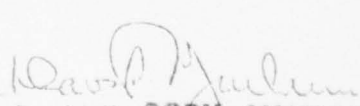
(14) The Grantee, its successors or assigns, shall hold harmless the State of Michigan for all damages or injuries caused to third persons or property outside of the right-of-way conveyed by this easement arising out of the negligence of the grantee in its operations on the right-of-way hereby conveyed.

IN WITNESS WHEREOF, the Department of Natural Resources by authority of the Natural Resources Commission has caused this instrument to be executed for the State of Michigan by its Deputy Director, this 17th day of March 1975.

WITNESSES: by signature of Deputy Director


Witnes: Windo H. Thompson
Jay A. Schafer

DEPARTMENT OF NATURAL RESOURCES
FOR THE STATE OF MICHIGAN

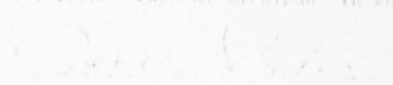

David H. Jenkins, Deputy Director

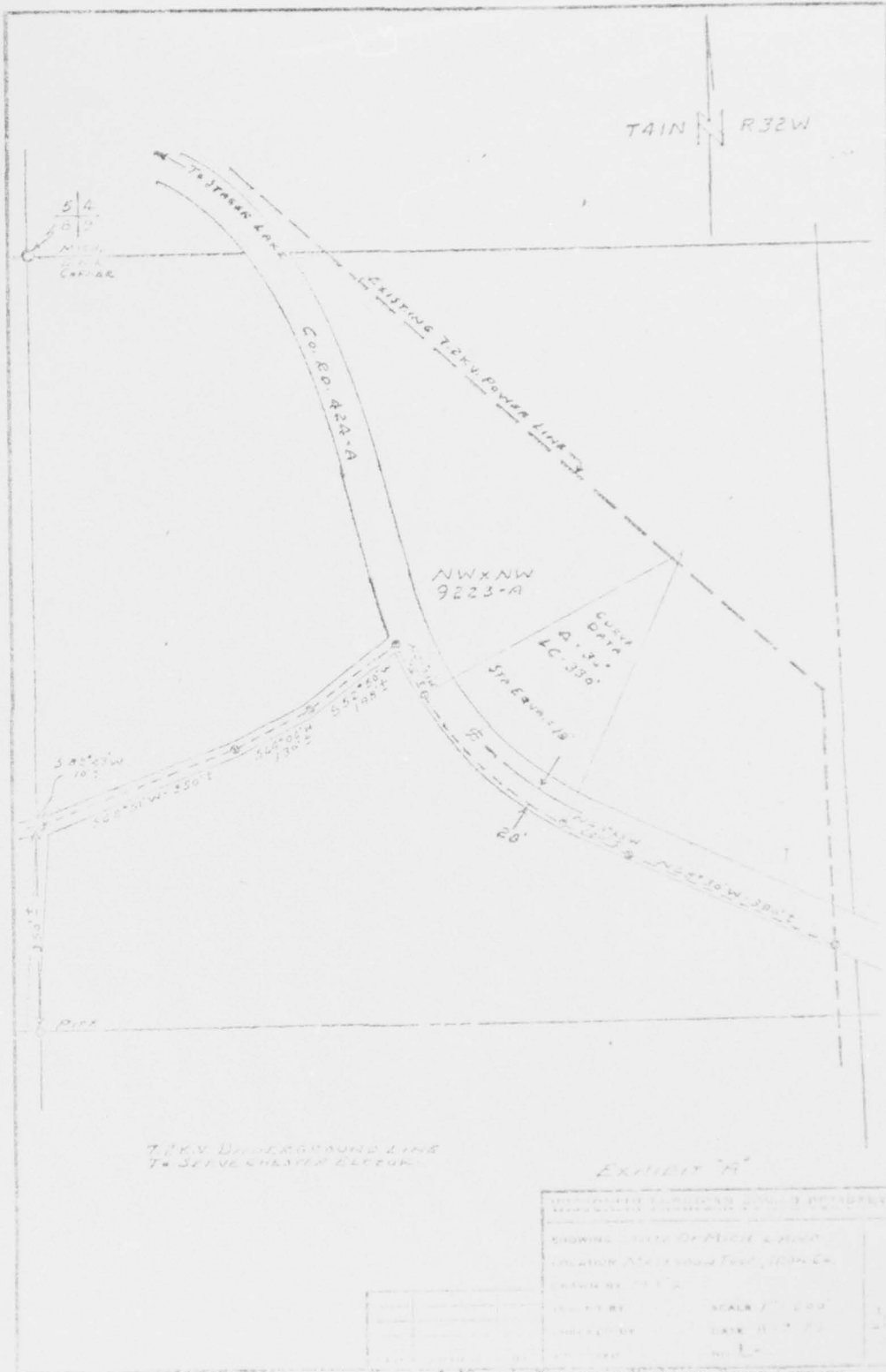
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STATE OF MICHIGAN }
COUNTY OF INGHAM }

on this 14th day of March, A.D. 19 75, before me, a Notary Public in and for Eaton County, personally appeared David H. Jenkins, Deputy Director of the Department of Natural Resources for the State of Michigan, to me known to be the same person who executed the within instrument, and who acknowledged the same to be his free act and deed and the true act and deed of the Department of Natural Resources pursuant to authority granted by the Natural Resources Commission for the State of Michigan, in whose behalf he acts.

My commission expires November 16, 1977
6511 Wisconsin Michigan Power Company


Jay A. Schafer, Eaton County acting in
4-47 Notary Public, Ingham County, Michigan



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DEPARTMENT OF NATURAL RESOURCES

PERMIT

CONDITIONAL PERMIT

ISSUED TO

Wisconsin Michigan Power Company
 Mr. R. J. Linssen
 1401 South Carpenter Avenue
 Iron Mountain, Michigan 49801

Permit No. 75-1-25
 Date Issued August 4, 1975
 Extension _____
 Expiration October 1, 1975

This permit is issued under provisions of the Inland Lakes and Streams Act (Act 346, P.A. 1972).

Permitted Activity

Construct a plowed electric cable crossing

Water Course Affected

East Branch Ontonagon River

County

Houghton

Sect. 9, Range, Sub and Lot Number

9, 147N, R36W

Authority granted by this permit is subject to the following limitations:

- A. The permittee in exercising the authority granted by this permit shall not cause unlawful pollution as defined by Act No. 245 of the Public Acts of 1929, as amended.
- B. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- C. All work shall be completed in accordance with the plans and specifications submitted with the application and/or plans and specifications attached herein.
- D. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved herein.
- E. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Acts of 1974, and comply with each of the requirements of that act.
- F. This permit does not convey property rights in either Real Estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits or complying with other state statutes.
- G. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- H. Permittee shall notify the Hydrological Survey Division, DNR, in writing, within ten days of the completion of the project authorized herein.
- I. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

This permit is granted conditionally under circumstances of emergency or urgency to protect property or general public welfare. Should the permit result in an unreasonable encroachment, interference with adjacent riparians or the public trust, permittee agrees, in exercising the authority granted herein, to make adjustments in the project as may be ordered by the Department of Natural Resources.

Construction of the stream crossing shall be subject to the Specifications for Protection of Natural Resources at Utility Water Crossings as given in the Administrative Rules for Act 346. Permittee is cautioned not to commence construction of the watercourse crossing without first reviewing said specifications and adhering to them. Permittee shall be responsible for transmittal of the administrative rules to the general contractor and/or sub-contractors and shall insure that all contractors comply with all conditions of this permit.

All streambank stabilization measures, as specified in the Administrative Rules shall be undertaken and completed within 5 days after making actual crossing of the streambed.

11648-F2
 11649-F2
 11650-F2
 11651-F2
 11653-F2

DJH/jek

cc: Bennett
 11502P

Director, Department of Natural Resources

By

[Signature]
 P. J. Hayward

4-49

Wisconsin Michigan Power Company
 Right-of-Way/Easement Data

RIGHT-OF-WAY AND ANCHOR AND TREE-TRIMMING EASEMENT

KNOW ALL MEN BY THESE PRESENTS, That _____ (hereinafter called the "grantor") and _____ his wife, of the county of _____, State of _____ (the grantor and his wife being hereinafter collectively called the "grantor"), for a good and valuable consideration, the receipt whereof is hereby acknowledged, do hereby grant unto The Ontonagon County Rural Electrification Association, a corporation, and to its successors or assigns, the right to enter upon the lands of the grantors situated in the county of _____, State of _____ and described as follows:

- and
- (1) to place, construct, operate, repair, maintain, relocate and replace thereon and in or upon all streets, roads or highways abutting said land, an electric transmission or distribution line or system, including the right to cut and trim trees to the extent necessary to keep them clear of said electric line or systems and to cut down from time to time all dead, weak, leaning or dangerous trees that are tall enough to strike the wires in falling;
- (2) to place, construct, repair, maintain, relocate and replace thereon anchors, anchor stubs and guy wires necessary or advisable for the construction, operation, replacement, repair and maintenance, in and upon said lands and in or upon any road or highway abutting the lands above described, of an electric transmission or distribution line or system; and to cut and trim trees interfering with the placing and maintenance of said anchors, anchor stubs, and guy wires;

The grantor covenants that he is the Owner of the above described lands.

And _____; wife of the grantor hereby relinquishes and releases any right of interest she may have inconsistent with the easement herein granted, including the right of dower, distributive share or homestead in the above described lands.

IN WITNESS WHEREOF, the grantors have set their hands and seals this _____ day of _____, 1972.

WITNESS:

_____ (L.S.)

_____ (L.S.)
(Acknowledgment)

STATE OF _____)
) SS.
COUNTY OF _____)

On this _____ day of _____ in the year 19____ A.D. before me, a Notary Public in and for said county, personally appeared _____ to me known to be the same Person, described in and who executed the within instrument who acknowledged the same to be _____ free act and deed.

