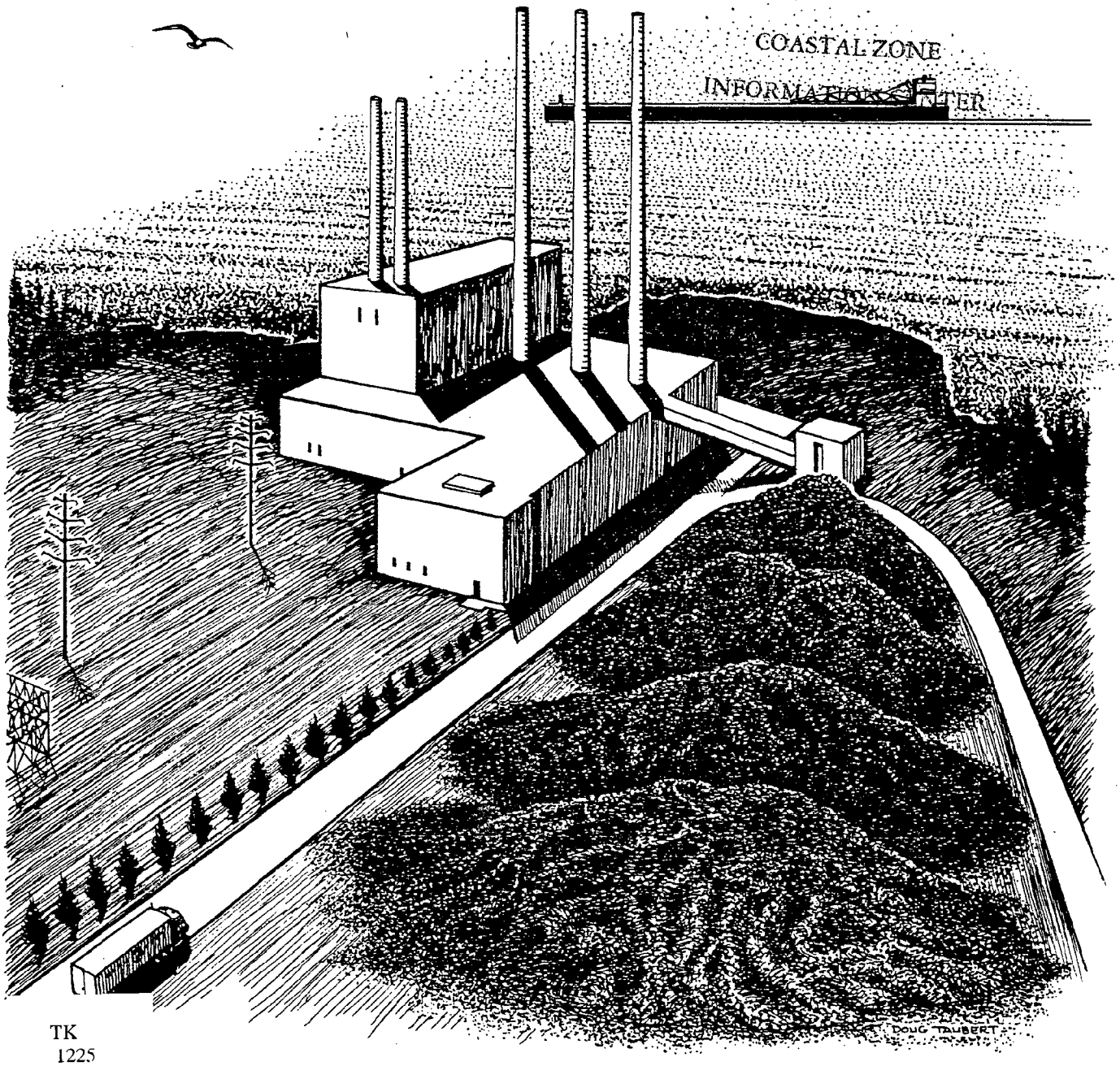
Energy Site Impacts

TOWN OF OCONTO



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BAY-LAKE Regional Planning Commission

serving communities within the counties of:

FLORENCE ● MARINETTE ● OCONTO ● BROWN ● DOOR ● KEWAUNEE ● MANITOWOC ● SHEBOYGAN

ENERGY SITE IMPACTS

TOWN OF OCONTO

Oconto County

TK1225.036W37 1982

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APRIL 1982

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400 MW COAL FIRED POWER PLANT PROJECT

DESCRIPTION OF PROPOSED ACTION

Utilities often work in cooperation with each other to help fulfill electrical demands. For instance, if a shutdown was necessary at a generating plant, electricity could be bought from another utility until power is started up again. On the other hand, a utility "going it alone" would need a spare power plant to meet demands during shut down or peak flow periods. The utility power planning groups also identify future goals and needs, and plan together to meet them. The normal procedure in power plant construction is for each utility to take its turn in building a larger sized plant to furnish power to meet its own needs and the needs of the other utilities at the time the plant begins operation. Within a few years, the utility needs all of the power from the new plant and other utilities must buy from someone else.

Wisconsin Public Service Corporation (WPSC) has combined its efforts with three other Wisconsin utility companies in forming a planning group called the Eastern Wisconsin Utilities (EWU). Each company does its own power demand forecasting, but through the EWU a coordinated plan is completed that identifies generating systems which will provide an adequate and reliable supply of energy in the future. WPSC has proposed that a 400 megawatt coal fired electrical generating facility be constructed in one of three locations, two of which are in the Bay-Lake Region (Oconto and Lawrence). The generating station is expected to begin operation in 1992.

The original report from Wisconsin Public Service Corporation to the Wisconsin Public Service Commission identified 35 potential sites. The selection criteria applied during site analysis eliminated all but three of the originally named sites. Among some of the major criteria reviewed for each facility are hydrology, geology, meteorology/air quality, ecology and land use. Of the three final sites, the Town of Lawrence was chosen as the primary site and the Town of Oconto as the alternate site. Indepth studies such as the environmental impact statements, and soils and hydrology testing will soon be initiated. Following the completion of the studies any necessary changes that must be made to the construction plans of the power plant to be sure the plant operates in harmony with the environment will be undertaken as early as possible.

Type of Facility - Main Components

The facility planned by WPSC will be a modern, technically advanced plant. A general description of the operation and identification of the major components will illustrate WPSC's efforts to generate electricity as cleanly as possible. The plant layout is graphically displayed in Figure 1.

Two generating units were originally planned to produce 600-800 megawatts (i.e., 300-400 megawatts each). Due to reduced demand, a 400 MW plant will be constructed; however, the site will be prepared to house the

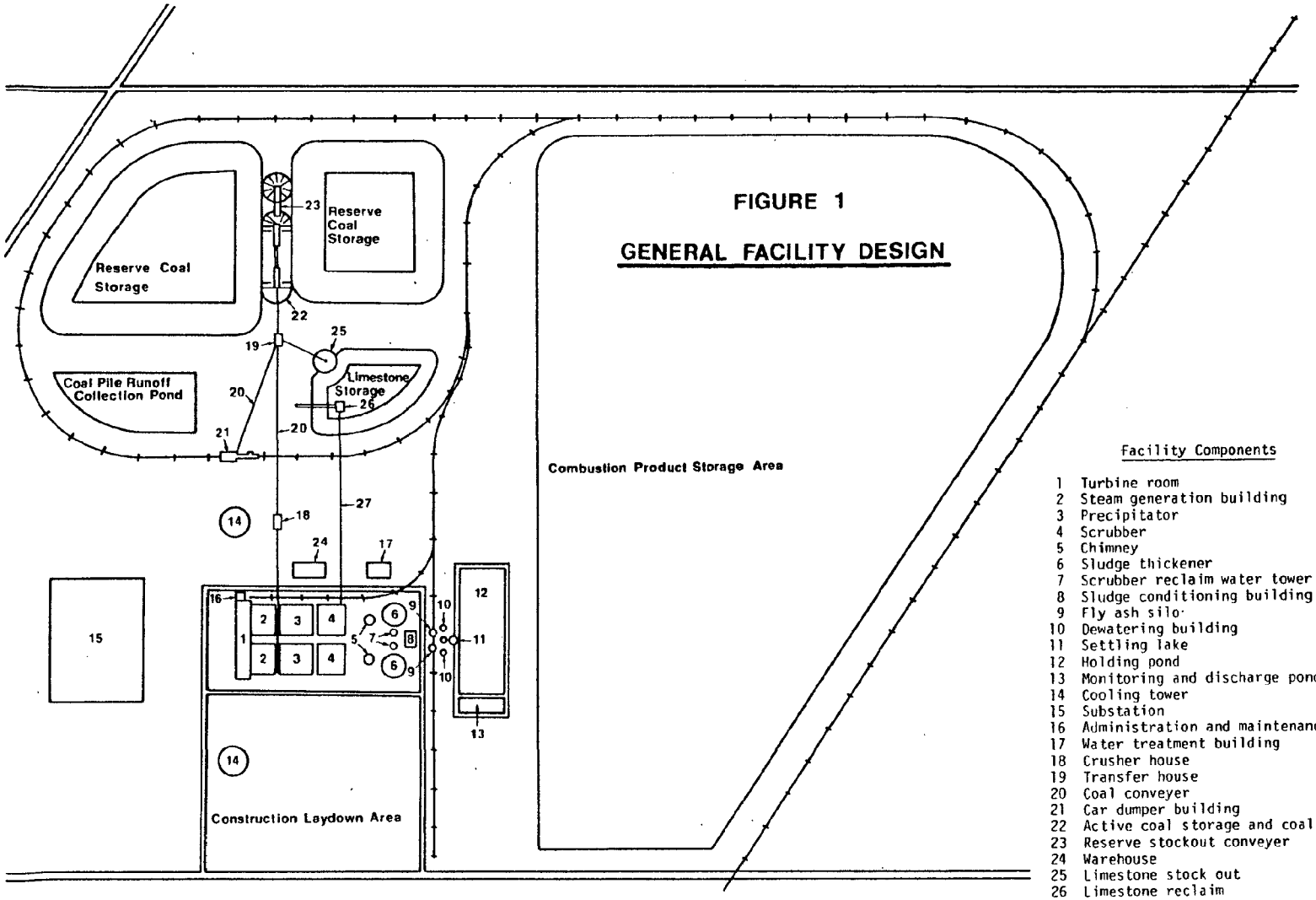


FIGURE 1

GENERAL FACILITY DESIGN

Facility Components

1 Turbine room
2 Steam generation building
3 Precipitator
4 Scrubber
5 Chimney
6 Sludge thickener
7 Scrubber reclaim water tower
8 Sludge conditioning building
9 Fly ash silo
10 Dewatering building
11 Settling lake
12 Holding pond
13 Monitoring and discharge pond
14 Cooling tower
15 Substation
16 Administration and maintenance
17 Water treatment building
18 Crusher house
19 Transfer house
20 Coal conveyer
21 Car dumper building
22 Active coal storage and coal barn
23 Reserve stockout conveyer
24 Warehouse
25 Limestone stock out
26 Limestone reclaim
27 Limestone conveyer

second unit for future expansion. Each unit will be housed in separate buildings and will maintain individual components. However, a common turbine room, sludge conditioning room and the transformers will be designed to serve both units.

The turbine room is located adjacent to the steam generating building, and can be operated by either one or both units. Coal is burned here to produce the steam that drives the turbines. The precipitator, which is located next to the generating building, collects the particulates (fly ash) from the emission. The emission then passes through a spray type sulfur dioxide scrubber where a wet spray removes pollutants from the gas stream by means of chemical reactions. Scrubbers also serve to cool emission temperatures. Emissions are then released through a 550 foot high smoke stack. The next few steps prepare the sludge and fly ash for safe storage.

The cooling system for a 400 MW facility operating at full capacity will require approximately a 200,000 gpm flow of circulating water through the condenser to absorb excess boiler heat. The cooling water is then circulated into a mechanical draft cooling tower to dissipate the absorbed heat before being recycled back into the system. A mechanical draft cooling tower stands approximately 60 feet high. Because of the compactness of the unit, fans will be used to help the cooling process. The system creates noise, uses electrical energy and releases large amounts of water vapor (approximately 4000 gpm at maximum operation). Makeup water is expected to come from on-site deep wells or the nearby river.

Separate handling systems and storage areas will be provided for coal and limestone. Limestone which is necessary for the scrubbing process will be stored near the scrubbers. Limestone will be reclaimed from storage by utilizing underground reclaim hoppers and conveyed to the limestone preparation facility located near the scrubbers. The coal handling system is very similar, with the exception of being conveyed to the steam generating area rather than to the scrubber.

The electrical power produced by the generator is converted to a useable power, monitored, controlled and released to powerlines at the power plant's substation. This area contains the switchboards, switches, wiring, fuses, circuit breakers, compensators and transformers.

Solid Waste Disposal Landfill

One of the most troublesome issues to most power plant planners is the disposal of solid wastes. Approximately 170,000 to 175,000 tons of sludge and ash will be produced each year. Compounds that make up the wastes can be detrimental to surface water and groundwater, so special care must be given to line the disposal site with impermeable liners. Various sealing materials can be used; clay, bentonite, synthetic liners, and stabilized fly ash and scrubber solids are among the most common. A bentonite, synthetic liner or a clay liner will be used at this proposed facility. Cover materials must also be applied to prevent the ash from becoming airborne.

Most power plant plans now require the solid waste disposal area to be located on site to reduce shipping costs. An estimated 250 to 325 acres will be required for the disposal area. Studies are in progress that are trying to determine uses for these byproducts. Currently, a small market exists for use of fly ash as an ingredient for concrete and cement products. Western coal has a higher sale potential because of its high content of calcium. Further long-term research is necessary, however, to make sure that the fly ash component is not detrimental to the environment.

It takes three to four years to construct a power plant. During this period 450-550 people may be employed, mostly through the construction trades. Most of the skilled workers are needed for three to twelve months to complete certain functions before being replaced by workers with new skills and trades. The construction phase is long enough that short-term housing may have to be found for many of these employees, especially at the sites located in small rural communities, where the work force will have to be brought in from other locations. Impacts upon schools, housing and local services may be experienced for temporary time periods. When the construction phase is over, employment at the facility will be reduced to 70 permanent employees. Communities should be prepared for changes during and after the installation of a major electrical generating facility.