Notary Public _____

My Commission Expires: _____

4.3 - POWER INTERRUPTIONS/DOWNTIME DATA

| | <u>Page</u> |
|--|-------------|
| Wisconsin Michigan Power Company | 4-51 |
| Marquette Board of Light and Power | 4-53 |
| Ontonagon County Rural Electrification Association | 4-63 |

CIRCUIT NO. 6120

| DATE | NO. | HR | MIN | TYPE | CAUSES |
|---------|-----|----|-----|-----------|----------------|
| 1-17-74 | 11 | 5 | 24 | SCHEDULED | POOR CLEARANCE |
| 7- 3-74 | 41 | 16 | 50 | FORCED | TREES |
| 3- 5-74 | 55 | 0 | 1 | FORCED | UNKNOWN |
| 3- 5-74 | 56 | 0 | 1 | FORCED | UNKNOWN |
| 3- 5-74 | 57 | 0 | 1 | FORCED | UNKNOWN |
| 3- 5-74 | 58 | 0 | 3 | FORCED | UNKNOWN |
| 4-29-74 | 177 | 0 | 0 | SCHEDULED | MAINTENANCE |

// SUMMARY INFORMATION //

0.28 FORCED OUTAGES PER MILE 5 FORCED 2 SCHEDULED 4.00 UNKNOWN 1.00 POOR CLEARANCE
 1.00 MAINTENANCE 1.00 TREES

MINUTES OUT PER FORCED OUTAGE (203) TOTAL FORCED MINUTES OUT (1016)
 MINUTES OUT PER SCHEDULED OUTAGE (162) TOTAL SCHEDULED MINUTES OUT (324)
 PERCENT OF FAULTS WHICH ARE PERMANENT (43) TOTAL ASSOCIATED CUSTOMER MINUTES (0)

CIRCUIT NO. 423C

| DATE | NO | HR | MIN | TYPE | CAUSES |
|---------|-----|----|-----|-----------|-----------------------|
| 1-17-74 | 11 | 5 | 13 | SCHEDULED | POOR CLEARANCE |
| 2-7-74 | 25 | 0 | 1 | FORCED | EQUIPMENT |
| 4-9-74 | 105 | 0 | 20 | SCHEDULED | MAINTENANCE |
| 5-5-74 | 170 | 6 | 0 | SCHEDULED | MAINTENANCE |
| 6-29-74 | 244 | 0 | 1 | FORCED | WEATHER (LIGHTNING) |

// SUMMARY INFORMATION //

0.12 FORCED OUTAGES PER MILE 2 FORCED 3 SCHEDULED 1.00 POOR CLEARANCE
 1.00 EQUIPMENT 2.00 MAINTENANCE 1.00 WEATHER

MINUTES OUT PER FORCED OUTAGE (1) TOTAL FORCED MINUTES OUT (2)
 MINUTES OUT PER SCHEDULED OUTAGE (231) TOTAL SCHEDULED MINUTES OUT (693)
 PERCENT OF FAULTS WHICH ARE PERMANENT (60) TOTAL ASSOCIATED CUSTOMER MINUTES (0)

V
MARQUETTE POWER OUTAGE
#3 Circuit - August 12, 1971

Time of Outage: 12:57 P.M.

Back On: 1:37 P.M.

Total: 40 Minutes

A jumper wire vibrated loose on one-phase wire at the Shiras Steam Plant by the railroad tracks. This was probably caused by the gusty wind conditions at this time. Line crews patrolled #3 Circuit and located the loose jumper wire and corrected the problem. Areas affected:

Shiras Hills
County Road 553 and Sands
Negaunee Township
Holiday Inn Area
West Washington Street
Fair Avenue Area
Lincoln Avenue Area

There also were some trees on the line at Lake Enchantment and South Negaunee Township, and some fuse trouble on West Washington Street caused by the switching on #3 Circuit.

BOARD OF LIGHT AND POWER

SIGNED:

Roland Lindeblad
Roland Lindeblad,
Office Manager

RL/kjm

Marquette Board of Light and Power
Power Interruptions/Downtime Data

POWER OUTAGE - AUGUST 15, 1971

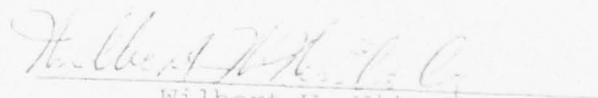
At approximately 8:49 A.M. on Sunday, August 15, 1971, the Shiras No. 1 Generating Unit went off the line without warning causing the entire system except the two-phase circuit to open up. Inasmuch as it was Sunday, the No. 4 Plant was not manned, which caused some delay in restoring power to the circuits until operators could get to the plant and start up diesel engines.

Customers affected were as follows:

- No outage for 1,500 customers.
- 2,500 customers on No. 1 circuit off for 1 hr. and 10 minutes.
- 2,500 customers on No. 1 circuit off for 1 hr. and 20 minutes.
- 2,000 customers on No. 3 circuit off for 1 hr. and 23 minutes.
- 500 customers on rural south circuit off for 1 hr. and 35 minutes.

Cause of the outage appeared to be a faulty Station Lightning Arrestor. Will be sent to General Electric Company for final determination and checking of arrestors. Shiras Plant was back on line about 7 P.M. with the Diesel Plant (No. 4) off at 8:30 P.M.

THE BOARD OF LIGHT AND POWER


Wilbert W. Wiitala,
Director

WWW/kjm

Marquette Board of Light and Power
Power Interruptions/Downtime Data

POWER OUTAGE - AUGUST 16, 1971

At approximately 7:13 A.M. a superheater tube in the No. 1 boiler at the Shiras Steam Plant ruptured causing a rapid loss of pressure, which necessitated the operators opening up the Water Works, No. 3, and South Rural circuits. The No. 1 circuit and the two phase circuits were not affected.

4,000 customers not affected.

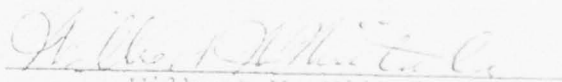
2,500 customers on Water Works circuit off for 30 minutes.

2,000 customers on No. 3 circuit off for 33 minutes.

500 customers on South Rural off for 35 minutes.

Repairs are being made at the Steam Plant. The Diesel Plant, (No. 4), the Hydro Plants, (No. 1, 2, & 3), and the auxiliary diesel engine at Shiras Plant were used to meet load requirements during Monday. The No. 1 Hydro Plant was used for peak demands at noon hour. Shiras Plant back on line at 5 A.M., Tuesday, August 17, 1971.

THE BOARD OF LIGHT AND POWER



Wilbert W. Wiitala,
Director

www/kjm

Marquette Board of Light and Power
Power Interruptions/Downtime Data

MARQUETTE POWER OUTAGE
#2 Circuit - July 28, 1971

Time of Outage: 10:31 A.M.

Back On: 11:12 A.M.

Total: 41 Minutes

A large maple tree fell across the #2 circuit and also across the tie line between #2 and #4 Plant. The breaker opened immediately on the #2 circuit at #2 Plant and the tie line remained energized. A customer called giving immediate location of the trouble and it was determined that the tie line must be opened before the tree could be removed. When the tie line was opened the tree was removed, there was apparently no permanent damage to either circuit. Power was restored to the tie line, and then to the #2 circuit, with everything back to normal at 11:12 A.M.

BOARD OF LIGHT AND POWER

SIGNED:

Roland Lindeblad
Roland Lindeblad,
Office Manager

RL/kjm

Marquette Board of Light and Power
Power Interruptions/Downtime Data

Board of Light and Power

CITY OF MARQUETTE

MICHIGAN 49855

P. O. BOX 40

WILBERT W. WIITALA
DIRECTOR
TELEPHONE 226-3593

February 10, 1970

At approximately 7:25 A.M. on January 19, 1970, the governor belt on #1 wheel ceased to function properly and as a result the unit rejected all load. As a result of the above, system frequency dropped from a normal 60 cycles to approximately 50 cycles. At approximately the same time all main circuit breakers including the bus tie breaker at #4 Plant opened.

The results of the above sequences separated the two-phase system from the Steam Plant. The two-phase system at this time ran low on voltage and frequency until such time as the Negaunee Township circuit was opened to bring voltage and cycles up to a level so as to permit putting #1 wheel back on.

At 7:30 A.M. the South Rural circuit was opened to shed load to bring frequency up to a normal level on the Steam Plant end of the system.

Bus tie-breaker, #1 circuit breaker (tie-line), tie-line from # 2 Plant to #4 Plant circuit breakers were closed and additional generation put on at #4 Plant.

At 7:55 A.M. South Rural circuit was closed and all systems at this time were back to normal.

The duration of the time that the City Hall circuit and the Negaunee Township circuit were low on voltage was approximately 20-25 minutes.

Marquette Board of Light and Power
Power Interruptions/Downtime Data

February 9, 1970

POWER OUTAGE, FEBRUARY 6, 1970

At approximately 7:07 A.M. on February 6, 1970, a flash-over occurred on the brush rings on the exciter at the Shiras Steam Plant. This lost our generation from this source and caused the safety diaphragm on the turbine to rupture. Necessary repairs were made to the unit immediately and the unit was back on the line at 10:50 A.M.

The two-phase circuit serving portions of the downtown and North Third and Fourth Streets was not affected. The remainder of the city was affected for varying periods of up to two hours until sufficient generation could be started to handle the loads. It was necessary to start all seven engines at the Diesel Plant and #1, #2, and #3 Hydro Plants and the stand-by Diesel at the Shiras Steam Plant.

Customers affected were as follows:

- No outage for 1,500 customers.
- 7,500 customers off for 28 minutes or more.
- 2,500 customers back on after 28 minutes.
- 2,000 additional customers back on after 33 minutes.
- 2,500 additional customers back on after 1 hour 55 minutes.
- 500 additional customers back on after 2 hours 23 minutes.

The above was reported to Mr. Troffit of the Federal Power Commission, Washington D. C. at 4:10 P.M. (Phone 1-202-962-1307). Also called Mr. Croy of the Michigan Public Service Commission at 4:15 P.M. and reported the above (Phone 1-517-373-3263).

Marquette Board of Light and Power
Power Interruptions/Downtime Data

POWER OUTAGE ON SEPTEMBER 29, 1969

A top of a birch tree, (about 8" diameter), located approximately 20' from our No. 1 circuit line on the Big Bay Road, just north of the Dead River Bridge, came down onto the line, causing a short circuit at 12:37 P.M., C.D.T. The line fuses failed to operate, and the main circuit breaker and the main generator circuit breaker at the Shiras Plant opened up causing most of the City to be without power for periods ranging from ten minutes to twenty-six minutes. The south rural customers were out for a total of thirty-nine minutes. Settings on our circuits are being checked for proper coordination.

Outage occurred at 12:37 P.M.

No outage for 1,500 customers, 3,000 K.W. estimated.

Waterworks line on at 12:47 P.M., 2,500 customers, 3,000 K.W. estimated.

#3 line on at 12:55 P.M. - 18 minutes, 2,000 customers, 5,000 K.W.

#1 line on at 1:03 P.M. - 26 minutes, 2,500 customers, 5,700 K.W.

South Rural on at 1:16 P.M. - 39 minutes, 500 customers, 1,000 K.W.

Called Mr. Croy, Michigan Public Service Commission, at 4:45 P.M., Phone 1-517-373-3263. Called Federal Power Commission at 4:35 P.M., No. 1-202-962-1307 - No answer. Called again on September 30, 1969 at 5:55 A.M. and reported to Mr. Troffit.

Marquette Board of Light and Power
Power Interruptions/Downtime Data

POWER OUTAGE ON SEPTEMBER 9, 1969
16,000 KW at 11:13 A.M.

Called Federal Power Commission, phone 1-202-962-1307, and reported outage to Mr. Troffit at 3:45 P.M. Also called Mr. Croy, Michigan Public Service Commission, phone 1-517-373-3263, at 3:50 P.M. and reported outage.

See attached notes on cause of trouble. Converter for gas burning safety controls failed, causing burners to shut off before coal could be started.

Date: September 9, 1969

Power Outage on whole system, 16,000 KW load.
System off at 11:13 A.M., total 9,000 customers.

Two-phase line back on at 11:22 A.M.
7,500 customers still off.

Waterworks circuit on at 11:32 A.M.
5,000 customers still off.

#3 circuit back on at 11:42 A.M.
3,000 customers still off.

#1 circuit back on at 12:52 P.M.
500 customers still affected.

Portions of the Rural Area remained off until approximately
2:30 P.M.

Marquette Board of Light and Power
Power Interruptions/Downtime Data

AD-A036 407

GTE SYLVANIA INC NEEDHAM HEIGHTS MASS COMMUNICATIONS--ETC F/G 17/2
ELF COMMUNICATIONS SEAFARER PROGRAM. SITE SURVEY, MICHIGAN REGI--ETC(U)
MAR 76 N00039-75-C-0309

UNCLASSIFIED

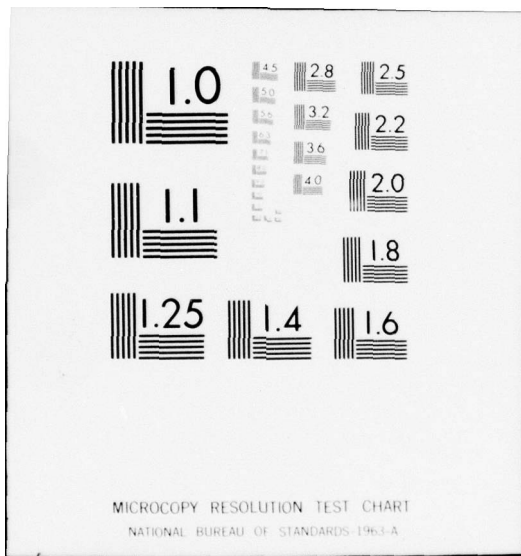
NL

3 OF 3
ADA036407



END

DATE
FILMED
3-77



OUTAGE ON SUNDAY, NOVEMBER 16, 1969

On College Avenue, immediately west of Presque Isle Avenue, a large gray squirrel came in contact with the primary lines on our waterworks circuit at 7:37 A.M., Sunday, November 16, 1969, causing two phases of conductors on two pole spans to come down. The entire waterworks circuit serving the entire east side of the city was interrupted until the damaged line could be isolated. Power was restored to most of the area at 8:18 A.M. and to the remainder of the area at 10:32 A.M. after Light and Power crews were able to replace the downed wires.

Area interrupted until 10:32 A.M. was from Magnetic Street north to Fair Avenue and from St. Luke's Hospital to Lake Shore.

POWER OUTAGE ON SEPTEMBER 8, 1969

Outage occurred approximately 6:30 P.M. and lasted about fifteen minutes. The trouble occurred in the 400 block of East Crescent Street, and was caused by tree branches burning off a tie line to a transformer, making it too dangerous to repair without shutting off power to the waterworks circuit. Areas affected were the entire east side of Marquette and sections of the downtown area, south of Washington Street.

A short outage on the South Rural line occurred this morning, and was caused by a malfunctioning regulator.

THE ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION
 Ontonagon, Michigan

SERVICE INTERRUPTION REPORT
 January 1, 1972 - December 31, 1972

| | <u>Pelkie</u> | <u>Herman</u> | <u>Aura</u> |
|------------------------------|---------------|---------------|-------------|
| Power Supply - Planned | X | X | X |
| Power Supply - Emergency | X | X | 215 |
| Cooperative - Planned | X | X | 5 |
| Fuse or Breaker Operations | | | |
| 10 amp T | X | X | X |
| 10 amp - | X | X | 103 |
| Breaker Operations | X | X | X |
| Animals | 4 | X | 118 |
| Insulator Failure | X | X | X |
| Arrester Failure | X | X | 229 |
| Hardware Failure | 1 | X | 21 |
| Loose Connector or Hot Clamp | | | 68 |
| Lightning | 12 | 147 | 405 |
| Trees - Windstorm | 33 | 105 | X |
| Trees - Wet Snow | X | X | 75 |
| Transformers | | | |
| CSP Overload | 1 | X | 10 |
| Transformer Burn Out | X | X | X |
| Fuse/Lightning Burn Out | X | X | 32 |
| Man Made Interruptions | | | |
| Cars Hitting Poles | X | X | X |
| Cutting Trees | X | X | X |
| Cars Hitting Wires | X | X | X |
| Member Facilities | | | |
| Defective Appliances | X | X | X |
| Defective Wiring | X | X | X |
| Repairs Beyond Meter | X | X | X |
| Miscellaneous | <u>9</u> | <u>11</u> | <u>33</u> |
| TOTAL | 60 | 263 | 1,314 |

 25 people out 1 hour = 25

Average Per Customer = 3.8 Per Year Per Service

Ontonagon County Rural Electrification Assn
 Power Interruptions/Downtime Data

4.4 - RATES AND CHARGES

| | <u>Page</u> |
|--|-------------|
| Upper Peninsula Power Company | 4-64 |
| Wisconsin Michigan Power Company | 4-72 |
| Marquette Board of Light and Power | 4-84 |
| Ontonagon County Rural Electrification Association | 4-106 |
| Alger Delta Cooperative Electrical Association | 4-111 |
| Crystal Falls Electric and Water Department | 4-112 |
| K. I. Sawyer AFB | 4-114 |

RATE "WP"/- LARGE LIGHT AND POWER

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per kw of billing demand per month

| | |
|----------------------|-------------|
| First 200 kw or less | \$1,200.00 |
| Next 2,800 kw | 5.10 per kw |
| Over 3,000 kw | 4.75 per kw |

Energy charge per kwh per month

| | |
|--------------------|---------------|
| First 500,000 kwh | 1.50¢ per kwh |
| Next 5,500,000 kwh | 1.40¢ per kwh |
| Over 6,000,000 kwh | 1.35¢ per kwh |

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$1,200.00

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND.

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 kw.

ADJUSTMENT OF OFF-PEAK HOURS:

Demands created during off-peak hours may, at the option of qualifying customers, be adjusted as provided in Off-Peak Service Rule 18.

CONTRACT.

One year or more.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan

Upper Peninsula Power Company

4-64 Rates and Charges

RATE "WP-1" - LARGE LIGHT AND POWER

FUEL CLAUSE: (continued)

This rate is subject to the Company's Standard interconnected system fuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

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Issued: October 2, 1975

Effective: For service rendered on and
after October 2, 1974

issued under the authority of Order of Michigan Public Service Commission,
dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan
4-65 Upper Peninsula Power Company
Rates and Charges

RATE "P-1" - LIGHT AND POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per kw of billing demand per month
First 25 kw or less \$150.00
Over 25 kw @ 5.85 per kw

Energy charge per kwh per month
First 1,000 kwh 3.80¢ per kwh
Next 9,000 kwh 1.80¢ per kwh
Over 10,000 kwh 1.40¢ per kwh

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$150.00.

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 25 kw.

CONTRACT:

One year or more.

FUEL CLAUSE:

This rate is subject to the Company's standard interconnected system fuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: G. F. Rogers, President

Houghton, Michigan
4-66 Upper Peninsula Power Company
Rates and Charges

RATE "C-1" - GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any customer for commercial or industrial purpose.

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Service Charge:

\$5.00 per customer per month plus,

Energy Charge:

5.60c per kwh for the first 1000 kwh used per month

5.00c per kwh for the excess

MINIMUM CHARGE:

The service charge included in the rate. For seasonal type customers the annual service charge shall be 12 times the monthly service charge.

TERMS OF PAYMENT:

Bills are rendered net with payment due 21 days from date of bill.

CONTRACT:

None required.

FUEL CLAUSE:

This rate is subject to the Company's standard interconnected system fuel adjustment.

RULES APPLYING:

- (1) Service is governed by the Company's Standard Rules and Regulations.
- (2) Conjunctional billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan

4-67 Upper Peninsula Power Company
Rates and Charges

RATE "WP-2" - LARGE LIGHT AND POWER

WHO MAY TAKE SERVICE:

any customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's Iron River district.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per kw of billing demand per month

| | |
|----------------------|-------------|
| First 200 kw or less | \$600.00 |
| Next 2,800 kw | 2.60 per kw |
| Over 3,000 kw | 2.40 per kw |

Energy charge per kwh per month

| | |
|--------------------|---------------|
| First 500,000 kwh | 2.15¢ per kwh |
| Next 5,500,000 kwh | 2.05¢ per kwh |
| Over 6,000,000 kwh | 2.00¢ per kwh |

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$600.00.

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 kw.

ADJUSTMENT OF OFF-PEAK HOURS:

Demands created during off-peak hours may, at the option of qualifying customers, be adjusted as provided in Off-Peak Service Rule 18.