Most of the information for this segment came from planning documents drafted by Wisconsin Public Service Corporation, particularly their 1978 and 1981 Site Analysis. Since construction of this project is not scheduled to begin until 1988, it is reasonable to expect that some changes will be made in these plans.

PHYSICAL ENVIRONMENT

LOCATION

Nearest Town	Oconto
USGS Maps 15' Series	Oconto
Township	28N
Range	21E
Sections	19, 20, 29, 30

Overview of the Oconto Site

Wisconsin Public Service Corporation has selected the Town of Oconto as its alternate site to house the power plant project. The primary site is located in Brown County, and the Oconto site will be used only if unforeseen problems arise at the primary site. This site consists of over 1000 acres situated within County Trunk J., Chicago & Northwestern Rail line and the north banks of the Oconto River. The location is approximately five miles west-southwest of the Oconto city limits. Other towns in the area are, Oconto Falls, six miles west; Lena, five miles northwest; Coleman-Pound area, 12 miles north; Marinette, 15 miles northeast; and Green Bay, 18 miles south.

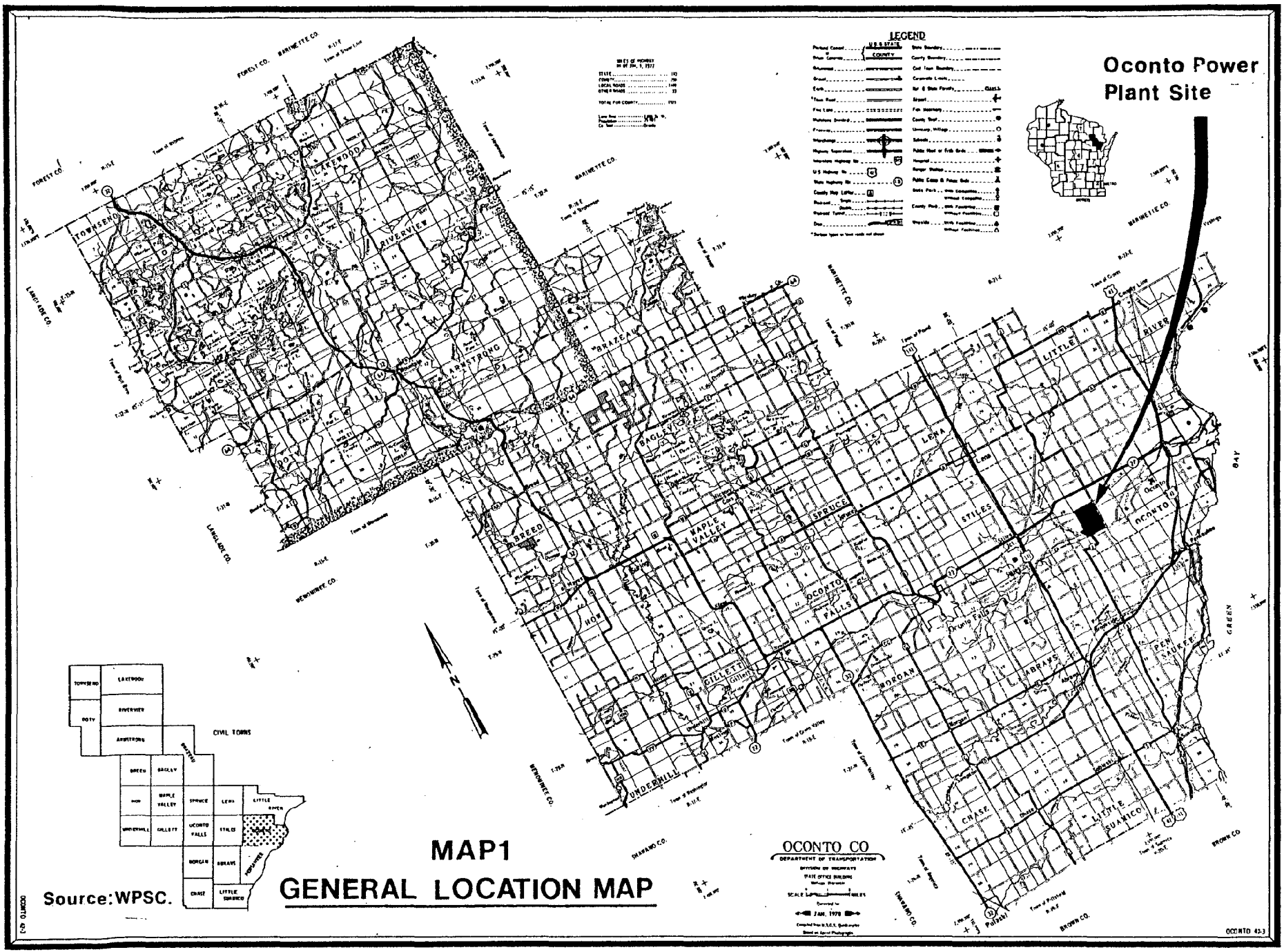
The nearly 1000 acre site proposed by the Wisconsin Public Service Corporation is currently owned by private individuals. The land is zoned entirely for agriculture and is in the most part being tilled by area farmers. Some scattered wooded and wet areas are the exception to the tilled acreage. This property slopes slightly southward toward the Oconto River with about 50 feet of relief from north to south. Map 1 shows the site location.

GENERAL DESCRIPTION

Bedrock

The bedrock underlying the site plays an important role in determining the placement of the proposed power plant. It may impose some limitations upon the facility that could restrict operations. Bedrock formations dictate the accessibility and quantities of groundwater, the potentials and limitations of surface and subsurface water movements, and are also an important consideration for the location of solid waste and hazardous material disposal sites.

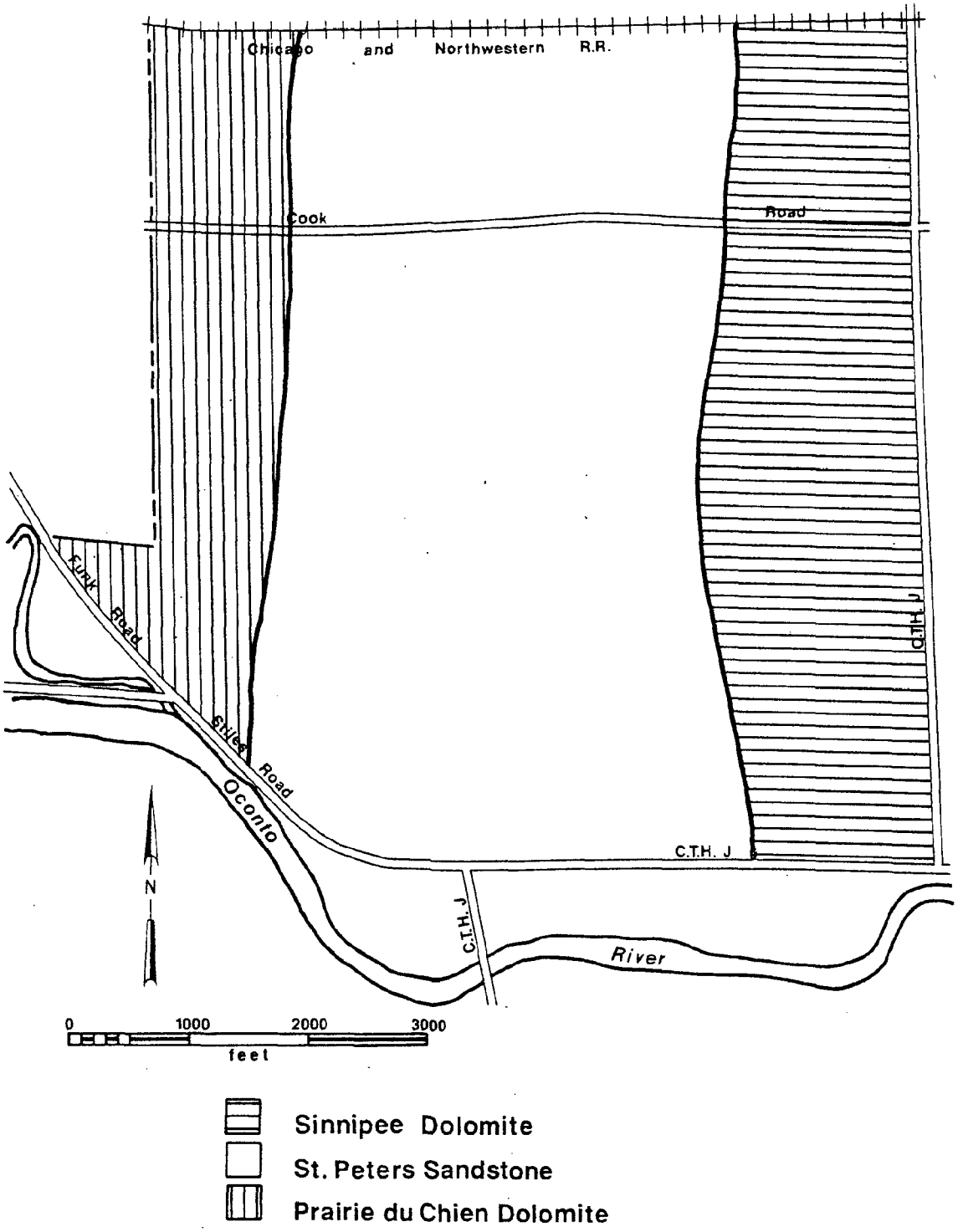
This particular site has three bedrock groups that lie nearest to the ground surface as depicted in Map 2. The eastern one-quarter of the site contains the Sinnipee dolomite group nearest the surface. This group is the top rock layer from the site to the shore of Green Bay. The thickness of the bedrock varies from 10 to 310 feet. Lying nearest


Oconto Power Plant Site
LEGEND
MAP1
GENERAL LOCATION MAP
Source:WPSC.
OCONTO CO
DEPARTMENT OF TRANSPORTATION
CIVIL TOWNS
TOWNSEND
LAKEWOOD
RIVERVIEW
RICTY
ARMSTRONG
BRAZEAU
BAGLEY
BREED
MAPLE VALLEY
SPRUCE
LENA
LITTLE RIVER
OCONTO FALLS
STILES
MORGAN
ABRAMS
CHASE
LITTLE SUAMICO
UNDERHILL
GILLETT
HOW
OCONTO
PENSAUKEE
GREEN BAY
FOREST CO.
MARINETTE CO.
LANGLADE CO.
SHAWANO CO.
BROWN CO.
OCONTO 43-3

MAP 2

BEDROCK UNDERLYING THE OCONTO SITE

PROPOSED SITE FOR THE OCONTO COUNTY POWER PLANT



Source: BLRPC.

the surface in the middle portion of the site is the St. Peters sandstone. This bedrock normally has a depth of approximately 75 feet. The western one-quarter is the Prairie du Chien group. This bedrock is another dolomite and ranges from 0 to 250 feet in depth. This bedrock lies nearest the surface for 8 to 15 miles west of the site. The St. Peters Sandstone and Prairie du Chien group both "dip under" the Sinnipee, as seen in Figure 2, running eastward in layers. This layering has a slope of 30-35 feet per mile to the southeast. Underlying all three of these groups is the Cambrian Sandstone, which lies 500-700 feet below the surface. Figure 2 depicts the layering of the bedrock.

Dolomite has poor water bearing capabilities and cannot be considered a source of retrieving water. The impermeability of the Sinnipee creates a barrier which slows the movement of groundwater except along fractures and joints. Sandstone, on the other hand, is a good source for groundwater. The St. Peters sandstone is often the source for domestic water needs, while the Cambrian group has a 500 to 1000 gallon per minute capacity and is the source for municipal water for such communities as Oconto and Marinette.

Glacial Deposits

The glacial deposits on the proposed power plant site are comprised solely of lake deposits. Lake deposits occur between end moraines and overlie ground moraine and outwash. These formations originated from the deposition of sand, silt, clay and deltaic deposits into glacial ponds, lakes and streams. Today, these features are flat lacustrine plains, characterized by the composition of the glacial deposits, and the presence of very shallow lakes. Much of the deposit is considered a poor source of groundwater because of low permeability characteristics.

Soils

Approximately 10 different soils can be found on the Oconto site. Most of the site, however, is made up of two different soil series: the Solona and the Onaway. The remaining eight soils comprise of about one quarter of the sites area.

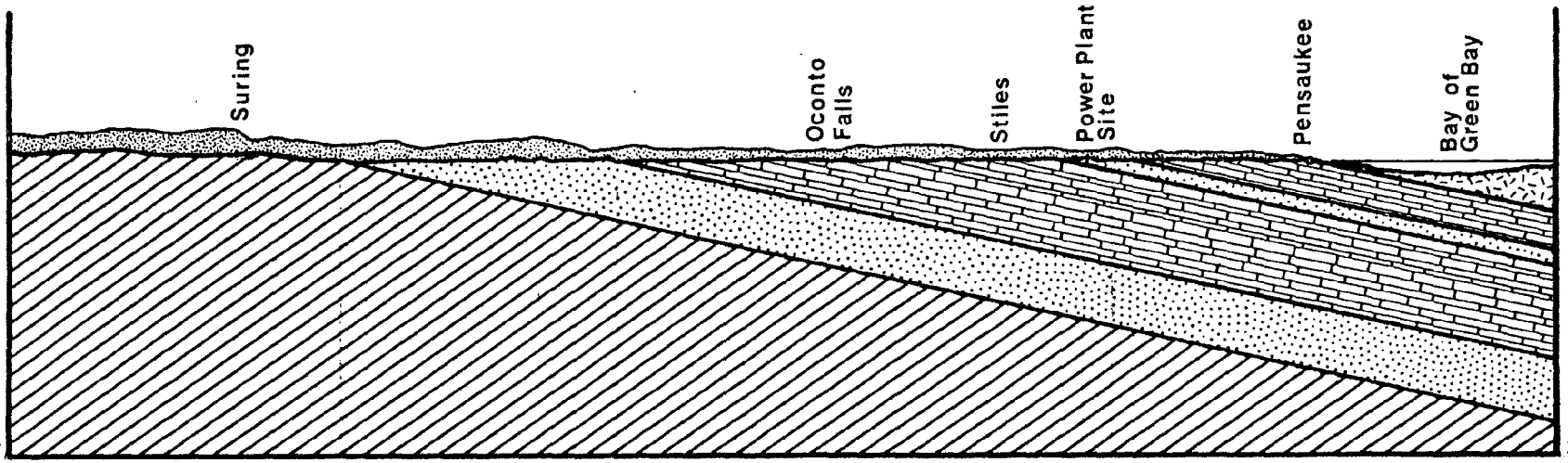
The Solona Series covers large areas primarily away from the river. These soils are somewhat poorly drained, and the soils are nearly level. They are moderately permeable soils, and are ranked as prime agricultural soils.

Soils classified as Onaway Loam can be found over large areas of all but the northwestern part of the site. It is well and moderately well drained, with gentle to moderately steep slopes. These soils are low to moderate in permeability, and are classified as prime agricultural soils.

The remaining soils are found in small parcels in various areas of the site. Although the characteristics vary a great deal, the parcels are small enough as not to dominate any one area. Map 3 shows the soil types on the site; descriptions of the soils can be found in Table 1.

FIGURE 2

GENERALIZED CROSS SECTIONAL VIEW OF OCONTO COUNTY BEDROCK



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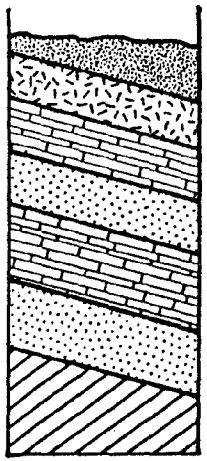
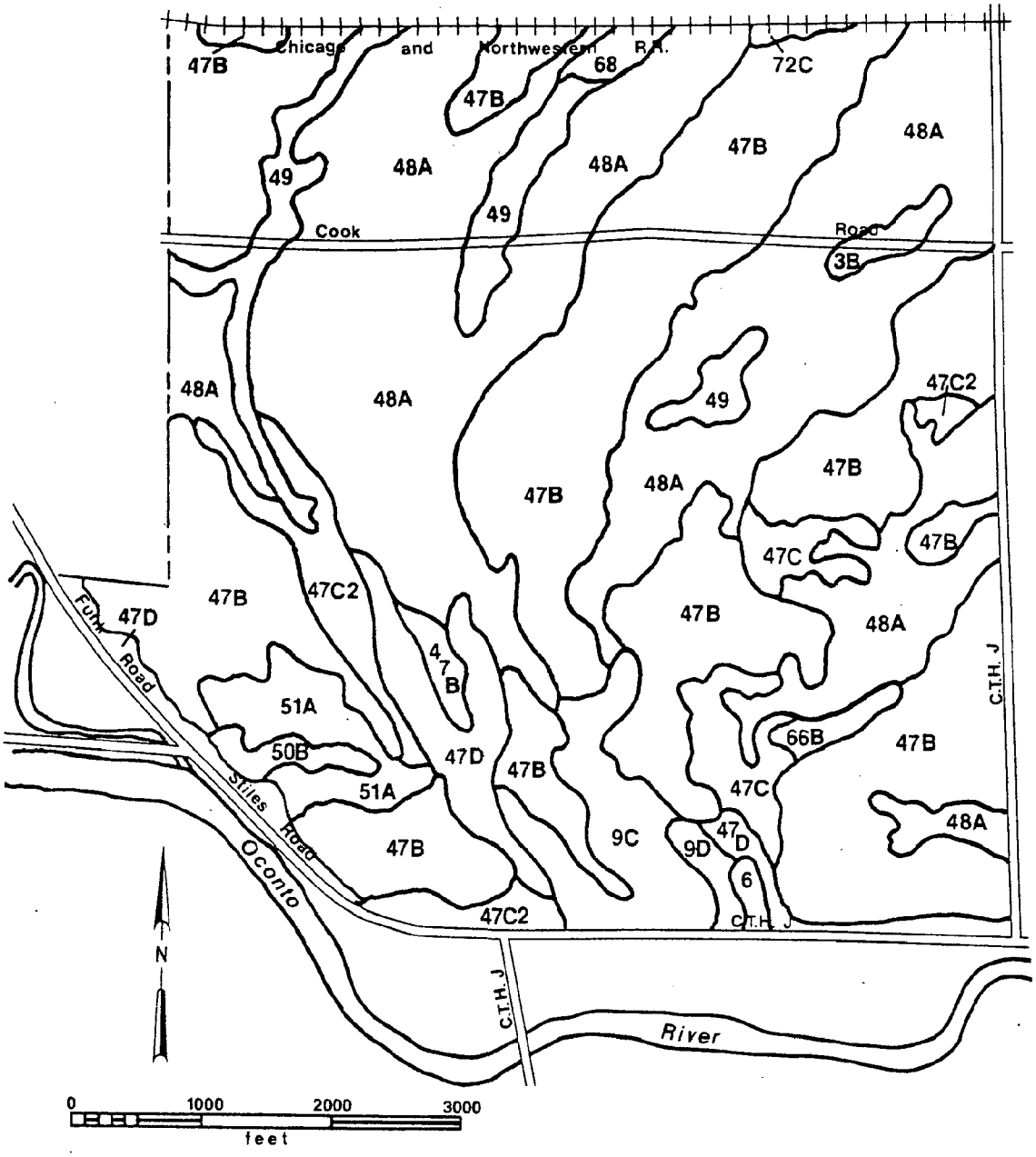


ROCK TYPE	GEOLOGIC TIME PERIOD	MILLIONS OF YEARS AGO
Glacial Drift	Quaternary	0–2
Maquoketa Shale	Ordovician	425–500
Platteville-Galena Dolomite	Ordovician	425–500
St. Peter Sandstone	Ordovician	425–500
Prairie Du Chien Dolomite	Ordovician	425–500
Cambrian Sandstone	Cambrian	500–600
Granite and other Crystalline Rock	PreCambrian	3,800

SOURCE: E.F. BEAN; GEOLOGIC MAP OF WISCONSIN.

MAP 3
SOILS

PROPOSED SITE FOR THE OCONTO COUNTY POWER PLANT



Source: BLRPC.

TABLE 1
SOIL CHARACTERISTICS ON THE OCONTO SITE

Symbol	Name	Percent of Slope	Depth to (ft) Water Table	Septic Field Limitations	Building Limitations	Ag Potential
48	Solona Loam	0-2%	1-3	Severe	Severe	Prime
47B	Onaway Loam	2-6%	3+	Moderate	Slight	Prime
47C	Onaway Loam	6-12%	3+	Moderate	Moderate	
47D2	Onaway Loam Eroded	12-20%	3+	Severe	Severe	
66B	Hibbing Loam	2-6%	6+	Severe	Severe	Prime
6	Udifluvents	0-2%	-5	Severe	Severe	
9C	Oconto Sandy Loam	6-12%	5+	Moderate	Moderate	
9D	Oconto Sandy Loam, Eroded	12-20%	5+	Severe	Severe	
51	Iosco Loamy Sand	0-2%	1-2	Severe	Severe	
68	Pickford Silt	0-2%	0-1	Severe	Severe	
49	Angelica Loam	0-2%	0-1	Very Severe	Severe/Very Severe	Prime
3	Solona-Onaway Loam	1-6%	1-3+	Mod.-Severe	Slight-Severe	

Source: U.S. Department of Agriculture Soil Conservation Service

Water Table

It can be seen on Map 4 that most of the site is considered to have high water tables year round or have seasonally high water tables. Soils with the water table within 18" from the surface are usually considered a high water table and from 18" to five feet often have seasonally high water tables. Table 1 gives general characteristics of the soils on the site. It must be noted that Map 4 is relying on soil characteristics and not on site investigation.

High water table in soils could be a limiting factor for the construction of the various components that make up the facility. It has already been anticipated that mat foundations or pile supported foundations will be used for supporting the plant structures. It cannot be determined what types or capacities of foundation would be needed until detailed subsurface data are obtained. The solid waste landfill may be more critical than the structures. The clay liner that is proposed must be as impermeable as possible to prevent pollutants from the landfill from entering the water table.

Fish and Wildlife

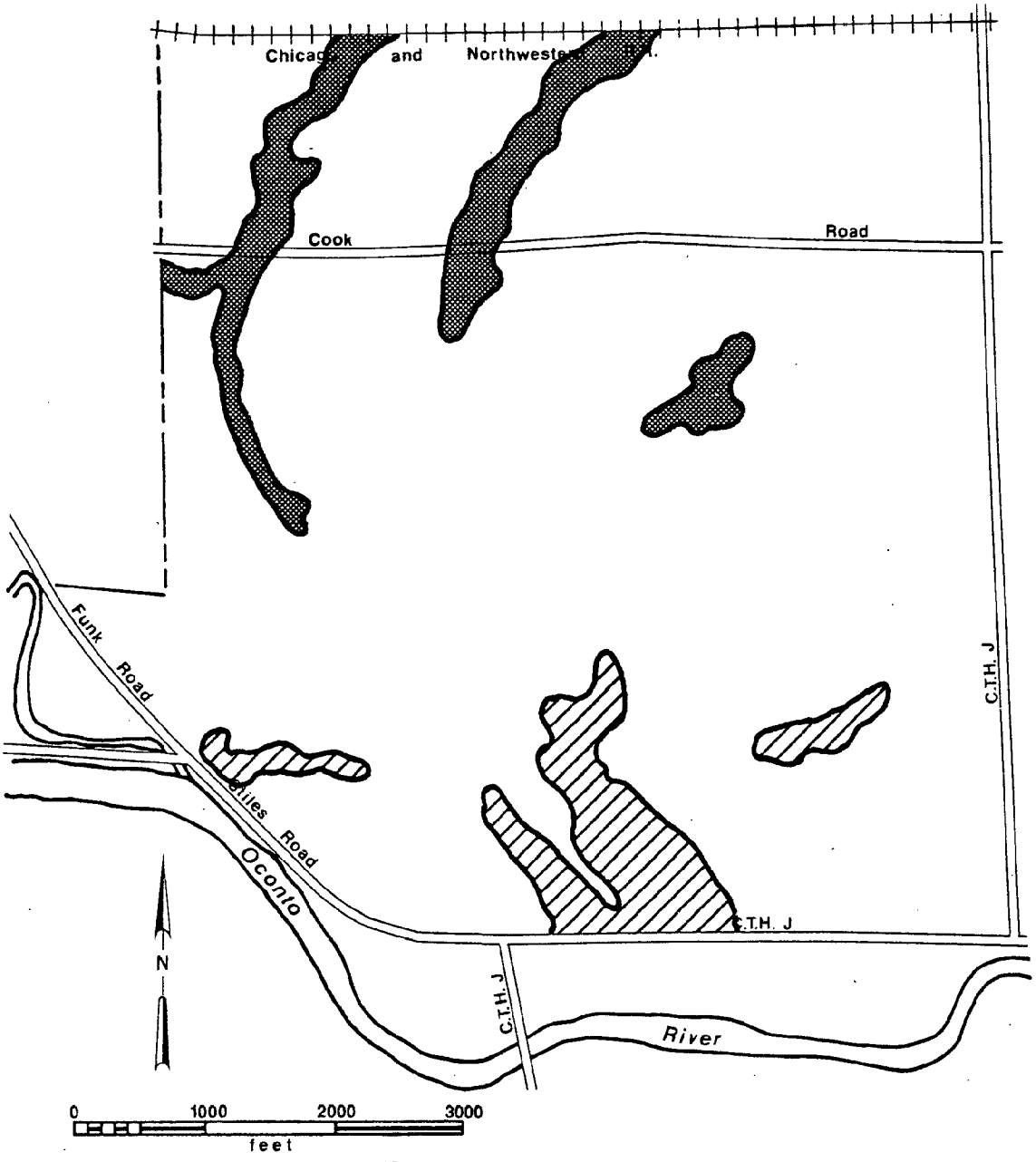
The fisheries in the area of the proposed site are located primarily in the Little and the Oconto Rivers. Two small intermittent streams flow within the boundaries, but cannot support a fishery. According to the Fish and Wildlife Habitat: Great Lakes/1976 study conducted by the Wisconsin Department of Natural Resources, the Little River and the Oconto Rivers are Class 1 fish habitats. Fish such as trout, salmon, northern pike, suckers and bass are common in these two rivers during spawning. An occasional lake sturgeon may also occur in these rivers. Of these species, only the bass has a large enough year-round population to be considered a resident specie. See Map 5 for local fisheries.

Approximately 150 acres of the proposed site has been mapped by the Wisconsin Department of Natural Resources as wildlife habitat, according to the Fish and Wildlife Habitat: Great Lake/1976 report. Map 6 illustrates the location and the quality of these areas. The largest habitat is in the northwestern region of the site where two parcels of similar characteristics total 100 acres of high quality habitat. The DNR considers it a high quality habitat for whitetail deer, ruffed grouse and songbirds. These two habitats are only part of an additional 400 wooded acres immediately adjacent to the site boundary. As shown on the map, three other parcels have been designated as habitat with the site boundaries. One parcel is 17 wooded acres in the southeastern region of the site that is rated a low quality pheasant habitat. The other two habitats are low quality songbird habitats. One is in the central part of the site and the other is in the west central area. The remaining acreage on the site are either used in an agricultural mode or is residential.

Habitats located outside the site boundaries are also important considerations because many of the impacts created by this project will cross site boundaries. Over 900 acres of wildlife habitat are located within one mile of the site.