CONTRACT:

One year or more.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan
4-68 Upper Peninsula Power Company
Rates and Charges

RATE "P-2" - LIGHT AND POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's Iron River system.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

| | |
|--|---------------|
| Capacity charge per kw of billing demand per month | |
| First 25 kw or less | \$100.00 |
| Over 25 kw @ | \$4.30 per kw |

| | |
|---------------------------------|---------------|
| Energy charge per kwh per month | |
| First 1,000 kwh | 4.35¢ per kwh |
| Next 9,000 kwh | 2.35¢ per kwh |
| Over 10,000 kwh | 1.95¢ per kwh |

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$100.00.

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be a maximum 15 minute demand during the month but not less than 25 kw.

CONTRACT:

One year or more.

FUEL CLAUSE:

This rate is subject to the Company's standard Iron River system fuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan
4-69 Upper Peninsula Power Company
Rates and Charges

M.P.S.C. No. 5
UPPER PENINSULA POWER COMPANY
Houghton, Michigan

Original Sheet No. 42.1

RATE "WP-2" - LARGE LIGHT AND POWER

FUEL CLAUSE:

This rate is subject to the Company's Standard Iron River system fuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan

4-70 Upper Peninsula Power Company
Rates and Charges

RATE "C-2" - GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any customer for commercial or industrial purposes.

TERRITORY APPLICABLE:

All territory served in the Company's Iron River district.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Service Charge:

\$3.00 per customer per month plus.

Energy Charge:

4.40¢ per kwh for the first 1000 kwh used per month

3.45¢ per kwh for the excess

MINIMUM CHARGE:

The service charge included in the rate. For seasonal type customers the annual service charge shall be 12 times the monthly service charge.

TERMS OF PAYMENT:

Bills are rendered net with payment due 25 days from date of bill.

CONTRACT:

None required.

FUEL CLAUSE:

This rate is subject to the Company's standard Iron River system fuel adjustment.

RULES APPLYING:

- (1) Service is governed by the Company's Standard Rules and Regulations.
- (2) Conjunctional billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense, will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President

Houghton, Michigan

4-71 Upper Peninsula Power Company
Rates and Charges -

WMPCO

W I S C O N S I N M I C H I G A N P O W E R C O M P A N Y
807 SOUTH ONEIDA ST. • APPLETON, WISCONSIN 54911 • AREA CODE 414 734 1411

December 4, 1975

Mr. Pasquale Gallo, P.E.
Regional Consultant
Williams and Works
611 Cascade, West Parkway
Grand Rapids, Michigan 49506

Dear Mr. Gallo:

Mr. O. R. Boll of our Company asked me to forward the rates for Wisconsin Michigan applicable to Michigan. The attached rates were recently proposed by the Michigan Public Service Commission as a result of our recent rate application. These rates approximate the best guess as to what our rates will be like in 1976.

Naturally, our rates will increase with inflation and, therefore, you should project higher rates beyond 1976.

If you have any further questions, please contact us.

Very truly yours,

WISCONSIN MICHIGAN POWER COMPANY

Karle F. Naggs

Director of Customer Relations

Karle F. Naggs/jb

Attachments

cc - Mr. O. R. Boll

Wisconsin Michigan Power Company
Rates and Charges

WISCONSIN MICHIGAN POWER COMPANY

N. P. S. C. No. 4

Second Revised Sheet No. 10.00

Canceled First Revised Sheet No. 10.00

GENERAL SECONDARY SERVICE - RATE Cg 1

AVAILABILITY

To customers contracting for secondary service for one year or more for general commercial, industrial, or governmental purposes.

HOURS OF SERVICE

Twenty-four.

CHARACTER OF SERVICE

Alternating current, 60 hertz, single-phase at 120/240 volts for lighting service, or single or three-phase at 240 volts for power purposes.

RATE

Fixed Charge

\$4.30 per month for each service connection.

| | Billing Periods | |
|---------------------------------|-----------------|---------------|
| | July-October | November-June |
| Energy Charge per Kilowatt-hour | Net | Net |
| First 500 kWh per month | 4.5¢ | 4.5¢ |
| Next 29,500 kWh per month | 4.5¢ | 3.8¢ |
| Over 30,000 kWh per month | 3.2¢ | 2.5¢ |

Subject to adjustment for cost of fuel applicable to all energy, see sheet 15.00; and to hours-of-use credit applicable to all energy over 30,000 kilowatt-hours per month, see sheet 19.02.

Minimum Charge

For regular service the monthly minimum charge shall be the fixed charge. For auxiliary service the monthly minimum charge shall be as provided in conditions of delivery. See paragraph 6, Conditions of Delivery.

Delayed Payment Charge

This rate is net. An additional one and one-half percent (1.5) of the billed amount, including applicable credits and adjustments, shall be collectible if paid after twenty-one days from the date of rendition of each bill.

CONTRACT

Form No. 3.

TERRITORY

All areas served in Michigan.

Issued Mo. Day Year Effective Mo. Day Year

Issued under the authority of Order No. of the Michigan Public Service Commission, Dated 19

Issued By Name of Officer Title Address

Wisconsin Michigan Power Company
Rates and Charges

WISCONSIN MICHIGAN POWER COMPANY

A. P. S. C. No. 4

Second Revised Sheet No. 10.01

Cancel First Revised Sheet No. 10.01

First Revised Sheet No. 10.01
is cancelled

Issued Effective
Mo. Day Year Mo. Day Year

Issued under the authority of Order No. of the Michigan Public Service Commission, Dated 19....

Issued By Vice President Milwaukee, Wisconsin
Name of Officer Title Address

GENERAL SECONDARY SERVICE - RATES Cg 1
(Continued)

HOURS-OF-USE CREDIT

This rate is based on a monthly use of measured demand of 300 hours or less. For each whole hour of such use in excess of 300 a credit of 0.0010c per kilowatt-hour will be allowed on all energy used in excess of 30,000 kilowatt-hours per month. Monthly use of demand shall be determined by dividing the kilowatt-hours used in the monthly billing period by the measured demand for the same period. This credit shall be applied to net bills.

DETERMINATION OF DEMAND

1. Measured demand is defined as the maximum rate at which energy is used for any period of fifteen consecutive minutes during the month and shall be measured by permanently installed demand indicators.

2. A demand indicator shall be installed after the customer's monthly use of energy under this rate has been 30,000 kilowatt-hours or more for three consecutive months and may be removed after such monthly use has been less than 30,000 kilowatt-hours for twelve consecutive months.

3. Where more than one indicator is used to measure a customer's demands, the sum of the separate demands shall be the measured demand except that where more than one service connection is used at the election of the company, provision shall be made for obtaining simultaneous demands, in which case the simultaneous demands shall be the measured demand.

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Issued..... Effective.....
 Mo. Day Year Mo. Day Year

Issued under the authority of Order No..... of the Michigan Public Service Commission, Dated..... 19.....

Issued By..... Vice President Milwaukee, Wisconsin
 Name of Officer Title Address

4-75 Wisconsin Michigan Power Company
 Rates and Charges

GENERAL SECONDARY SERVICE - RATES Cg 1

CONDITIONS OF DELIVERY

1. The company will generally furnish single-phase, 60 hertz service at 120/240 volts for lighting and single or three-phase service at 240 volts for power. Three-phase, four-wire service at 120/208 volts for combined light and power purposes and three-phase, 480 volt power service will be furnished in accordance with the Electric Service Rules and Regulations of the company.

2. When lighting service is furnished through one meter and power service through another, the registrations of the two meters will be added for billing purposes if the meters are installed at the same location. Where separately metered service is furnished for emergency exit lighting, fire alarm system or fire pump purposes, the energy used will be accumulated and billed with the regular service provided that it is furnished from the service connection which supplies regular service. In such cases the customer shall pay the fixed charge for each meter installed.

3. Service under this rate is for general use in commercial, industrial, and governmental establishments, including any group of two or more dwelling units which are served through one meter and comply with the Electric Service Rules and Regulations of the company governing resale. When farming and commercial or industrial operations are combined, the applicable rate shall be determined by the predominant use of service.

4. At the request of a customer, service will be furnished under this rate at the available primary voltage by special arrangement under which the customer will agree to furnish, own, and maintain at his expense all apparatus and material necessary for proper utilization of service at such voltage. In such cases the service will be metered at the supply voltage and the kilowatt-hours registered will be reduced 3% and the measured demand will be reduced 2-1/2% for billing purposes.

5. Temporary service is available under this rate upon the payment in advance of the company's estimated cost of providing and installing all facilities required especially for such service, plus the estimated cost of removing such facilities, less the estimated salvage value of the property removed. In no case shall the net payment by the customer be less than \$25.00.

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Issued Mo. Day Year Effective Mo. Day Year

Issued under the authority of Order No. of the Michigan Public Service Commission, Dated 19

Issued By Vice President Milwaukee, Wisconsin
Name of Officer TITLE

GENERAL SECONDARY SERVICE - RATES C₃ 1
CONDITIONS OF DELIVERY (Continued)

6. This rate applies when the company furnishes the entire electric service requirements of a customer. The company will, however, furnish auxiliary service hereunder to a customer who operates his power plant. If the power plant is so operated that all or any portion of the customer's load can be served either from the power plant or from the company's system, the customer shall contract for a demand mutually agreed upon, but in no case less than 5 kilowatts. The customer's demand shall be metered, and his net monthly bill for auxiliary service shall not be less than \$2.50 per kilowatt of the highest measured demand in the twelve-month period ending with the current month, or the minimum demand specified in the contract, whichever is the greater. A customer's power plant equipment is defined as including steam, internal combustion or hydraulic equipment used to operate electric generators, air compressors, refrigeration equipment, pumps and other similar equipment. A customer operating electric generating equipment shall not connect it in parallel with the company's system without the written consent of the company, nor without providing, at his expense, protective and synchronizing equipment satisfactory to the company.

7. The company shall not be required to provide service facilities except as specified in paragraph 6 for any customer which are substantially in excess of that required for the customer's regular use.

8. Energy furnished under this rate shall not be resold, except as provided in the Electric Service Rules and Regulations of the company.

9. Except as provided by contract entered into pursuant to paragraph 6 of these conditions, the company shall not be required to provide service as standby for other types of energy or fuel.

10. A customer who regularly uses service for periods of less than one year may pay the monthly minimum charge during the months in which he does not require service or, upon his request, service will be disconnected and the customer will be billed a disconnection and reconnection charge of \$25.00 if the company's service facilities are not removed.

Issued No. _____ Day _____ Year _____ Effective Mo. _____ Day _____ Year _____

Issued under the authority of Order No. _____ of the Michigan Public Service Commission, Dated _____ 19__

Issued By _____ Vice President Milwaukee, Wisconsin
Name of Officer Title Address

4-77

Wisconsin Michigan Power Company
Rates and Charges

WISCONSIN MICHIGAN POWER COMPANY

M. P. S. C. No. 4

Second Revised Sheet No. 10.06

Cancel First Revised Sheet No. 10.06

GENERAL SECONDARY TOTAL ELECTRIC SERVICE - RATE Cg 3

AVAILABILITY

To customers contracting for secondary service for one year or more for general commercial, industrial, or governmental purposes where electricity is used as the sole source of energy for space heating, water heating and all other uses.

HOURS OF SERVICE

Twenty-four.

CHARACTER OF SERVICE

Alternating current, 60 hertz, single-phase at 120/240 volts for lighting service, or single or three-phase at 240 volts for power purposes.

RATE

| <u>Energy Charge</u> | <u>Billing Periods</u> | |
|-----------------------------------|------------------------------------|--------------------------------------|
| | <u>July-October</u> <u>Rate</u> | <u>November-March</u> <u>Rate</u> |
| First 1,000 kWh per month or less | \$50.00 | \$50.00 |
| Next 4,000 kWh per month, per kWh | 4.5¢ | 3.8¢ |
| Over 5,000 kWh per month, per kWh | 3.2¢ | 2.5¢ |

Subject to adjustment for cost of fuel. See sheet 15.00.

Minimum Charge

The monthly minimum charge shall be the energy charge for 1,000 kWh.

Delayed Payment Charge

This rate is net. An additional one and one-half percent (1.5%) of the billed amount, including applicable credits and adjustments, shall be collectible if paid after twenty-one days from the date of rendition of each bill.

CONTRACT

Form No. 1.

TERRITORY

All areas served in Michigan.

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Issued No. Day Year Effective No. Day Year

Issued under the authority of Order No. of the Michigan Public Service Commission, Dated 19

Issued By Vice President Milwaukee, Wisconsin

Name of Officer

Title

Address

4-78

Wisconsin Michigan Power Company Rates and Charges

GENERAL SECONDARY - TOTAL ELECTRIC SERVICE - RATE C₃ 3

CONDITIONS OF DELIVERY

1. The company will generally furnish single-phase, 60 hertz service at 120/240 volts for lighting; single or three-phase service at 240 volts for power; or 60-cycle, single or three-phase, alternating current network service at 120/208 volts, in accordance with the Electric Service Rules and Regulations of the company governing utilization. At the customers' request the company may at his option furnish 120/240 volt, single-phase service for combined lighting and power subject to power regulation.

R

2. When lighting service is furnished through one meter and power service through another, the registrations of the two meters will be added for billing purposes if the meters are installed at the same location. Where separately metered service is furnished for emergency exit lighting, fire alarm system or lift pump purposes the energy used will be accumulated and billed with the regular service provided that it is furnished from the service connection which supplies regular service.

3. Service under this rate is for general use in commercial, industrial, and governmental establishments, including any group of three or more dwelling units which are served through one meter and comply with the Electric Service Rules and Regulations governing resale. When farming and commercial or industrial operations are combined, the applicable rate shall be determined by the predominant use of service.

4. At the request of a customer, service will be furnished under this rate at the available primary voltage by special arrangement under which the customer will agree to furnish, own and maintain at his expense all apparatus and material necessary for proper utilization of service at such voltage. In such cases the service will be metered at the supply voltage and the kilowatt-hours registered will be reduced 3%.

5. The company shall not be required to provide service facilities for any customer which are substantially in excess of that required for the customer's regular use.

6. Energy furnished under this rate shall not be resold, except as provided in the Electric Service Rules and Regulations of the company.

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Issued Mo. Day Year Effective Mo. Day Year

Issued under the authority of Order No. of the Michigan Public Service Commission, Dated 19

Issued By Vice President Milwaukee, Wisconsin
Title Address
4-79 Wisconsin Michigan Power Company
Rates and Charges

WISCONSIN MICHIGAN POWER COMPANY

W. P. S. C. No. 4

Second Revised Sheet No. 11.00

Cancel First Revised Sheet No. 11.00

GENERAL PRIMARY SERVICE - RATE C_p 1

AVAILABILITY

To large power customers contracting for service at the available primary or transmission voltage for periods of one year or more.

HOURS OF SERVICE

Twenty-four.

CHARACTER OF SERVICE

Alternating current, 60 hertz, three-phase at approximately 4,160 volts or higher.

RATE

| <u>Demand Charge per month</u> | <u>Billing Periods</u> | |
|---|------------------------|--------------------|
| | <u>June-September</u> | <u>October-May</u> |
| First 300 kW of billed total demand or less | \$1,450 | \$1,200 |
| Over 300 kW of billed total demand, per kW | 4.50 | 2.75 |

Subject to high-voltage credit. See sheet 11.01.

Energy Charge per Kilowatt-hour

| | | |
|------------|-------|-------|
| All energy | 1.475 | 1.475 |
|------------|-------|-------|

Subject to adjustment for cost of fuel. See sheet 15.00.

Minimum Charge

The monthly minimum charge shall be the demand charge for 300 kilowatts of billed total demand. When auxiliary service is furnished, the minimum bill specified in paragraph 3, Conditions of Delivery, shall also apply.

Delayed Payment Charge

This rate is net. An additional one and one-half percent (1.5%) of the billed amount, including applicable credits and adjustments, shall be collectible if paid after twenty-one days from the date of rendition of each bill.

CONTRACT

Form No. 4.

TERRITORY

All areas served in Michigan.

Issued Mo Day Year Effective Mo Day Year

Issued under the authority of Order No. _____ of the Michigan Public Service Commission, Dated _____ 19__

Issued By _____ Name of Officer Vice President Milwaukee, Wisconsin Address

WISCONSIN MICHIGAN POWER COMPANY

M. P. S. C. No. 6

Third Revised Sheet No. 11.01
 Canceled Second Revised Sheet No. 11.01

GENERAL PRIMARY SERVICE - RATE Cp 1 (continued)

HIGH-VOLTAGE CREDIT

The rate applies to service furnished at the company's available primary distribution voltages of less than 25,000 volts. Customers who are served at higher voltages shall receive the following:

| <u>Supply Voltage</u> | <u>Credit per KW of Billed Total Demand</u> |
|-----------------------|---|
| Over 25,000 | 15¢ |

DETERMINATION OF DEMAND

1. Measured Demands

(a) Measured maximum demand shall be the maximum rate at which energy is used for a period of 15 consecutive minutes as ascertained by a recording wattmeter or other standard measuring device.

(b) Measured day demand shall be the measured maximum demand within the billing period which is established during day hours. Unless specified to the contrary in writing by the company not later than January 1 of each year, day hours shall be from 7:00 a.m. to 7:00 p.m. Monday through Friday for the ensuing year.

(c) Measured night demand shall be the measured maximum demand within the billing period which is established during night hours. Night hours are those hours not designated as day hours.

(d) Measured total demand shall be the measured day demand or 75 per cent of the measured night demand, whichever is the greater. See paragraph 5, Conditions of Delivery.

2. Billed Demands

(a) Demand charges are based on a standard power factor of 85 per cent. Billed demand shall be determined by the following formula:

$$\text{Billed demand} = \frac{\text{Measured demand} \times 85 \text{ per cent}}{\text{Monthly average power factor in per cent}}$$

The monthly average power factor shall be calculated from the monthly use of kilowatt-hours "A" as obtained from the watt-hour meter and the monthly use of lagging reactive kilovolt-ampere hours "B" as obtained from a ratcheted reactive component meter, by the following formula:

$$\text{Monthly average power factor} = A \text{ divided by the square root of } (A^2 + B^2)$$

(b) Billed total demand shall be the measured total demand as provided in paragraph 1(d) above, adjusted for power factor, or the minimum specified in the contract, whichever is the greater.

Issued Mo. Day Year Effective Mo. Day Year

Issued under the authority of Order No. _____ of the Michigan Public Service Commission, Dated _____ 19__

Issued By _____ Vice President Milwaukee, Wisconsin
Name of Officer TITLE Address

D
R

GENERAL PRIMARY SERVICE - RATE Cp 1

CONDITIONS OF DELIVERY

1. The company will furnish three-phase, 60 hertz power service at its most conveniently available primary voltage but in no case less than approximately 4,160 volts, at some one convenient point on the premises of the customer nearest the lines of the company. The supply voltage will depend upon the location of the customer and the size and characteristics of his load. A customer receiving service under this rate at more than one voltage shall be billed separately for service received at each voltage.

2. The customer shall, at his expense, install all apparatus and materials necessary for the proper utilization of the power furnished by the company. All such apparatus shall conform to the Electric Service Rules and Regulations of the company pertaining to primary substation installation and shall at all times be kept suitable for operation by the power furnished. Any customer receiving service under this rate who requires lighting regulation shall furnish, install, operate and maintain the necessary regulating equipment at his expense.

3. The company will furnish auxiliary service under this rate to a customer who operates his power plant. For such service the customer's net minimum yearly bill shall be the greater of the application of the minimum specified in the basic rate schedule or \$23.00 per kilovolt-ampere or equivalent kilovolt-ampere output rating of all customer's power plant equipment that supplies load which can be transferred from the customer's to the company's system or the kilovolt-ampere rating of the customer's substation capacity which can serve such loads, whichever is the smaller. The customer's power plant equipment is defined as including steam, combustion or hydraulic equipment used to operate electric generators, air compressors, refrigeration equipment, pumps, and other similar equipment. At the end of each contract year if the net amounts billed by the company for service under the customer's contract have not equaled the net minimum yearly bill for auxiliary service as provided hereunder, then the difference shall be billed by the company and paid by the customer with the regular bill for service for the twelfth month of the contract year.

4. A customer operating electric generating equipment shall not connect it in parallel with the company's system without the written consent of the company nor without providing, at customer's expense, protective and synchronizing equipment satisfactory to the company.