MAP 4
WATER TABLE

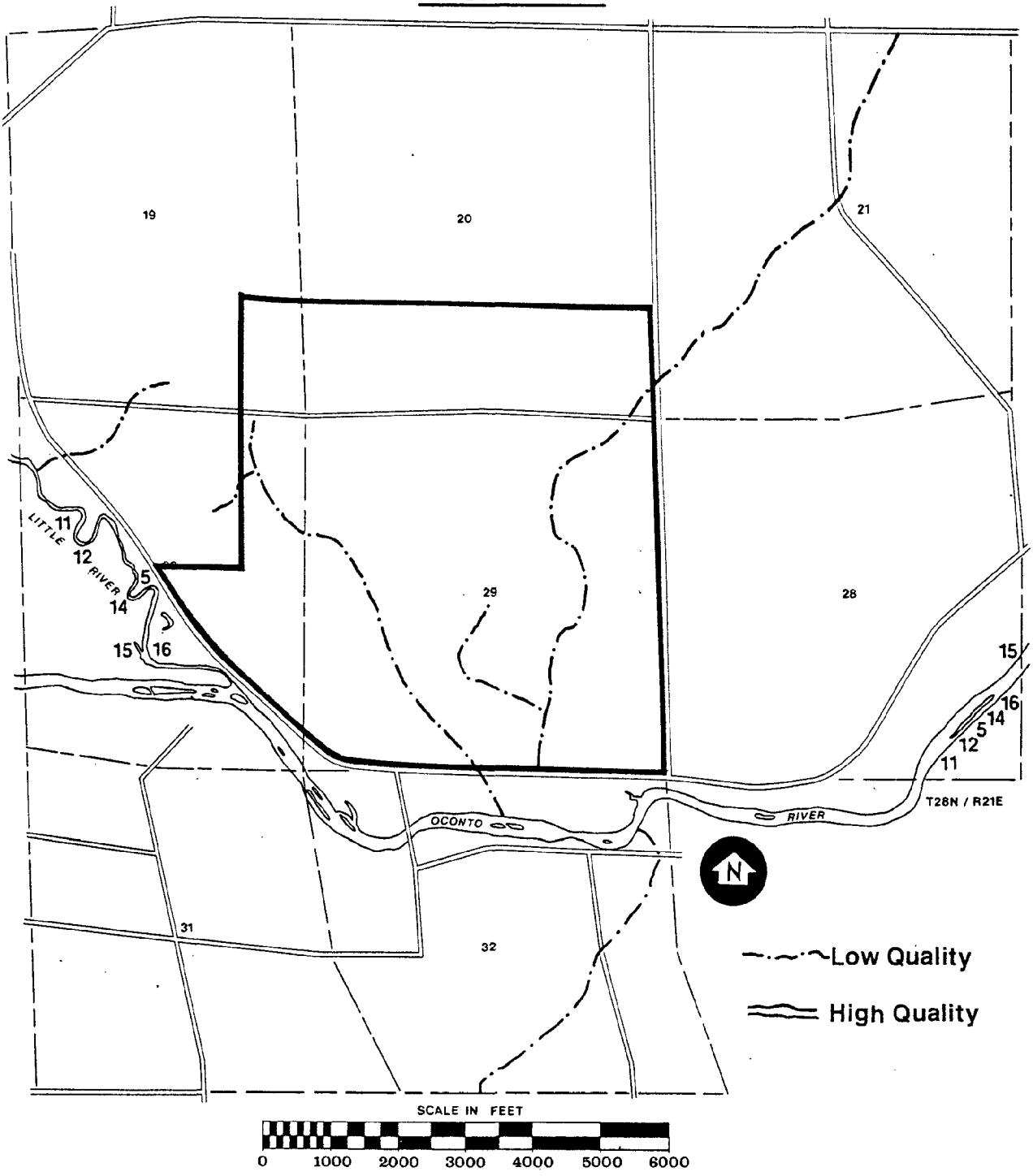
PROPOSED SITE FOR THE OCONTO COUNTY POWER PLANT



O to 1.5 foot to water table.
No water problems.
Remainder is seasonally high water tables.

Source: BLRPC.

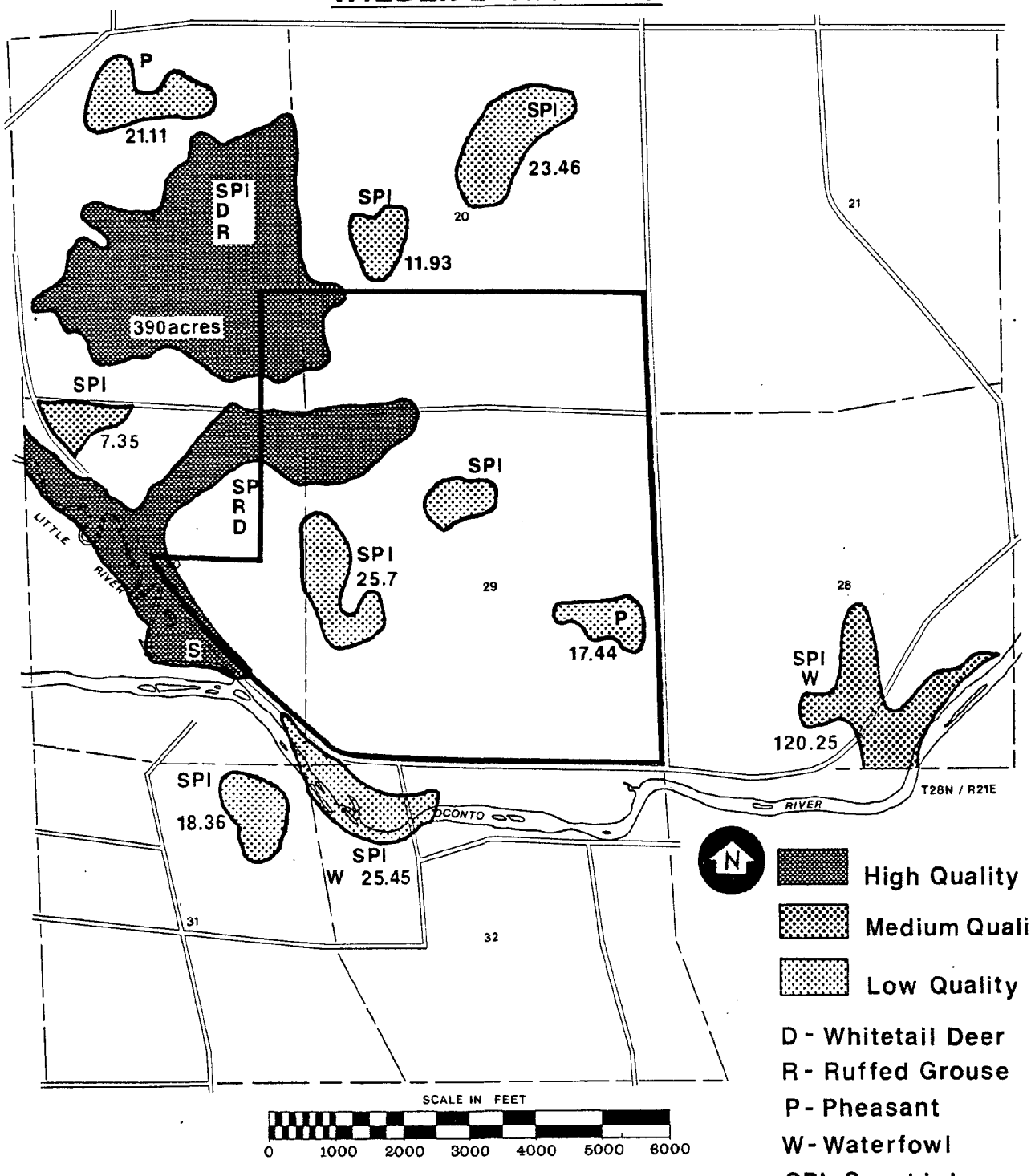
MAP 5
FISHERIES



5 Resident Bass
11 Migrating Salmon
12 Migrating Trout
14 Migrating Northern Pike
15 Migrating Suckers
16 Migrating Bass

Source:BLRPC.

MAP 6
WILDLIFE HABITAT



Source: BLRPC

SOCIAL ECONOMIC ENVIRONMENT

POPULATION

The 1980 Census records the population of Oconto County as 28,947 persons, which ranks Oconto fifth among the eight Bay-Lake counties. The county does, however, have a 13.18% growth rate, which makes Oconto the third most rapid growing county in the region. Growth patterns show that most of the increase has taken place along the U.S. Highway 41 corridor. This area has experienced more than a 25% growth rate.

Another rapid growth area in the county is in the northwestern part, primarily in the Nicolet National Forest area. In comparison to these two rapid growth areas other parts have increased at a slower pace or even declined in population. Map 7 shows the growth pattern for Oconto County between the years 1970 and 1980.

EMPLOYMENT

Data from the Wisconsin Department of Industry, Labor and Human Relations (DILHR) shows an estimated labor force of 12,200 persons in Oconto County for February 1981, over 1,500 of them were unemployed. Oconto has climbed from a 5.8% unemployment figure in 1978 to a 12.7% in early 1981 and now has the highest rate in the Bay-Lake Region.

The major employment sectors in the county are Manufacturing, Retail Trade, Services and Government positions, each of which employ over 500 people. Manufacturing, which is the largest sector and services have both declined in available positions in the past five years. Table 2 shows employment changes in some of the major sectors from 1975 to 1980.

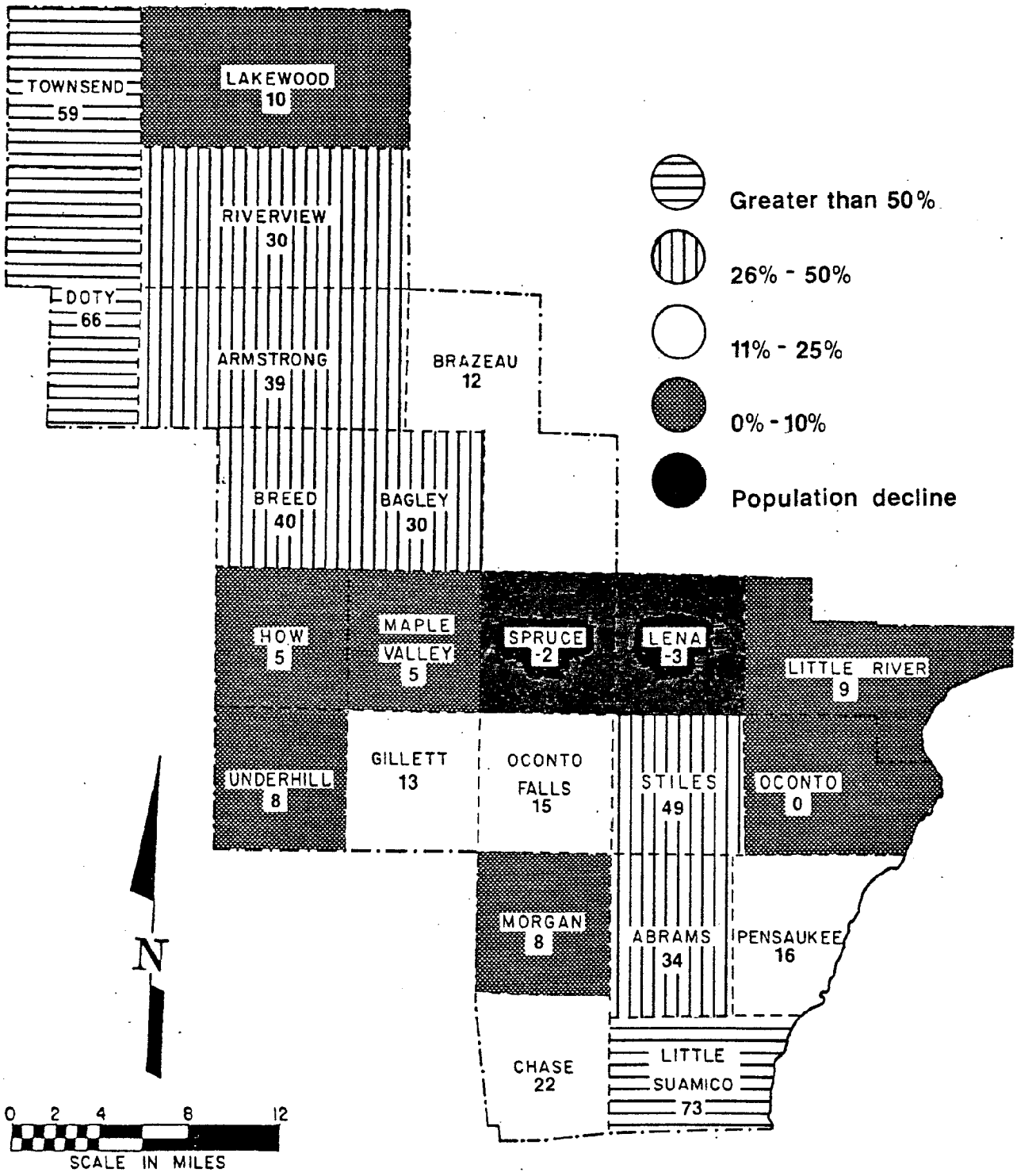
INCOME

Past issues of Wisconsin Department of Revenue Annual Report, "Taxes-Aides and Shared Taxes," indicate that Oconto County has always been among the lowest in per capita income in the Bay-Lake Region and has an average weekly wage which is 26% lower than the state average. This same data source indicates that Oconto's recent high unemployment status had little additional effects on per capita income. Even when Oconto's unemployment rate was in line with other counties in the region, Oconto's per capita income was still low in comparison.

In every major employment sector, the county falls well below the state average, see Table 3 for wage comparisons.

The 1978 Census of Agriculture showed Oconto County having 1,375 farms, 912 of them are operated as the principle occupation for the household. True income on farms are often hard to determine, but agriculture products sold to market may be a good indicator. In revenues received from products sold, Oconto County was over 16% below state averages per farm, but is just about average for the Bay-Lake Region.

MAP 7
POPULATION CHANGE BY PERCENT 1970-1980
OCONTO COUNTY



Source: 1980 Decennial Census, Dept. of Commerce; and BLRPC.

TABLE 2
EMPLOYMENT CHANGE BY SECTOR
OCONTO COUNTY 1975 TO 1980

EMPLOYMENT SECTOR	1975	1980
Agriculture, Forestry & Fishing	22	62
Mining	29	32
Construction	278	324
Manufacturing	2,050	1,934
Food & Kind Products	446	434
Lumber & Wood Products	422	440
Paper & Allied Products	366	*
Leather & Leather Products	311	213
Machinery (Excl. Ele.)	111	168
Others	394	679
Wholesale	366	257
Retail	859	999
Finance, Insurance & Real Estate	129	152
Services	924	786
Government	730	1,109
Others	410	412
Total County Employment	5,797	6,067

* Data has been shifted to the "Others" column in 1980.

Source: DILHR, Unemployment Compensation Statistics

TABLE 3
AVERAGE WEEKLY WAGES
(2nd Quarter 1980)
STATE AND COUNTY

EMPLOYMENT SECTOR	STATE OF WISCONSIN	OCONTO COUNTY
Agriculture, Forestry & Fishing	196.04	129.47
Mining	358.01	262.52
Construction	351.21	198.51
Manufacturing	337.72	245.16
Food & Kind Products	321.47	261.38
Lumber & Wood Products	245.54	195.57
Paper & Allied Products	377.68	*
Leather & Leather Products	278.60	185.00
Machinery (Excl. Elec.)	318.40	287.18
Wholesale	313.81	204.76
Transportation, Communication & Real Estate	325.88	212.95
Retail	137.62	104.70
Finance, Insurance & Real Estate	240.62	177.96
Services	197.04	138.29
Local Government	262.90	184.52
Total Wage Average	260.23	191.36

* Indicates no data available

Source: Department of Industry, Labor & Human Relations, Unemployment Compensation Statistics

COMMUNITY SERVICES

The City of Oconto is the nearest community to the proposed site, and would be impacted the most by the construction of a power plant. For this reason, the following segment will briefly inventory some of the city's community services. Other smaller communities located near the power plant site may wish to take an inventory of services so that potential problems can be identified. Communities should be concerned about providing adequate housing, sewer and water, schools, law enforcement and health care facilities. What sort of impacts could be expected with a large influx of people? The following is a brief inventory of the City of Oconto's services.

Water

The city relies exclusively on ground water for municipal and private water needs. Most city residents receive their water from the municipally owned utility, though a few residents still use private wells. The utility is supplied by three wells with combined yields of nearly 2000 GPM. The city also has two water storage tanks, each with approximately 100,000 gallon capacity. During the winter months, however, one of the tanks is drained to prevent freezing.

Oconto's demand is about 16% of the capacity and is broken down as follows:

Sales to Residences	74 MGY
Sales to Commerce	33 MGY
Sales to Government	7 MGY
Sales to Schools	5 MGY
Sales to Industry	53 MGY
Total Sales	172 MGY

Sewer

The Oconto wastewater treatment plant was constructed in 1952. The system provides primary and secondary treatment for all effluent. This particular system combined the storm water and sanitary wastes. Problems arose during wet weather periods because the flow exceeded the capacity causing untreated effluent to discharge directly into the Oconto River.

By 1974, the treatment plant was upgraded. Some storm and sanitary sewers were separated, while new aeration tanks, chlorination facilities and chemical feed equipment were added to achieve phosphorus removal. The city still has a large amount of combined sewers, and wet weather bypassing still takes place. The Department of Natural Resources has required the city to complete the separation by 1983. This would eliminate the need for an expansion of the facility, the capacity would be great enough to handle future projected demands.

The facility currently has a designed handling capacity of 1.764 million gallons of wastewater per day (MGD). The latest consumption records for the plant was in 1976 and the average daily consumption was 0.47 MGD. It is not considered likely that the demand on the facility will ever exceed the capacity during its operational period.

Schools

The Oconto School District maintains five schools and employs 74 full time teaching staff. These numbers have kept almost constant over the past ten years. Student enrollment, however has declined by nearly 27% in the same ten years. Data put out by the Department of Public Instruction indicate that the number of students in the lower grades are 40% to 50% less than the number of students at the upper high school level. The trend shows a much smaller total enrollment in future years.

The situation of declining enrollments and a relatively constant teaching staff creates a better quality of education. A 16/1 ratio of students to teachers can be compared to a 20/1 ratio early 1970's.

Recreation

The National Recreation Association has set standards for numbers and sizes of recreation areas per groups of families. These standards and current recreation trends were incorporated in Oconto's 1975 outdoor recreation plan. The plan led to a substantial upgrading of city parks.

Trends toward small craft boating, camping, picnicking, and increased river use resulted in many improvements of related facilities. A new swimming pool (capacity 350) has been built to replace Aageson Lake, which did serve as the only swimming facility in the area. In general, the city has a good core of recreation facilities for city residents. However, the updated outdoor recreation plan put emphasis on two major improvements that are needed for the city. The first is the need for additional indoor recreation for winter activities, and the second recommendation is facilities for the elderly population. Map 8 shows the location of city parks and Table 4 describes all facilities in the area.

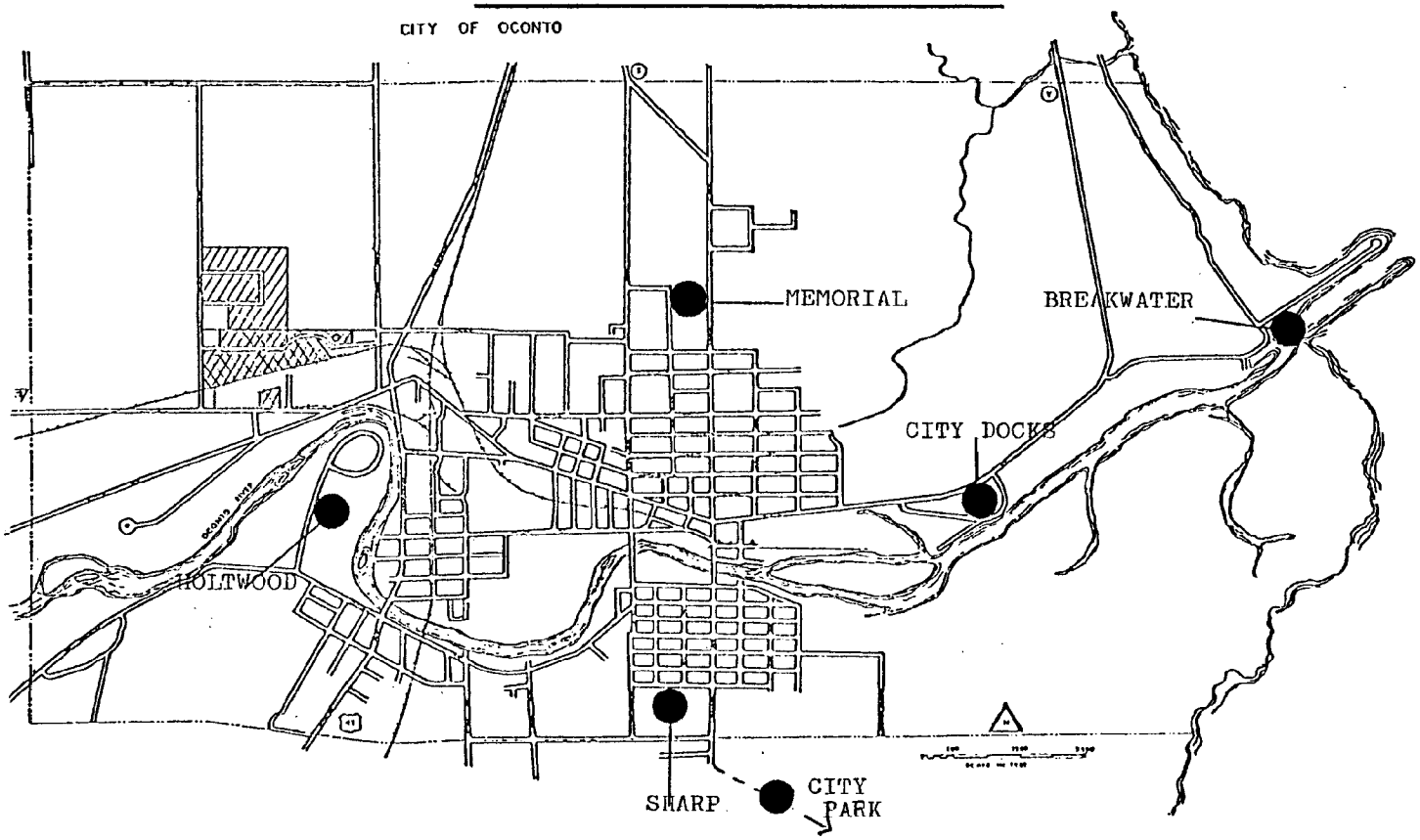
Other recommended improvements included a boat launching facility, expansion of camping sites, a nature trail and tennis courts in Holtwood Park. A pedestrian bridge over the river is recommended to make the park more accessible to residents living northeast of the river.

Housing

The U.S. Census for 1980 shows that 8% of the housing stock is vacant. This is up 2% from the 1970 Census. The Community Development Block Grant (CDBG) FY 1981 Preapplication for the City of Oconto speculated that this increase may be due to the high unemployment in the city in the past few years. Abandoned housing units increased from 68 in 1970 to 85 in 1977, a 20% jump.

MAP 8

CITY RECREATION AREAS



Source:City of Oconto Engineering Dept.

TABLE 4
SUMMARY OF LAND IN PUBLIC USE

NAME	OWNER	ACREAGE	TYPE OF PARK	PRIMARY USE
			Playlot Neighbor. Playgr. Playfield City-Wide Regional	
Holtwood Park	City	68.2	x x x x x	Swimming, camping, picnicking and sports
City Park	City	24.1	x x	Camping, swimming, and picnicking
Memorial Field	City	18.9	x x x	Sport area
Sharp Park	City	22	x x x	Sport area - nature study
City Docks	City	6	x x	Boat launching and docking area
Breakwater	City	1	x x	Boat launching and fishing area, picnic tables and toilet
Oconto High School	School District	72	x x	School, sport area and open space
Washington School	School District	5	x x	School and playground
Lincoln School	School District	1.2	x x	School and playground
Jefferson School	School District	8	x x	School and playground
St. Peter School (Private)	Church	3	x x	Church, school, and playground
St. Joseph School (Private)	Church	6.5	x x	Church, school, and playground
Beyer Home (Semi-public)	Historical Soc.	3.7	x x	Historical site
Copper Culture Mounds State Park	State	45	x x	Historical site
Oconto Golf Club (Semi-public)	American Legion	158	x x	Golf
Oconto Marsh	State, County & Sportsman's Club	400	x x	Wildlife preserve and hunting
Yacht Club (Semi-public)	Oconto Yacht Club	7	x x	Boat launching & docking area
Newport Marina (Semi-public)	Power Sports O.F.	4	x x	Boat launching & docking area
Edgewood Golf Course			x x	Golf

Single unit dwellings are available in the city, but a housing analysis indicates a need for the renovation of units in general. The CDBG preapplication indicated that 76.6% of the housing in the city was built prior to 1940.

LAND USE

The site of the proposed facility is zoned and used for agricultural purposes. Nine different owners have parcels of land on the site, and each uses it in this mode to some extent. Four farms are primarily beef or dairy which demand grazing acreage and feed crop. The other properties are primarily pieces of farms with other parcels off the site or are rented to other area farmers.

An estimated breakdown of land use by acreage is as follows.

Residential	-	17 acres
Wooded	-	152 acres
Agricultural	-	897 acres
Total Acreage	-	1066 acres

Source: Bay-Lake Regional Planning Commission

See Map 9 for land use on site.

TRANSPORTATION NETWORK

Transmission Lines

Accompanying every electrical generating plant is a network of transmission lines distributing the power to its service area. The transmission lines in Northeastern Wisconsin range from 69 kilovolts (kV) to 345 kV. Each network requires a right-of-way (r-o-w) which will vary with the power of the line. A 345 kV line, for instance, would need a 150 foot wide r-o-w. The normal procedure for acquiring land for transmission line right-of-ways is for the utility to purchase an easement. Property for a right-of-way is subject to condemnation.

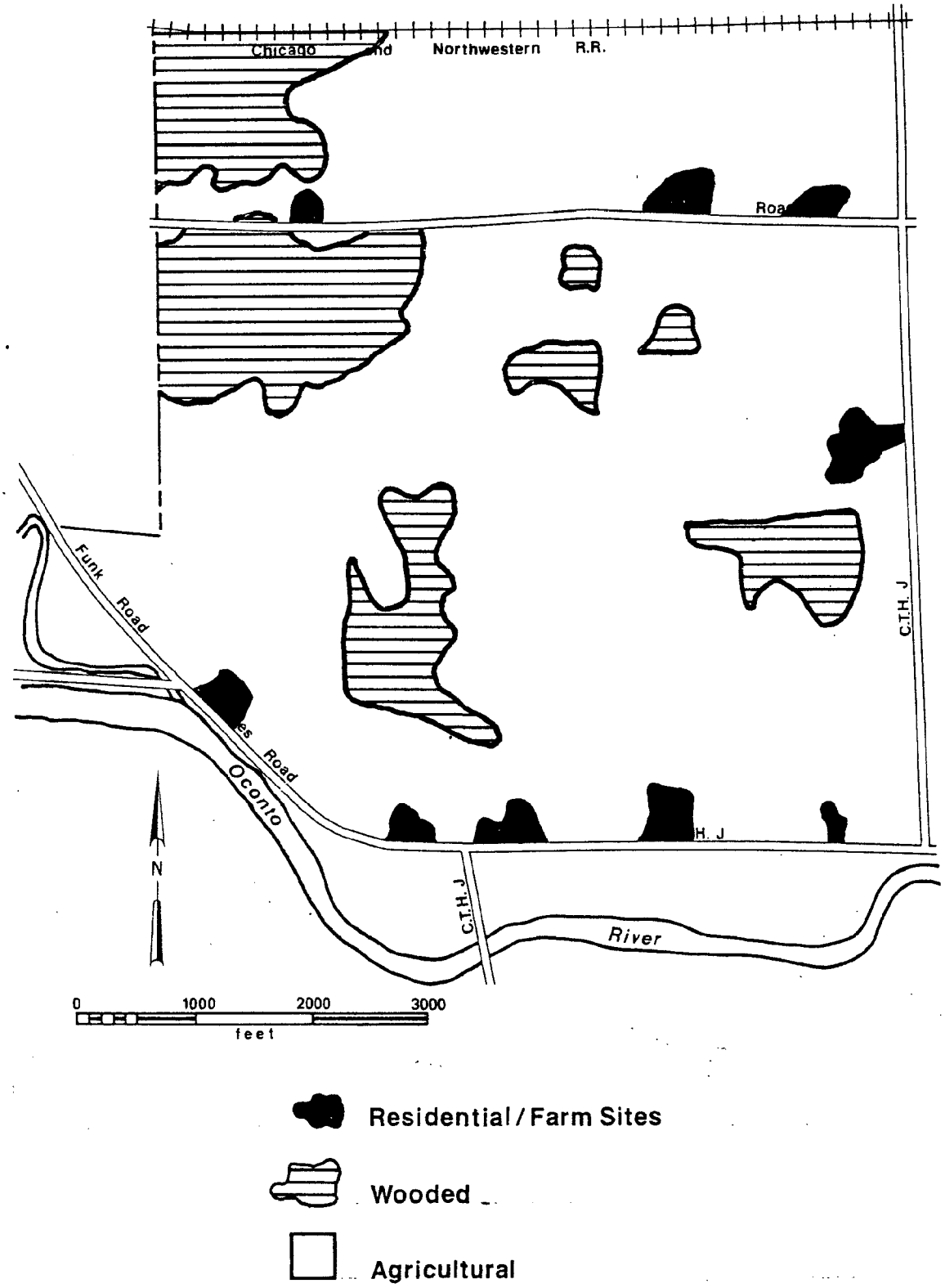
The Oconto site is located near two existing 138 kV transmission corridors. A double circuited 138 kV line is located adjacent to the west site boundary and a single 138 kV line is located about two miles north of the site. A 345 kV transmission line is being proposed, and may be located approximately 10 miles southwest of the plant. The route for this transmission line has not yet been granted approval by the Public Service Commission of Wisconsin (PSC).