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Issued No. Day Year Effective No. Day Year

Issued under the authority of Order No. of the Michigan Public Service Commission, Dated 19

Issued By Name of Officer Vice President Milwaukee, Wisconsin

4-82

Wisconsin Michigan Power Company Rates and Charges

GENERAL PRIMARY SERVICE - RATE Cp 1

CONDITIONS OF DELIVERY (Continued)

5. This rate provides that 75 per cent of the measured night demand shall be used in determining measured total demand if 75 per cent of the night demand exceeds the day demand. If load conditions permit, the company, at its option, may apply a smaller percentage of the customer's night demand, in which case a written notice to this effect will be issued prior to September 1, to become effective for the twelve months beginning with the following October 1. The night demands of any customers served under this arrangement shall not exceed the capacity of the facilities the company has provided for furnishing the customers normal daytime demands. N

6. Should the customer, because of fire, strike, casualties, civil or military authority, insurrection or riot, the actions of the elements, or any other like cause beyond his control, be prevented from operating that equipment installed for the utilization of the power service contracted for, the company will waive the monthly minimum demand charge for such period; provided, however, that the period of time of such suspension of use of power shall be added to the period of the contract; and further, provided that the customer notifies the company in writing within six days of his inability to use said power service, specifying reasons therefor. R

7. The company shall use reasonable diligence in furnishing an uninterrupted and regular supply of power, but it shall not be liable for interruptions, deficiencies, or imperfections in service, except to the extent of a pro rata reduction of the demand charge provided for herein. R

8. Service under this rate shall be furnished only in accordance with the Electric Service Rules and Regulations of the company. R

9. The company shall not be obligated to maintain a service connection for standby or breakdown service under this rate. R

10. Energy furnished under this rate shall not be resold, except as provided in the Electric Service Rules and Regulations of the company. R

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Issued Mo. Day Year Effective Mo. Day Year

Issued under the authority of Order No. _____ of the Michigan Public Service Commission, Dated _____ 19____

Issued By _____ Vice President Milwaukee, Wisconsin
Name of Officer

4-83

THIS
Wisconsin Michigan Power Company
Rates and Charges

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "U1" - CITY RESIDENTIAL SERVICE

WHO MAY TAKE SERVICE:

Any customer for residential purposes.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

RATE:

| | | |
|--------------------------------|----------|------------|
| First 50 K.W.H. used per month | \$.0450 | per K.W.H. |
| Next 50 K.W.H. used per month | .0350 | per K.W.H. |
| Next 400 K.W.H. used per month | .0270 | per K.W.H. |
| Over 500 K.W.H. used per month | .0215 | per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-84

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "U2" - CITY RESIDENTIAL ALL ELECTRIC HEATING SERVICE

WHO MAY TAKE SERVICE:

Any City customer for residential purposes, including space heating requirements, provided that their major electric space heating facilities are permanently installed and are the primary source of space heating.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

RATE:

| | |
|--------------------------------|---------------------|
| First 50 K.W.H. used per month | \$.0450 per K.W.H. |
| Next 50 K.W.H. used per month | .0350 per K.W.H. |
| Next 400 K.W.H. used per month | .0270 per K.W.H. |
| Over 500 K.W.H. used per month | .0200 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-85

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "U3" - CITY GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any customer for commercial or industrial purposes.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

| | | | |
|-------|-----------------------------|----------|------------|
| First | 100 K.W.H. used per month | \$.0580 | per K.W.H. |
| Next | 400 K.W.H. used per month | .0500 | per K.W.H. |
| Next | 2,500 K.W.H. used per month | .0360 | per K.W.H. |
| Over | 3,000 K.W.H. used per month | .0300 | per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

- (1) Service is governed by the Board of Light and Power's Standard Rules and Regulations.
- (2) Conjunctional Billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements.

Marquette Board of Light and Power
Rates and Charges 4-86

Effective: For meter billings
beginning Dec. 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "U4" - CITY GENERAL SERVICE ALL ELECTRIC HEATING

WHO MAY TAKE SERVICE:

Any City General Service customer who has permanently installed utility approved electric heating equipment as the primary source of space heating.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

| | | | |
|-------|-----------------------------|----------|------------|
| First | 100 K.W.H. used per month | \$.0580 | per K.W.H. |
| Next | 400 K.W.H. used per month | .0500 | per K.W.H. |
| Next | 2,500 K.W.H. used per month | .0360 | per K.W.H. |
| Over | 3,000 K.W.H. used per month | .0200 | per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-87

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "U5" - CITY POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Capacity charge per K.W. of billing demand per month.

| | |
|-----------------------|------------------|
| First 25 K.W. or less | \$ 75.00 |
| Over 25 K.W. | \$ 3.00 per K.W. |

Energy charge per K.W.H. per month.

| | |
|-----------------------------------|---------------------|
| First 1,000 K.W.H. used per month | \$.0330 per K.W.H. |
| Next 9,000 K.W.H. used per month | .0190 per K.W.H. |
| Over 10,000 K.W.H. used per month | .0175 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$75.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 25 K.W.

CONTRACT:

One year or more.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "U6" - CITY - LARGE INDUSTRIAL POWER SERVICE

WHO MAY TAKE SERVICE:

Any industrial customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Capacity charge per K.W. of billing demand per month.

| | |
|------------------------|------------------|
| First 200 K.W. or less | \$ 500.00 |
| Over 200 K.W. | \$ 2.15 per K.W. |

Energy charge per K.W.H. per month.

| | |
|-------------------------------------|---------------------|
| First 500,000 K.W.H. used per month | \$.0170 per K.W.H. |
| Over 500,000 K.W.H. used per month | .0160 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$500.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 K.W.

CONTRACT:

One year or more.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-89

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE - SERVICE TO COLLEGES

WHO MAY TAKE SERVICE:

Any college or university receiving energy through primary metering.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per K.W. of billing demand per month.

| | | |
|-------|------------------|------------------|
| First | 200 K.W. or less | \$ 600.00 |
| Next | 2,800 K.W. | \$ 2.63 per K.W. |
| Over | 3,000 K.W. | \$ 2.40 per K.W. |

Energy charge per K.W.H. per month.

| | | |
|-------|---------------------------------|---------------------|
| First | 500,000 K.W.H. used per month | \$.0200 per K.W.H. |
| Next | 5,500,000 K.W.H. used per month | .0190 per K.W.H. |
| Over | 6,000,000 K.W.H. used per month | .0185 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$600.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 K.W.

CONTRACT:

May be required by the Board of Light and Power.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-90

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE - MUNICIPAL AND SCHOOL SERVICE
INCLUDING MUNICIPAL STREET LIGHTING

WHO MAY TAKE SERVICE:

Any municipality, school service, and municipal street lighting.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

\$.0300 per K.W.H. user per month

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976

Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE - MUNICIPAL WATER PUMPING SERVICE

WHO MAY TAKE SERVICE:

The City of Marquette Water Utility for water pumping only.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

\$.0235 per K.W.H. used per month.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-92

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE - SENIOR CITIZENS' APARTMENTS -
PINE RIDGE APARTMENTS

WHO MAY TAKE SERVICE:

The Senior Citizens' Apartments - Pine Ridge Apartments
at 316 Pine Street.

TERRITORY APPLICABLE:

The Senior Citizens' Apartments - Pine Ridge Apartments at
316 Pine Street in Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard
available voltages.

RATE:

\$.0290 per K.W.H. used per month.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard
Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard
Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE - LOW RENT HOUSING SERVICE -
LAKE SUPERIOR VILLAGE

WHO MAY TAKE SERVICE:

The Low Rent Housing Project - Lake Superior Village at Longyear Avenue, Marquette, Michigan.

TERRITORY APPLICABLE:

The Low Rent Housing Project - Lake Superior Village at Longyear Avenue in Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz at 120/240 volts with metering at each transformer location.

RATE:

\$.0260 per K.W.H. used per month.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges -

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R1" - RURAL RESIDENTIAL SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for residential and general farm purposes.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

RATE:

| | | |
|--------------------------------|----------|------------|
| First 50 K.W.H. used per month | \$.0700 | per K.W.H. |
| Next 100 K.W.H. used per month | .0350 | per K.W.H. |
| Next 350 K.W.H. used per month | .0300 | per K.W.H. |
| Over 500 K.W.H. used per month | .0280 | per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$2.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-95

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R2" - RURAL RESIDENTIAL ALL ELECTRIC HEATING SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for residential and general farm purposes, including space heating requirements, provided that their major electric space heating facilities are permanently installed and are the primary source of space heating.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

RATE:

| | | |
|--------------------------------|----------|------------|
| First 50 K.W.H. used per month | \$.0700 | per K.W.H. |
| Next 100 K.W.H. used per month | .0350 | per K.W.H. |
| Next 350 K.W.H. used per month | .0300 | per K.W.H. |
| Over 500 K.W.H. used per month | .0200 | per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$2.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

4-96

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R3" - RURAL RESIDENTIAL SEASONAL SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for residential seasonal service, such as summer cottages and camps.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

RATE:

BILLED ANNUALLY

| | |
|---------------------------------|---------------------|
| First 600 K.W.H. used per year | \$.0700 per K.W.H. |
| Next 1,200 K.W.H. used per year | .0350 per K.W.H. |
| Next 4,200 K.W.H. used per year | .0300 per K.W.H. |
| Over 6,000 K.W.H. used per year | .0280 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum annual charged billed in advance shall be \$30.00 per meter.

TERMS OF PAYMENT:

Bills for electric energy used over the minimum bill are due on receipt of billing, and the advance minimum billing is due within 90 days of receipt of billing.

CONTRACT:

None, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings*
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R4" - RURAL GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for commercial or industrial purposes.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

| | | | |
|-------|-----------------------------|----------|------------|
| First | 100 K.W.H. used per month | \$.0600 | per K.W.H. |
| Next | 400 K.W.H. used per month | .0550 | per K.W.H. |
| Next | 2,500 K.W.H. used per month | .0400 | per K.W.H. |
| Over | 3,000 K.W.H. used per month | .0320 | per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$2.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

- (1) Service is governed by the Board of Light and Power's Standard Rules and Regulations.
- (2) Conjunctional Billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements.