Oconto County presently has a total of 143 miles of transmission line: 74 miles of 69 kV; and 69 miles of 138 kV. Map 10 shows the transmission corridors around the power plant site.

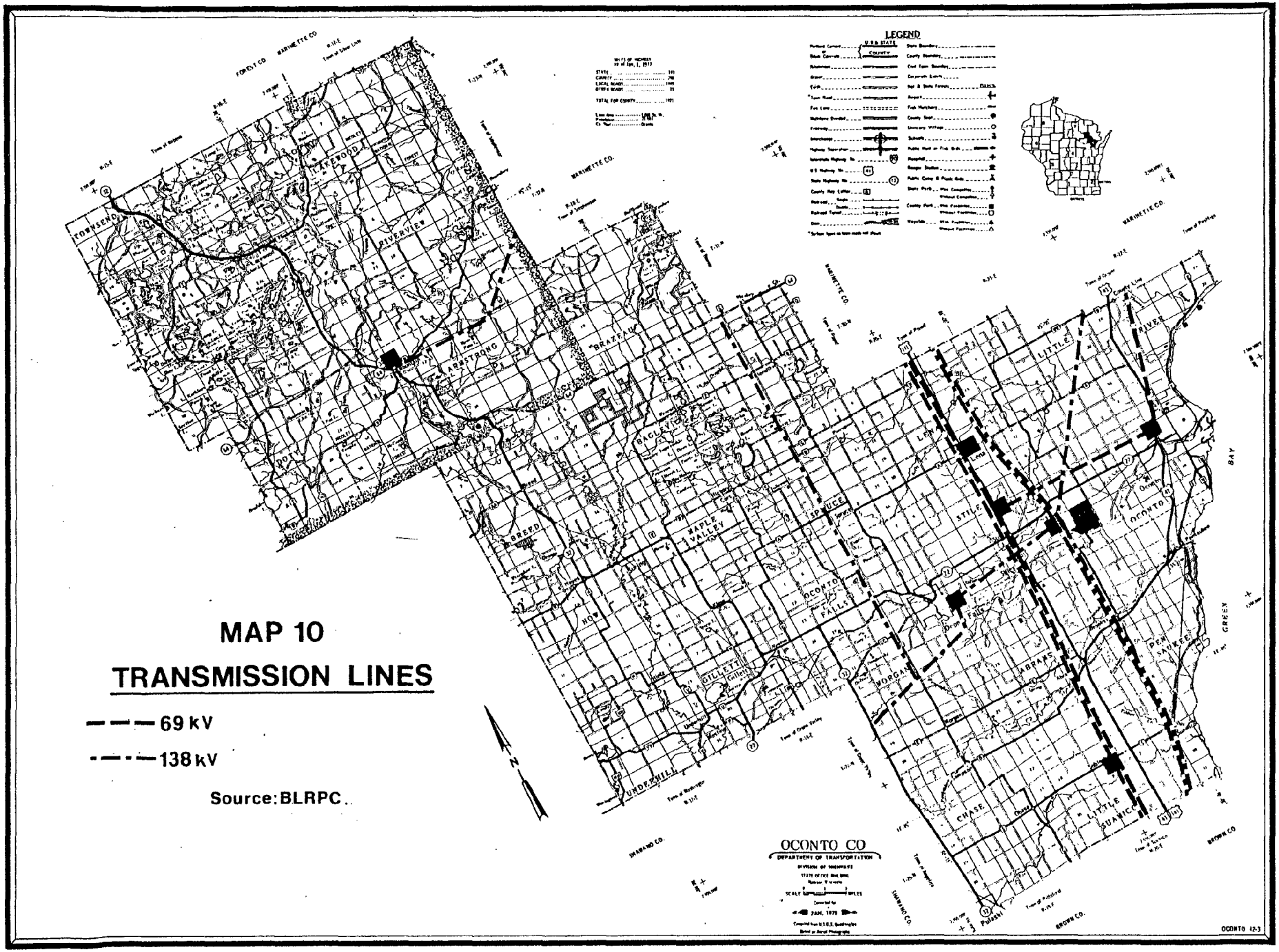
MAP 9

LAND USE

PROPOSED SITE FOR THE OCONTO COUNTY POWER PLANT



Source: BLRPC.



MAP 10

TRANSMISSION LINES

— — — 69 kV

— · — 138 kV

Source: BLRPC.

Roads

Road systems in the region of the power plant site will be heavily used by service vehicles and commuter traffic. Upgrading may be required of some stretches to accommodate the sudden surge of traffic movement the plant would bring. Roads in the area can be grouped into three functional systems, arterials (major and minor), collectors (major and minor), and locals. Characteristics:

Principal Arterials

Rural: Principal arterials serve corridor movements having trip length and travel density characteristics indicative of statewide or interstate travel demands. These corridors should include all completed portions of the Interstate Highway System, all noninterstate principal arterials, and adequate mileage to provide continuity to the uncompleted sections of the Interstate Highway System.

Minor Arterials

Rural: Minor arterials serve in conjunction with the principal arterial system, forming a rural network linking the cities and large communities within the region. These routes provide service to corridors with trip length and travel density greater than those predominantly served by rural collectors or local roads.

Collectors

Rural: 1) Major collectors connect larger towns with rural traffic generators; and also, serve the more important intracounty travel corridors. 2) Minor collectors gather traffic from local roads and bring all developed areas within a reasonable distance of a collector road. These roads also link locally important traffic generators with rural areas.

Locals

Rural: Locals provide access to adjacent land uses and service over relatively short distances as compared to high functional systems. Local roads will constitute the mileage not classified as principal arterials, minor arterials, or collector roads.

The plant site is abutted by two minor collectors. County Trunk Highway J forms the entire eastern property line, and about one-half of the southern. Only the southern portion of CTH J, however, is a minor collector. The eastern segment is classified a local. The other half of the southern boundary is Stiles Road which is also classified a minor collector. Located one-half mile to the north of the site is State Trunk Highway 22. This minor arterial links the City of Oconto with U.S. Highway 141, and beyond and is connected to the site by County Trunk Highway J. U.S. Highway 141 is located about 1½ miles to the west, and U.S. Highway 41 three miles east. Both are major arterial routes, and make the site accessable to the larger metropolitan areas of northeastern Wisconsin. All other roads in the area are classified as locals.

Railroads

Railroad service to the area is of major importance. Preliminary plans suggest that all coal shipments will come by rail, but it is not yet known how the coal would be routed. Three rail networks serve the area and could accommodate shipments from any direction. Wisconsin Public Service Corporation anticipates two or three unit trains per week.

The northbound Chicago & Northwestern (C&NW) branchline connecting Green Bay and Menominee, Michigan, runs about four miles east of the site. This line handles approximately one to five million annual gross tons. The line should be able to accommodate this additional rail movement based upon the current condition.

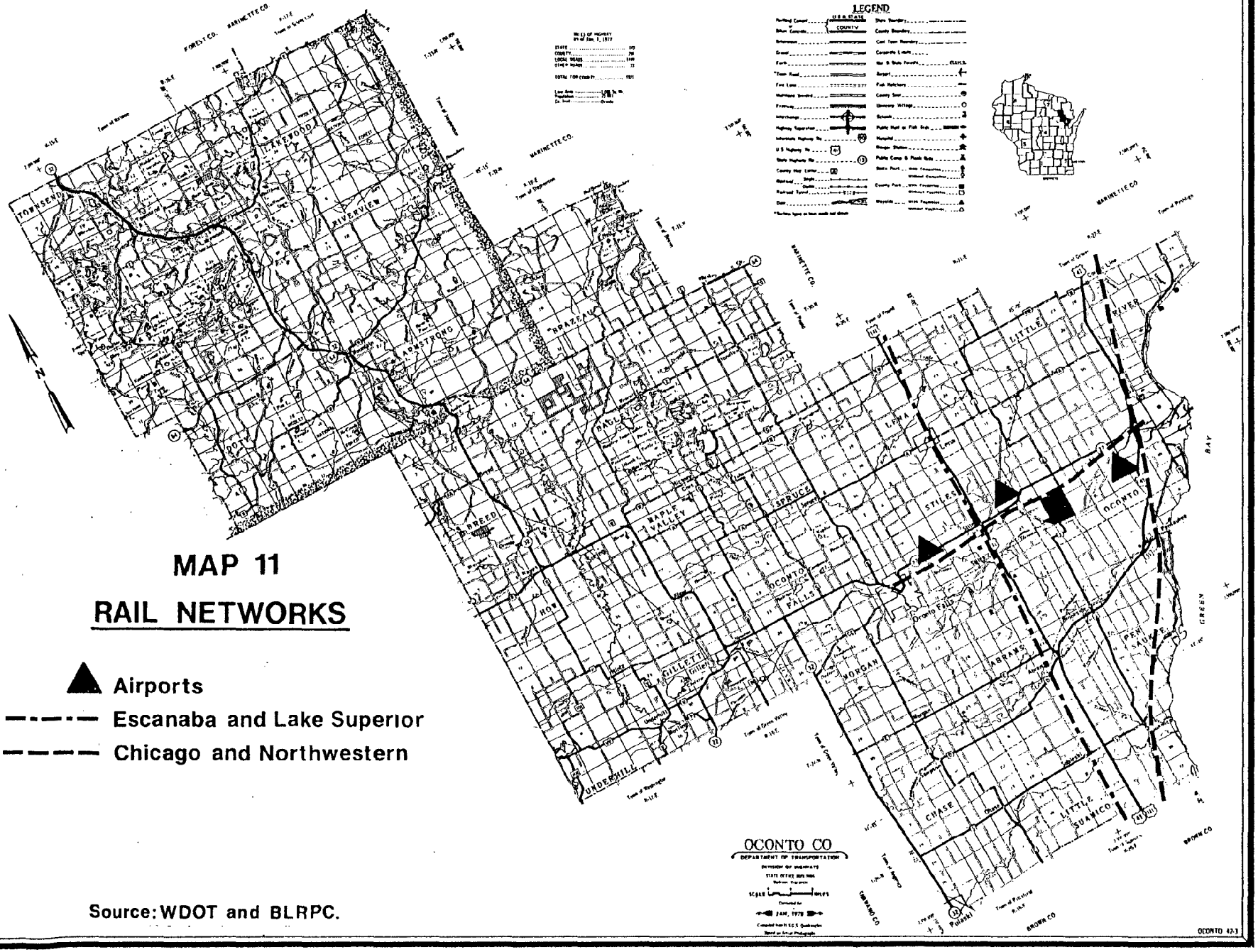
A Milwaukee Road line operated by the Escanaba and Lake Superior Railroad, connects Green Bay and Iron Mountain and runs approximately four miles west of the site. This line, like the C&NW, handles one to five million annual gross tons. The condition of this line is very poor and would require major upgrading to handle unit trains, therefore, this line is not being considered as a coal delivery route.

A Chicago and Northwestern branchline links Oconto and Oconto Falls as well as linking the C&NW and Escanaba & Lake Superior. This line also serves as the north boundary line to the site. Its current use is under one million annual gross tons, and the potential for abandonment of this stretch is real because of the expense of maintaining the line in concert with low traffic volumes. If the Oconto site is selected, this small line will almost definitely be used. Major rehabilitation of this trackage for unit train delivery would be necessary. An interchange to connect the two Chicago and Northwestern networks would have to be built as well. The C&NW branchline could make a rail change in the City of Oconto, but a connector outside the city may be preferable. Map 11 diagrams the rail networks in the area.

Airports

Three airports are located near the power plant siting. The Oconto Municipal is the only public airport, and is located about 3 miles east of the site. Nothing larger than twin engine prop planes can be facilitated here. The power plant should have no impacts on the airport other than the chimneys constituting a possible hazard to flight operations. The chimneys would, however, comply with FAA regulations.

Larson Studio, a privately owned airport, is located approximately 6 miles west. The facility is open for public use. Larson should experience no problems from the plant. A private airstrip, used only by the owner, is located about 3 miles to the northwest. Map 11 indicates airports.


LEGEND
MAP 11
RAIL NETWORKS
Airports
Escanaba and Lake Superior
Chicago and Northwestern
OCONTO CO
DEPARTMENT OF TRANSPORTATION
Source: WDOT and BLRPC.

CONSTRUCTION PHASE IMPACTS

The construction phase of a power plant project could last as long as four or five years. Peak employment will incorporate 450 to 550 persons, most from the construction trades. Most of these workers can be drawn from larger urban areas such as Green Bay and Marinette, but some must be contracted from other parts of Wisconsin. Wages for the project can be expected to compare with wage scales of other such projects around the state.

Impacts for the construction phase will be more severe than impacts from any other phase. The social environment will be impacted due to a large number of people converging into an area that was not previously structured to service such quantities of people. This phase is temporary, and requires planning to suit these temporary needs. Physical impacts will be created by heavy equipment use for clearing the site and constructing the facility. Although the DNR can place conditions in the permits required for the plant which should minimize surface erosion, dust and noise, these impacts cannot be totally prevented.

Because of the relative close proximity of large urban areas in relationship to the site, few people would be expected to relocate into the communities around the plant site. Some impacts will come from this phase to local communities, but no major change in any community service is anticipated.

SOCIAL ENVIRONMENT

Relocation of Residents

Residents whose property is acquired for a power plant will be compensated by the utility. The amount and type of compensation will be determined through bargaining between the utility and the property owners. If the negotiations fail, the case is sent to a condemnation court where a jury decides the value of the loss.

In the case of the Weston Generating Unit in Marathon County, some residents located on the site were given the choice to stay, and are currently living in their original homes. A Wisconsin Public Service Corporation (WPSC) official has, however, stated that the layout of the facility being planned will require all available land and he does not anticipate the residents in Oconto County having this choice. The residents of the nine homes located on this site would have to face probable relocation.

Work Force

During the construction period of the plant, as many as 450 to 550 people may be employed. The primary employment will consist of various construction trades, e.g. electricians, pipe fitters and boilermakers. Unless the construction site is near a major metropolitan area, most of the work force will have to be brought in from other areas. The construction trades are well coordinated, and workers are able to easily move to different locations around the state.

Oconto County has a construction work force of approximately 300. It is not likely that many of the specialized trades required for construction will come entirely from the county. However, many of the unemployed in the county may be hired for miscellaneous construction work or be given apprenticeships. See Table 5 for types of construction trades required during construction of a similar facility.

TABLE 5
PROJECTED MANPOWER
BREAKDOWN OF PEAK WORK FORCE BY TRADE

Laborers	41
Carpenters	18
Op. Engineer	21
Iron Workers	25
Boilermakers	78
Electricians	77
Pipe Fitters	64
Millwrights	20
Insulators	28
Miscellaneous	78*
	450

*Miscellaneous includes Masons, Roofers, Sheet Metal Workers, Etc.

Source: Environmental Impact Statement - Weston 3 Power Facility

The City of Marinette and the Marinette County area have a combined work force of over 14,000 workers. The City is located about 25 miles northeast of the site, within commuting distance for many potential workers. According to the 1980 "Employment by Industry Report" completed by WDILHR, only 247 construction workers live in the county. Marinette County does not have a substantial number of construction tradesmen, but may have the potential for filling miscellaneous jobs or apprenticeships. Green Bay is located 18 miles south of the site, and has a good highway system making the site accessible to the Green Bay work force. The city has over 2,200 construction tradesmen, who would be able to fill many of the specialty trades required.

LABOR RELATED IMPACTS

Housing

The communities around the Oconto site will probably not be significantly impacted by an influx of new residents, because of the site location in regards to larger urban areas. However, housing must be available to certain employment groups. For instance, special trade groups called

in from other areas of the state will require housing for several months at a time. Individual employees may choose to stay in the area during the work week and return to their homes for weekends. Other similar power plant facility projects have recorded employees living in mobile home parks near the site, occupying motels, living in vacant apartments and various other dwellings. Surrounding communities should be prepared to house employees for short, sporadic terms.

Local Services

A community that will have little inward movement should have no problems with existing services. The City of Oconto would require very little upgrading of services, because of Marinette and Green Bay being within commuting distances. Services such as housing, health care and law enforcement may be used more than others.

TRAFFIC

During the construction phase, traffic will increase substantially in the vicinity of the work area. Commuter traffic would be the largest mode in volume. An estimated peak employment of five hundred could mean a substantial increase in auto traffic each day. With the probability of large portions of the work force coming from metropolitan areas such as Marinette and Green Bay, some ridesharing by workers is anticipated.

Truck traffic will increase with the shipment of construction equipment and building materials. According to Sargent and Lundy Engineering who did a traffic analysis for the Weston 3 plant, approximately 50 deliveries would be made each day to the site by truck.

The noticable increases of this traffic would be on U.S. Highway 141 coming from the Green Bay area, and U.S. 41 from Marinette. State Highway 22 will be an approach to the site from both of these highways. The access road to the power plant will be County Trunk J, and will be the most heavily used road by plant employees and vehicles.

The C&NW line which serves as the north boundary may be used for shipping purposes during this phase. Construction equipment and building materials may bring up to two shipments per day by rail to the site. Rail movement to the plant will have to cross either U.S. Highway 41 or U.S. Highway 141, depending on route of the shipments. Rail shipments will delay automobile traffic movement at each rail crossing, but because of the uncertainty of the location of connector lines it is not known at what point on the highways the traffic will be halted.

ECONOMIC ENVIRONMENT

Employment

Additional employment created by the plant other than the construction work force is dependent on additional demand put on various sectors by the construction work force. If relocating is minor as expected, no

change in the community employment status can be expected. If additional jobs become available due to plant employees it will probably be in the retail businesses along the commuting corridors, e.g. bars, restaurants, and service stations.

Utility Shared Tax

As the structure of the utility shared tax now stands, the Town of Oconto and Oconto County will both receive $100,000 from the utility tax revenue during the first four years after the constuction phase is started. This tax is distributed to the local governments by the state to help local governments with added costs such as public services and road maintenance created by the impacts of the power plant construction. Based on past legislative actions, it is reasonable to predict that changes will occur in this tax law before construction is completed. See Table 6.

PHYSICAL ENVIRONMENT

Surface Water

The construction phase will have its impacts upon the Oconto River, however, most impacts will be relatively local to the area and short term. Suspended solids entering the river are expected to increase due to airborn particles and, unless carefully controlled, surface runoff. Another activity that could potentially be a source for sediments entering the river is the construction of the discharge structure either in the river or on the shoreline.

Noise

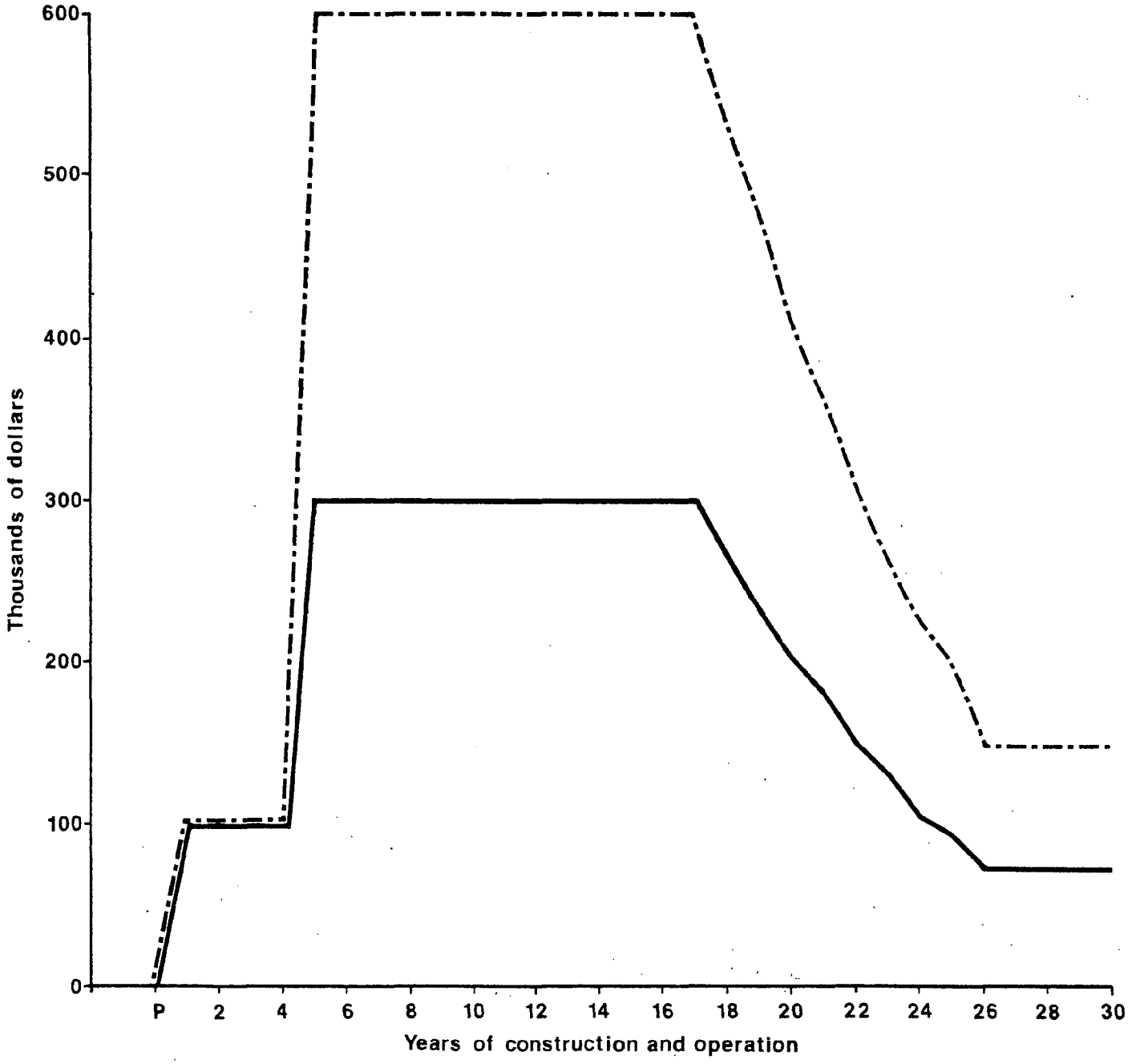
Sound levels are expected to be high during construction periods, especially during moments when many pieces of equipment operate simultaneously and at full load. The Housing and Urban Development (HUD) recommended level for external noise exposure could be exceeded. If the construction pattern of this facility is similar to the Weston 3 facility near Wausau, construction activities would be confined to daylight hours, five days a week. However, if the project begins falling behind schedule, night work would probably occur. Distance from the noise source dilutes the sound, and the rural setting minimizes the impacts on any large concentration of people. Trees and earth berms would also break up the sound, it is not known whether these types of barriers will be constructed around the plant.

Fish and Wildlife

If the Oconto site is chosen, an Environmental Impact Statement will define potential impacts to the fisheries in this particular area. The 150 acres of habitat on the proposed site will be totally destroyed due to the development of the site. As reported in the Weston Generating

Table 6

UTILITY SHARED TAX PAYMENT



——— Amount paid to Town

—·—·— Amount paid to County

P Pre-engineering costs prior to construction; no money returned to Town or to County

(These payments are due to ad valorem taxes on one 400 megawatt power plant)Sandberg,1979

SOURCE: Peter Zieman. Selected Social and Economical Impacts of Power Plants.

Stations EIS, the emigration of medium to large sized mammals to other areas would cause increased densities and stresses in other areas. Nearly complete destruction of mammals now inhabiting the site such as rabbits, ground squirrels, and mice is expected. Birds are more mobile and will not be destroyed, however, habitat changes will affect birds.

Impacts on surrounding habitat, due to the noise and the dust, may be as severe as the inmigration of displaced mammals. A comprehensive study of the surrounding areas environment and characteristics must be completed before impacts can be positively identified. The EIS would incorporate all of the necessary information about the areas habitat.

OPERATION PHASE IMPACTS

The operation phase of the power plant is expected to last for thirty or more years. The seventy employment positions required for the operation and maintenance of the facility will be permanent. Impacts of this small influx will be much more easily handled because of the long term effects a community will be faced with.

Thermal impacts will be minor. Major physical impacts would include emissions from coal combustion (including acid rain precursors), chemical discharges to surface waters (e.g., from blowdown, or chemicals used to remove deposits from piping and other parts of the plant), effects of solid waste disposal (e.g., leachate, limitations on types of uses the disposal site could be put to after the power plant is dismantled), and, if a surface water intake is used, it is possible that aquatic organisms would be absorbed into the system with the water.

When the plant is retired it has been the practice of utilities to disassemble the facility, remove it and prepare the site for a new land use.

SOCIAL ENVIRONMENT

Transmission Lines

This site has a double circuited 138 kV line running adjacent to the western boundary. If this line is used for distributing the power to the service area, no additional acquisitions for power line right-of-way (r-o-w) easements would be necessary. A 345 kV transmission line has, however, been proposed that would be located approximately 10 miles away. It is likely that this line would be used. In this case, new easements would have to be purchased between the power plant and existing power lines that will complete the transfer of electricity. This information will be more attainable after the site is chosen and studies performed.

Transportation

Coal movement within the region is uncertain at this time because of the number of possible routes available for bringing in coal. As mentioned in a previous section, the Oconto site has access to three different rail lines, and can facilitate coal shipments from any direction.

If shipments come from the west on the Soo Line across the northern tier of the state, the choice would be to interchange in Pembine with the Escanaba & Lake Superior, or continue on the Soo Line to Powers, Michigan and then south on the Chicago & Northwestern.

Shipments could also come via the Green Bay & Western from the Burlington Northern and be brought directly into Green Bay. If this line is used it is not certain which of the two north bound lines would be used. Any shipments coming from the Chicago area or southern parts of the state would be shipped by the Chicago & Northwestern Line and would not switch lines enroute to the site.