Marquette*Board of Light and Power
Rates and Charges

4-98

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R5" - RURAL GENERAL SERVICE ALL ELECTRIC HEATING

WHO MAY TAKE SERVICE:

Any Rural General Service customer who has permanently installed utility approved electric heating equipment as the primary source of space heating.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

| | | |
|-------|-----------------------------|---------------------|
| First | 100 K.W.H. used per month | \$.0600 per K.W.H. |
| Next | 400 K.W.H. used per month | .0550 per K.W.H. |
| Next | 2,500 K.W.H. used per month | .0400 per K.W.H. |
| Over | 3,000 K.W.H. used per month | .0200 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The minimum monthly charge shall be \$2.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R6" - RURAL POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Capacity charge per K.W. of billing demand per month.

| | |
|-----------------------|------------------|
| First 25 K.W. or less | \$ 75.00 |
| Over 25 K.W. | \$ 3.00 per K.W. |

Energy charge per K.W.H. per month.

| | |
|-----------------------------------|---------------------|
| First 1,000 K.W.H. used per month | \$.0350 per K.W.H. |
| Next 9,000 K.W.H. used per month | .0200 per K.W.H. |
| Over 10,000 K.W.H. used per month | .0190 per K.W.H. |

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$75.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 25 K.W.

CONTRACT:

One year or more.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976
Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "R7" - SERVICE TO OTHER ELECTRIC UTILITIES

WHO MAY TAKE SERVICE:

Any Electric Utility engaged in the business of distributing electricity for Resale.

TERRITORY APPLICABLE:

Any location agreed to be served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Capacity charge per KW of billing demand per month.

All K.W. \$ 2.10 per K.W.

Energy charge per K.W.H. per month.

All K.W.H. used per month \$.0160 per K.W.H.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

As specified in Contract.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month.

CONTRACT:

One year or more.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning December 1, 1974
thru July 31, 1976

Replaces: Rate sheet for billings
after April 9, 1974

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

RATE "CL" - "RL" - DUSK TO DAWN OUTDOOR SECURITY LIGHTING

WHO MAY TAKE SERVICE:

Any customer for dusk to dawn outdoor security lighting where customer takes service at the same premises under a standard rate schedule.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power.

HOURS OF SERVICE:

Daily from dusk to dawn.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120 volts.

RATES:

| | <u>1 - 9 Lights</u> | <u>10 or More Lights</u> |
|-----------------------------------|-----------------------|--------------------------|
| | <u>MONTHLY CHARGE</u> | <u>MONTHLY CHARGE</u> |
| 175 Watt Mercury Vapor/ Per Light | \$ 4.43 | \$ 4.18 |
| 400 Watt Mercury Vapor/ Per Light | \$ 8.36 | \$ 8.11 |

Each lighting unit shall consist of a mast mounted mercury vapor light fixture installed, owned, operated, and maintained by the Board of Light and Power.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

May be required by the Board of Light and Power.

RULES APPLYING:

- (1) Service is governed by the Board of Light and Power's Standard Rules and Regulations.
- (2) Board of Light and Power will provide normal maintenance to the lighting unit including the fixture, lamp, ballast, photo-electric control, mounting brackets and all necessary wiring. The Board of Light and Power will furnish all electric energy required for operation of the unit.
- (3) Normal lamp replacement shall be the responsibility of the Board of Light and Power.
- (4) Damages to fixture, lamp, ballast, photo-electric control, mounting brackets by vandalism or malicious mischief shall be at the customer's expense.
- (5) For service under this schedule, installation of the unit must be on an existing utility pole upon which the Board of Light and Power's secondary lines are already attached or on the customer's own pole approved by the Board of Light and Power.
- (6) The Board of Light and Power will installed a pole for the dusk to dawn light with costs based on present pole costs to be paid by the customer.

Marquette Board of Light and Power
Rates and Charges 4-102

Effective: For billings beginning
December 1, 1974 thru
July 31, 1976
Replaces: Rate sheet for billings
after September 27, 1973

BOARD OF LIGHT AND POWER
P.O. Box 40
Marquette, Michigan 49855

FUEL CLAUSE ADJUSTMENT

Whenever the weighted average cost of fuel at the Shiras Steam Plant is greater or less than 60.118 cents per million BTU, there shall be added or deducted, as the case may be, per kilowatt hour for each 1/100 of a mill of such increase or decrease in the price per million BTU at the heat rate of the Shiras Steam Plant (13,500 BTU/KW) converted into cents per kilowatt hours.

At the above heat rate of the Shiras Steam Plant, the cost of energy per kilowatt hour will vary with each 1/100 of a mill change in cost per million BTU above or below 60.118 cents multiplied by .0000135 cents.

The above fuel adjustments will be calculated at six month intervals, (January 1st and July 1st), to the above formula. The fuel adjustment will be applied to the following rate classifications:

- RATE "U1" - CITY RESIDENTIAL SERVICE
- RATE "U2" - CITY RESIDENTIAL ALL ELECTRIC HEATING SERVICE
- RATE "U3" - CITY GENERAL SERVICE
- RATE "U4" - CITY GENERAL SERVICE ALL ELECTRIC HEATING
- RATE "U5" - CITY POWER SERVICE
- RATE "U6" - CITY LARGE INDUSTRIAL POWER SERVICE
- RATE "U7" - SERVICE TO COLLEGES
- RATE "MU" - MUNICIPAL AND SCHOOL SERVICE INCLUDING MUNICIPAL STREET LIGHTING
- RATE "WP" - MUNICIPAL WATER PUMPING SERVICE
- RATE "U8" - SENIOR CITIZENS' APARTMENTS - PINE RIDGE APARTMENTS
- RATE "U9" - LOW RENT HOUSING SERVICE - LAKE SUPERIOR VILLAGE

- RATE "R1" - RURAL RESIDENTIAL SERVICE
- RATE "R2" - RURAL RESIDENTIAL ALL ELECTRIC HEATING SERVICE
- RATE "R3" - RURAL RESIDENTIAL SEASONAL SERVICE
- RATE "R4" - RURAL GENERAL SERVICE
- RATE "R5" - RURAL GENERAL SERVICE ALL ELECTRIC HEATING
- RATE "R6" - RURAL POWER SERVICE

- RATE "R7" - SERVICE TO OTHER ELECTRIC UTILITIES

Marquette Board of Light and Power
Rates and Charges

Effective: For meter billings
beginning January 1, 1975
Replaces: Rate sheet for billings
after April 9, 1974

FUEL CLAUSE ADJUSTMENT

Billing
 Period July thru December 1975

| | | |
|--|------------|---|
| Base Year Price (per million BTU) | 60.118 | ¢ |
| Adjustment Period Price (per million BTU) | 78.752 | ¢ |
| ADJUSTMENT (Difference) | 18.634 | ¢ |
| X Heat Rate Adjustment (per 1/100th of a mill) | X .0000135 | ¢ |
| FUEL CLAUSE ADJUSTMENT PER KILOWATT HOUR | \$.00252 | |

FUEL CLAUSE ADJUSTMENT

Billing
Period July thru December 1975

Adjustment Period January thru June 1975

| | Coal | | Gas | |
|----------------------|--------------------------|------------------------|--------------|-----------------|
| | Cost | Tons | Cost | Cubic Feet |
| January | 161,436.75 | 8,845.70 | 0.00 | 0 |
| February | 152,031.33 | 8,148.65 | 0.00 | 0 |
| March | 166,148.18 | 8,803.45 | 566.60 | 1,190,000 |
| April | 142,244.07 | 7,923.25 | 3,114.61 | 6,420,000 |
| May | - 17,242.49 84,517.70 | - 1,000.00 4,584.60 | 25,087.65 | 44,590,000 |
| June | 92,221.30 | 4,338.25 | 35,564.56 | 54,940,000 |
| July | | | | |
| August | | | | |
| September | | | | |
| October | | | | |
| November | | | | |
| December | | | | |
| TOTALS | \$ 781,356.84 | 41,643.90 | \$ 64,333.42 | 107,140,000 |
| 2,000 | | X 2,000 | | |
| BTU's per lb./cu.ft. | | | | |
| TOTAL BTU's | | 966,721,494,600 | | 107,140,000,000 |
| Cost Per Million BTU | | 80.825 ¢ | | 60.046 ¢ |

| | | |
|--------------------------------|-----------------|-------------------|
| Total Coal Cost | 781,356.84 | |
| Total Gas Cost | 64,333.42 | |
| GRAND TOTAL | | \$ 845,690.26 |
| Total BTU's (Coal) | 966,721,494,600 | |
| Total BTU's (Gas) | 107,140,000,000 | |
| GRAND TOTAL BTU'S | | 1,073,861,494,600 |
| AVERAGE BTU COST (per million) | | 78.752 ¢ |

M.P.S.C. No. 1
The Ontonagon County Rural Electrification
Association
Ontonagon, Michigan

Third Revised Sheet No. 11.00
Cancels Second Revised Sheet No. 11.00

SCHEDULE B

COMMERCIAL, SMALL POWER AND THREE-PHASE FARM SERVICE

AVAILABILITY:

Available in all territory served by the Association, subject to the Association's established Service Rules and Regulations.

APPLICABILITY:

Applicable to commercial, small power and three-phase farm service.

TYPE OF SERVICE:

Single-phase or three-phase, 60 cycles, at available secondary voltages.

RATE:

Service charge

\$4.10 per customer per month

Energy charge

First 500 kwh's @ 5.0c per kwh
Over 500 kwh's @ 4.5c per kwh

Demand charge

First 10 kilowatts of billing demand per month, no demand charge
Excess above 10 kilowatts of billing demand per month @ \$3.50 per kilowatt.

DETERMINATION OF BILLING DEMAND:

The billing demand shall be the maximum kilowatt demand established by the consumer for any period of fifteen consecutive minutes during the month for which the bill is rendered, as indicated or recorded by a demand meter and adjusted for power factor as provided below.

Continued to Third Revised Sheet No. 11.01

Issued: June 23, 1975

Effective: June 25, 1975

Issued under the authority of Order of the Michigan Public Service Commission

Dated June 23, 1975 in Case No. U-4783

Issued By: William J. Chabot, Manager

4-106

Ontonagon, Michigan
Ontonagon County Rural Electrification Assn.
Rates and Charges

M.P.S.C. No. 1
The Ontonagon County Rural
Electrification Association
Ontonagon, Michigan

Third Revised Sheet No. 11.01
Cancels Second Revised Sheet No. 11.01

SCHEDULE B

COMMERCIAL, SMALL POWER AND THREE-PHASE FARM SERVICE

POWER FACTOR:

The consumer agrees to maintain unity power factor as nearly as possible. Power factor may be measured at any time. Should such measurements indicate that the power factor at the time of his maximum demand is less than 85 percent the demand for billing purposes shall be the demand as indicated or recorded by the demand meter, multiplied by 85 percent and divided by the percent power factor.