Local rail traffic will affect highway movement regardless of the rail line used. The Escanaba & Lake Superior line would stop traffic on U.S. 141 in the area of Stiles Junction. Chicago & Northwestern would interfere with U.S. 41 traffic in the City of Oconto. Any movement coming from the south will be routed through the City of Green Bay, and possibly other major urban areas along Lake Winnebago and the Fox River. The expected frequency of coal train movement to the power plant would be about two per week. Map 12 shows possible coal routes to the site.

Employment

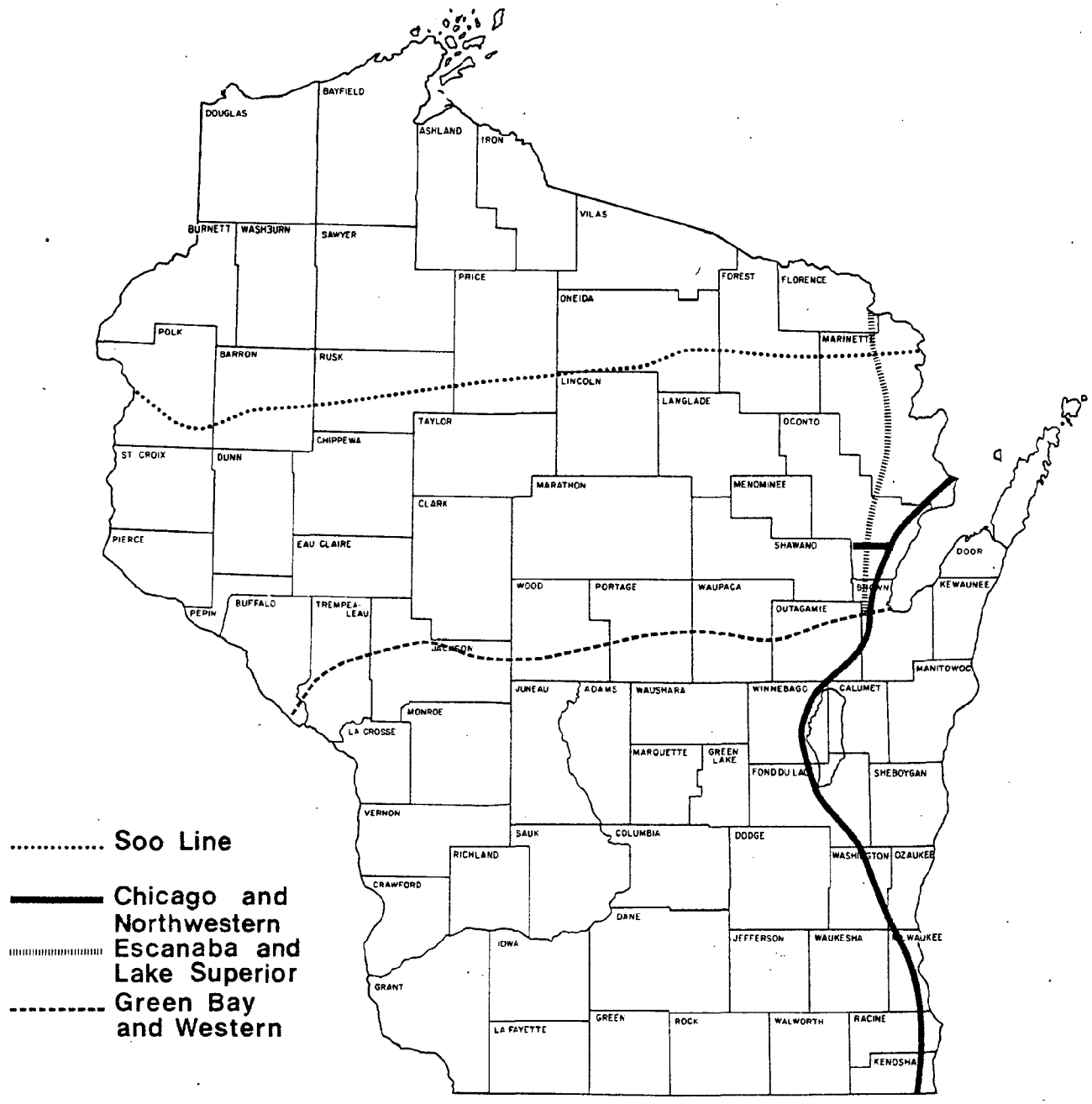
The power plant in the operational phase will employ approximately seventy people. Most of these positions are highly technical or administrative and will first be offered to WPSC personnel located in other areas. It is then conceivable that few openings will be available to county residents. The multiplier effect created by the influx of seventy new residents will cause a small boost to the local economy. One source estimates 48 additional jobs will be created from this inmigration. Table 7 lists the type of additional employment that can be expected from the power plant project.

TABLE 7
EMPLOYMENT CHANGES TO SERVE
70 NEW INDUSTRIAL WORKERS AND THEIR FAMILIES

	Number of People
Wholesale and Retail Trade	15
Construction	2
Professional and Related Services	12
Transportation, Communication, and Other Public Utilities	8
Business and Personal Services	4
Finance, Insurance, and Real Estate	4
Industry not Reported	3
TOTAL	48

Source: Economic Analysis and Study, What New Jobs Mean to a Community; Washington, D.C., Chamber of Commerce of the U.S., 1973, and Environmental Impact Statement - Weston 3 Power Facility.

MAP 12
POTENTIAL COAL ROUTES FROM THE WEST



Source: WDOT.

ECONOMIC ENVIRONMENT

Utility Tax

As the tax laws now stand, the Wisconsin Public Service Corporation pays special utility taxes to the state which in return would redistribute the money to the Town of Oconto and the county. The purpose of this tax is to help communities to offset additional costs that the facility imposes. When the plant starts operating, the payments will begin at the maximum rate of $300,000 per year to the Town of Oconto and $600,000 per year to the County. As the plant depreciates, the tax payments will decline. Payments to the town and county should not decline below $300,000 and $600,000 respectively until the plant is about twenty years old. Then payments will decrease over time to a minimum level of $75,000 yearly to the town and $150,000 to the county. See Table 6. Again, this description is based on the present utility shared tax law. It is reasonable to expect changes in the law between now and the 1992 plant start-up date.

Community Services

A large influx of people into a single community is not expected because of the central location of the site. If this holds true, no major revisions in community services will be necessary on account of the facility location.

PHYSICAL ENVIRONMENT

Land Uses

Land use on the site other than plant facilities differ at each plant. Many utilities absorb all available land on the site and no other use occurs. But some utilities plan for parcels to be used in a recreational, agricultural or open space modes. Residents are sometimes allowed to continue living in their homes if they are not obstructing operations. According to a WPSC Representative, this is not expected to to be the case in Oconto. The layout of the facility will not allow the present occupants to remain.

Power plants located in more developed areas often attract other industrial growth to the immediate area. Frequently, agricultural or open space is replaced by the industrial growth around the plant.

Water Quality

At a power plant site both surface and ground water sources are potentially threatened by plant operations. Ground water could potentially be affected by leaching of the solid waste disposal area. Although a clay liner is installed to prevent the seeping of these products, some seepage will occur. The site is designed to keep infiltration at a minimum, and natural processes of the soil should remove impurities in leachate before it would do harm to surrounding domestic wells. Another potential impact upon groundwater is the effects that high capacity wells will have on the quality and quantity of the aquifer.

One concern to surface water is the thermal effects. Discharge from the cooling process is a warmer water than the temperatures of the river. The Wisconsin Administrative Code, Section NR 102.02 contains the standards for thermal discharge.

> "The maximum temperature rise at the edge of the mixing zone above the existing natural temperature shall not exceed 5^{o} F for streams."

Other potential surface water impacts that the DNR is concerned with are runoff or surface seep from the solid waste landfill, chemical discharges and stream flow volumes.

Air Quality

One of the major impacts associated with coal fired power plants is the emission of atmospheric pollutants. The three pollutants that are most associated with these power plants are particulate matter, sulfur oxides and nitrogen oxides. These three pollutants are the most heavily regulated and widely studied pollutants generated by coal fueled power plants. Some of the information used in the following air pollution impact analysis came from such sources as: Energy in Americas Future; Wisconsin Natural Resources, May-June 1980; Activities, Effects and Impacts of the Coal Cycle for a 1000-MW Electric Power Generating Plant; National Geographic, November 1981; and Energy Facility Impacts.

In 1975 the electric utility industry accounted for 20% of all particulate matter in the United States, according to the U.S. Nuclear Regulatory Commission in the report, Activities, Effects and Impacts of the Coal Cycle for a 1000-MW Electric Power Generating Plant. Nearly 99% of this matter can be collected through current technologies used in todays generating facilities. The one percent that is not collected, however, are the fine particulates. Recent studies show that these fine particulates commonly have such trace metals as arsenic, cadmium, manganese, mercury, nickel and vanadium. Many of these elements are toxic and may have long term effects. Some effects associated with particulate emissions are:

- Toxic materials carried into the respiratory tract.
- Reduction of direct sunlight.
- Reduced visibility.
- Interference with plant physiology.
- Adverse effects on animals that have ingested particulate covered plants.

Power plants account for 28% of all nitrogen oxides (NO_x) emitted in the United States. Most of the NO_x produced from the combustion of coal is nitric oxide (NO) and nitrogen dioxide (NO_2). Nitric oxide is not generally a threat to human health or the environment, however, it can be converted to NO_2 which can be a threat. Some effects of nitrogen dioxide upon the environment include:

- Levels above 100 ppm are lethal to most animals.

- Repeated exposure in sub-lethal doses has resulted in early pulminary emphysema-type lesions in experimental animals.

- NO_2 may have a significant role in chronic lung disease, corrosion damage and reducing the yield of selected crops.

- NO_2 is a possible cause of acid rain.

Over 64% of the sulfur oxides (SO_x) emitted in this country comes from the electric utility industry. The main element of SO_x formed during the combustion of coal is sulfur dioxide (SO_2). Sulfur dioxide is the major environmental concern associated with burning coal to generate electricity. In general, SO_2 is not a major health or environmental problem. It is only after SO_2 is emitted into the atmosphere and various chemical reactions takes place, that it is capable of environmental damage. When SO_2 is emitted into the atmosphere a part of it oxidizes, forming sulfuric acid. Some of the effects that SO_2 can have on human health and the natural environment include:

- Severe respiratory reactions

- Chronic obstructive lung disease

- Probable impacts on the yields and growth of selected crops

- Possible cause of acid rain

Acid rain may be one of the most significant environmental problems of the 1980's. This phenomenon occurs when the oxides of sulfur and nitrogen mix with atmospheric water vapor creating sulfuric and nitric acids. Much is yet to be learned about acid rain and its impacts upon human health and the natural environment. Aquatic environments are the most sensitive to increased levels of acid, but acid rain is also suspected to threaten: forests, crops, soils, wildlife, groundwater and possibly human health. The Clean Air Act has been the major tool used in controlling air pollution by new pollution sources by establishing emission standards. To comply with these standards the plant will be constructed with modern technologies. Many of the impacts associated with older coal fired power plants have been eliminated.

SUMMARY

The Oconto site is one of three sites selected by Wisconsin Public Service Corporation as a potential site for a coal fired power plant. Certain criteria had to be met to be considered for the housing of a facility such as this. The physical features of the area such as bedrock, soils and water availability are essential for plant operations. These features often are not exact but must be able to be altered. For example, the lack of clay on site for a solid waste disposal landfill is only a minor drawback because the clay can be brought in from a location within fifteen miles away. Natural features such as fish and wildlife have no actual bearing on the construction or operation of the plant, but are an important consideration for the siting of the plant. As stated, special studies, including the Environmental Impact Statement, will be required to fully assess the impact on fisheries. The small wildlife on site will probably be destroyed with impacts reaching habitats outside of the project boundaries as well.

For economic reasons, the Oconto site may be a favorable choice over the Town of Lawrence site. The additional revenues from utility taxes (based on the present law) and increased employment could ease the current problems the county is encountering. The wage structures for plant employees will be at a level of other similar projects in the state. The operation phase of the facility will require seventy employees. Regardless of whether the work force comes from the Oconto area or from out of the area, new revenues will be created for local units of government.

Utility taxes will contribute $200,000 per year within the county the first four years, and approximately $900,000 for possibly the next twenty years. The tax will continue as long as the power plant exists but will decrease to a minimum of $225,000 with the depreciation of the plant. These revenues should help to improve community services and create new jobs.

The community services, as stated, should not be largely impacted by the placement of the power plant because the work force probably will commute from larger cities in the area during the construction phase and a relatively small inmigration of people to any one location might be expected during the operation phase. However, for the most part, the City of Oconto has sufficient services to handle small increases in demand.

Transportation networks in the area are basically well located. Relatively good roads connect the site to surrounding areas. Some upgrading may be necessary but no major rehabilitation will be required for roads. Railroads, too, are located as to make the site available to any point in the state. However, the small Chicago & Northwestern line making up the north boundary is subject to abandonment. This line could be upgraded if necessary. Connector lines would probably be built to connect this small C&NW line with a north-south bound line, for easy access for the estimated two unit train per week movement. Regardless of the route into the site by rail, there will be a traffic stoppage on either U.S. Highway 41 near the City of Oconto or on U.S. Highway 141 within the Town of Stiles.

The construction phase is expected to last as long as four years. At peak employment it is estimated that between 450 and 550 people will be employed. Because of the need of a large number of skilled tradesmen in the construction field, all areas within commuting range will benefit from the employment opportunities, as well as some tradesmen from other areas of the state.

Some people will be relocated due to the need of their properties. These people will be compensated at fair market value and will be assisted in this relocating. It is not likely that any of the residents of the site will have the choice of remaining in their current home.

The construction phase will have harsh impacts upon the physical environment. The noise, dust, and construction traffic will be a constant problem. Noise and dust may have an effect upon wildlife habitats in the area as well. This phase will also be aesthetically unpleasant for the people who live or travel near the site. Overall, the impacts may be quite significant during construction, but they are temporary.

The operation phase is expected to last for at least thirty years and to employ approximately seventy people during this period. Impacts will be less potent during this phase for several reasons. First, the community can plan and make appropriate changes because it is a long range effect. Secondly, though, it does have aesthetic and physical impacts, it is in the most part minor compared to the construction phase.

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