MINIMUM MONTHLY CHARGE:

The minimum monthly charge shall be \$4.10 for single-phase service and \$10.00 for three-phase service.

SALES TAX:

Michigan State Sales Tax will be added where applicable.

TERMS OF PAYMENT:

Bills are rendered net with payment due 21 days from date of bill.

FUEL COST ADJUSTMENT CHARGE:

This rate is subject to the Association's standard system fuel adjustment on Sheet No. 14.00.

Issued: June 23, 1975

Effective: June 25, 1975

Issued under the authority of Order of the Michigan Public Service Commission
Dated June 23, 1975 In Case No. U-4783

Issued By: William J. Chabot, Manager

4-107

Ontonagon, Michigan
Ontonagon County Rural Electrification Assn
Rates and Charges

SCHEDULE LP

LARGE POWER SERVICE

AVAILABILITY:

Available to consumers located on or near Seller's three-phase lines for all types of usage, subject to the established rules and regulations of Sellers.

RATE:

\$3.75 per month per kw of billing demand
plus energy charges of
First 1000 kwh per month @ 4.5¢ per kwh
Next 9000 kwh per month @ 3.5¢ per kwh
Over 10000 kwh per month @ 2.0¢ per kwh

DETERMINATION OF BILLING DEMAND:

The billing demand shall be the maximum kilowatt demand established by the consumer for any period fifteen consecutive minutes during the month for which the bill is rendered, as indicated or recorded by a demand meter and adjusted for power factor as follows:

POWER FACTOR ADJUSTMENT:

The consumer agrees to maintain unity power factor as nearly practicable. Demand charges will be adjusted for consumers with 50 kw or more of measured demand to correct for average power factors lower than 90%, and may be so adjusted for other consumers if and when the seller deems necessary. Such adjustments will be made by increasing the measured demand 1% for each 1% by which the average power factor is less than 90% lagging.

FUEL COST ADJUSTMENT CHARGE:

This rate is subject to the Association's standard system fuel adjustment on Sheet No. 14.00.

Continued to Second Revised Sheet No. 12.01

Issued: June 23, 1975

Effective: June 25, 1975

Issued under the authority of Order of the Michigan Public Service Commission

Dated June 23, 1975

in Case No. U-4783

Issued By: William J. Chabot, Manager

4-108

Ontonagon, Michigan
Ontonagon County Rural Electrification Assn.
Rates and Charges

SCHEDULE LP

LARGE POWER SERVICE
(continued)

MINIMUM MONTHLY CHARGE:

The minimum monthly charge shall be the highest one of the following charges as determined for the consumer in question.

- (1) The minimum monthly charge specified in the contract for service.
- (2) A charge of \$0.75 per KVA of installed transformer capacity.
- (3) A charge of \$40.00

MINIMUM ANNUAL CHARGE FOR SEASONAL SERVICE:

Consumers requiring service only during certain season not exceeding 9 months per year may guarantee a minimum annual charge, in which case there shall be no minimum monthly charge. The minimum annual charge shall be sufficient to assure adequate compensation for the facilities installed to serve the consumer, and in no event shall it be less than \$9.00 per KVA of installed transformer capacity, or \$300, whichever is greater.

TYPE OF SERVICE:

Three-phase, 60 cycle, at Seller's standard voltages.

SERVICE PROVISIONS:

1. Delivery point. If service is furnished at secondary voltage the delivery point shall be the metering point unless otherwise specified in the contract for service. All wiring, pole lines and other electric equipment on the delivery point shall be owned and maintained by the consumer.
2. If service is furnished at Seller's primary line voltage the delivery point shall be the point of attachment of Seller's primary line to consumers transformer structure unless otherwise specified in the contract for service. All wiring, pole lines and other electric equipment (except metering equipment) on the load side of the delivery point shall be owned and maintained by the consumer.

Continued to Second Revised Sheet No. 12.02

Issued: June 23, 1975

Effective: June 25, 1975

Issued under the authority of Order of the Michigan Public Service Commission

Dated June 23, 1975 in Case no. U-4783

Issued By: William J. Chabot, Manager

Ontonagon, Michigan

SCHEDULE LP

LARGE POWER SERVICE

(continued)

3. Lighting. Both power and lighting shall be billed at the foregoing rate. If a separate meter is required for the lighting circuit, the registrations of the two watt-hour meters shall be added to obtain total kilowatt-hours used and the registrations of the two demand meters shall be added to obtain the total kilowatt demand for billing purposes.

4. Primary Service. If service is furnished at primary distribution voltage, a discount of seven percent shall apply to the demand and energy charges, and if the minimum charge is based on transformers capacity, a discount of seven percent shall also apply to the minimum charge. However, the Seller shall have the option of metering at secondary voltage and adding the estimated transformer losses to the metered kilowatt-hours and kilowatt demand.

TERMS OF PAYMENT:

Bills are rendered net with payment due 21 days from date of bill.

Issued: June 23, 1975

Effective: June 25, 1975

Issued under the authority of Order of the Michigan Public Service Commission,
Dated June 23, 1975 in Case No. U-4783

Issued By: William J. Chabot, Manager

Ontonagon, Michigan
Ontonagon County Rural Electrification Assn
4-110 Rates and Charges

ALGER DELTA CO-OP

WHOLESALE RATES

Wisconsin Michigan Power Company

Current Rate

| | |
|------------------|---------------|
| First 180 hours* | .0185 per KWH |
| Next 270 hours* | .0150 per KWH |
| Over 450 hours* | .0120 per KWH |

* Hours use of maximum demand per month.

Rate Approved by PSC

| | |
|------------------|---------------|
| First 180 hours* | .0180 per KWH |
| Next 270 hours | .0145 per KWH |
| Over 450 hours | .0113 per KWH |

New Proposed Rate

| | |
|--|---------------|
| Monthly connection charge per Point of Delivery | \$250.00 |
| Demand charge | \$6.70 per KW |
| Energy charge per month | .942¢ per KWH |
| Plus fuel charge | |
| See attachment | |

Current Fuel Charge - approximately \$.0023 per KWH

Marquette Board of Power & Light

Current Rate

| | |
|-----------------|-------------------------------|
| Demand charge | \$2.10 per maximum monthly KW |
| Energy charge | \$.016 per KWH |
| Fuel adjustment | \$.00252 per KWH |

Upper Peninsula Power Company

Current

| | |
|-------------------|-------------------------------|
| Demand charge | \$2.75 per maximum monthly KW |
| Energy charge | \$.0172 per KWH |
| Present fuel cost | \$.00870 per KWH |

CRYSTAL FALLS ELECTRIC AND WATER DEPARTMENTS
Crystal Falls, Michigan
SCHEDULE OF RATES

Residential

First 35 kwh @ 6¢ per kwh
 Next 50 kwh @ 4¢ per kwh
 Over 85 kwh @ 3¢ per kwh
 \$2.50 minimum
 Discount of 10% on residential electricity

Commercial

First 500 kwh \$2.50
 Next 150 kwh @ 5¢ per kwh
 Next 300 kwh @ 4 1/2¢ per kwh
 Next 500 kwh @ 4¢ per kwh
 Next 1,000 kwh @ 3 1/2¢ per kwh
 Over 2,000 kwh @ 3¢ per kwh

Rate for Electric Water Heating
Governed by Time Clock

3¢ per kwh
 \$2.50 minimum

Industrial

Customers using 20,000 kwh per month or more consistently 2.25¢ per kwh
 Plus demand as measured.

Dusk to Dawn Lighting - \$4.50 per month

Water Meter Rates (per month)

| | <u>City</u> | <u>Twp.</u> |
|-----------------------------------|-------------|-------------|
| First 7,000 cu.ft. per 100 cu.ft. | 24¢ | 27¢ |
| Next 7,000 cu.ft. per 100 cu.ft. | 21¢ | 24¢ |
| Next 7,000 cu.ft. per 100 cu.ft. | 18¢ | 21¢ |
| Over 21,000 cu.ft. per 100 cu.ft. | 15¢ | 15¢ |
| Minimum charge per month - | | |
| 5/8" & 3/4" meter = | \$2.00 | |
| 1" meter = | 3.00 | |
| 2" meter = | 7.50 | |
| 3" meter = | 15.00 | |
| 4" meter = | 22.50 | |

Crystal Falls Electric and Water Depts.
Rates and Charges

Crystal Falls Electric and Water Departments
Schedule of Rates - Cont'd.

Water Flat Rates

City - \$2.00 per month
Twp - \$2.35 per month

Sewer Flat Rates

\$2.00 per month

Sewer - Metered

100% of First \$10.00 Water Bill
50% of Next \$10.00 Water Bill
25% of Balance of Water Bill

A penalty of 10% will be charged to all accounts paid after
the 20th of the month.

RATE "WP-1" - LARGE LIGHT AND POWER

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per kw of billing demand per month.

| | |
|----------------------|-------------|
| First 200 kw or less | \$1,200.00 |
| Next 2,800 kw | 5.10 per kw |
| Over 3,000 kw | 4.75 per kw |

Energy charge per kwh per month.

| | |
|--------------------|---------------|
| First 500,000 kwh | 1.50¢ per kwh |
| Next 5,500,000 kwh | 1.40¢ per kwh |
| Over 6,000,000 kwh | 1.35¢ per kwh |

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$1,200.00.

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 kw.

ADJUSTMENT OF OFF-PEAK HOURS:

Demands created during off-peak hours may, at the option of qualifying customers, be adjusted as provided in Off-Peak Service Rule 18.

CONTRACT:

One year or more.

Issued:

Effective: For service rendered on and after

Issued under the authority of Order of Michigan Public Service Commission.
dated _____ In Case No. _____

U.P.S.C. No. 5
UPPER PENINSULA POWER COMPANY
Houghton, Michigan

First Revised Sheet No. 15.1
Cancels Original Sheet No. 15.1

RATE "WP-1" - LARGE LIGHT AND POWER

FUEL CLAUSE: (Continued)

This rate is subject to the Company's Standard interconnected system for adjustment.

APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued:

Effective: For service rendered on and
after

Issued under the authority of Order of Michigan Public Service Commission.
dated _____ In Case No. _____

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